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Networks in the Norm Life Cycle and the Diffusion of Environmental Norms

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Networks in the Norm Life Cycle and the Diffusion of Environmental Norms

by

James E. Fry

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Government
with a concentration in International Relations
School of Interdisciplinary Global Studies
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List of Acronyms

ACA - Affordable Care Act

ACESA - American Clean Energy and Security Act

AMA - American Municipal Association

BTU - British Thermal Unit

ARB – (California) Air Resources Board

CCAR - California Climate Action Registry

CCPC – Cities for Climate Protection Campaign

CEPA - Canadian Environmental Protection Act

CFCAS - Canadian Foundation for Climate and Atmospheric Sciences

CFMM - Canadian Federation of Mayors and Municipalities

CID - Center for Innovative Diplomacy

GCCI - Global Climate Change Initiative

CCPC - Cities for Climate Protection Campaign

CACP - Clean Air and Climate Protection

CPP - Clean Power Plan

COP - Conference of Parties

CLRTAP - Convention on Long-Range Transboundary Air Pollution

DOE - Department of Energy

EHA - Event History Analysis

EPA - Environmental Protection Agency

ETS - Emissions Trading Systems

FCM - Federation of Canadian Municipalities

GHGs - Greenhouse Gases

GGPPA - Greenhouse Gas Pollution Pricing Act

GCCI - Global Climate Change Initiative

GEMS - Global Environmental Monitoring System

GST - Goods and Services Tax

GDP - Gross Domestic Product

HFCs - Hydrofluorocarbons

IGOs - Intergovernmental Organizations

ICLEI - International Council for Local Environmental Initiatives

LEO -Local Elected Officials Project

LEOSR - Local Elected Officials for Social Responsibility

LGCR - Local Government Climate Roadmap

MCPA - Mayor's Climate Protection Agreement

MOP - Meeting of Parties

NASA - National Aeronautical and Space Administration

NCCP - Nation Climate Change Process

NERA - National Economic Research Associates

NEPDG - National Energy Policy Development Group

NLC - National League of Cities

NOAA - National Oceanic and Atmospheric Administration

NSR - New Source Review

NTREE - National Roundtable on the Environment and the Economy

NGO - Non-governmental Organization

ODS - Ozone-depleting substances

PCFCGCC - Pan-Canadian Framework on Clean Growth and Climate Change

PEARL - Polar Environment Atmospheric Research Laboratory

RNC - Republican National Convention

TMPS - Trans Mountain Pipeline System

TMCN - Transnational Municipal Climate Networks

TMN - Transnational Municipal Network

UNEP - United Nations Environment Programme

UNFCCC - United Nations Framework Convention on Climate Change

UCM - Union of Canadian Municipalities

VIF - Variance Inflation Factor

WCED - World Commission on Environment and Development

WCS - World Conservation Strategy

Abstract

In this research, I analyze how Transnational Municipal Networks (TMNs) and cities affect the diffusion and transmission of a decarbonization norm. Urban policy and political science scholars assert that cities and their networks are influential in implementing internationally coordinated environmental policy. However, few projects have analyzed how local actors may diffuse environmental norms that have been developed in the international system. Using the norm life cycle, this research explores the transmission of a decarbonization norm by means of GHG measurement and mitigation. I identify two critical objectives associated with a decarbonization norm: establishing a system for monitoring GHG emissions and developing action plans to reduce emissions. These two components of decarbonization are also viewed as indicators of norm leadership, which applies to all levels of governance. The International Council for Local Environmental Initiatives (ICLEI) is a transnational municipal network (TMN) that facilitates networking between cities, communication between the transnational and local levels, and the development of local responses to climate change. To analyze the influence of ICLEI on the local environmental policy of cities, I used a logistic regression analysis to explore three time periods (1991-2002, 2003-2010, and 2011-2018). The findings of the analysis support my hypothesis that both cities and their networks play a significant role in the diffusion of a decarbonization norm. TMNs, like ICLEI, supply technical assistance that guides policy and provides a platform for local leaders to act transnationally. Cities are more likely to adopt decarbonization objectives if they obtain ICLEI services or

membership. Furthermore, through the results of my analysis, I provide evidence that cities in the United States and Canada acted first as norm entrepreneurs, and then as norm leaders by creating systems for monitoring and mitigating GHG emissions.

Introduction

In June of 2017, the Trump administration announced the United States' withdrawal from the Paris Agreement. The Paris Agreement, which was agreed to by all of the 195 countries in attendance during the United Nations Climate Change Conference in 2015, added to the work of the United Nations Framework Convention on Climate Change (UNFCCC). This environmental agreement was the most ambitious international environmental endeavor since Agenda 21 and the UNFCCC, both of which emerged from the United Nations Conference on Environment and Development, also known as the Rio Summit, in 1992. Citing research from the National Economic Research Associates (NERA), President Trump claimed the agreement put the United States at an economic disadvantage that "could cost America as much as 2.7 million jobs."¹ Trump noted that the impact of job loss would fall squarely on sectors connected to paper production, oil, natural gas, and coal.²

The Paris Climate Agreement was only the beginning of an environmental protection policy rollback by the Trump Administration. Shortly after taking office, Trump released a budget that severely cut funding to the Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA), and the National Aeronautical and Space Administration (NASA), all of which have critical responsibilities in monitoring and acting on

¹ Trump, Donald. "Statement by President Trump on the Paris climate accord." *The White House* (2017).

² It needs to be acknowledged that these figures are disputed by a multitude of sources that highlight a pattern of job loss in these sectors that pre-dates the Paris Agreement; Trevor Houser, Jason Bordoff, and Peter Marsters. "Can coal make a comeback?" Center on Global Energy Policy (2017); Additionally, NERA disputed the ways in which the Trump Administration used their research, stating that the study itself was not a cost-benefit analysis. The NERA also stated that Trump's use of their figures "mischaracterizes the purpose of the NERA study"; The National Economic Research Associates. *NERA Economic Consulting's Study of US Emissions Reduction Policies: Statement of Facts*. NERA Press Release, (4 June. 2017).

environmental issues.³ The Administration also issued multiple executive orders reversing environmental protections from previous governments, including the granting of land permits for the Keystone XL pipeline, lifting a moratorium on coal leases on federal land, and dropping climate change as a national security threat via the Department of Defense. In October of 2019, a panel of judges from the D.C. Circuit Court ruled that the EPA did not meet its minimum requirements for limiting cross-state air pollutants. The panel ordered the EPA to develop and present new plans on how to address smog issues that cross state boundaries.⁴ This incident was not the first time, or the last time, the federal leadership of the United States announced withdrawal or non-compliance in the face of an international environmental agreement.

In 2001, the Bush Administration announced the United States would not participate in the Kyoto Protocols, which extended critical elements of the UNFCCC and committed nation states to reduce six types of greenhouse gases (GHGs). President Bush argued that Kyoto was “fatally flawed” and set unrealistic expectations of GHG reduction that favored developing economic markets over industrialized states.⁵ Since the ratification of Kyoto in 2005, other important state actors withdrew from the international environmental agreement citing economic fears and ideological concerns.

In 2011, Canada announced its withdrawal from Kyoto, which came as little surprise to nation states and Intergovernmental Organizations (IGOs) engaged in climate negotiations. Canada’s Prime Minister Stephen Harper ordered the government not to comply with Kyoto following the Conservative Party’s takeover of Parliament in 2006. The official Canadian

³ Office of Management and Budget. *Fiscal year 2019 efficient, effective, accountable: An American budget*. Government Publishing Office. (2018)

⁴ D.C. Circuit Court. *State of New York v. EPA*, No. 17-1273. October 1, 2019.

⁵ The White House, *President Bush Discusses Global Climate Change*, Office of the Press Secretary. (June 11, 2001).

government reason for abandoning the Kyoto Protocol in 2011 was the economic burden of reining in tar sands oil projects in which the country was involved. As early as 2002 Harper, then a member of the Canadian Alliance party, urged his party supporters to resist the Kyoto Protocol, labeling it as “a socialist scheme to suck money out of wealth-producing nations.”⁶ As Prime Minister, Harper stressed the need for Canada to improve its economy and work on environmental programs without the international community.

As central governments were ordered by their leadership to halt efforts to create international environmental standards in the form of GHG emission reduction, subnational governments became a viable force in localizing these international goals. In the United States, state governments and cities have been a progressive force implementing international environmental standards of governance to the subnational level. In June of 2018, New York State agreed to pass legislation that would require the state to cut their GHG emissions by 85% from 2018 to 2050.⁷ The plan calls for a further reduction of the remaining 15% of GHGs by removing carbon from the atmosphere. New York State has also been active in pursuing legal action against the EPA, which has blocked environmental cleanup efforts and legislation connected to smog reduction.⁸

As New York State became more serious about its environmental responsibilities and action, New York City has an established reoccurring GHG inventory and climate action plan that has helped to cut around 7-8% of GHG emissions since 1990. These two subnational governments have continued to advance environmental and climate change policy, beyond the

⁶ Bourrie, Mark. *Kill the Messengers: Stephen Harper's Assault on Your Right to Know*. (Canada: HarperCollins Canada, 2015).

⁷ McKinley, Jesse; Plumer, Brad. “New York to Approve One of the World’s Most Ambitious Climate Plans,” *New York Times*, June 18, 2019.

⁸ Office of the Governor of New York State. “Statement from Governor Andrew M. Cuomo on the EPA’s Proposed Rejection of New York’s Petition on Interstate Smog Pollution,” Office of the Governor of New York State. (May. 9, 2019)

expressed goals of their federal government. The efforts of local and state governments highlight a larger pattern of action that align more with international environmental norms rather than the norms promoted by their own central government.

In recent decades scholars have sought to understand the growing role of subnational units and international networks in international relations. Cities are engines of manufacturing, nodes of trade globally, and sites of immense pollution. While the role of nation states and international organizations in the creation and diffusion of environmental norms and policy has been the subject of many studies, few research projects analyze the role of cities in environmental policy creation and norm diffusion. The topic of this research is the role cities and their networks play in the diffusion of a decarbonization norm aimed at improving air quality through Greenhouse Gas (GHG) mitigation policy.

Research Question

The research questions are: are members of TMNs, more specifically members of ICLEI, more likely to diffuse ICLEI-promoted decarbonization norms than non-member cities? Are those cities that receive technical assistance from ICLEI more likely to diffuse a decarbonization norm than those cities that do not utilize ICLEI programs or products? My project will utilize Constructivist theory in international relations to explain the importance of supra and subnational actors who develop and diffuse environmental governance norms. I will also utilize literature on multilevel governance and the role of cities in environmental policy diffusion. By analyzing three periods of time (1991-2002, 2003-2010, 2011-2018), I will determine if TMN membership influences the environmental policy action of cities. The analysis also assesses whether or not cities are norm leaders in the diffusion of a decarbonization norm.

Significance of Research

The significance of this research is twofold. First, the results will contribute to a more nuanced understanding of urban environmental policy and how subnational levels of governance contribute to environmental policy outcomes. Second, this research will determine the relevance of one variant of constructivist theory in international relations. Constructivist research has alluded to the impact of subnational actors. However, it has yet to fully illuminate the role of these actors in the diffusion of global air quality norms and GHG mitigation strategies, specifically decarbonization. As the statistical analysis of this dissertation measures the impact of TMNs across time, there is an opportunity to identify patterns of norm diffusion stages within the life cycle of norms.

Research Outline

The dissertation is separated into five chapters. In Chapter 1, I examine the participation of nation states and IGOs in environmental conferences. Specifically, I discuss when nations states recognized a problem with air quality and began to develop international air quality standards. In the 1990s, attendance in international environmental conferences was expanded to include non-governmental organizations (NGOs) and local authorities. This section highlights an emerging concern at the international level about air quality and the development of strategies to address the problem.

In the next section, I trace the history of inter-urban governmental networks concentrating on cities in the United States and Canada. Traditionally, domestic municipal networks were primarily concerned with local and regional issues. Groups like LEOSR and the LEO project introduced international issues into the platforms of these networks. As local

authorities began to pursue international environmental issues, LEO project leadership was approached by the UNEP to help develop a transnational network of municipalities. In the following section, I discuss ICLEI as a product of these early networked environmental efforts.

ICLEI is a TMN that engages with environmental issues and sustainability. ICLEI formed out of a UNEP-organized conference of local elected officials to create an international network of cities and frameworks for local action. Cities and their networks began to engage with international environmental conferences at the Rio Summit in 1992. Subsequently, ICLEI has lobbied for the inclusion of local authorities in international environmental conferences, and it has created blueprints for local action derived from international standards. Because of this work, the Conference of Parties (COPs) has recognized local authorities as government stakeholders within international climate regimes. This change in recognition highlights the impact of ICLEI in the progression of cities and their networks from advocate to leader in environmental issues.

In the final section, I highlight the support and opposition to national environmental policy development in the United States and Canada from 1991-2018. I provide a background to the leadership of the central governments of Canada and the United States developing or disengaging from national environmental programs to reduce GHG emissions. This section shows how some American administration and Canadian governments attempted to develop environmental policy that reflected a commitment to international environmental agreements, and how some leaders sought to move their country away from those agreements. Additionally, I provide a brief account of anti-Agenda 21 groups and their impact on the work of local climate change projects in the United States. These groups are motivated by conspiracy theories and disinformation campaigns that have impacted public perception about the motivations of local

sustainability projects. The backlash has threatened local sustainability programs and decreased membership in ICLEI in the United States. Furthermore, the actions of anti-Agenda 21 groups illuminate the disincentives of ICLEI membership and the pursuit of local environmental initiatives for cities.

Chapter 2 looks to literature that helps to explain the role of TMNs and cities in the diffusion of environmental norms and policies. Additionally, this chapter focuses on theories that decenter the nation state by emphasizing the role of subnational and supranational actors. In order to structure this research, I utilize a multilevel governance approach and constructivist theory. Literature on multilevel governance provides a framework for understanding the coordination of policy and interactions across multiple levels of governments. The addition of research on TMNs in this chapter helps to illustrate the inclusion of municipal networks into a multilevel governance framework, but also reveals the internal and outward organization of these networks. Constructivism emphasizes the ideational structures and norms that shape the perspectives of actors engaged in governance. Within constructivism, the norm life cycle offers a way to chart the progress of actors involved in the process of norm promotion, diffusion, and leadership. I apply the norm life cycle to strategies of decarbonization in order to clarify the role of cities and TMNs in the diffusion of international environmental norms.

Chapter 3 begins with a description of the research design, presentation of the hypothesis, and procedures for analysis. The research design frames the time periods used for analysis and discusses the logistic regression model. A short section on procedures for analysis includes the identification of issues I encountered when designing the model utilized over the three time periods for this research. This section also examines other methods that could be used for this research. Additionally, Chapter 3 includes a section that explains the data collection methods and

sources. The final section of this chapter deals with the conceptualization and operationalization of the variables used in the analysis for this research.

Chapter 4 begins with a restatement of the research question and hypothesis. Then, an analysis spans three time periods (1991-2002, 2003-2010, 2011-2018) for the models ICLEI membership and ICLEI technical assistance. The results of each analysis will be explained across all time periods.

Chapter 5 discusses the findings of this research and answers the research questions. The final chapter ends with the implications of the findings and possibilities for future research.

Chapter 1: Historical Background

State and Global Environmental Governance: 1970s-1997

During the 1960s and 1970s, growing environmental concerns triggered the organization of assemblies and conferences of nation states at the international level to promote the protection of future environmental resources. Scientists concerned with issues leading to the acidification of waterways brought international attention to the issue. Svante Oden, a Swedish scientist, garnered attention when he published an article based on his research in the Swedish newspaper *Dagens Nyheter*.⁹ The article was titled, “An Insidious Warfare Among the Nations of Europe”.¹⁰ His research provided evidence that pollution from Great Britain and continental Europe were the main contributors to the acidification of waterways, which led to aquatic animal die-offs in Sweden.¹¹ These events prompted Sweden’s Permanent Representative to the United Nations (U.N.) to issue a request to put on the agenda of the Economic and Social Council, “the question of convening an international conference on the problems of the human environment.”¹² This request from the Swedish government highlighted a growing concern among some governments about the deteriorating quality of air and water that appeared to coincide with the rising pattern of sulfur dioxide emissions from industrial activity.

⁹ Grennfelt, Peringe, Anna Engleryd, Martin Forsius, Øystein Hov, Henning Rodhe, and Ellis Cowling. "Acid rain and air pollution: 50 years of progress in environmental science and policy." *Ambio* (2019): 1-16.

¹⁰ Grennfelt et al., “Acid rain and air pollution,” 3.

¹¹ Jacks, G., G. Knutsson, L. Maxe, and A. Fylkner. "Effect of acid rain on soil and groundwater in Sweden." In *Pollutants in porous media*, (1984) , 94-114.

¹² United Nations General Assembly. *Twenty-Fourth Session: Official Record*. UN General Assembly (E/4466/Add.1), (1969).

The request from the Swedish government on the question of the human environment helped to initiate the first international conference on the environment, which included ideas that would come to characterize the concept of sustainability. This conference was facilitated by the U.N. in 1972. The United Nations Conference on the Human Environment, also known as the Stockholm Conference, brought together nations, developing and industrialized, to define the “rights” of human beings as they relate to the environment and social justice.¹³ A focus on the intersection of nature and humanity led to declarations on the rights of individuals to potable water, safe housing, and the creation of strategies to combat environmental degradation.

Action plans and strategy recommendations from the Stockholm Conference called for the organization of domestic and international resources to provide an evaluation of environmental conditions.¹⁴ Other recommendations called for nation states to address problems in marine and air pollution by working through sub-national actors (i.e., local, regional programs of action).¹⁵ The Stockholm Conference also provided the framework for environmental ministries in member states and new U.N. agencies.

The United Nations Environment Programme (UNEP), a specialized agency within the U.N., emerged from the non-binding agreements between nation states at the Stockholm Conference.¹⁶ The organization established a voluntary environmental fund to pursue programs initiated by the U.N. While the UNEP was created to provide developing countries assistance in

¹³ United Nations. “Declaration of the United Nations conference on human environment,” (1972) <http://www.UNEP.org/Documents>; Handle, G. “Declaration of the United Nations conference on the human environment (Stockholm Declaration), 1972 and the Rio Declaration on Environment and Development, 1992” United Nations Audiovisual Library of International Law, (2012), 11.

¹⁴ Sohn, L.B. “Stockholm Declaration on the Human Environment,” *The Harvard International Law Journal*, 14, (1973), 423.

¹⁵ United Nations. “Declaration of the United Nations conference on human environment.”

¹⁶ Johnson, Stanley. *UNEP the first 40 years*. (UNEP, 2012).

implementing environmental policies,¹⁷ the institution has expanded to include cities, regional economic communities, and nation states.

UNEP-organized efforts included the Convention on Long-Range Transboundary Air Pollution (CLRTAP) (1979), the Vienna Convention for the Protection of the Ozone Layer (1985), the Montreal Protocols (1987/1989), the World Congress of Local Governments for a Sustainable Future (1990), and the Rio Summit (1992). As a specialized agency, the UNEP provided an international space for state governments, local governments, IGOs, and NGOs to develop plans for environmental action.

CLRTAP marked a significant moment in international efforts to coordinate environmental policy between nation states and was ratified by 34 countries and the European Union. The convention coordinated an agreement for monitoring, improving, and sharing data on state efforts to reduce air pollution. The Stockholm Conference set in motion a process to investigate and improve issues with acid rain and the acidification of lakes in Scandinavia and other European countries. This process resulted in several studies, which confirmed that air pollution could travel thousands of miles and impact regions not engaged in the activities that lead to intense pollution.

CLRTAP tasked countries with developing a state monitoring system for air pollution, cooperating in cross-border research on transboundary air pollution and abatement techniques, and agreeing to limit the production of specific harmful chemicals. Though its initial target was sulphur dioxide, countries have added eight protocols to CLRTAP since 1984 that limit the production and use of several chemicals and production processes harmful to the environment.

¹⁷ United Nations. "Report of the United Nations Conference on the Human Environment," A/CONF.48/14 (1972).

Another notable agreement, one between Canada and the United States, took place in 1991, when the U.S. agreed to place caps on the emissions of sulfur dioxide and a reduction of nitrogen oxides.¹⁸ Both CLRTAP and the Canada-United States Air Quality Agreement are examples of central governments taking steps to monitor and reduce contaminants that impact air quality.

In 1980, the UNEP brought together state representatives and international organizations¹⁹ to develop the World Conservation Strategy (WCS). This strategy emphasized the role of development in bringing disadvantaged peoples and nation states out of poverty. The WCS demonstrated the problems inherent in combining ecological protection and state-led economic development.²⁰ The WCS presented strategy and action that was central to the evolution of a concept of sustainability. Because of international conferences and commissions associated with the WCS, sustainability as a concept received increasing attention in academic, policy, and urban planning communities. The WCS was influential in the approval of the World Charter for Nature, which was approved by the 48th U.N. General Assembly in 1993.²¹ As international agreements and conservation strategies continued to build support in the international system, global commissions introduced critical environmental concepts like sustainability and sustainable development.

The establishment of the World Commission on Environment and Development (WCED) and its subsequent reports were critical events in streamlining terminology and environmental governance at the international level. Also known as the Brundtland Commission, the WCED

¹⁸ Government of Canada. "Canada-United States Air Quality Agreement: overview."

Last modified: January 16, 2018, <https://www.canada.ca/en/environment-climate-change/services/air-pollution/issues/transboundary/canada-united-states-air-quality-agreement-overview.html>

¹⁹ The World Wildlife Fund (WWF) and the International Union for the Conservation of Nature and Natural Resources (IUNC).

²⁰ International Union for the Conservation of Nature, and World Wildlife Fund. "World conservation strategy: Living record conservation for sustainable development," (Gland, Switzerland: IUCN, 1980).

²¹ Lele, S.M. "Sustainable development: a critical review," *World Development*, 19(6), (1991) 607-621.

was established in 1983 by the United Nations to bring countries together to develop strategies to combat environmental degradation. The commission was responsible for several tasks designed to direct future development strategies that take into account environmental concerns. The goal of these strategies was to achieve sustainable development by 2000. Also, the commission recommended ways in which countries of every economic standing in the international system could come together to develop “common and mutually supportive objectives that take account of the interrelationships between people, resources, environment, and development”.²²

Finally, the Brundtland commission defined shared commitments for long-term issues of environmental concern, developed long-term plans for accomplishments, and set goals for a global community. The report released by the Brundtland Commission in 1987, *Our Common Future*, highlighted interlocking crises (environmental, economic, energy) that occurred alongside the massive expansion of populations and economic activity.²³ This publication put forward a workable definition for sustainable development: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”²⁴ Urban development received notable attention with the recognition of demographic changes (rural to urban shift) and weak resources afforded to city leaders. Stressing the connection to the urban poor, the Brundtland Report asserted the need for involvement of the poor as “true city builders.”²⁵ The Brundtland Report created space in the international system for even greater dialogue between international, domestic, and local sources of power.

²² Brundtland, G.H., Khalid, M., Agnelli, S., Al-Athel, S., and Chidzero, B. *Our Common Future*. (Oxford University Press, 1987).

²³ Brundtland et al., *Our Common Future*.

²⁴ Brundtland et al., *Our Common Future*, 45.

²⁵ Brundtland et al., *Our Common Future*, 21.

Aside from overseeing CLRTAP and the Brundtland Commission, the UNEP was instrumental in organizing the international ozone depletion regime that led to the Montreal Protocol. By means of conferences held in the late 1970s, an international ozone regime emerged based on monitoring and action. These conventions were in response to emerging scientific research that confirmed long-held theories on the destructive nature of Chlorofluorocarbon (CFCs) to the ozone layer.²⁶ According to scientists a deterioration in the ozone layer leads to excessive ultraviolet radiation that causes mutation and other damage to human, animal, and plant life.

In March of 1977, the UNEP held a conference that adopted the World Plan of Action on the Ozone Layer and created a Coordinating Committee of the Ozone Layer. In 1981, the UNEP Governing Council organized negotiations, which led to a framework that was adopted by the Vienna Convention for the Protection of the Ozone Layer in 1985. The Vienna Convention itself was an agreement that coordinated research, air quality monitoring, and research exchange without forcing participating countries to commit to reducing ozone-depleting substances (ODSs).

The work between countries to reduce the use of CFCs came in 1987 with the Montreal Protocol. The Montreal Protocol is a binding agreement among nation states to phase out ODSs in production and general consumption. Most of the ODSs were scheduled to be phased out by 2000, with any remaining substances to be phased out by 2005.²⁷ Research suggests that the agreement and its subsequent amendments created real change in the phasing out of ODS

²⁶ Molina, M.J., Rowland, F.S. "Stratospheric sink for chlorofluoromethanes: chlorine atom-catalyzed destruction of ozone," *Nature*, (1974) 249 (5460), 810; Crutzen, P.J. "Photochemical reactions initiated by and influencing ozone in unpolluted tropospheric air," *Tellus*, (1974) 26(1-2), 47-57.

²⁷ Previdi, M., and Polvani, L.M.. "Impact of the Montreal Protocol on Antarctic surface mass balance and implications for global sea level rise," *Journal of Climate*, (2017) 30(18), 7247-7253.

globally and contributed to positive stratospheric ozone recovery.²⁸ The Montreal Protocol was the first treaty in history to achieve universal ratification; 197 countries have signed on as of 2019.

During the late-1980s, NGOs began to gain influence within IGO conferences and general meetings. In March of 1990, a preparatory committee for the Rio Summit issued a call for greater participation of NGOs.²⁹ As a result, relevant NGOs were provided consultative status via the Economic and Social Council, a specialized agency of the U.N. The UNEP was designated to organize actors to participate in the next major environmental conference, the Rio Summit.³⁰ In this pursuit, the UNEP invited NGOs, and global and regional networks, including municipal networks, to participate as observers in the conference alongside countries. The purpose of the Rio Summit was to create standards for economic development that accounted for present-day as well as future environmental resources.

The Rio Summit was held in Rio de Janeiro in 1992. A record 2,400 NGOs participated in the conference, and almost 17,000 individuals participated in parallel NGO forums.³¹ Attendees sought to reimagine how current and near-term economic development could be revised to consider the needs of future generations in terms of resources, equality, and the environment. Two significant international environmental agreements, Agenda 21 and the United

²⁸ Grise, K.M., Thompson, D.W., and Foster, P.M. "On the role of radiative processes in stratosphere-troposphere coupling," *Journal of Climate*, (2009) 22(15), 4154-4161; Parkinson, C.L., and Cavalieri, D.J. "Antarctic sea ice variability and trends, 1979-2010," (2012); Turner, J., Phillips, T., Hosking, J.S. Marshall, G.J., and Orr, A. "The Amundsen sea low," *International Journal of Climatology*, (2013) 33(7), 1818-1829; Previdi, M., and Polvani, L.M. "Climate system response to stratospheric ozone depletion and recovery," *Quarterly Journal of the Royal Meteorological Society*, (2014) 140(685), 2401-2419.

²⁹ Preparatory Committee for the United Nations Conference on Environment and Development. *Report of the preparatory committee for the United Nations Conference on Environment and Development*. A/44/48. 82f, Environment. UN. (20 March. 1990).

³⁰ Preparatory Committee for the United Nations Conference on Environment and Development. "Report of the preparatory committee for the United Nations Conference on Environment and Development" A/45/46. UN. 25 (January. 1991).

³¹ Steiner, M. "NGO reflections on the World Summit: Rio+ 10 or Rio-10," *Rev. Eur. Comp. and International Environment*. (2003).

Nations Framework Convention on Climate Change (UNFCCC), became the centerpiece in efforts aimed at improving air quality.

Agenda 21 is a non-binding agreement that provides blueprints for how nation states, and local governments, might address challenges to sustainability. Specific to this research, Agenda 21 provided suggestions to local governments as to how they might create plans for sustainable development in the face of a changing climate. Chapter 28 of Agenda 21 stated that local authorities should create their own “local agenda 21” and take into consideration the unique position of each city or municipality in creating a plan for sustainable development.³²

In this pursuit, local authorities were to work with citizens and the private sector “through consultation and consensus-building” to construct the social, economic, and environmental dimensions of sustainability.³³ Community consultation should involve “educating, mobilizing, and responding to the public to promote sustainable development” and local plans of action to address sustainability.³⁴ The goal of the community consultative process was to raise public awareness of sustainability issues and develop local laws and regulations to achieve the objectives of Agenda 21.³⁵ The objectives of chapter 28 in Agenda 21 make clear the standard of appropriate behavior for local governments in creating their own ‘local agenda 21’ in a consultative process with citizens, private stakeholders, and local authorities.

The UNFCCC is a critical document in terms of improving standards of air quality. The stated objective of the UNFCCC is “to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that

³² Agenda 21. “Agenda 21: Programme of action for sustainable development; Rio Declaration on Environment and Development; Statement of Forest Principles: The final text of agreements negotiated by governments at the United Nations Conference on Environment and Development (UNCED)”, 3-14 June 1992, Rio de Janeiro, Brazil. (New York: United Nations Department of Public Information, 1993), Chapter 28.3.

³³ Agenda 21, Chapter 28.3.

³⁴ Agenda 21, Chapter 28.1.

³⁵ Agenda 21, Chapter 28.3.

would prevent dangerous anthropogenic interference with the climate system.”³⁶ A country would commit to critical components of monitoring, information sharing, and education programs to achieve this central objective. These include:

- Develop, publish, update, and make available inventories of anthropogenic emissions and the removal of such contaminants through sinks.³⁷
- Create and publish national and regional programs that mitigate climate change by addressing the removal of GHG not already controlled by the Montreal Protocol.³⁸
- Promote and aid in the development of technologies and practices that lead to a reduction in the emission of GHGs.³⁹
- Promote education, training, and public awareness of climate issues and “encourage the widest participation in this process, including that of non-governmental organizations.”⁴⁰

The UNFCCC was signed on March 21, 1994 and continued an international project which aimed at improving air quality.

Though a significant step forward, the treaty was inadequate in its presentation of timelines and actual goals in GHG reduction. The first COP in Berlin began negotiations to strengthen the commitments established in the initial UNFCCC. The negotiations established real dates and targets for GHG reduction among nation states and resulted in the Kyoto Protocol. This agreement, a result of the third COP in 1997, established a timeline from 2008-2012.⁴¹ In this period, over 40 countries and the European Union agreed to reduce GHG levels to 5.2% below the 1990 baseline. The UNFCCC developed an outline for how countries could address climate change by taking steps towards improving air quality. Within the first three meetings of

³⁶ United Nations Framework Convention on Climate Change. Secretariat. *United Nations framework convention on climate change*. (UNFCCC, 1992), Article 2.

³⁷ UNFCCC, Article 4(a).

³⁸ UNFCCC, Article 4(b).

³⁹ UNFCCC, Article 4(c).

⁴⁰ UNFCCC, Article 4(i).

⁴¹ Commitment period

the COP, a majority of countries agreed to the commitments of timelines and targets for reducing GHG emissions presented at Kyoto.

Municipalities and Transnational Environmental Governance

For more than a hundred years, in North America, municipal networks shared knowledge and ideas connected to urban development. Originally, the role of municipal organizations was to share ideas between domestic local authorities. The following section provides an overview of the efforts of local authorities to create municipal networks in the United States and Canada. This section is meant to show how cities moved from addressing domestic concerns to engaging with transnational environmental issues.

Canadian municipalities have a long history of participating in regional, provincial, and national associations that addressed concerns of municipal representatives. Currently, there is at least one municipal association operating in each province in Canada. In addition, there are regionalized unions of mayors and cities, as well as associations for rural municipalities. Provincial, municipal associations have a high membership rate, with a majority of cities represented across most provinces.⁴² The Municipal Association of British Columbia was one of the first organizations to represent cities with goals of information sharing, promotion of municipal concerns, and development of a system of uniformity across municipal members.⁴³

Canadian municipalities first organized nationally under the Union of Canadian Municipalities (UCM) in 1901.⁴⁴ The UCM sought to improve municipal operations, and

⁴² Shott, A.K. "Municipal Associations, Membership Composition, and Interest Representation in Local-Provincial Relations" (PhD diss, The University of Western Ontario. 2015).

⁴³ Shott. "Municipal Associations".

⁴⁴, Steunson, D., and Gilbert, R. "Coping with Canadian federalism: the case of the Federation of Canadian Municipalities," *Canadian Public Administration*, (2005) 48(4), 528-551.

promote and protect the interests of municipalities.⁴⁵ Municipal concern with public utilities was perhaps the greatest motivation to join early associations or unions. Across Canada, utility companies were ignoring public land rights or destroying public lands when installing their equipment. These issues were central in the formation of the Ontario Municipal Association in 1899, the Union of Canadian Municipalities, and the Union of Manitoba Municipalities in 1905.⁴⁶

In 1937 the UCM joined with another Canadian municipal organization, the Dominion Conference of Mayors,⁴⁷ to form the Canadian Federation of Mayors and Municipalities (CFMM). The unification of the two groups was, in part, a reaction to deteriorating economies of municipalities during the Depression.⁴⁸ The CFMM offered a platform for conferences and publications on municipal affairs, as well as a chance to lobby federal and provincial governments for support. Renamed the Federation of Canadian Municipalities (FCM) in 1976, the organization pushed for a more significant role in Federal-Provincial constitutional debates. However, issues with membership troubled the FCM during the 1970s, especially in Quebec, where nationalist sentiments influenced municipal leaders who pulled out of the organization.⁴⁹ The FCM also failed to make meaningful gains for municipalities in a constitutional process that ended with the passage of the Constitution Act in 1982.

During the 1970s, many Canadian cities experienced a loss of population in urban cores, with many citizens moving to smaller city centers and ex-urban areas.⁵⁰ As larger city centers began to lose local tax revenue, some cities responded by annexing municipalities surrounding

⁴⁵ Steunson, D., and Gilbert, R. "Coping with Canadian federalism," 3.

⁴⁶ Shott, "Municipal Associations".

⁴⁷ Established in 1935.

⁴⁸ Steunson and Gilbert, "Coping with Canadian federalism".

⁴⁹ Steunson and Gilbert, "Coping with Canadian federalism," 532.

⁵⁰ Stelter, G.A., Artibise, A. "Urbanization" *The Canadian Encyclopedia*. (2006).

their urban core. Most notably, Toronto, Vancouver, and Edmonton expanded their respective city-limits by incorporating adjacent suburbs, land, and municipalities. While this was a source of increased revenue for cities, other issues with the Goods and Services Tax (GST) in the 1980s created a need for a negotiating body for cities. The FCM reasserted its relevance to municipalities by negotiating a reduced GST for some goods that saved citizens more than \$500 million annually.⁵¹

Municipal networks in the United States share a similar history of knowledge sharing and cooperation in the development of local strategies for urban planning and development. Founded in 1924, the American Municipal Association (AMA) began with the goal of organizing information for municipal leagues and sharing methods of governance. From 1947 to the late 1970s, AMA membership opened to cities of 100,000 or more. In 1977, the AMA changed its name to the National League of Cities (NLC), and city population limits for membership were eliminated. This provided a significant boost in membership. As membership expanded, the NLC continued to lobby the federal government for funding meant for city projects and uniform urban planning projects.

During the 1970s, the real impact of sprawl and urban decay began to reveal itself in cities across the United States. The departure of residents and corporate entities left many cities in formerly robust industrial areas with dwindling revenue from taxable sources. Subsequently, cities turned to the federal government for aid, but instead were offered bankruptcy assistance. In 1975, New York City's revenue from taxes and other sources decreased to a point where the city could no longer afford to provide essential services to its residents. Captured in a now-famous headline from the New York Daily News, the response from the Executive Branch made no

⁵¹ Steunson and Gilbert, "Coping with Canadian federalism".

mistake in its position on the matter of financial assistance, “Ford to City: Drop Dead.”⁵² United States President Gerald Ford, in a public statement, announced he would veto any bill coming from Congress that attempted to bail out New York City. For many other cities, the reality of tax revenue loss led to the privatization of municipal resources and services. The troubling economic climate of many cities caused municipal leaders to act in new ways to impact the power position of subnational governments.

The movement of municipal leaders demanding a louder voice in national debates was, in part, a response to deteriorating conditions experienced by many cities in the 1970s. Federal funding, once allocated to cities, was diverted to foreign affairs projects. During this period, many cities experienced budget crises, with some eventually privatizing municipal resources. As a result, a growing number of municipal leaders sought a larger role in foreign policy debates of the 1980s. During a speech at the NLC conference in 1985, Los Angeles Mayor Tom Bradley stated that cities had both a right and obligation to take part in “the great national debate” on foreign policy issues “from trade policies to opposing apartheid, from immigration policies to the proliferation of nuclear weapons.”⁵³

Local Elected Officials for Social Responsibility (LEOSR), formed in 1983, sought to advance the position of cities in foreign policy debates in the United States. Members of LEOSR developed local policy that led to the proliferation of sanctuary cities and action against apartheid, which gave them credibility in international affairs.⁵⁴ In 1986 LEOSR joined with another municipal network, Local Elected Officials USA, as part of the Local Elected Officials

⁵² Van Riper, F. “Ford to City: Drop Dead” *Daily News* (New York), (1975) 30.

⁵³ Leviton, D. *Horrendous Death and Health: Toward Action* (New York: Hemisphere Publishing, 1991), 219.

⁵⁴ Leviton. *Horrendous Death and Health*; Veon, Joan. “How ICLEI was created,” *Eco-Logic magazine*. (1997).

(LEO) Project, which was directed by the Center for Innovative Diplomacy in Irvine, California.⁵⁵

After some early success in the realm of foreign policy, the LEO Project shifted focus to environmental concerns. The organization utilized environmental experts and city leaders to develop local policies to protect natural resources. Additionally, the LEO Project organized a meeting between a group of leaders from 30 American cities and Sherwood Rowland, a Nobel Prize winner for work on ozone depletion.⁵⁶ They met to discuss how municipalities could design policies to implement the Montreal Protocols at the local level by phasing out CFCs.⁵⁷ As a result of this meeting, some cities were motivated to enact laws that follow the Montreal Protocol's guidelines on CFCs.

In Irvine City, California, for example, the city council passed a local ordinance prohibiting the use of most CFCs in industrial processes, except where medical or military products had no alternative to the chemicals.⁵⁸ In addition, San Diego passed an ordinance to address CFC emissions from government-owned vehicles by requiring CFC "recovery units" be used to repair and maintain air conditioning systems.⁵⁹ It is important to note that the passage of these ordinances occurred in cities before the federal government took action. The leaders of the LEO Project sought to challenge the federal government to act on environmental issues.⁶⁰ LEO Project officials were contacted by the UNEP⁶¹ after the success of their CFC initiatives and

⁵⁵ Center for Innovative Diplomacy. "Center for Innovative Diplomacy Report- Winter 1986-1987" *Center for Diplomacy Report*, (1986) 3(1), 1-16. Retrieved from <https://escholarship.org/uc/item/76f4j11d>.

⁵⁶ Molina and Rowland, "Stratospheric sink for chlorofluoromethanes".

⁵⁷ Veon, "How ICLEI was created".

⁵⁸ Reinhold, Robert. "Frustrated by Global Efforts, City Fights Ozone on Its Own" *The New York Times* (New York), (19July1989) 1(5).

⁵⁹ Balint, Kathryn. "City to help shield ozone layer" *The San Diego Union-Tribune* (San Diego) (26Oct. 1989).

⁶⁰ Veon, "How ICLEI was created".

⁶¹ Veon, "How ICLEI was created".

were invited to work with the group in developing a global conference of mayors focused on environmental concerns.

In 1990, the World Congress of Local Governments for a Sustainable Future convened at the United Nations headquarters in New York City. The World Congress was produced as a joint effort between the Center for Innovative Diplomacy (CID), the UNEP, and the International Union of Local Authorities. However, the CID is credited with the initiation and logistical management of the conference.⁶² Represented at the World Congress were over 200 municipalities from 43 countries. At this meeting, representatives called for municipal cooperation in the development of a transnational effort and created ICLEI as a result. As an international network, ICLEI acted as an advocate for municipal leaders and participated in and organized international conferences. The network actively pursued interaction with international organizations and local agents to promote progressive change in environmental policy. In so doing, the organization contributed to U.N. programs, like Local Agenda 21 and the UNFCCC. ICLEI also helped to create other municipal networks, like the Cities for Climate Protection Campaign (CCPC).

The CCPC began as the *Urban CO2 Reduction Program*, which was funded by ICLEI, the EPA, the City of Toronto, and other service-based partners.⁶³ In its first stage, the program involved officials from 14 municipalities from the U.S., Canada, Turkey, and Europe who developed local strategies to mitigate CO2 emissions.⁶⁴ The CCPC formed a generic framework, based on these local strategies that members could adopt. This program also used the first GHG

⁶² World Congress of Local Governments for a Sustainable Future. "World Congress of Local Governments for a Sustainable Future: Acting Locally for a Sustainable Future" <https://escholarship.org/uc/item/46f5f3vt> (1990).

⁶³ Betsill, M. M., Bulkeley, H. "Transnational networks and global governance: The cities for climate protection program" *International Studies Quarterly*, (2004) 48(2), 471-493.

⁶⁴ Brugmann, J., Jessup, P. "Cities for Climate Protection: An International Campaign to Reduce Urban Emissions of Greenhouse Gases" *ICLEI*; Toronto. (1993).

inventory measurement software for cities, which was developed by ICLEI.⁶⁵ The CCPC developed four goals:⁶⁶

1. Strengthen commitments at the local level to reduce urban emissions.
2. Create new planning and management tools that focused on CO₂ policies that were cost-effective.
3. Research past experiences of cities to develop best practices in strategies of GHG emission mitigation.
4. Attempt to tie municipal action into a broader national and international effort.

The CCPC sought to connect cities to create local action plans for GHG monitoring and mitigation, sharing best practices in reduction strategies, and using ICLEI as a service-providing platform.⁶⁷ The CCPC organized municipal leaders to present information and update the progress of the campaign by means of municipal conferences. The campaign was maintained by ICLEI and was funded by central or supranational government sources and other international networks and foundations.⁶⁸

One of ICLEI's first attempts to apply sustainability standards was the *Local Agenda 21 Planning Guide*.⁶⁹ Between the Rio Summit and the release of the guide in 1996, ICLEI and various national associations of local government had technically assisted hundreds of municipal leaders in developing sustainability action plans. ICLEI used the experience of CCPC members to develop the guide as a resource for municipalities to develop local action plans for

⁶⁵ Rauland, Vanessa, and Peter Newman. *Decarbonising cities: Mainstreaming low carbon urban development*. Springer, (2015); Lindseth, G. "The cities for climate protection campaign (CCPC) and the framing of local climate policy" *Local Environment*, (2004) 9(4), 325-336.

⁶⁶ Brugmann and Jessup, "Cities for climate protection"; Lindseth, "The cities for climate protection campaign (CCPC)".

⁶⁷ Toly, N.J. "Transnational municipal networks in climate politics: From global governance to global politics," *Globalizations*, (2008) 5(3), 341-356.

⁶⁸ Hakelberg, L. "Governance by diffusion: Transnational municipal networks and the spread of local climate strategies in Europe". *Global environmental politics*, (2014) 141(1), 107-129.

⁶⁹ International Development Research Centre (Canada) and International Council for Local Environmental Initiatives. "The Local Agenda 21 Planning Guide: An Introduction to Sustainable Development. IDRC, (1996).

sustainability.⁷⁰ The *LA21 Planning Guide* offered a framework for cities, which included examples of successful programs. The guide stressed the importance of developing action plans at the local level, bringing together stakeholders from both public and private spheres to work towards more sustainable practices.

ICLEI and its members' engagement with international environmental conferences did not end with the Rio Summit. Since Rio ICLEI members and leadership have attended international conferences hosted by the U.N. as observers. ICLEI also hosts municipal summits that parallel COPs and Meeting of Parties (MOPs) and the results of these summits are then communicated to the COPs or MOPs. At the conclusion of the 2nd Municipal Leaders' Summit, a communiqué was sent to the COP-1, urging the creation of an agency to support local authorities complying with UNFCCC. Representatives from 50 countries and 150 local authorities signed the communiqué.⁷¹ This request resulted in the COP establishing the Local Authorities and Municipal Authorities Constituency which secured observer status for ICLEI leadership and local authorities.

At an ICLEI-organized event held during COP-10 municipal leaders issued a statement asking “delegates of COP-10 to remember that local government is separate and distinct from national governments and NGOs.”⁷² This statement illustrates a changing dynamic in how local governments expressed their positions within international environmental negotiation and action on air quality. Between COP-1 and COP-10, cities encouraged nation states to make laws addressing climate change. Furthermore, cities and their networks began to embrace the role of

⁷⁰ Funding and coordination from the International Development Research Centre and the United Nations Environment Programme helped to produce the Local Agenda 21 Planning Guide.

⁷¹ Rambelli, G., Donat, L., Ahamer, G., and Radunsky, K. “An Overview of regions and cities with-in the global climate change process – a perspective for the future” European Committee of the Regions. European Union. (2017).

⁷² “Up to 2007 Bali – COP12/CMP3- Local Government Climate Roadmap”. ICLEI, <http://old.iclei.org/index.php?id=1201> Accessed July 2019

policy leader on the international stage. This idea gained strength as more local governments, and their networks reaffirmed a space for local authorities at the international level.

At COP-13, many countries signed the Bali Action Plan, which continued international environmental negotiations on establishing an international climate regime beyond 2012.

Because cities and subnational governments were excluded from the Bali Action Plan, they created the Local Government Climate Roadmap⁷³ (LGCR), which again urged members of the UNFCCC to include local governments in international plans to reduce GHGs and fight climate change. The LGCR was a document that meant to parallel the U.N. Climate Roadmap created at Bali. The Roadmap also made suggestions that the Convention should:

- Include the development and implementation of local policies on the agenda of the UNFCCC.
- Request the UNFCCC Secretariat to strengthen cooperation with cities and local authorities.

The LGCR began a new series of meetings of local authorities called the Local Government Climate Sessions that were held parallel to future COPs. These meetings continued to emphasize the need to recognize local authorities for their work in the arena of sustainability and climate change initiatives.

After years of challenging members of the UNFCCC to recognize and support local climate efforts, COP-16 marked a pivotal moment for cities and their engagement with international environmental conferences. At COP-16, in 2011, cities and local governments were officially recognized as government stakeholders.⁷⁴ During this conference, local governments

⁷³ This document was created with the help of TMNs and regional city networks- United Cities and Local Governments, ICLEI, World Mayors Council on Climate Change, C40.

⁷⁴ Decision 1/CP.16, “The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention” Cancun Agreements. FCCC/KP/CMP/2010/12/Add.1 (15March2011).

and their networks adopted the Mexico City Pact, a ten-point climate action plan that included signees committing to reduce GHG emissions and joining the *Carbomm* Climate Registry.⁷⁵ This plan created a carbon registry where cities designate targets designed to improve air quality and report levels of emissions.⁷⁶

COP-19 included the addition of working groups that facilitated:

the sharing among Parties of experiences and best practices of cities and subnational authorities...in identifying and implementing opportunities to mitigate greenhouse gas emissions and adapt to the adverse impacts of climate change.⁷⁷

This statement highlights the growing importance of cities and subnational governments as part of an international climate strategy.

The Paris Agreement, developed at COP-21, was a landmark event in international environmental cooperation between nation states and local governments. The agreement included a commitment by nation states to take action that would limit rising temperatures by over 2 degrees Celsius.⁷⁸ The Climate Package recognized local and subnational governments for their successful sustainability efforts. Additionally, the agreement expanded plans to strengthen the capacity of local governments to pursue climate activities.

In addition to advocating for cities at the international level, ICLEI also offers technical assistance to municipal leaders. ICLEI creates products for local authorities that include software packages for air quality inventories, guidelines for local action, and platforms to report results of local action. One program that ICLEI offers is Clean Air and Climate Protection (CACP). This software allows cities to inventory GHG emissions produced by municipal operations. CACP

⁷⁵ This registry was initiated during the 2010 World Mayors Summit. The registry is maintained by ICLEI.

⁷⁶ As of 2018 the Carbomm climate registry had over 1,000 registered partners with almost 2,000 climate targets set.

⁷⁷ Conference of the Parties. *Report of the Conference of the Parties on its nineteenth session, held in Warsaw from 11 to 23 November 2013*, FCCC/CP/2013/10/Add.1, (31 January 2014) available at: <https://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf>, Para 5.b of Decision 1/CP19.

⁷⁸ UNFCCC. "Adoption of the Paris agreement." *I: Proposal by the President (Draft Decision)*, United Nations Office, Geneva (Switzerland) s 32 (2015).

allowed cities to input data on energy and fuel consumption to plan for future reduction of city-fleet vehicles.⁷⁹

Released in 2013, Clearpath is the most recent software package from ICLEI that allows cities to conduct local GHG emissions, track emissions progress, and forecast future emissions. Clearpath is available as an online alternative to the previous software developed by ICLEI. In a partnership with the Compact of Mayors and the Bloomberg Philanthropies, ICLEI offered Clearpath to all cities for free between 2015-2018.⁸⁰ The goal of this arrangement allowed for more cities to access ICLEI's software and technical resources, including cities outside of the TMN's membership network.

Both versions of ICLEI's GHG software utilize Local Government Operations Protocol (LGO), which are standards for how local governments should conduct GHG emissions inventories. This standardized protocol was first developed as a joint project by ICLEI, the California Air Resources Board (ARB), and the California Climate Action Registry (CCAR) in 2008. The parties involved in the creation of the LGO for GHG inventories have updated the protocols once in 2010 and again in 2014. The EPA, Mayor's Compact, C40, and other significant organizations have relied on the LGO protocol since its inception as a standard to measure municipal emissions. As a TMN, some of ICLEI's most influential work has been in the development of standards for collecting data and reporting GHG emissions.

In addition to working with state environmental agencies, ICLEI has also engaged with supranational actors. In 2012, ICLEI joined with the C40 and the World Resources Institute to create a globally recognized protocol for cities to collect and report data on GHG emissions and

⁷⁹ Pitt, Damian, and John Randolph. "Identifying obstacles to community climate protection planning." *Environment and Planning C: Government and Policy* 27.5 (2009): 841-857.

⁸⁰ Plaza, Celina. "Clearpath opens to all US Cities for free." ICLEI USA. (15 September. 2015).

energy use. With the help of the World Bank, the UNEP, and U.N. Habitat, the pilot version of the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) was released.⁸¹⁸²

Groups like the LEO Project and the CID represent a break from traditional municipal networking strategies that paved the way for the formation of ICLEI. The methods employed by ICLEI and its members enhanced the position of cities in the international community. First, cities voluntarily adopted protocol set by the UNFCCC even though they were left out of the process. Second, where nation states often failed to achieve the standards set by the UNFCCC, local authorities claimed success. Many local leaders globally adopted the standards of these agreements and were in many cases able to create coherent action plans. Third, through TMNs, cities aggressively publicized their accomplishments at the international level. These actions by cities and their networks have impelled the international community to recognize local governments as stakeholder in an international climate regime.

Environmental Efforts in the United States and Canada: 1991-2018

This section provides a background to the environmental efforts of political leaders in the United States and Canada. From 1991-2018, some prime ministers and presidents have attempted to develop national programs that meaningfully reduce GHG emissions. However, both countries have been inconsistent in their leadership at the international and domestic levels on

⁸¹ The GPC drew from other emission standards including the International Panel on Climate Change Guidelines for National Greenhouse Gas Inventories, ICLEI GHG Emissions Analysis Protocol, UNEP, UN Habitat, World Bank International Standard for Determining Greenhouse Gas Emissions for Cities, ICLEI-USA U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions GHG Protocol, Covenant of Mayors Baseline Emissions Inventory/Monitoring Emissions Inventory methodology.

⁸² . Fong, Wee Kean, et al. "Global protocol for community-scale greenhouse gas emission inventories (GPC)." *World Resources Institute: New York, NY, USA* (2015); Wattenbach, M., Redweik, R., Lüdtke, S., Kuster, B., Ross, L., Barker, A., and Nagel, C. "Uncertainties in city greenhouse gas inventories," *Energy Procedia*, 76, 388-397. (2015).

environmental policy. First, I will consider Canada's engagement with international environmental agreements and the federal government's difficulty creating unilateral federal policy to achieve their commitments under the UNFCCC. Then, I will provide a brief overview of American efforts to pursue, or disengage from, environmental policy that matched the minimum requirements of international agreements on climate change.

Canada's Concern with Climate, Competition, and Kyoto

The Mulroney Government

During the 1980s, Canada claimed a position as an environmental leader in the international arena. Canadian government negotiators were instrumental in work on the Vienna Convention and Montreal Protocol. Additionally, the Mulroney government hosted one of the first environmental summits on climate change in Toronto in 1988. At this convention, Prime Minister Mulroney advocated for broader international efforts to reduce the emission of harmful contaminants and atmospheric protection. Additionally, the Prime Minister announced that Canada would set a reduction target that required the government to reduce emissions by 20% of the 1988 levels by 2000.⁸³ Shortly after the Toronto climate change conference, government subsidies for fossil fuel projects off of the coast of Newfoundland and Labrador drew criticism. Environmental groups in Canada were concerned that the Canadian government was not taking its espoused commitment to reduce atmospheric contaminants seriously.

Other environmental efforts included additions to the Canadian Environmental Protection Act (CEPA) in 1988. The regulatory framework introduced through CEPA provided a system to

⁸³ Hanusch, Frederic. *Democracy and climate change*. (Routledge), 2017.

monitor and index toxic substances that are byproducts of Canadian businesses.⁸⁴ Provincial leadership retained the power to make additions to the index of toxic substances with CEPA acting as a minimum standard.

In 1990, the Mulroney government introduced Canada's Green Plan. The goal of this national strategy was to "secure for current and future generations a safe and healthy environment."⁸⁵ The plan called for an increase in research and information campaigns to educate the public and private sectors on the need for atmospheric protection, and their role in reducing emission. However, the plan was condemned by environmental researchers and activists as being too reliant on voluntary measures and information sharing systems that would not achieve a significant reduction in emissions.⁸⁶

The Chretien Government

As the Chretien government came to power in the early 1990s, the Liberals continued to promote advancing environmental protections in similar ways to the previous conservative government. The Chretien government signed the UNFCCC, still advocating for the expansion of treaties and international law to curb emissions of harmful contaminants. Through the next four years, the Chretien government made multiple attempts to construct a national strategy that aligned provincial and federal policy.

When the government negotiators agreed to Canadian targets for Kyoto in 1997, the Chretien government had to contend with pushback from business interests and provincial

⁸⁴ VanNijnatten, Debora L. "Participation and environmental policy in Canada and the United States: Trends over time." *Policy Studies Journal* 27, no. 2 (1999): 267-287.

⁸⁵ Government of Canada. *Canada's Green Plan: For a Healthy Environment*. Government of Canada., 1990, p. 2.

⁸⁶ Hoberg, George, and Kathryn Harrison. "It's not easy being green: The politics of Canada's green plan." *Canadian Public Policy/Analyse de Politiques* (1994): 119-137.

leaders. Provincial officials argued that the central government had acted beyond its authority when it accepted official national targets for emission reduction by 6%.

Following the Kyoto conference, a First Ministers Conference addressed concerns between provincial and federal leaders. At the Ministers Conference, provincial leaders and central government officials came to three agreements related to emission targets and international climate negotiations:

- The Prime Minister committed to a balanced approach to environmental policy that did not place an unequal burden on specific provinces.
- A joint cost and benefit analysis of Kyoto would be conducted by provincial and federal officials prior to ratification.
- Provincial and territorial governments pledged to work together on an implementation plan for a nationally aligned environmental policy.⁸⁷

One of the efforts aimed at aligning provincial and federal environmental policy, which took place in 1998, resulted in the creation of the Nation Climate Change Process (NCCP). This consultative process was a collaboration between the Province of Alberta and the federal government.⁸⁸ While the NCCP illustrated that provincial-federal environmental leadership shared concerns related to climate change and agreed on the relative science behind the problem, the leaders failed to make progress in developing credible plans to meet Canada's commitments to emission reduction.

⁸⁷ Harrison, Kathryn. "The road not taken: Climate change policy in Canada and the United States." *Global Environmental Politics* 7, no. 4 (2007): 92-117.

⁸⁸ Harrison, "The road not taken".

Leading up to Canada's ratification of the Kyoto Protocol, a coalition of anti-Kyoto opponents demanded an alternative, "made in Canada" approach to environmental policy.⁸⁹ This opposition included oil and gas interests, the Canadian Alliance Party, and the Province of Alberta. During an oral question period in Parliament, Alliance party leader Stephen Harper framed Kyoto as a "made in Japan" policy that had not been appropriately negotiated with provincial representatives.⁹⁰ Provincial leaders from Alberta and oil interests asserted that moving forward with Kyoto commitments would cost between \$23 and \$40 billion a year.⁹¹ Additionally, the anti-Kyoto group claimed that Canada's reduction in emissions would be minor and that a policy representing "real interests of real Canadians" was necessary.⁹²

Though the Prime Minister's cabinet had the power to approve international treaties, the Chretien government moved to a parliamentary vote to ensure the support of the House of Commons. Though not required, gaining the approval of the House of Commons placed pressure on ministers of parliament to create legislation that helped the Kyoto process to continue nationally. The parliamentary vote succeeded⁹³ with the Liberal party, New Democratic Party (NDP), and Quebecois Bloc supporting ratification. The Conservative Alliance and Progressive Conservatives voted against Canada's continued participation in Kyoto.

The 2004 federal elections were a significant moment for Canadian conservatives. In the previous year, multiple conservative political parties in Canada agreed to merge into a single political party, the Conservative Party of Canada. After a year of internal organizing under

⁸⁹ Douglas MacDonald and Heather A. Smith, "Promises made, promises broken: Questioning Canada's commitments to climate change," in Duane Bratt and Christopher J. Kukucha, eds., *Readings in Canadian Foreign Policy: Classic Debates and New Ideas* (Toronto: Oxford University Press, 2007), 360.

⁹⁰ Parliament of Canada. "Hansard – Number 42". House of Commons Canada. (10Dec. 2002), section 1415.

⁹¹ Smith, Heather, "Political Parties and Canadian Climate Change." *International Journal*, 64(1), 47-66 (2008).

⁹² Smith, Heather, "Political Parties and Canadian Climate Change," 53.

⁹³ 195-77; Parliament of Canada. "Hansard – Number 42".

interim leadership,⁹⁴ Stephen Harper was elected the party's leader. The newly formed Conservative Party of Canada claimed a total of 99 seats after the 2004 federal elections.⁹⁵ Additionally, the Liberal party lost 37 seats and majority control of the government, keeping only 135 seats in the House. To maintain majority control in parliament in 2004 required at least 50% of the vote, or 154 seats. After the election, the Liberal Party maintained control over the government albeit in a minority capacity.

The Martin Government

After the 2004 elections, Paul Martin led the minority Liberal government as prime minister. The environmental policy of the Martin government reflected a continuation of the Liberal party's public support for honoring the commitments made at Kyoto and in the UNFCCC. Stephane Dion, Environmental Minister in the Martin government, oversaw COP-11 in Montreal in 2005. At this conference, the Canadian government was instrumental in pushing forward the Montreal Action Plan, which negotiated some new emission targets and guaranteed the Kyoto Protocol beyond 2012.

In addition to government negotiations at the international level, the Martin government introduced Project Green at the national level, which began with information sharing and voluntary reduction subsidies.⁹⁶ Project Green was attacked by environmental activists as a costly version of previous government plans to reduce emissions. The plan contained no real mechanisms to ensure that commercial emitters of GHG would reduce their emissions.

⁹⁴ John Lynch-Staunton was the Conservative Party of Canada's unelected interim leader for one year beginning in 2003.

⁹⁵ Milner, Henry. "A Mix-Member Proportional System Applied to the 2004 Election." Elections Canada.

<https://www.elections.ca/content.aspx?section=res&dir=eim/issue16&document=p9&lang=e>

Accessed: Sept 14, 2019

⁹⁶ Smith, Heather A. "Political parties and Canadian climate change policy." *International Journal* 64, no. 1 (2009): 47-66, 56.

Furthermore, because Alberta continued to oppose the implementation of the Kyoto targets, it was impossible to develop a national environmental policy.

In addition to national policy challenges, the Liberal party was also losing its grip on political power. In February of 2005, the Auditor General of Canada released a report that detailed a money laundering scandal between the Liberal Party of Canada and various advertising agencies across Quebec.⁹⁷ The scandal drew in former Prime Minister Jean Chretien's cabinet members, including Paul Martin, who was at that time the Minister of Finance. In November 2005, the parliament held a no confidence vote, which forced a federal election. In this election, the Conservative party was able to secure minority control of the government, winning 124 of 308 seats in the House of Commons.⁹⁸ The results of this election brought a conservative party back to power in Canada for the first time since the Mulroney government. It was the Harper government's responsibility to assess Canada's future in Kyoto.

The Harper Government

While Canada officially withdrew from the Kyoto Protocol in 2011, the effort organized by the Harper government began in 2006. As I discussed in the introductory chapter, Stephen Harper personally advocated for the country's removal from the Kyoto process as early as 2002. As a member of the Canadian Alliance Party, Harper had given four reasons for opposing the Kyoto Protocol:

- The presence of tentative and contradictory scientific evidence about climate trends.
- Too much focus on carbon dioxide, "which is essential to life."⁹⁹
- The devastating impact on the oil and gas industries of Canada; and finally,

⁹⁷ Sutherland, S. L. "Gomery: prequel and sequel." *Revue gouvernance* 3, no. 1 (2006).

⁹⁸ Simon Fraser University. "2006 Canadian Election Results." Accessed on 09/02/2019: <https://www.sfu.ca/~aheard/elections/2006-results.html>.

⁹⁹ Healy, Teresa, ed. *The Harper Record*. (Ottawa: Canadian Centre for Policy Alternatives, 2008), 282.

- The claim that Kyoto was a “socialist scheme to suck money out of wealth producing nations.”¹⁰⁰

As prime minister, Harper instructed his Environmental Minister and representatives in charge of the Bonn climate talks to oppose strict targets placed on Canadian emissions.¹⁰¹ During the COPs in 2006 and 2007, delegates from other countries noted that the Canadian delegation was antagonistic towards the establishment of specific targets for participants of the UNFCCC.¹⁰²

In 2007, the Harper government introduced the “Turning the Corner: An Action Plan to Reduce Greenhouse Gases and Air Pollution”, which called for a reduction in GHG emissions from Canadian industries.¹⁰³ The plan represented a national response to rising GHG emissions, which allowed the government to sidestep its obligations under the Kyoto Protocol. However, the planned targets for GHG emission reduction were considerably lower than those assigned to Canada in the UNFCCC.¹⁰⁴ The Harper plan reestablished the baseline year for emission measurement to 2006,¹⁰⁵ which reduced the goals for GHG emission targets overall.¹⁰⁶ The central government believed that Kyoto was too expensive for Canada to implement and would cause a severe economic recession. Opponents of the plan asserted that the Harper government attempted to move forward with environmental policy that was insufficient to reduce GHG emissions that matched the commitments of previous Canadian governments. Critics contended that the Harper government had no intention of continuing with the international climate

¹⁰⁰ Healy, Teresa, ed. *The Harper Record*, 282.

¹⁰¹ Healy, Teresa, ed. *The Harper Record*.

¹⁰² Smith, Heather A. "Political parties and Canadian climate change policy".

¹⁰³ Government of Canada. “Turning the Corner: An Action Plan to Reduce Greenhouse Gases and Air Pollution” Environment Canada, (2007).

¹⁰⁴ De Souza, M. “Canada’s greenhouse reduction plan ‘deceitful’: critics” *Ottawa Citizen*. (04/2008).

¹⁰⁵ The previous baseline emission year was 1990.

¹⁰⁶ Rayfuse, Rosemary Gail, and Shirley Scott, eds. *International law in the era of climate change*. Edward Elgar Publishing, 2012.

negotiations and was actively sabotaging climate talks by refusing to discuss specific targets for GHG reduction.

By 2009, the Harper government had again revised its GHG emission targets downward. The new plan aimed at implementing a sector-by-sector approach to regulating GHG emissions.¹⁰⁷ In the same year, Canadian leadership signed the Copenhagen Accord, in which the government agreed to voluntary reduction targets for GHG emissions. Critics again asserted that the Harper government and members of the Conservative Party of Canada had little to no actual plans on how to achieve these goals.¹⁰⁸ A report from Environment Canada¹⁰⁹ in 2014 revealed that the country would not meet the goals set at Kyoto, Copenhagen, or in the Turn the Corner plan.

Between 2008 and 2011, the Harper government expressed an interest in developing a cap and trade system. Canadian conservatives ran on a reelection platform in 2008 that included a cap and trade policy that held large scale emitters of GHG responsible for the pollution produced by their activities. Preceding the election the Conservative Party of Canada maintained minority control over the parliament. However, a cap and trade system proposal never materialized. The central government blamed the global economic crisis of 2007-2008 for its inability to impose new taxes or fees on the provinces.¹¹⁰

In 2011, Canada announced its withdrawal from the Kyoto Protocol. The announcement was followed by the country's official removal from the process initiated by Kyoto in 2012. The same year Canada withdrew from Kyoto, the Harper government made significant cuts to

¹⁰⁷ Schott, Jeffrey J. *NAFTA and Climate Change*. (Peterson Institute), 2011.

¹⁰⁸ Young, Nathan, and Aline Coutinho. "Government, anti-reflexivity, and the construction of public ignorance about climate change: Australia and Canada compared." *Global Environmental Politics* 13, no. 2 (2013): 89-108.

¹⁰⁹ Environment Canada is a department of the Canadian government. This department is responsible for coordinating environmental programs across Canada.

¹¹⁰ Simpson, Jeffrey, Mark Jaccard, and Nic Rivers. *Hot air: Meeting Canada's climate change challenge*. (Emblem Editions), 2011.

national environmental programs totaling \$222 million. This included cuts to programs like the Canadian Foundation for Climate and Atmospheric Sciences (CFCAS) and the National Roundtable on the Environment and the Economy (NTREE).¹¹¹ The impact of the budget cuts forced the CFCAS to begin the closure of the Polar Environment Atmospheric Research Laboratory (PEARL), Canada's northernmost data collection facility in the Arctic.¹¹² However, through private donations, PEARL remained open after the government's budget pullback. NTREE was unable to continue operations with the significant budget cuts but eventually reorganized, operating as a private organization.¹¹³ Through nine years and six different Ministers of the Environment, the Harper government did not provide a workable national alternative to Kyoto or the subsequent international environmental agreements.

The Trudeau Government

The liberal government regained control of Parliament in 2015. It ran on a platform that included returning to environmentally friendly policies and meeting international commitments to climate change. During the campaign the Liberal party platform included the following three important environmental planks:

- Phase out subsidies to the fossil fuel industry.¹¹⁴
- Fund \$2 billion towards a Low Carbon Economy Trust.¹¹⁵
- Create a pan-Canadian framework for dealing with climate change that aligns with the Paris climate conference.

¹¹¹ Turner, Chris. *The war on science: Muzzled scientists and willful blindness in Stephen Harper's Canada*. (Greystone Books), 2013.

¹¹² Hanusch, *Democracy and climate change*.

¹¹³ Hanusch, *Democracy and climate change*.

¹¹⁴ Some estimates suggest that the federal government provides more than \$1.6 billion in subsidies to oil and natural gas industries annually. Touchette, Yanick. "G20 subsidies to oil, gas, and coal production: Canada." International Institute for Sustainable Development. <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9988.pdf> - Accessed on 04/20/2020.

¹¹⁵ The Low Carbon Economy Trust provides is a source of investment and funds available to the provinces for projects that reduce GHG emissions, develop clean jobs, and encourage clean growth; The Government of Canada. "The Low Carbon Economy Fund." <https://www.canada.ca/en/environment-climate-change/services/climate-change/low-carbon-economy-fund.html> , Accessed on 03/12/2020.

The Trudeau government made good on a campaign promise to reengage with the international community on climate change through negotiations at the Paris climate conference. Canada's Environment and Climate Change Minister, Catharine McKenna, affirmed that Canada was committed to negotiating an agreement that included achievable targets.¹¹⁶ Before the conference, McKenna acknowledged that both the provincial and federal leaders had to accept realistic reduction targets and that those targets needed to be met with actual plans. In October of 2016, the House of Commons ratified the Paris agreement¹¹⁷, with the Liberal and NDP members joining together to vote in favor.¹¹⁸

In 2016, the Trudeau government called a First Minister's Meeting to discuss climate change policy with provincial leaders. At the conclusion of the meeting, the leaders issued the Vancouver Declaration on clean growth and climate change. In this declaration, provincial and federal leaders agreed on a framework to meet emission reduction targets and other climate change goals. A critical agreement within the Vancouver Declaration called for the transition to carbon pricing mechanisms to help reduce GHG emissions.¹¹⁹

The "Pan-Canadian Framework on Clean Growth and Climate Change" (PCFCGCC) was an environmental agreement between provincial and federal leadership released following the First Minister's Meeting in 2016. The framework represented the first national strategy aimed at

¹¹⁶ Comisso, Chistina. "Environment minister looking for 'ambitious' deal at climate summit." CTV News. (13 Nov 2015).

¹¹⁷ 207 to 81 in favor of endorsing the Paris agreement.

¹¹⁸ McSheffrey, Elizabeth. "Canada officially ratifies historic Paris climate agreement." Canada's National Observer. (5 Oct 2016).

¹¹⁹ Carbon pricing is a government implemented policy that places a price on carbon emissions for industries across a country. The World Bank lists two types of carbon pricing instruments commonly used by nation states, emissions trading systems (ETS) and carbon taxes. Carbon taxes are often applied to fossil fuel products or GHG emissions directly. Also known as a cap and trade system, the ETS places a ceiling on total emissions. This system establishes emission allowances for industries within a country, that compels low emission industries to sell extra allowances as credits to high emission industries.

reducing GHG emissions by developing carbon pricing benchmarks, increasing standards for energy efficiency, and investing in clean technology.¹²⁰ The PCFCGCC established a schematic for provincial cap and trade systems or carbon taxes as appropriate standards for emissions reduction. All provinces were required to implement one or both of the carbon pricing instruments by 2018 to assure their adherence to the framework. The PCFCGCC outlined a carbon price of \$10 per ton beginning in 2018, with an additional \$10 increase each year until 2022. The agreement represented 93% of the population of Canada.¹²¹

Only the provincial leadership of Manitoba and Saskatchewan refused to support the PCFCGCC. Provincial leadership in Saskatchewan opposed the framework based on the carbon pricing instrument, which they suggested could reduce the GDP of the province by \$1.8 billion annually.¹²² Manitoba leadership claimed their “Made in Manitoba” climate plan contained a cap and trade system that met the requirements of the initial PCFCGCC benchmarks. However, Manitoba’s carbon pricing system set a carbon emission price frozen at \$25 per ton for industrial emitters until 2022, which was not stringent enough for the national benchmarks. The federal standard provided in the framework required provinces to set at least \$50 per ton at 2022. Other issues with provincial cooperation include Ontario’s removal of its cap and trade instruments in 2018.

While the Pan-Canadian climate framework marked a significant moment in the formation of a mostly national strategy to reduce GHG emissions, the “Greenhouse Gas Pollution Pricing Act” (GGPPA) created federal law that required compliance of environmental

¹²⁰ Government of Canada. "Pan-Canadian framework on clean growth and climate change." (2016), 2-3.

¹²¹ Climate Action Network Canada. The Pan-Canadian Framework. Issues. Accessed 09/06/2019. <https://climateactionnetwork.ca/issues/the-pan-canadian-framework/>.

¹²² Government of Saskatchewan. Federal carbon tax could reduce Saskatchewan GDP by Almost \$16 billion by 2030. Saskatchewan Government, News and Media. Accessed 09/04/2019. <https://www.saskatchewan.ca/government/news-and-media/2018/june/27/fed-carbon-tax>.

standards for provincial governments. The GGPPA officially created federal guidelines for carbon pricing and initiated a new nationally aligned policy to reduce emissions.¹²³ This legislation was passed as a portion of the Budget Implementation Act in 2018, an omnibus bill.¹²⁴ Those provinces that had not established a carbon pricing system that aligned with the PCFCGCC were required to create a pricing indices or be subject to the federal guidelines. The federal government returned 90% of the money collected from carbon and fuel taxes to provincial governments that complied with the GGPPA.¹²⁵ Provincial leadership could then decide how to redistribute the money among provincial programs. For provinces not committed to the GGPPA or carbon pricing, the federal government returned the money directly to citizens through a Climate Action Incentive payment.¹²⁶ The carbon pricing mechanisms had not yet taken effect across all provinces by 2018 when this study's analysis ends.

The enactment of the GGPPA has been complicated by provincial pushback against federally mandated carbon taxes. The provincial governments of Saskatchewan, Ontario, and Alberta sued to stop the enactment of a federal carbon tax in 2018.¹²⁷ In the cases of Ontario and Saskatchewan appeal courts upheld the federal government's authority to regulate GHG emissions via the GGPPA. However, the Court of Appeal of Alberta ruled against the federal

¹²³ Supreme Court of Canada. *In the Matter of the Greenhouse Gas Pollution Pricing Act*. S.C. 2018, c. 12, s. 186 (16 October 2019).

¹²⁴ Budget Implementation Act, 2018. No.1, S.C. 2018, c.12.

¹²⁵ MacLean, Jason. "Climate Change, Constitutions, and Courts: The Reference re Greenhouse Gas Pollution Pricing Act and Beyond." *Sask. L. Rev.* 82 (2019): 147.

¹²⁶ Choudhry, Sujit. "Constitutional Law and the Politics of Carbon Pricing in Canada." *Institute for Research on Public Policy*. Available online: <https://irpp.org/research-studies/constitutional-law-and-the-politics-of-carbonpricing-in-canada> (2019).

¹²⁷ Government of Canada. "Government of Canada's Response to Saskatchewan Court Challenge." Environment and Climate Change Canada; Canada.ca, February 14, 2019. <https://www.canada.ca/en/environment-climate-change/news/2019/02/government-of-canadas-response-to-saskatchewan-court-challenge.html>.

government's carbon tax plan in 2019.¹²⁸ The Supreme Court of Canada agreed to hear appeals from Saskatchewan and Ontario on the validity of a federal mandated carbon tax in 2020.

The Trudeau government was moving to establish national programs to meet the country's goals in emission reduction. However, environmental activists and other critics asserted that the Liberal government was too entrenched with the fossil fuel industry. The concern from activists centered on the continuance of subsidies to fossil fuel industries and the proposed expansion of the Trans Mountain Pipeline System (TMPS). In 2016, the Trudeau cabinet approved the expansion of the TMPS. The expansion project included the addition of another pipeline to run alongside the original TMPS system. Before the expansion project could proceed, the government required Kinder Morgan, the group that owned the TMPS, to meet over 150 conditions linked to environmental and economic feasibility. Additionally, legal issues with permitting prevented the expansion project from moving forward with construction for over a year. Protests from First Nations people and environmental activists further delayed the expansion of the TMPS. British Columbia presented another significant threat to the project when the provincial government opposed the expansion by proposing restrictions to environmentally harmful imports from Alberta. As a result of legal challenges to the expansion project, and the continued protests, Kinder Morgan stated that they were considering abandoning the expansion project.

In May of 2018, the federal government of Canada announced its intent to nationalize, through purchase, the TMPS. The Liberal government's investment set in motion court battles, as well as a renewed protest from First Nation communities, environmental activists, and

¹²⁸ Bellefontaine, Michelle. "Federal Carbon Pricing Law Unconstitutional, Alberta Court of Appeal Rules" CBC News, February 25, 2020. <https://www.cbc.ca/news/canada/edmonton/federal-carbon-tax-unconstitutional-alberta-court-1.5473482>.

Members of Parliament. Jagmeet Singh, Leader of the NDP, stated that “climate change leaders don’t spend \$4.5 billion dollars on pipelines.”¹²⁹ Immediately following the nationalization of the TMPS the planned expansion, approved in 2016, was halted by the Federal Court of Appeals. The court ruled that Kinder Morgan did not appropriately seek the consent of First Nation’s leaders, and failed to account for increased waterway traffic surrounding the project.¹³⁰ If the federal government wanted to continue with the TMPS expansion, it would have to show a plan to gain consent from First Nations leaders. As of the end of the timeline for research in this dissertation the TMPS expansion was still in question due to legal challenges from First Nation leaders.

The United States and Federal Environmental Policy Action

The Clinton Administration

The Clinton Administration’s attempts at environmental initiatives began in 1993 with the introduction of a plan to create a British Thermal Unit (BTU) tax and the Climate Change Action Plan (CCAP). The BTU tax faced opposition in Congress and was replaced with a gasoline tax.¹³¹ If passed, the BTU tax would have been the first carbon tax applied to industries across an industrialized country. The CCAP was a package of initiatives that aimed at reducing emission levels to the 1990 baseline by 2000.¹³² Through the CCAP, the President ordered the Department of Energy (DOE) and the EPA to develop coordinated initiatives to help commercial buildings reduce their emissions and energy consumption through knowledge sharing and

¹²⁹ Harris, Kathleen. “Liberals to buy Trans Mountain pipeline for \$4.5B to ensure expansion is built.” Canadian Broadcast Corporation News. (29May 2018).

¹³⁰ Federal Court of Appeals (Canada). *Tsleil-Waututh Nation v. Canada*: Clarifying the Laws in Canada’s Pipeline Approval Process. 22 C.E.L.R (5 March 2020).

¹³¹ Royden, Amy. "US climate change policy under president Clinton: a look back." *Golden Gate UL Rev.* 32 (2002): 415.

¹³² Clinton, Bill. “The climate change action plan.” Executive Office of the President, 1993.

technical support. To accomplish these goals the agencies were directed to utilize the Energy Star Buildings and Rebuild America programs to aid in the retrofitting of energy saving systems.¹³³ Additionally, the CCAP called for the EPA to “narrow the scope of uses allowed for” harmful emission, like hydrofluorocarbons (HFCs) used in some commercial products.¹³⁴ Yet, environmental groups and critics asserted that the plan amounted to voluntary measures that could not achieve the desired outcome of emission reduction to the baseline target.

In 1995, many of the environmental initiatives contained within the CCAP were placed in jeopardy as the Republican Party won control of both Congressional bodies. Many of the directives contained within the CCAP did not require Congressional approval. Other initiatives were voluntary, urging companies to collect data and reduce emissions. However, Congressional authorization for budgetary requirements of the CCAP experienced significant delays or gridlock as republican leaders focused on their platform, the “Contract with America.” Furthermore, the Republican-led legislative agenda included budget cuts to environmental programs, including the EPA, and a rollback of environmental protections that were considered harmful to business.¹³⁵ These environmental cuts were part of a larger budgetary struggle in the United States that led to a government shutdown in late 1995.

As part of COP-1 in 1995, the United States agreed to the Berlin Mandate. This agreement outlined the basis for which countries would participate in GHG reduction targets and determined the format of future climate negotiations. However, the Congressional pushback created problems with United States’ participation in the UNFCCC when the Senate passed the

¹³³ Clinton, “The climate change action plan”.

¹³⁴ Clinton, “The climate change action plan,” 24.

¹³⁵ Royden, “US Climate change policy under president Clinton: a look back”.

Byrd-Hagel resolution.¹³⁶ Senators expressed concern about emission targets and timetables, including the fact that developing countries were not required to make the same commitments as industrialized countries. The Byrd-Hagel resolution was partially a product of concerns about economic competitors, like China and India, gaining unfair market advantages because of their “developing” status.¹³⁷ Additional lobbying from the energy sector promoted a negative response from U.S. congressional members to the Berlin Mandate and other international environmental efforts.¹³⁸ In a 95-0 vote the United States Senate passed the Byrd-Hagel resolution in July of 1997. This resolution expressed the Senate’s position that any international environmental treaty would require the “meaningful” participation from developing countries in GHG reduction targets and goals.¹³⁹

The United States officially signed the Kyoto Protocol in 1998 during COP-4. However, chief negotiator Stuart Eisenstat confirmed that the Clinton administration did not intend to submit the treaty to Congress until key developing countries pledged themselves to targets and timetables.¹⁴⁰ Efforts from the Clinton administration to convince countries to adopt emission reduction measures continued through bilateral agreements and negotiations by way of the COPs. Through bilateral agreements, U.S. negotiators secured pledges to plan targets and timetables for emission reduction from Argentina, Kazakhstan,¹⁴¹ China, and India.¹⁴²

The addition of pledges from developing countries did little to sway debate over Senate ratification of the Kyoto Protocol. Senators charged that the targets set by the protocols were

¹³⁶ Bohringer, Christoph. "Climate politics from Kyoto to Bonn: from little to nothing?." *The Energy Journal* 23, no. 2 (2002).

¹³⁷ Passacantando, John. "A Pothole in the Ozone Layer." *The Washington Post* (March 15) C 5 (1998).

¹³⁸ Royden, "US Climate change policy under president Clinton: a look back".

¹³⁹ Byrd Hagel Resolution. *US Senate Resolution 98 on Global Warming. Congressional Record, Senate* (1997); S10308-S10311.

¹⁴⁰ Passacant, "A Pothole in the Ozone Layer".

¹⁴¹ Royden, "US Climate change policy under president Clinton: a look back".

¹⁴² Royden, "US Climate change policy under president Clinton: a look back".

unreasonable and would harm markets across the United States.¹⁴³ Additionally, critics of Kyoto claimed the lack of meaningful participation among developing countries gave an unfair economic advantage to market rivals like China, India, and Brazil.¹⁴⁴ After the suspension of COP-6, the Clinton administration made no effort to send the Kyoto Protocol to the Senate for ratification.

Soon after Kyoto, the administration of George W. Bush revoked the United States' participation in the Kyoto process and altered how the United States would conduct future international climate negotiations.

The George W. Bush Administration

As discussed in the introduction to this research, the George W. Bush administration announced the withdrawal of the United States from the Kyoto Protocol. The Bush administration stated that the goals contained in Kyoto would place an uneven economic burden on industrialized countries and would injure the U.S. economy.¹⁴⁵ In his statement, Bush noted that his working group on climate change was developing recommendations for an alternative to Kyoto.¹⁴⁶

President Bush announced his administration's alternatives to the Kyoto Protocol in 2002, the Clear Skies Initiative (CKI) and the Global Climate Change Initiative (GCCCI). The CKI called for a "new market-based approach to clean air," where technological innovation and private sector stewardship could slow the rise in emissions. In 2003, the republican sponsored

¹⁴³ Helen, Dewar and Sullivan, Kevin. "Senate Republicans Call Kyoto Pact Dead." Washington Post (December 11, 1997).

¹⁴⁴ Hovi, Jon, Detlef F. Sprinz, and Guri Bang. "Why the United States Did Not Become a Party to the Kyoto Protocol: German, Norwegian, and US Perspectives." European Journal of International Relations 18, no. 1 (March 2012): 129–50.

¹⁴⁵ Bush, George W. "President Bush discusses global climate change." *June* 11 (2001): 20010611-2.

¹⁴⁶ Bush, "President Bush discusses global climate change".

Clear Skies Act (CSA) was introduced to the Senate. Critics charged that the proposed legislation would reduce the control already in place for many harmful emissions. One example of change to established environmental programs was the “new source review” (NSR) process established in amendments to the Clean Air Act in 1977. NSRs are required when industrial facilities make modifications to energy systems that impact the amount of GHG emitted. The NSR process is a nuisance to high emission industries because of directives to use modern pollution controls in the construction of new facilities like gas-fired turbines instead of coal-fired power plants. The CSA as presented in the Senate would have retired the NSR process for a proposal on a cap and trade system.¹⁴⁷ Furthermore, the CSA went to extraordinary lengths to replace critical components of the Clean Air Act, in some cases, leaving emissions like carbon dioxide out of inventory mandates.¹⁴⁸ The CSA was abandoned in 2005 after senate republicans failed to successfully move it out of committee for a vote. The GGCI proposed reducing the “intensity” of GHG emission 18% by 2012 by means of market-based initiatives. The mathematics involved in this reduction scheme tied base GHG emission targets as a ratio of GHG emission to Gross Domestic Product (GDP).¹⁴⁹ Through the GGCI, the Bush administration proposed initiatives for corporations to gain tax credits if they conducted voluntary corporate-wide emissions reporting or implemented technological innovation to reduce emission.

The CKI, CSA, and GGCI were all influenced by policy directives established during the first year of the Bush administration. During his first month in office, President Bush created the

¹⁴⁷ Winters, Tobey. "Clear Skies Initiative: New Beginning or Bait and Switch?." *The Electricity Journal* 15, no. 6 (2002): 56-63.

¹⁴⁸ Cohen, Maurie J. "George W. Bush and the Environmental Protection Agency: a midterm appraisal." *Society and Natural Resources* 17, no. 1 (2004): 69-88.

¹⁴⁹ Blanchard, Odile. "The Bush Administration's climate proposal: rhetoric and reality?." The French Center of the United States; CFE Policy Paper. (2003).

National Energy Policy Development Group (NEPDG) and named Vice President Dick Cheney as the chairperson. The activities and meetings of the NEPDG were held in private but were accessible to over 100 executives from the energy industry.¹⁵⁰ For example, executives from Enron, Shell, ExxonMobil, and the American Coal company expressed their concerns and policy recommendation to the energy taskforce personally. However, environmental groups and alternative energy companies were unable to attend the NEPDG as experts. Some groups were allowed to submit structured comments to the NEPDG that appeared to have no impact on the final report. The release of the 2001 Report of the National Energy Policy Development Group (NEPDG) was heavily criticized as a policy that was influenced by representatives from the energy industry. The Congressional Committee on Government Reform, the House Committee on Energy, and the U.S. General Accounting Office requested information from the White House on the consultation process of the NEPDF. Nonetheless, the White House refused to acknowledge those requests. An investigation in 2005 revealed that undue influence was given to executives and lobbyists from the energy sector when planning climate change and other environmental policy.

At the international level, the Bush administration did not provide adequate support to the Kyoto process or to the formation of an international environmental regime. In multiple COPs under the Bush administration, officials from the United States tried to remove emission targets, replace the phrase climate change with “climate variability”,¹⁵¹ and emphasize the role of technology to meet the energy crisis in place of regulating industries. During the first MOP in Montreal in 2005, the United States delegation walked out over a disagreement with the Kyoto

¹⁵⁰ Cramer, Benjamin W. "The Power of Secrecy and the Secrecy of Power: FACA and the National Energy Policy Development Group." *Comm. L. & Policy* 13, no. 2 (2008): 183-230.

¹⁵¹ Sterk, Wolfgang, Hermann E. Ott, Bettina Wittneben, and Bernd Brouns. "It Takes Two to Tango-Climate Policy at COP 10 in Buenos Aires and Beyond." *Journal for European environmental & planning law* 2, no. 2 (2005), 85.

targets timetables.¹⁵² One of the only moments of cooperation with the international environmental regime and the United States occurred at Cop 13 in Bali, where the United States joined international environmental efforts when it supported the Bali Roadmap.¹⁵³ During this COP, the E.U. engaged in a concentrated effort to bring the United States back to the negotiating table, in the event that a more environmentally progressive administration would replace the Bush White House following the 2008 election.

The Obama Administration

The American Clean Energy and Security Act (ACESA) was the Obama administration's first attempt at major legislation on climate change. Introduced by Representative Henry Waxman in the House in May of 2009, the ACESA proposed efficiency standards for electricity suppliers that required 20% of energy generated should come from renewable sources. Additionally, the ACESA empowered the EPA to enact measures on carbon capture and sequestration, improve the environmental reporting system between state and federal governments, and create subsidies for renewable energy projects.¹⁵⁴ The majority of opposition to the legislation in the House came from the Republican representatives. They claimed the ACESA was a cap and trade system that would hurt consumers by increasing energy prices.¹⁵⁵ The ACESA passed the House 219-212 in late June of 2009. Over 40 democratic representatives

¹⁵² Ott, Hermann E., Bettina Wittneben, Wolfgang Sterk, and Bernd Brouns. "The Montreal climate summit: starting the Kyoto business and preparing for post-2012." *Journal for European environmental & planning law* 3, no. 2 (2006): 90-100.

¹⁵³ Christoff, Peter. "The Bali roadmap: Climate change, COP 13 and beyond." *Environmental Politics* 17, no. 3 (2008): 466-472.

¹⁵⁴ United States Congress, "The American Clean Energy and Security Act of 2009 (HR 2454)." *US House of Representative, Washington, DC* (2009).

¹⁵⁵ Broder, John. "Climate Bill Clears Hurdle, but others remain." *New York Times*. (May 2009).

and 168 republicans voted no, while eight republicans and 211 democratic representatives voted yes to advance the legislation to the Senate.¹⁵⁶

In the Senate, the ACESA was contested fiercely along party lines. Although the Democratic Party had a near filibuster proof majority in the Senate, the atmosphere became even more contentious with the continuing debate surrounding healthcare legislation and the Affordable Care Act (ACA). Though a small group of Senators tried to advance the ACESA to a Senate vote, there was not enough support to bring the bill to the floor. In July of 2010, Senate Majority Leader Harry Reid acknowledged that his party did not have the 60 votes required¹⁵⁷ to move forward with debate in the Senate.¹⁵⁸

Since overcoming Senate gridlock required 60 votes, the Obama administration leaned on Presidential Memorandums, unilateral executive action, and budgetary requests to develop processes to reduce GHG emissions. In 2013 the Obama administration put forward a climate action plan that called for cutting carbon pollution, preparing resilient systems in preparation for climate change, and a return to environmental leadership at the international level.¹⁵⁹ In the same year, a Presidential Memorandum ordered federal government agencies to derive at least 20% of their energy consumption from renewable energy sources.¹⁶⁰ In 2015, the Obama administration announced the Clean Power Plan (CPP), which directed the EPA to set standards that addressed

¹⁵⁶ United States House of Representatives. "Roll Call 477 - Bill Number: H.R. 2454." Clerk for the United States House of Representatives. (2009).

¹⁵⁷ As a tactic to block legislation during this era, Senate Republicans frequently used the filibuster rules to deny debates on legislation.

¹⁵⁸ Miles, Derek. "The Climate of Washington: The Politics behind the Life and Death of the American Clean Energy and Security Act." *J. Animal & Env'tl. L.* 5 (2013): 71.; Samuelsohn, Darren. "Climate bill blame game begins." Politico. (July 2010).

¹⁵⁹ Executive Office of the President. "The President's climate action plan." (2013).
<https://obamawhitehouse.archives.gov/sites/default/files/image/president27sclimateactionplan.pdf>

¹⁶⁰ Obama, Barack. "Presidential memorandum: Federal Leadership on Energy Management." *The White House, Office of the Press Secretary* (2013).

carbon output from power plants.¹⁶¹ The CPP was the result of a community consultation of “states, tribes, utilities, stakeholders and the public, including more than 4.3 million comments that the EPA received on the proposed rule.”¹⁶² Congressional pushback came from both chambers of Congress, and individual leaders who refused to accept the CPP. Senator Mitch McConnell suggested that states concerned with the plan should refuse to implement the new regulations.¹⁶³ Additionally, the House and the Senate issued resolutions of disapproval as part of their power under the Congressional Review Act. These resolutions had the authority to cancel the CPP and many of its provisions.¹⁶⁴ However, the President vetoed both resolutions.

At the international level, the Obama administration rejoined efforts by committing to new emission reduction targets. In 2014, China and the United States announced a joint environmental agreement. China agreed to place a cap on its emissions by 2030, increase energy produced from non-fossil fuel sources, and reduce its carbon intensity.¹⁶⁵ The United States committed to reducing its emissions by 26% below 2005 levels by 2025.¹⁶⁶ The bilateral climate cooperation agreement, announced a year ahead of the Paris conference, expressed the commitments the Obama administration thought were achievable. This agreement also signaled to the international community what reduction targets and mechanisms were acceptable to each country. In 2015, the United States was one of 195 countries to agree to targeted reductions in GHG emissions.

¹⁶¹ Environmental Protection Agency. “Fact Sheet: Overview of the Clean Power Plan.” (EPA, 2015).

¹⁶² EPA, “Fact Sheet: Overview of the Clean Power Plan,” 2.

¹⁶³ Konisky, David M., and Neal D. Woods. “Environmental policy, federalism, and the Obama presidency.” *Publius: The Journal of Federalism* 46, no. 3 (2016): 366-391.

¹⁶⁴ Konisky et al. “Environmental policy, federalism, and the Obama presidency”.

¹⁶⁵ Schreurs, Miranda A. “The Paris climate agreement and the three largest emitters: China, the United States, and the European Union.” *Politics and Governance*, (2016), V.4, Issue 3, Pages 219-223.

¹⁶⁶ Deese, Brian. “Paris isn’t burning: why the climate Agreement will survive Trump.” *Foreign Aff.* 96 (2017): 83.

In 2016, President Barack Obama signed the Paris climate agreement. The President was accompanied by President Xi Jinping of China, whose country also initiated the process to officially join the Paris agreement on the same day as the United States. The United States' commitment to reduce GHG emissions to 28% below 2005 levels by 2025 was very close to the bilateral agreement made with China in 2014.

The Trump Administration

As one of its first official acts the Trump administration removed the United States from the Paris Accord. The Trump administration's deregulation of environmental policy is a reflection of its nationalist "America First" slogan. The administration has followed in the footsteps of previous republican political leaders that favor deregulation and economic growth over environmental protection. The Trump administration ended many of the programs contained within the 2013 Presidential Climate Action Plan, citing the high costs of the programs on industry and the country. During his campaign for president, environmental activists and the scientific community were alarmed at Trump's insistence that as president he would, in reference to the EPA, "get rid of the agency."¹⁶⁷ Occasionally referring to the EPA as the "Department of Environmental," then candidate Trump claimed on Sean Hannity's television program that the agency was "just killing our businesses."¹⁶⁸

The administration's pattern of environmental deregulation is epitomized by the governing of the EPA. In 2017, Trump selected Scott Pruitt as his first administrator of the EPA. In his former position as the Attorney General of Oklahoma, Pruitt sued the EPA to block

¹⁶⁷ Aldern, Clayton and Leber, Rebecca. "Donald Trump Thinks Global Warming is "Bullshit." Mother Jones. (May 2016).

¹⁶⁸ Aldern and Leber, "Donald Trump Thinks Global Warming is "Bullshit".

regulations related to the CPP.¹⁶⁹ The pushback against Scott Pruitt's nomination came from members of congress, environmental activists, and employees within the EPA. Other controversial appointments to the EPA include:

- Andrew Wheeler: Former coal mining lobbyist for Deputy Administrator.
- Erik Baptist- Former senior counsel for the American Petroleum Institute for Senior Deputy Council.
- Nancy Beck: Former executive at the American Chemistry Council for Deputy Assistant Administrator for the Office of Chemical Safety and Pollution Prevention.
- William Wehrum: a lawyer with previous challenges to the Clean Air Act on behalf of companies from oil, gas, and coal industries for the position of Assistant Administrator of Air and Radiation.

The personnel changes at the EPA were accompanied by budget cuts to programs across the agency. This included cuts to the entire EPA budget by 31% in 2018¹⁷⁰ and 23% in 2019, as well as a 90% cut to the EPA's Atmospheric Protection Program.¹⁷¹

In the first year of his presidency, Trump asserted his affinity for deregulation. In 2017, President Trump issued an executive order directing all agencies to "repeal at least two existing regulations for each new regulation."¹⁷² Within the executive order, guidance from the Trump administration suggested that the "costs of all regulations should be no greater than zero."¹⁷³ In 2017, Trump issued an executive order that directed the EPA to review regulations that harmed jobs in the coal mining industry. As Administrator of the EPA, Scott Pruitt replaced half of the members of the Board of Scientific Counselors, which advises the EPA on scientific questions

¹⁶⁹ Davenport, Coral. "Scott Pruitt is seen cutting the EPA with a scalpel, not a cleaver." *The New York Times* (2017).

¹⁷⁰ Thrush, Glenn, and Coral Davenport. "Donald Trump Budget Slashes Funds for EPA and State Department." *The New York Times* www.nytimes.com/2017/03/15/us/politics/budget-epa-state-department-cuts.html (2017).

¹⁷¹ Dennis, Brady. "Trump budget seeks 23 percent cut at EPA, eliminating dozens of programs." *The Washington Post* 12 (2018).

¹⁷² Trump, Donald. "Presidential Executive Order on Reducing Regulation and Controlling Regulatory Costs" *The White House*. (January 30, 2017) Executive Order 13771.

¹⁷³ Trump, "Presidential Executive Order on Reducing Regulation and Controlling Regulatory Costs".

related to environmental research.¹⁷⁴ J.P. Freire stated that the EPA under the Trump administration was “not going to rubber-stamp the last administration’s appointees.”¹⁷⁵ During the reorganization of scientific boards, the EPA also canceled subcommittees on the environment for the summer of 2017.

At the international level, the Trump administration offered little input to international environmental efforts surrounding the Paris climate agreement. At COP 23 in Bonn the Trump administration sent low-level delegates who used the event to promote nuclear power and fossil fuels to supply industrializing countries with energy alternatives.¹⁷⁶ The United States delegation to COP 24 again used their platform to promote coal.¹⁷⁷ Additionally, at COP 24 the United States joined with Russia, Saudi Arabia, and Kuwait in a vote against welcoming a report compiled by the Intergovernmental Panel on Climate Change, which suggested aggressive action to avoid a global environmental crisis.¹⁷⁸ The Trump administration sent no official delegation to COP 25 in Madrid. However, Speaker of the House Nancy Pelosi attended the conference to reaffirm the United States Congress’ support for the international environmental process.¹⁷⁹

Anti-Agenda 21 Movements in the United States

In the United States, opposition to environmental agreements formed with an unexpected narrative that impacted local authorities and some climate change projects. An anti-Agenda 21 position from the far-right John Birch Society was amplified by conservative radio personalities,

¹⁷⁴ Eilperin, Juliet, and Brady Dennis. "EPA dismisses half of key board’s scientific advisers; Interior suspends more than 200 advisory panels." *Washington Post* (2017).

¹⁷⁵ Eilperin, and Brady , "EPA dismisses half of key board’s scientific advisers".

¹⁷⁶ Friedman, L. "Trump Team to Promote Fossil Fuels and Nuclear Power at Bonn Climate Talks." *The New York Times* (2017).

¹⁷⁷ McGrath, M., 2018. Climate Change: ‘World at Crossroads’ Warning as Key Talks Begin. *BBC News*.

¹⁷⁸ Plumer, B. and Friedman, L., 2018. Trump Team Pushes Fossil Fuels at Climate Talks. Protests Erupt, but Allies Emerge, Too. *New York Times*.

¹⁷⁹ Dacey, James. "UN secretary-general calls for rapid, deep change at climate summit." *Physics World* 33, no. 1 (2020): 12.

state legislators, political committees, and presidential candidates. The narrative behind this stance against Agenda 21 was based in a conspiracy theory involving a UN plot to take away individual property rights in the United States. This anti-Agenda 21 movement placed pressure on some local authorities and municipal networks that sought to implement environmental policy in the spirit of Agenda 21.

In a study of conspiracy theory narratives that drive anti-Agenda 21 movements, Shaffer identifies the Schiller Institute as the first group to tie Agenda 21 into a larger conspiracy narrative.¹⁸⁰ By means of a document titled “Eco92 Must Be Stopped,”¹⁸¹ the Schiller Institute tied the Rio Summit and Agenda 21 into a more extensive menagerie of conspiracies that include a Malthusian New World Order, a “Gaia Cult”, and “technical apartheid.”¹⁸² Other early amplifiers of a conspiracy-driven anti-Agenda 21 message include Tom DeWeese from an organization called the American Policy Center, which was founded with the mission of stopping the enforcement of Agenda 21. DeWeese has described Agenda 21 as the “ruling principle of the revolution” that was a new form of tyranny.¹⁸³ Framing Agenda 21 as a communist plot, DeWeese has further described the voluntary environmental agreement as a “blueprint to turn your community into a little soviet.”¹⁸⁴ The John Birch Society was also an early opponent of Agenda 21 accusing its supporters of joining a world government by creating a document which they view as comparable to the Ten Commandments.¹⁸⁵

¹⁸⁰ Shaffer, Mikel. “Chasing Windmills: The Use of Conspiracy Theory Based Narratives by anti-Agenda 21 Movements.” (Thesis- University of Colorado at Denver- MA Thesis. (2015).

¹⁸¹ The Schiller Institute. “The Hoax Behind the 1992 Earth Summit.” Executive Intelligence Report Investigation – retrieved from https://larouchepub.com/eiw/public/1991/eirv18n37-19910927/eirv18n37-19910927_028-the_hoax_behind_the_1992_earth_s.pdf Accessed on September 10, 2019.

¹⁸² Shaffer, “Chasing Windmills,” 24.

¹⁸³ Southern Poverty Law Center. “Agenda 21: The UN, Sustainability, and Right-Wing Conspiracy Theory.” *A Special Report from the Southern Poverty Law Center* (2014): 1-22, 8.

¹⁸⁴ Erickson, Amanda, “Trump’s climate change shift is really about killing the international order.” *Washington Post*. (29March2017).

¹⁸⁵ Southern Poverty Law Center, “Agenda 21,” 9.

Former radio DJ Glenn Beck has been a vocal critic of Agenda 21 and groups that promote the non-binding environmental agreement. Mr. Beck first used his radio show, then his television show, to amplify the message about the dangers presented by Agenda 21. Beck went so far as to co-author a novel of a dystopian future where the U.N. has instituted a world government with Agenda 21 as the governing principle. During a segment advertising his book on Fox News Channel, Beck insisted that the United Nations had formed alliances with local governments and radical activists, and that his novel captured the possible outcome of this political union.¹⁸⁶

These arguments have taken root with some citizen groups and political figures in the United States. Though the idea of a freedom-stealing cabal of global elites using the vehicle of environmental policy was limited to fringe conspiracy theorists for almost 15 years, the anti-Agenda 21 movement became more normalized within specific political circles around 2011. Notable political leaders that amplified the anti-Agenda 21 message include Ted Cruz, Newt Gingrich, and Jim DeMint. Gingrich, another latecomer to anti-Agenda 21 activism, stated he did not know about the program until he began his run for President in 2011.¹⁸⁷ Gingrich also highlighted his perception of an “extra-constitutional control” over the citizens of the United States emanating from Agenda 21 and the United Nations.¹⁸⁸ As part of his campaign platform, Gingrich vowed to fight Agenda 21 projects across the United States. In early 2012 Ted Cruz, a candidate running for Senate at the time, sat down with the Glenn Beck Radio Program to share his thoughts on Agenda 21. Cruz claimed that, if left to its own devices, Agenda 21 would

¹⁸⁶ Southern Poverty Law Center, “Agenda 21,” 9.

¹⁸⁷ Murphy, Tim. “Newt Gingrich’s Anti-Sustainable Development Crusade.” Mother Jones. (14Nov2011).

¹⁸⁸ Murphy, “Newt Gingrich’s Anti-Sustainable Development Crusade”.

“undermine property rights,” and “undermine individual liberty” which would push citizens away from the notion of private property.¹⁸⁹

During a winter meeting of party officials planning the Republican National Convention (RNC) in 2011 a resolution was adopted titled “Resolution Exposing United Nation’s Agenda 21.”¹⁹⁰ The resolution framed Agenda 21 as “a comprehensive plan of extreme environmentalism, social engineering, and global political control.”¹⁹¹ Anti-Agenda 21 language also appeared in the 54-page platform of the RNC in Tampa in the summer of 2012. Though not as pointed as the winter meetings, the official RNC platform stated, “We emphatically reject U.N. Agenda 21 as erosive of American sovereignty, and we oppose any form of U.N. Global Tax.”¹⁹²

As the fringe view of Agenda 21 became more accepted within the Republican Party, the political backlash for local leaders in some areas was swift and devoid of scientific reason. In Oklahoma, State Senator Sally Kern introduced anti-Agenda 21 legislation saying the plan would ban cars and remove property rights from American citizens.¹⁹³ Arizona State Senator Judy Burges sponsored a bill¹⁹⁴ targeting Agenda 21 that would bar the state of Arizona and its counties and local governments from implementing principles from the Rio Summit.¹⁹⁵ In her opening remarks, Burges said that the “truth contained within this U.N. program depicts

¹⁸⁹ Burguiere, Steve. The Glenn Beck Radio Program. Dallas, TX. (26Jan2012).

¹⁹⁰ Republican National Committee. *Resolutions Adopted by the Republican National Committee: Past Meeting Summaries. 2012 Winter Meeting*. RNC (13January2012).

¹⁹¹ RNC, *Resolutions Adopted by the Republican National Committee*, 3.

¹⁹² GOP Platform Committee. "Republican Platform: American Exceptionalism." gop.com. 2012. <https://gop.com/platform/american-exceptionalism/>.

¹⁹³ Southern Poverty Law Center, “Agenda 21”, 11.

¹⁹⁴ Arizona State Senate. *S.B. 1507: An Act Prohibiting the State and Its Political Subdivisions from Adopting or Implementing the United Nations Rio Declaration on Environment and Development*. Fiftieth Legislature; Second Regular Session. <https://www.azleg.gov/legtext/50leg/2r/bills/sb1507h.pdf>, (2012).

¹⁹⁵ State Capital Newsfeed. “Agenda 21: Senator Burges’ Opening Remarks.” Western Free Press. Arizona. (21Feb2013).

something sinister and dark.”¹⁹⁶ In doing so, she was repeating the fringe argument that the objectives of Agenda 21 are centered around a “redistribution of wealth” and “control of every aspect of our lives.”¹⁹⁷ Governor of Maine Paul LePage canceled a planned expansion of Route 1 along Maine’s coastline in 2011.¹⁹⁸ In development since 2005, Gateway 1 was a project largely managed by local governments along Route 1 aimed at easing congestion. However, following protests from Tea Party groups concerned of an Agenda 21 plot to remove property rights the project was canceled without explanation to local officials. In October of 2012, State Senate Majority Leader of Georgia Chip Rogers sponsored a closed-door briefing for Republican legislators in his state about the dangers of Agenda 21. During this four-hour event, Field Searcy, a Georgia Tea Party member, gave legislators a presentation in which he warned the group that the Obama Administration was using “mind-control techniques” to implement the global directive known as Agenda 21.¹⁹⁹

The rise of an anti-Agenda 21 wing of the conservative movement in America had repercussions on networks like ICLEI and local efforts aimed at improving air quality. After reaching a record 565 members in the United States in 2010, ICLEI experienced a significant drop of 20% in membership by 2012.²⁰⁰ According to the Southern Poverty Law Center, many of the cities that left ICLEI did so, at least in part, due to pressure from anti-Agenda 21 groups.²⁰¹ Furthermore Krause, Yi, and Feiock used the CCPC as a case to study policy termination.²⁰²

¹⁹⁶ State Capital Newsfeed, “Agenda 21: Senator Burges’ Opening Remarks”.

¹⁹⁷ State Capital Newsfeed, “Agenda 21: Senator Burges’ Opening Remarks”.

¹⁹⁸ Kaufman, Leslie, and Kate Zernike. “Activists fight green projects, seeing UN plot.” *The New York Times* 3 (2012).

¹⁹⁹ Rayfield, Jillian. “Georgia GOPers hold meeting over Obama mind-control conspiracy.” *Salon*. (15Nov2012). https://www.salon.com/test/2012/11/14/georgia_gopers_hold_meeting_over_obama_mind_control_conspiracy/ Accessed January 20, 2020.

²⁰⁰ Krause, Rachel M., Hongtao Yi, and Richard C. Feiock. “Applying policy termination theory to the abandonment of climate protection initiatives by US local governments.” *Policy Studies Journal* 44.2 (2016): 176-195.

²⁰¹ Southern Poverty Law Center, “Agenda 21”, 12.

²⁰² Krause, Hongtao, and Feiock. “Applying policy termination theory”.

Their findings indicated that political ideology was the most significantly correlated indicator of policy termination. The authors found that during the time period 2007-2012 Republican party affiliation increased the likelihood of a city terminating their CCPC membership.

The rise of anti-Agenda 21 and Tea Party movements and their impact on public officials, local environmental projects, and municipal networks²⁰³ is noteworthy. The anti-Agenda 21 stance within the American conservative movement placed pressure on city and state leadership, who were engaged with climate change or sustainability efforts. An organized effort against environmental policy from the American conservative movement is not a surprising occurrence. However, the anti-Agenda 21 conspiracy theories that permeated conservative political circles were surprising, as national political candidates and previous high-level party leaders expressed their alarm for projects influenced by Agenda 21.

Conclusion

Since the early 1970s, nation states in the international system have taken steps to correct environmental degradation. Beginning with the Stockholm Conference in 1972, nation states responded in earnest to global and cross-border environmental issues in conjunction with the U.N. and the UNEP. The standards defined at Stockholm laid the foundation for environmental action from nation states during the 1970s and 1980s. Both the Vienna Convention and Montreal Protocol were significant steps toward nation states committing to the reduction of airborne contaminants that interfered with human health and environmental systems.

Some local governments and their leaders adjusted policies to align with the objectives of the Vienna Convention and Montreal Protocol. After the Rio Summit, cities and other non-state

²⁰³ Correspondence with former ICLEI leadership and long-time municipal sustainability directors revealed issues with harassment from anti-Agenda 21 groups have occurred since at least Rio+5 in 1997.

actors took on a larger role in transnational environmental governance. Additionally, the UNFCCC created objectives that local governments could utilize to monitor and improve air quality. Post-Rio, many cities and their networks began to pursue local plans for sustainability, using chapter 28 of Agenda 21 and the UNFCCC as a guide.

As a TMN, ICLEI offered programs and platforms to cities that helped to amplify the call for cooperation between local and international climate initiatives. Additionally, ICLEI has helped to create software, programs, and information sharing systems for cities to diffuse international environmental standards and policies to the local level.

In both the United States and Canada, some political leaders engaged in international environmental policy and leadership, but failed at the national level to implementing meaningful environmental legislation. Presidents have utilized unilateral executive authority to enact portions of their environmental agenda or as a means to remove environmental policy that interfered with market growth. Often, congressional impediments stunted or halted the progression of sound environmental legislation that matched the intensity of international efforts. Vocal support for a nationally aligned environmental policy that reduced GHG emissions has been a hallmark of Canadian governments since the 1980s. Nevertheless, many governments failed to secure the support of provincial leaders, which led to the creation of environmental policies that relied heavily on voluntary measures. In both countries, the absence of a federal government response forced many governments below the nation state level to consider action aimed at protecting environmental resources.

As some local governments and their networks pursued local action to improve air quality, pushback grew from an anti-Agenda 21 movement that was eventually adopted by some in the conservative party in the United States. Additionally, the anti-Agenda 21 language inserted

into the RNC platform and the political figures asserting the dangers of Agenda 21 placed pressure on some projects at the state and city level. This shows the risk involved for some municipal leaders when engaging in environmental policy in American cities. Conservative Canadian political leadership does not seem to have adopted the conspiracy driven stance of their American counterparts.

Some questions emerge after covering the histories of international environmental policy, municipal networks, and federal environmental efforts in the US and Canada. How is federal leadership from the US and Canada reflective of rogue state behavior within the international climate regime? Additionally, the pushback against Agenda 21 and international environmental agreements from fringe conservative groups placed additional pressure on some subnational governments and local GHG mitigation activity. Has opposition to environmental policy development deterred cities and networks in the United States and Canada from pursuing GHG mitigation efforts? I return to this question in the concluding chapter.

Chapter Two: Theory

Introduction

The history outlined in Chapter One presents the possibility that cities and their networks may disseminate international environmental norms. My research seeks to measure this possibility. Literature on multilevel governance provides a framework for understanding the interactions across multiple levels of governments. Constructivism emphasizes the ideational structures and norms that shape the perspectives of actors engaged in governance. Within constructivism, the norm life cycle offers a way to chart the progress of actors involved in the process of norm promotion, diffusion, and leadership. Furthermore, both multilevel governance and constructivism decenter the nation state and emphasize the role of subnational and supranational actors. I apply the norm life cycle to strategies of decarbonization in order to clarify the roles of cities and TMNs in the diffusion of international environmental norms.

International Relations Theories

The 1980s marked a period of transition and restructuring that helped to clarify contending perspectives among International Relations theories. Structural realism and liberal institutionalism agreed on the premise of general anarchy in the international system. However, these perspectives disagreed on how power was distributed among nation states and how they cooperated in response to international pressure. Scholars also disagreed to what degree international institutions and building international regimes helped to improve nation state security.

Structural realism²⁰⁴ emerged as an updated variant of realism, with an emphasis on the structure of the international system. For structural realists, the anarchic structure of the international system generated pressure and insecurity for nation states, which reoriented their preferences and behaviors. These scholars assert that the anarchic structure caused states to pursue power within the international system for their own protection. While they believed that the needs of nation states were similar in the international system, the distribution of capabilities among nation states was not. Structural realists' interest in the polarity of power compelled them to explore further how nation states approach each other in competition. This polarity has changed through time, with eras of unipolarity,²⁰⁵ bipolarity,²⁰⁶ and multipolar systems²⁰⁷ marking different moments.

Liberal scholars accepted the general anarchy of the international system but emphasized the role that international institutions play in facilitating cooperation between nation states. Liberal institutionalists²⁰⁸ carried out research projects that focused on the complex interdependence of nation states where cooperation can be tenuous. In the creation of these international organizations and institutions, nation states avoided conflict by increasing state-to-state contact and communication. This process of cooperation by means of international agreements and IGOs established credibility among nation states, whether through trade or work in IGOs. For liberal institutionalist scholars, when nations states adhere to the rules and norms of international institutions, they refrain from pursuing purely national interests.²⁰⁹ This arrangement brought nation states into stable relationships based on a mutual interest in global

²⁰⁴ Waltz, K. N. *Theory of international politics* (Illinois; Waveland Press, 1979).

²⁰⁵ Napoleonic Era

²⁰⁶ Cold War Era

²⁰⁷ Post War Era

²⁰⁸ Keohane, R. O., and Nye, J. S. *Power and interdependence* (Boston; Little Brown, 1977), 8-9; Keohane, R. O. *After hegemony* (Vol. 54). (Princeton: Princeton University Press, 1984).

²⁰⁹ Krasner, S. D. (Ed.). *International regimes* (Cornell University Press, 1983).

capital.²¹⁰ These scholars identified a cooperative interdependence maintained in the absence of a hegemon. For realists, and structural realists, a nation state can ignore international conventions if the agreement is not beneficial to that nation state.

Within neoliberal institutionalism, regime theory explores the driving forces behind state-to-state cooperation. This area of research uses rational choice and game theory to explain state-to-state cooperation, in the context of international regimes. Krasner defined these regimes as “principles, norms, rules, and decision-making procedures around which actor expectations converge in a given issue-area.”²¹¹ His concept posits regimes as an “intervening variable” separating causal factors²¹² and state behavior.²¹³ However, regime theory is most reliable when analyzing institutions that align norms in specific issue areas, such as war, trade, human rights, and CFC emissions. Nation states cooperate with the expectation of advancing new standards of behavior. The neoliberal institutionalist conception of state cooperation emphasizes activity in the international system via IGOs and supranational actors.

My research emphasizes the role of cities and TMNs in the diffusion of norms. Therefore, I have chosen to analyze this question using constructivism because the various other international relations theories do not focus on subnational governments and TMNs as significant actors. Structural realism places such an emphasis on nation states, and their capabilities, that it presents a conflict in the analysis of subnational actors in norm diffusion. Liberalism takes into account those factors and institutions that enable more expansive cooperation within the international system. However, liberal institutionalist scholars leave little to no room for a

²¹⁰ Rosecrance, Richard. *The Rise of the Trading State: Conquest and Commerce in the Modern World* (New York: Basic Books, 1986).

²¹¹ Krasner, S. D. (Ed.), *International regimes*, 185.

²¹² Such as power, interest, and values.

²¹³ Krasner, S. D. (Ed.), *International regimes*, 186.

subnational unit of analysis. The essential problem with structural realism and liberal institutionalism, as a framework for this research, is the centrality of the nation state. In the next section, I look to literature that attempted to explain the diffusion of power in an evolving system of multilevel governance.

Multilevel Governance and Global Environmental Governance

Research on multilevel governance explains the interaction between various levels of governance and highlights shifting relationship of power between these levels. My research necessitates an approach that takes into account actors above and below the level of the nation state. Therefore, I am using a multilevel governance framework in order to center subnational and supranational actors, specifically cities and TMNs. Furthermore, this scholarship explains how levels of government interact within a governance structure where state power has become diffuse. This literature aids my research by framing the role of cities and their networks in environmental policymaking.

Research in globalization studies, multilevel governance, and network studies points to a role for non-state, supranational, and subnational actors. During the 1990s, scholars recognized the changing dynamics between levels of governments and began to address these changes in literature.

Hooghe and Marks addressed and organized literature that explored the decentralization of authority and emerging forms of governance.²¹⁴ The authors identified studies in disciplines throughout the social sciences that analyzed “multilevel governance, multi-tiered governance,

²¹⁴ Hooghe, Liesbet, and Gary Marks. "Types of multi-level governance." *European integration online papers (EIoP)* 5, no. 11 (2001); Hooghe, Liesbet, and Gary Marks. "Unraveling the Central State, But How? Types of Multi-Level Governance." *American Political Science Review*, Vol. 97. No. 2. (2003).

polycentric governance, multi-perspectival governance.”²¹⁵ Literature related to this emerging form of governance tended to coalesce in two approaches to analyze multileveled governance. Hooghe and Marks categorized these approaches as Type I and Type II.

Type I Governance is characterized by jurisdictions that are limited to the international, national, meso, and local.²¹⁶ In these general-purpose arrangements, jurisdictional memberships are territorially separated and do not intersect at the highest and lowest levels. Scholars who utilized a Type I approach to viewing multilevel governance have often cited the E.U. as the best example of a governmental structure with strong, nested institutions that exist at the supranational and subnational levels. These bodies can create regional and foreign policy, as well as set benchmarks for areas like commerce and human rights.²¹⁷ While the central government of the nation state plays a role in the process of policy creation and integration, as is the case for the E.U., local governments and supranational entities also have a degree of agency in the process. Local governments and supranational entities can include units of analysis like cities and transnational networks.²¹⁸

A type II multilevel governance structure, or task-specific jurisdiction, is one where jurisdictions of varying levels may operate and coordinate on a specific policy issue.²¹⁹ Essentially, this approach recognizes the various overlapping jurisdictions that come together to deal with problems like climate change, global health initiatives, and other initiatives driven within a community. Type II approaches to governance include a multitude of members,

²¹⁵ Hooghe and Marks, “Types of multi-level governance.”, 3.

²¹⁶ Hooghe and Marks, “Unraveling the central state, but how?”.

²¹⁷ Marks, G., and Hooghe, L. “National identity and support for European integration (No. SP IV 2003-202),” *WZB Discussion Paper*. (2003).

²¹⁸ Aalberts, T. E.. “The Future of Sovereignty in Multilevel Governance Europe-A Constructivist Reading,” *JCMS: Journal of Common Market Studies*, (2004) 42(1), 23-46.

²¹⁹ Liesbet and Gary, “Unraveling the central state, but how?”; Hooghe and Marks. “Multi-level governance and European integration”.

including supranational institutions, central governments, regional governments, local governments, and NGOs. Examples from the United States include “special districts” that bring overlapping jurisdictions together. These districts coordinate and address issues related to water, transit, and other utilities that cross state and sometimes municipal boundaries.²²⁰ Census data indicates the vast majority of these special districts are “single-function districts.”²²¹ Local governments in European nation states have engaged in climate change policy coordination with regional and supranational partners in order to mitigate climate change.²²² The actors involved in this Type of multilevel governance are varied and include transnational networks, TMNs, NGOs, and other supranational and subnational units.²²³

Corfee-Morlot et al. used a Type I multilevel governance framework to consider the evolving governance structure surrounding environmental climate regimes. Applying their focus to regional and local entities’ interaction in climate governance, the authors attempted to identify “what is good practice?” in terms of multilevel governance. This research used the practices of cities and regions in climate initiatives to provide an overview of top-down, bottom-up, and models of policy diffusion. The findings indicate that a lack of nation state support sometimes hinders local authorities. As a starting point to improve multilevel governance function, three tools were suggested:

- Improve GHG reporting systems for local governments

²²⁰ Foster, K. A. *The political economy of special-purpose government*. (Georgetown University Press, 1997).

²²¹ Hooghe and Marks (2003) use census data (1999, 2002) to identify these districts as natural resources, fire protection, water supply, housing, sewerage, cemeteries, libraries, parks and recreation, highways, hospitals, airports, electric power or gas supply, or public transit.

²²² Kern, K., and Bulkeley, H. “Cities, Europeanization and multi-level governance: governing climate change through transnational municipal networks,” *JCMS: Journal of Common Market Studies*, (2009) 47(2), 309-332; Giersig, N.. *Multilevel Urban Governance and the European City: Discussing Metropolitan Reforms in Stockholm and Helsinki*. (Springer Science & Business Media ,2008).

²²³ Kern and Bulkeley, Cities, Europeanization and multi-level governance”; Betsill and Bulkeley. “Cities and the multilevel governance of global climate change”; Papadopoulos, Y. “Accountability and multi-level governance: more accountability, less democracy?.” In *Accountability and European Governance* (2014), 112-131.

- New, more regionalized research programs that bring together local expertise and expert information exchange
- Develop and enhance urban policy networks; include groups from civil society

The studies above suggest, that over the past 30 years, the power of the state has become diffuse. My research utilizes a multilevel governance approach in order to center non-nation state actors. Because I examine the role of cities in an evolving multilevel system of environmental governance, this framework is useful in explaining how different entities interact across a system of many actors.

Transnational Municipal Networks

The literature on multilevel, multilateral cooperation, and polycentric governance sought to explain the decentering of state authority, and how new actors or institutions might claim new power in a multilevel governance structure.²²⁴ The proliferation of municipal networks, both transnational and regional, provided a way for scholars to look at the rising power of local authorities. The studies below help to illustrate the role of TMNs engaged with cities and central governments in a multilevel structure. This literature is central to my research as I analyze the impact of TMN membership on the local environmental norms of cities. Furthermore, this literature helps to clarify what types of cities join TMNs, how they are internally governed, the impact of such networks on local environmental policy, and how these networks proliferated globally.

²²⁴ Betsill, M. M., and Bulkeley, H. "Transnational networks and global environmental governance: The cities for climate protection program," *International studies quarterly*, 48(2), (2004) 471-493; Betsill and Bulkeley. "Cities and the multilevel governance of global climate change"; Corfee-Morlot, Jan, Lamia Kamal-Chaoui, Michael G. Donovan, Ian Cochran, Alexis Robert and PierreJonathan Teasdale, "Cities, Climate Change and Multilevel Governance", OECD Environmental Working Papers No. 14, 2009, (OECD publishing, 2009).

Early research on the emergence of TMNs in Europe used multilevel governance as a framework from which to approach questions of decentralization of state power. Bulkeley et al. looked at the expanding role of TMNs in European environmental governance.²²⁵ Their study provided multiple conceptualizations of these networks based on how they engaged with environmental efforts in Europe. The authors noted that scholars used both Type I and Type II multilevel governance frameworks to analyze the position of TMNs in environmental policy diffusion. Through an analysis of multiple studies, Bulkeley et al. suggested that TMNs impact policy processes by:

1. Dispersing best practices by creating knowledge sharing processes that help local authorities shape municipal environmental policy
2. Lobbying the E.U. to influence the direction of policy
3. Using their position as “implementation agencies” within the arena of European policy.
4. Creating and promoting policy, which brings together local, national, and international actors.²²⁶

Some researchers analyzing the role of networked governance were focused on with the internal organization of transnational networks. Kern and Bulkeley used theories of Europeanization and network governance to find out if TMNs make a difference at the local, national, or European level. Their research combined interviews and case studies to assess the impact of these networks.²²⁷ The authors assign three characteristics to TMNs. First, city membership in such a network is entirely voluntary. Second, TMNs are self-governing, with non-hierarchical structures. Third, while NGOs lobby governments to implement policies, TMN

²²⁵ Bulkeley, Harriet, Anna Davies, Bob Evans, David Gibbs, Kristine Kern, and Kate Theobald. "Environmental governance and transnational municipal networks in Europe." *Journal of Environmental Policy & Planning* 5, no. 3 (2003): 235-254.

²²⁶ Bulkeley et al. "Environmental governance and transnational municipal networks in Europe".

²²⁷ Kern, Kristine, and Harriet Bulkeley. "Cities, Europeanization and multi-level governance: governing climate change through transnational municipal networks." *JCMS: Journal of Common Market Studies* 47, no. 2 (2009): 309-332.

members implement policies directly.²²⁸ Their findings suggest that TMNs provide a path for supranational entities, like the European Commission, to interact with local authorities without involving the nation state. The authors also assert the internal governance of TMNs trended towards a *laissez-faire* approach that does not actively seek to hold members accountable to network benchmarks. This internal approach to TMN organization means that TMNs are, in most cases, “networks of pioneers for pioneers.”²²⁹ Passive members of a TMN may not have the resources to move forward with environmental benchmarking locally. The benefits of TMN membership accrue to those cities most actively engaged with environmental policy locally and those cities that seek to influence dialogue within international climate regimes.

In an analysis of the CCPC, Betsill and Bulkeley examined how TMNs interact with their members to foster knowledge sharing, learning, and local policy change.²³⁰ Their research used case studies of six cities²³¹ to analyze the local practices and integration of CCPC programs on member cities. In only two cases, Denver and Newcastle, did cities integrate and advance the policies promoted by the CCPC into “the institutional structure and policy practices of local government.”²³² Additionally, both of these cities contributed the majority of information on best practices back to the CCPC. The authors assert that those cities most engaged with the TMN were less concerned with technical guidance and best practices, and more focused on the political and financial benefits that membership in the CCPC could provide.

Some cities do not have the resources to participate in proposed network benchmarks, network hosted conferences, and other activities. Cities must be willing to commit to dialogue

²²⁸ Kern and Bulkeley, “Cities, Europeanization and multi-level governance”.

²²⁹ Kern and Bulkeley, “Cities, Europeanization and multi-level governance,” 328

²³⁰ Betsill and Bulkeley, “Cities and the multilevel governance of global climate change”.

²³¹ Newcastle, Cambridgeshire, and Leicester in the UK; Denver and Milwaukee in the U.S.; and Newcastle, New South Wales, Australia.

²³² Betsill and Bulkeley, “Cities and the multilevel governance of global climate change,” 488.

related to best practices in GHG mitigation and to coordinate with a *horizontal* network of other city members.²³³ Those cities that are most engaged in the TMN may participate in the *vertical* aspect of the network, which is to lobby central governments for a particular norm or policy through international conferences. Some scholars define the most active members of TMNs as “pioneering cities” that join networks early and are usually active in their engagement with other cities.²³⁴ However, TMNs like ICLEI are not exclusively for urban environmental pioneers. TMNs create guidelines for local governments for action, emission monitoring software, and mitigation programs that can also influence those cities not engaged at the level of Denver or Newcastle.

Some research has illustrated the different ways pioneering and laggard cities benefit from TMN membership. Busch, Bendlin, and Fenton highlight the impact of TMNs on cities that traditionally lag in response to environmental issues.²³⁵ The researchers used a survey instrument to assess the experiences of 136 German cities in developing local environmental policy and the influence of TMNs in that process.²³⁶ From their analysis, the authors found that TMNs influenced local governments by:

- Enabling Internal Mobilization: Internal mobilization includes a rising awareness among citizens, policymakers, and community stakeholders. Various cities reported that joining a TMN coincided with an increase in public participation and a demand for climate change mitigation strategies from citizens.
- Formulating Emission Reduction Targets: Upon joining a TMN, cities commit to enact some form of emission reduction strategy. In setting benchmarks and offering blueprints for local action, TMNs provide city leaders and local proponents of sustainability strategies to move forward with local initiatives.

²³³ Bulkeley, H., and Betsill, M. “Cities and climate change: urban sustainability and global environmental governance”.

²³⁴ Kern and Bulkeley. Cities, “Europeanization and multi-level governance: governing climate change through transnational municipal networks”.

²³⁵ Busch, Henner, Lena Bendlin, and Paul Fenton. "Shaping local response—The influence of transnational municipal climate networks on urban climate governance." *Urban climate* 24 (2018): 221-230.

²³⁶ 61 cities responded and returned the survey.

- Direct Information Exchange: TMN membership allows local leaders to access the expertise of other urban environmental leaders, the staff of a TMN, and scientific knowledge that helps local action progress.

The authors were cautious about the positive impact that Transnational Municipal Climate Networks (TMCNs) might have on cities that have pioneered climate policy.²³⁷ Their caution is in part because municipalities that lag in response to environmental action gain the most benefit from membership processes that emphasize institutionalizing the objectives related to climate change. Pioneering cities had already institutionalized many of these processes and were more interested in network functions that emphasized financial project support, green city branding, and lobbying national and international entities.

Other research seeks to understand the role of TMNs within a framework of climate governance that involves supra-national, regional entities, and non-state actors. Hoffmann asserts that nation states' failure to address climate change in the international system has led to the emergence of new actors to address the oncoming climate crisis.²³⁸ With this in mind, local governments and TMNs are recognized as new environmental actors. The author noted for instance that most TMNs conduct "governance experiments," where they "engaged in explicitly making rules that shape how communities respond to climate change."²³⁹ The author's central question is concerned with the effectiveness of these governance experiments in the face of stalled nation state efforts to address international climate issues. Hoffmann signals that these governance experiments are important sources of momentum and action for climate initiatives.

²³⁷ Busch, , Bendlin, and Fenton. "Shaping local response—The influence of transnational municipal climate networks on urban climate governance," 228.

²³⁸ Hoffmann, M. J. *Climate governance at the crossroads: experimenting with a global response after Kyoto*. Oxford University Press (2011); Bulkeley, H. A., Broto, V. C., and Edwards, G. A. *An urban politics of climate change: experimentation and the governing of socio-technical transitions*. (Routledge, 2014).

²³⁹ Hoffmann, *Climate governance at the crossroads*, p17.

However, the author cautions that these experiments are too early in their existence to be deemed successful and would not replace the multilateral treaty system anytime in the near future.²⁴⁰

Often TMNs are used in research as an indicator of a local governments' commitment to environmental policy. Brody et al. used the Cities for Climate Protection Campaign (CCPC) as a baseline indicator of a city's commitment to environmental policy on GHG mitigation.²⁴¹ Their analysis found that the impact of the CCPC on local governments is dependent on a city's capacity²⁴² and commitment from public and private stakeholders. Brody et al. used CCPC participation as a measurement of municipal commitment to environmental policy.²⁴³ Using a sample of 3101 counties in the U.S., they identified characteristics that impact a city's commitment to environmental policy change.²⁴⁴ The researchers' central question asked why cities would voluntarily commit to the CCPC campaign "when there are powerful incentives to do otherwise."²⁴⁵ To answer this question, Brody et al. analyzed three models to explain why cities commit to voluntary environmental action. The three models were risk, stress, and opportunity.²⁴⁶ Using a binary regression model, the researchers established log-odds that

²⁴⁰ Hoffmann, *Climate governance at the crossroads*.

²⁴¹ Zahran, S., Grover, H., Brody, S. D., and Vedlitz, A. "Risk, stress, and capacity: Explaining metropolitan commitment to climate protection," *Urban affairs review*, (2008) 43(4), 447-474; Zahran, S., Brody, S. D., Vedlitz, A., Grover, H., and Miller, C. "Vulnerability and capacity: explaining local commitment to climate-change policy," *Environment and Planning C: Government and policy*, (2008) 26(3), 544-562; Brody et. al., A spatial analysis of local climate change policy in the United States.

²⁴² Capacity refers to a city's availability of funds and municipal control over factors of development.

²⁴³ Brody et. al., "A spatial analysis of local climate change policy in the United States".

²⁴⁴ Using counties as the unit of analysis seems to create problems with construct validity. While the CCPC is aimed at cities being the main participant, Brody et al. scaled up the dependent variable to represent counties. If a city within a county is a participant in the CCPC, the county receives a 1. Those counties without a participating city, receive a 0. The authors used the example of Florida, where the majority of participants in the CCPC were counties, as the reason for scaling up this variable. With this in mind, it is difficult to determine if the regional effect of cities participating in the CCPC represents a commitment (and support) from the surrounding localities that represent the county at large.

²⁴⁵ Brody et. al., "A spatial analysis of local climate change policy in the United States," 34.

²⁴⁶ Brody et. al., "A spatial analysis of local climate change policy in the United States.": The variables that make up the risk model include, coastal proximity, extreme weather causalities, and expected temperature change. Variables included in the stress model included emissions per capita, light transportation, and carbon-intensive industries. Climate opportunity model uses proportion of environmental non-profits, solar energy use, and proportion of college educated.

provided odds ratios representing the likelihood of city commitment to the CCPC. The results of the binary regression suggest significance across all models and variables, with the exception of solar energy use.²⁴⁷ This research helps scholars understand what factors help develop or inhibit local climate change policy and membership in TMNs.

Other research used global cities to analyze the impact of TMN membership on municipal climate policy. In an analysis of 57 C40 cities, Lee and Koski explore the relationship between membership in TMNs and climate change action at the municipal level.²⁴⁸ The central question for this research is: what effect does membership in environmental networks have on climate change mitigation at the city level? Variables representing climate change mitigation activity included setting reduction targets, planning local policies, and implementing local policies.²⁴⁹ The analysis used an ordered logit model to measure the strategies of local actors who were members of the C40. Their findings suggest that among C40 cities, those who were also CCPC members were “much more likely to engage in more difficult and impactful climate change mitigation actions.”²⁵⁰

Krause categorized the CCPC and Mayors’ Climate Protection Agreement (MCPA) as policy networks in a study that examines to what degree participation in climate networks influence “GHG-related activity.”²⁵¹ The author used questionnaires to compile data related to GHG mitigation efforts of over 300 U.S. cities. The results of their analysis indicate that membership in the MCPA constitutes policy signaling but “does not effectively stimulate cities

²⁴⁷ Brody et. al., “A spatial analysis of local climate change policy in the United States.”, 36.

²⁴⁸ Lee, T., and Koski, C. “Mitigating global warming in global cities: Comparing participation and climate change policies of C40 cities,” *Journal of Comparative Policy Analysis: Research and Practice*, (2014) 16(5), 475-492.

²⁴⁹ Lee and Koski, “Mitigating global warming in global cities,” 485.

²⁵⁰ Lee and Koski, “Mitigating global warming in global cities,” 487.

²⁵¹ Krause, R. M. “An assessment of the impact that participation in local climate networks has on cities’ implementation of climate, energy, and transportation policies,” *Review of Policy Research*, (2012) 29(5), 585-604.

to take additional definitive steps to reduce their GHG-emissions.”²⁵² The lack of impact could be due to several factors including low cost to join the mayoral network, no monitoring activity on behalf of the network, and local officials joining the network as symbolic policy. Furthermore, the findings showed that CCPC members were more effective in promoting local GHG reduction at the city-level.²⁵³ However, the impact itself was minimal to moderate. The author stressed that the research did not assess the effectiveness of individual city programs related to GHG emission reduction.

Additional literature that examined the historical development of an urban response to climate change noted the importance of TMNs and the evolution of municipal networks since the 1990s. Bulkeley recognized two distinct ‘waves’ of municipal responses to climate change.²⁵⁴ The author asserted that these waves of action were in response to a growing dissatisfaction with international progress on environmental protection and the restructuring of political authority. The first wave was identified by scholars in the 1990s who were interested in the activities of local authorities in their engagement with climate issues. Following the Toronto Climate Conference in 1988,²⁵⁵ a small group of pioneering cities helped drive a conversation surrounding urban sustainability. Local leaders from these cities were instrumental in the creation and success of TMNs like ICLEI, Climate Alliance Europe, and energie-cites. Each of these networks were transnational in their membership with similar goals that helped cities overcome issues with implementing local plans for energy efficiency, climate change, and sustainability.

²⁵² Krause, “An assessment of the impact”, 601.

²⁵³ Krause, “An assessment of the impact”, 601.

²⁵⁴ Bulkeley, Harriet. "Cities and the governing of climate change." *Annual review of environment and resources* 35 (2010).

²⁵⁵ Discussed in Mulroney government section of this dissertation.

Bulkeley suggested that a “second wave” of municipal action emerged in the early 2000s with the rise of a “new generation of municipal networks.”²⁵⁶ One important development among the new generation of municipal networks is that their work is focused within the boundaries of a nation state or economic community. For example, MCPA membership is limited to mayors of cities in the United States who commit to reducing GHG emissions. Another important difference of municipal networks in the second generation is that they build relationships with private actors who share influence with members of the network. One example of this cooperation includes the C40 joining with the Clinton Foundation and the Clinton Climate Initiative, to create GHG emissions software for local authorities and business owners.²⁵⁷

Viewing the municipal response to climate change through waves helps to account for the proliferation of municipal networks around 2003. Furthermore, the history of the municipal response to climate change is a critical area of research to view the restructuring of political authority discussed in the previous section.

To summarize, scholars have analyzed reasons why cities join TMNs,²⁵⁸ what types of cities follow through with environmental policy creation,²⁵⁹ and possible “waves” of municipal response to climate change.²⁶⁰ Since TMNs are central to my research, these studies are useful in clarifying the differences between governance structures in the EU and North America and how it impacts TMN membership and the power of cities engaged in environmental policy. The framework of the EU provides TMNs with a more formal position within environmental governance than in the United States and Canada. This makes it easier for cities and their

²⁵⁶ Bulkeley, "Cities and the governing of climate change.", 232.

²⁵⁷ Bulkeley, "Cities and the governing of climate change.", 233.

²⁵⁸ Zahran et. al., “Risk, stress, and capacity”; Zahran et al., “Vulnerability and capacity”; Brody et. al., “A spatial analysis of local climate change”.

²⁵⁹ Bulkeley and Betsill, “Cities and climate change”.

²⁶⁰ Bulkeley, “Cities and the governing of climate change”.

networks to coordinate environmental policy from the local to the supranational level in the EU, removing unnecessary central government interaction. In the United States and Canada, cities and their networks have engaged with environmental policy development, in the absence of consistent central government directions for GHG monitoring and mitigation. In fact, both of these governments have been unable or unwilling to put forward environmental policy that matches the intensity of international GHG mitigation goals. It is this type of inaction that forced many local leaders to consider an urban response to climate change. Scholars like Bulkeley recognize the importance of the municipal response to climate change as a key site from which to analyze the restructuring of nation state authority in a system of multilevel governance. With this in mind, my research seeks to fill a gap in literature that addresses the diffusion of environmental norms within non-compliant states by TMNs and their members.

Constructivism

The essential problem with neorealism and liberalism as a framework for this research is the centrality of the nation state. Criticisms of neorealism and liberalism centered on a lack of attention to other factors that contributed to outcomes in global relations and the behavior of nation states. The multilevel governance literature attempts to fill this gap by beginning to document the patterns of interaction among sub-national, nation state, and supranational actors when addressing governance functions. While all the trends in the multilevel governance literature are not yet clearly identifiable, these authors agree that the power of the nation-state is being diffused and that the roles of cities and of TMNs in this diffusion warrant further investigation.

One way to continue the investigation is through the guidance of Constructivist theory because it considers two potentially relevant factors neglected by both neorealism and liberalism in their essential focus on the centrality of the nation state: norms based ideational structures underlying state behavior and the role of actors other than nation-states such as TMNs and cities.²⁶¹ During the 1980s, a small group of scholars began to develop new avenues of research that emphasized the social construction of identity and its impact on state behavior. Against the backdrop of this scholarly debate, constructivism distinguished itself by emphasizing the social construction of meanings and identities. Constructivist critiques pointed to realism's lack of interest in the identity of nation states and how their interests and preferences are shaped.²⁶² Early constructivists questioned the foundational principles of realism and liberalism, because they were preoccupied with how nation states approached and conceptualized ideas like "self-help," "power politics," and "anarchy." While realist and liberal scholars viewed nation states as interacting with predetermined interests, constructivists attempted to uncover the sources of these interests. Constructivist scholars emphasized ideas and norms, over the distribution of capabilities and material interests of actors in the international system. They argued that it is through ideational and normative structures that the interests and actions of actors emerge.²⁶³ For constructivist theorists, the knowledge and practices of actors develop structures that, in turn, condition the identity and interests of those actors.

In the 1990s, constructivist scholars noted an obfuscation of individuals and non-state actors and their impact on the policy and norms of nation states in the international system.²⁶⁴ By

²⁶¹ Burchill, Scott, Andrew Linklater, Richard Devetak, Jack Donnelly, Terry Nardin, Matthew Paterson, Christian Reus-Smit, and Jacqui True. *Theories of international relations* (Macmillan International Higher Education, 2013).

²⁶² Wendt, A. "Anarchy is what states make of it: the social construction of power politics," *International organization*, (1992) 46(2), 391-425.

²⁶³ Burchill et. Al. *Theories of International Relations*.

²⁶⁴ Burchill et. Al. *Theories of International Relations*.

decentering the nation state in their research platform, scholars sought to identify the practices of agents and how they shape state interests. Some notable developments in constructivism include analyses of epistemic communities,²⁶⁵ Transnational Advocacy Networks,²⁶⁶ and norm life cycles.²⁶⁷

Second Generation Constructivism

Multiple research projects have separated the work of constructivist scholars into distinct generations. For example, Widmaier and Park identified three “generations” of constructivism.²⁶⁸ Similarly, Kessler and Steele chart the differences between the work of constructivist scholars through the 1980s to the 2010s in their attempt to identify a third generation.²⁶⁹ The first generation was a critique focused almost exclusively on structural realism and liberalism. The second generation focused on units other than the nation state.²⁷⁰ Widmaier and Park assert that third generation constructivists emphasized the psychology of individuals and how their emotions impact societal change.

Within the constructivist perspective, first and third generations are not applicable to this proposed analysis. First generation constructivism does not apply to this study as its driving force is to challenge the dominance of structural realism and the view of how nation states conceive of their interests. This generation explained how *societal interests* aid in shaping the

²⁶⁵ Adler, E., and Haas, P. M. “Conclusion: epistemic communities, world order, and the creation of a reflective research program,” *International organization*, (1992) 46(1), 367-390.

²⁶⁶ Keck, M. E., and Sikkink, K. “Transnational advocacy networks in the movement society,” *The social movement society: Contentious politics for a new century*, (1998) 217-238.

²⁶⁷ Finnemore, M., and Sikkink, K. “International norm dynamics and political change,” *International organization*, (1998) 52(4), 887-917.

²⁶⁸ Widmaier, W. W., and Park, S. “Differences beyond theory: Structural, strategic, and sentimental approaches to normative change,” *International Studies Perspectives*, (2012) 13(2), 123-134.

²⁶⁹ Kessler, Oliver, and Brent Steele. “Constructing IR: The third generation.” *European Review of International Studies* 3, no. 3 (2016): 7-13.

²⁷⁰ Kessler and Steele. “Constructing IR: The third generation,” 126.

interests of nation states and how this leads to specific patterns of behavior between nation states.²⁷¹ The research program from first generation constructivists does not allow for analyses of individual actors and units of governance below the state level. In so far as it would be possible to study the environmental policy of nation states from this perspective, it would be virtually impossible to conduct an analysis of transnational or municipal units and their influence.

Third generation constructivism is more focused on the beliefs of individuals and how they are influenced by a range of psychological issues.²⁷² This generation of constructivism borrows from sociology and psychology to such a degree that an analysis of municipal action related to environmental policy would require a qualitative study of individuals who are in policy formation positions. This is because it looks at factors that influence the ideas that people eventually advocate when they are making policy.

The theoretical focus for this dissertation will be second generation constructivism because it is the most useful in an analysis of how norms influence policy-related choices of subnational units like cities. This generation of constructivism allows for an analysis of the mobilization of ideas, from municipalities and TMNs, that seek to change existing urban environmental norms. The life cycle of norms, as framed by Finnemore and Sikkink,²⁷³ provides a structure from which to analyze the impact of norm entrepreneurs and other influencers of norm emergence and diffusion.

²⁷¹ Wendt, Alexander. *Social theory of international politics*. (Cambridge University Press, 1999); Wendt, "Anarchy is What States Make of It".

²⁷² Ross, Andrew AG. "Coming in from the Cold: Constructivism and Emotions." *European journal of international relations* 12, no. 2 (2006): 197-222; Widmaier and Park, "Differences Beyond Theory".

²⁷³ Finnemore and Sikkink, "International norm dynamics and political change".

Second generation constructivist researchers described the role of international organizations in the formation of state interests and perception of those interests.²⁷⁴ These scholars focused on how norms and shared ideals structure how nation states approach each other in the international system. As the framework developed, scholars began to place a more considerable emphasis on norm formation and diffusion. Furthermore, they included an analysis of non-state actors that play a role in changing extant norms and shifting the perceptions of nation states. Constructivism allows for an analysis of the mobilization of ideas, from municipalities and TMNs, that challenge extant norms and advocate for new norms. The life cycle of norms, as framed by Finnemore and Sikkink,²⁷⁵ provides a structure from which to analyze the impact of norm entrepreneurs and other influencers of norm emergence and diffusion.

Norms Defined

The description of norms is vague, and academics from varying fields have sought to create a functional definition. Scholars from sociology, political science, law, and other fields have shaped the meaning of norms to fit their generalized areas of interest. However, in most academic fields, the definition of norms has been left intentionally broad. This ambiguity makes it difficult to analyze the role that norms generally play.

Krasner defines norms as “the standard of behavior regarding rights and obligations.”²⁷⁶ The author’s goal was to frame the dynamics of international regimes. Krasner offered a

²⁷⁴ Finnemore and Sikkink, “International norm dynamics and political change”.

²⁷⁵ Finnemore and Sikkink, “International norm dynamics and political change”.

²⁷⁶ Krasner, *International Regimes*, 2.

workable definition of norms that informed future research and created space for a discussion about norms in the field of international relations.

Katzenstein added to the definition of norms. In assessing the nation state's position in international security regimes, he defined a norm as the "collective expectation for the proper behavior of *actors with a given identity*."²⁷⁷ Both Krasner and Katzenstein were interested in the ways that international regimes and security arrangements between countries impacted nation state behavior. These authors assert that a norm is the standard of expected nation state behavior. The standard is adopted through behavior that is compelled by expectations of group interests or social attitudes but not necessarily enforced through institutions of governance. Due in part to their focus, both authors' definitions did little to illuminate a deeper meaning of norms.

Other scholars proposed using a broad definition of norms. For example, Sunstein described norms as "social attitudes of approval or disapproval, specifying what ought to be done and what ought not to be done."²⁷⁸ He proposed a broad definition of norms that he applied to the study of law and bifurcated them into social and regulatory categories.²⁷⁹ This distinction is helpful when analyzing how different aspects of norms impact public policy. The author's conceptualization of the legal impact of norms allowed space for a discussion on the reciprocal influence of laws and civil society on social norms. Sunstein's research into norms emphasized how they were developed from social attitudes and diffused through law. Noting the codification of some norms into law, Sunstein highlighted the role of government and influential individuals

²⁷⁷ Katzenstein, M. F. *The culture of national security: Norms and identity in world politics* (Columbia University Press, 1996), 5; emphasis added

²⁷⁸ Sunstein, C. R. "Social norms and social roles," *Columbia law review*, (1996) 96(4), 903-968, 194.

²⁷⁹ Sunstein, C. R. "On the expressive function of law," *University of Pennsylvania law review*, (1996) 144(5), 2021-2053.

in promoting new social norms. He focused on the implementation of new domestic legal norms and their impact on citizens.²⁸⁰

Individuals and organizations are also influential in promoting new norms. While the role of legal systems and political elites is essential in understanding social norms, other actors influence social behaviors and advocate for new laws. Sunstein identified “norm entrepreneurs” as individual agents who occupy a power position within influential social movements or political circles, and who seek to alter or change existing norms.²⁸¹ These norm entrepreneurs utilized “fragile” social conditions to their advantage in their personal or organizational challenges to existing norms. For example, during civil rights demonstrations in the United States, norm entrepreneurs like Dr. Martin Luther King, Jr. and others from the broader civil rights movement, illustrated the need to change prevailing social norms related to racial discrimination. The movement was able to sway public opinion by openly challenging existing laws and social norms related to the unequal treatment of American citizens based on race.

As the social cost to individuals who follow new norms lessens, a process of “norm bandwagoning” begins.²⁸² As more individuals adopt a rising social norm, a “tipping point” is reached. When a society moves beyond the tipping point of acceptance, a “norm cascade” begins.²⁸³ For example, the Civil Rights Movement helped to challenge social and legal norms that compelled Congressional action in 1964. Prevailing social attitudes about a rising norm can lead to segments of society advocating for changes to existing norms. However, the purveyors of existing norms will be reluctant to accept a new norm and often push back against those individuals, organizations, or governments advocating in favor of the new norm.

²⁸⁰ Sunstein, “On the expressive function of law,” 2024.

²⁸¹ Sunstein, “Social norms and social roles,” 912.

²⁸² Sunstein, “Social norms and social roles,” 912.

²⁸³ Sunstein, “Social norms and social roles,” 913.

Norms in Second Generation Constructivism

Drawing on the research of Krasner,²⁸⁴ Katzenstein,²⁸⁵ and Sunstein,²⁸⁶ Finnemore and Sikkink attempted to detail a three-stage life cycle of norms in the international system.²⁸⁷ The first stage of the norm life cycle, which Finnemore and Sikkink label as norm emergence, is driven by “norm entrepreneurs” and norm advocates, mainly at domestic levels. The authors theorized that norm entrepreneurs, and their organizational platforms, are central to the first stage of the life cycle of norms. The authors noted that new norms enter into a “highly contested normative space where they must compete with other norms.”²⁸⁸ During norm emergence, persuasion is the dominant mechanism used by norm entrepreneurs to convince nation state leaders to adopt a new norm. Norm entrepreneurs are essential actors that have framed and educated nation states and their leaders on the benefits of altering social or legal norms. In the case of many adopted norms, small organizations or individuals began to advocate for new standards of appropriate behavior in their respective societies. Those who advocate for new norms do so out of ideational commitment, altruism, or empathy.²⁸⁹ Nadelmann analyzed norms related to prohibition, finding that “transnational moral entrepreneurs” operated in domestic and international settings to lobby for changes in legal norms.²⁹⁰ According to Nadelmann, moral entrepreneurs often proposed prohibition laws because of moral or ethical concerns.²⁹¹

²⁸⁴ Krasner, *International Regimes*.

²⁸⁵ Katzenstein, Mary Fainsod. *The culture of national security: Norms and identity in world politics*. (Columbia University Press, 1996).

²⁸⁶ Sunstein, “On the Expressive Function of Law”; Sunstein, “Social Norms and Social Roles”.

²⁸⁷ Finnemore and Sikkink, “International Norm Dynamics and Political Change”.

²⁸⁸ Finnemore and Sikkink, “International Norm Dynamics and Political Change,” 897.

²⁸⁹ Nadelmann, E.A. “Global Prohibition Regimes: The Evolution of norms in international society,” *International Organization*, (1990) 44(4), 479-526; Monroe, K. R. *The heart of altruism: Perceptions of a common humanity* (Princeton University Press, 1998); Finnemore and Sikkink, “International Norm Dynamics and Political Change”.

²⁹⁰ Nadelmann, “Global Prohibition Regimes”.

²⁹¹ Nadelmann, “Global Prohibition Regimes”; Sunstein, “Social norms and Social roles”; Finnemore and Sikkink, “International Norm Dynamics and Political Change”.

Norm entrepreneurs act “as agents of socialization by pressuring targeted actors to adopt new policies and laws and to ratify treaties and by monitoring compliance with international standards.”²⁹² When norm entrepreneurs convince government officials to advocate in favor of a specific norm, those governments become “norm leaders.” According to Finnemore and Sikkink, during norm emergence, as domestic norm entrepreneurs and networks continue to persuade nation states to adopt norms, a “tipping point” is reached.²⁹³ The number of countries required to adopt a norm in order to reach the tipping point is dependent on the norm in question. Ramirez, Soysal, and Shanahan found that one-third of the total nation states in the system represented a tipping point in the fight for women’s suffrage.²⁹⁴ Furthermore, Finnemore and Sikkink noted that one-third of nation state support was a tipping point for anti-landmine norms.²⁹⁵

As a critical mass of actors comes to support a new norm, a tipping point is achieved and marks a transition into the second stage of the norm life cycle: norm cascade. During norm cascade, the central actors are nation states, IGOs, and networks.²⁹⁶ Much of the pressure during the first stage comes from domestic norm entrepreneurs, with some international support. However, the second stage is characterized by the adoption of norms, even in the absence of domestic pressure.²⁹⁷

According to Finnemore and Sikkink, the second stage of the norm life cycle involves a cascade of acceptance of the norm as it is adopted by a critical mass of nation states. The relevant actors during this stage of the life cycle are states, IGOs, and networks.²⁹⁸ Within the

²⁹² Finnemore and Sikkink, “International Norm Dynamics and Political Change,” 902.

²⁹³ Finnemore and Sikkink, “International Norm Dynamics and Political Change”.

²⁹⁴ Ramirez, F. O., Soysal, Y., and Shanahan, S. “The changing logic of political citizenship: Cross-national acquisition of women’s suffrage rights, 1890 to 1990,” *American sociological review*, (1997) 735-745.

²⁹⁵ Finnemore and Sikkink, “International Norm Dynamics and Political Change”.

²⁹⁶ Finnemore and Sikkink, “International Norm Dynamics and Political Change”.

²⁹⁷ Finnemore and Sikkink, “International Norm Dynamics and Political Change,” 903.

²⁹⁸ Finnemore and Sikkink, “International Norm Dynamics and Political Change,” 901-903.

norm life cycle, some nation states are more important than others in terms of a norm's adoption. Finnemore and Sikkink noted the presence of "critical states" in the norm life cycle. These critical actors "are those without which the achievement of the substantive norm goal is compromised."²⁹⁹ The authors used the case of an anti-landmine norm to highlight the need to gain support from nation states that produced landmines. While the support of those countries that did not produce landmines was welcome, these nation states could not appropriately affect cutting production of the weapon. It was only when landmine producing countries, like France and Great Britain, gave their support to an anti-landmine treaty that the norm began to cascade. This example shows the importance of critical state support for a norm's adoption. In cases where state leaders support an emergent norm, institutionalization plays a significant role in moving beyond the first stage of the norm life cycle.

During the second stage of the norm life cycle, socialization is utilized as a mechanism by nation states where "new states are induced to change their behavior by adopting those norms preferred by an international society of states."³⁰⁰ The institutionalization of norms by supranational actors, like IGOs, help to achieve higher rates of socialization. Norms that are institutionalized by international law at the U.N., or other influential IGOs, are more likely to be accepted by a large number of nation states. The institutionalization of norms addressing weapons proliferation, trade, and human rights led to a significant rise in nation state acceptance and norm adoption. As norms are institutionalized and codified by international law, norm leaders as a group often take a position that punishes norm-breaking by rogue states. Non-followers of emerging norms may face regional or global scrutiny if they decide not to follow norm leaders. At the regional level, Klotz likened this process to "peer pressure" that might

²⁹⁹ Finnemore and Sikkink, "International Norm Dynamics and Political Change," 901.

³⁰⁰ Finnemore and Sikkink, "International Norm Dynamics and Political Change," 902.

compel countries to adopt the norms of neighboring nation states.³⁰¹ During a norm cascade, non-conforming states become more reflexive about their position in the international system. A change in norms of a nation state may speed up the process of normative change to its neighbors.³⁰²

With this pressure in mind, Finnemore and Sikkink theorized that legitimation, conformity, and esteem represent motivations for nation states to follow norms during the second stage of a norm's life cycle. Some theorists viewed this process as one where "social proof" is offered by nation states to express that they belong.³⁰³ Scholars have noted nation state legitimation as a central motivation for norm adoption during the second stage of the norm life cycle. Nation states that refused to adopt norms during norm cascade, especially those that have been institutionalized, run the risk of being labeled as "rogue states." Under those conditions, a nation state would expect to experience a decline in international trust and reputation that could undercut domestic legitimacy.³⁰⁴

The third and final stage, norm internalization, involves full acceptance of a norm by nation states and their domestic institutions.³⁰⁵ As norms internalize, they produce domestic legal barriers to norm-breaking, such as women's suffrage or the treatment of prisoners of war. Processes of socialization proliferate through professional training and bureaucratic structures endogenous to nation states. In the case of women's suffrage, nation states employed an array of legal and social mechanisms to ensure that subnational governments followed the norm. As

³⁰¹ Klotz, A. "Norms and sanctions: lessons from the socialization of South Africa," *Review of International Studies*, (1996) 22(2), 173-190; Ramirez and Shanahan, "The changing logic of political citizenship: Cross-national acquisition of women's suffrage rights, 1890 to 1990." *American sociological review* (1997): 735-745

³⁰² Finnemore and Sikkink, "International Norm Dynamics and Political Change"; Ramirez and Shanahan, "The changing logic of political citizenship".

³⁰³ Axelrod, R. "An evolutionary approach to norms," *American political science review*, (1986) 80(4), 1095-1111.

³⁰⁴ Finnemore and Sikkink, "International Norm Dynamics and Political Change".

³⁰⁵ Finnemore and Sikkink, "International Norm Dynamics and Political Change".

institutionalization and habit continue to reinforce a norm, it attains a taken for granted quality.

At this final stage of the norm life cycle, Finnemore and Sikkink depict norms as having an

“oughtness” that permeates social and private life.³⁰⁶

Decarbonization in History

As discussed in Chapter 1, international efforts to improve air quality began at the Stockholm Conference. Plans for international action that monitored and sought to mitigate anthropogenic carbon emissions were introduced by way of the Vienna Convention. The Montreal Protocol expanded decarbonization efforts by creating binding agreements that compelled nation states to act. Additionally, Montreal enumerated particular types of carbon that should be phased out. The UNFCCC focused on decarbonization by creating a framework for nation states to address GHGs. Kyoto amended the UNFCCC by setting timelines and targets for nation states to follow.

Cities began to adopt the objectives of decarbonization that were established at the international level. Starting after Montreal, some cities passed local ordinances that aligned with international climate agreements. With the help of the UNEP, local authorities formed ICLEI in order to organize and network to achieve urban sustainability. ICLEI attended the Rio Summit, leading a delegation of local authorities, which brought cities into decarbonization efforts at the international level. Then, ICLEI developed blueprints for local action based on international agreements. Through sustained interaction at the international level, ICLEI and its members were recognized by nation states as stakeholders within an international climate change regime.

³⁰⁶ Finnemore and Sikkink, “International Norm Dynamics and Political Change,” 907.

Terminology

Decarbonization as a process is the reduction in the intensity of anthropogenic GHG emissions.³⁰⁷ The term originated in the energy production sector, which emphasized alternatives to carbon intensive energy production, like coal plants.³⁰⁸ Other industries have adopted this term. Policy research, from industries including road transportation,³⁰⁹ maritime services,³¹⁰ and other private sectors³¹¹ recognized the need to make changes that reduce GHG emissions. For these industries, decarbonization is discussed in terms of strategies. I seek to create a delineation of decarbonization that is broad enough to apply to multiple industries and governments, but specific enough to measure. Therefore, I define decarbonization as the monitoring and mitigation of GHG emissions.

Decarbonization as a Norm

A norm is the standard of appropriate behavior for an actor with a given identity.³¹² The norm central to this research is decarbonization. The goal of a decarbonization norm is the reduction of anthropogenic GHG emissions to a net zero status. In order to reach this goal, governments must be willing to take critical first steps that account for emissions and make changes to existing practices that can reduce an emissions footprint. For this research, two appropriate technical steps towards decarbonization are:

1. Developing a system to monitor GHG emissions

³⁰⁷ Kanoh, Tokio. "Toward dematerialization and decarbonization." *Science and Sustainability (Selected Papers on IIASA 20th Anniversary- Laxenburg: IIASA)* (1992): 63-94.

³⁰⁸ Messner, Sabine, and Nebojša Nakićenović. "A comparative assessment of different options to reduce CO2 emissions." *Energy Conversion and Management* 33.5-8 (1992): 763-771.

³⁰⁹ Hughes, Peter. "The role of passenger transport in CO2 reduction strategies." *Energy Policy* 19.2 (1991): 149-160; Roy, R. "The evolution of ecodesign." *Technovation*, 14(6), (1994): 363-380.

³¹⁰ Psaraftis, H. N. "Decarbonization of maritime transport: to be or not to be?" *Maritime Economics & Logistics*, 21(3), (2019): 353-371.

³¹¹ Rockström, Johan, et al. "A roadmap for rapid decarbonization." *Science* 355.6331 (2017): 1269-1271.

³¹² Finnemore and Sikkink, "International Norm Dynamics and Political Change".

2. Developing an action plan that includes steps to reduce GHG emissions

These steps are viewed as benchmarks at multiple levels of government, including cities. Ideally, these steps precede policies to reduce GHG emissions. This could include local policy that updates building codes, transportation systems, and energy sectors in a way that moves a city closer to decarbonization. However, my research is focused on the technical steps of local governments' decarbonization efforts and not on the subsequent steps needed to reduce GHG locally.

The Norm Life Cycle: Decarbonization

As mentioned earlier, international efforts to create standards aimed at improving air quality through monitoring and removal of atmospheric pollutants began in earnest in the 1970s. Norm entrepreneurs from Sweden initiated the Stockholm Conference. The conference initiated a monitoring process that was coordinated by the UNEP and carried out by Global Environmental Monitoring System (GEMS).³¹³ As a part of the norm life cycle, the establishment of the UNEP and GEMS was the starting point of an international decarbonization norm. After more nation states began to support this emerging norm, international action following Stockholm intensified and clarified efforts beyond monitoring and establishing baseline inventories.

Following Stockholm, the decarbonization norm continued to develop within the first stage of the norm life cycle. As discussed in Chapter One, more complex international regimes of climate protection began when nation states addressed the monitoring and phasing out of CFCs through the Vienna Convention and then the Montreal Protocol. The agreements included

³¹³ Jensen, C. E., and D. W. Brown. "Earthwatch—Global environmental assessment." *Environmental Management* 5.3 (1981): 225-232.

using baseline emissions inventories to develop targets and create strategy blueprints for nation state action. Working groups of the U.N. could not agree on the protocols for a control section of the Vienna Convention. Therefore, only a general framework was agreed to at the time of ratification. Upon ratification of the Montreal Protocol, in 1987, nation states grew closer to a tipping point for a decarbonization norm in the international system. The protocol was a formal arrangement to improve deteriorating air quality by engaging in decarbonization efforts. The arrangement required monitoring, via UNEP coordinated efforts and removal, by means of nation state action, of ozone depleting substances.³¹⁴ As discussed in Chapter One, a very small amount of cities and local authorities responded to the Montreal Protocol by aligning local ordinances to phase out CFCs. The cities' response shows that as a decarbonization norm developed, new norm entrepreneurs found additional ways to advocate and support an emerging standard to improve air quality.

As previously discussed, scholars demarcate the threshold for the tipping point in support of a norm just before it receives one-third of nation states' support in the international system. The Rio Summit marked the tipping point for a decarbonization norm in the international system. The emergence of the UNFCCC and Agenda 21 represented a mobilization of nation states advocating in favor of changes to standards that expanded monitoring and reduction targets for GHGs. Agenda 21 created a blueprint for sustainability action across all levels of government. The UNFCCC ushered in a new framework that shaped efforts aimed at decarbonization. Though the UNFCCC only needed 50 ratifications to advance, 153 countries signed the climate document. The overwhelming support demonstrated a realignment of standards and action, underpinning a norm of decarbonization.

³¹⁴ Barratt-Brown, Elizabeth P. "Building a monitoring and compliance regime under the Montreal protocol." *Yale J. Int'l L.* 16 (1991): 519.

During COP-3, the norm of decarbonization reached a cascade, albeit a stalled one. As discussed in Chapter 1, the Kyoto Protocols provided a framework for targets and timetables to reduce emissions by establishing monitoring and action plans for nation states. However, the United States, which is a critical nation state in terms of normative strength, never ratified the protocol. Additionally, Canada's non-compliance and withdrawal from the UNFCCC hindered the progression of an air quality norm in the international system. While a decarbonization norm has institutionalized in some regions, like the E.U., inconsistent action from critical actors has stalled the norm's movement beyond the 2nd stage of the norm life cycle.

In terms of norm adoption, some nation states have more influence in the international system depending on the norm in question. Finnemore and Sikkink noted that without the support of these critical states, the "substantive norm goal" could be compromised. Both Canada and the United States are nation states that create large amounts of GHGs, often ranking in the top ten GHG producing countries. Their status as "high emitters" of GHGs gives both countries the position of critical states. In addition, the central governments of these countries have failed to consistently support international agreements, thereby abdicating norm leader status. As a consequence, the United States and Canada have been rogue states at varying times in the ascendance of a decarbonization norm and climate negotiations in general. Because of the actions of these rogue states, decarbonization norm cascade and institutionalization has stalled. However, work has continued at the international and local levels in developing frameworks that strengthen a decarbonization norm.

Between COP-10 and COP-12, the Conference of Parties recognized cities as a stakeholder within an international climate regime. My research seeks to understand if this recognition was a direct result of local authorities' engagement with a decarbonization norm at

the international and local levels. If TMNs and their members were influential in diffusing a decarbonization norm from 1991-2018, there should be a broader discourse that recognizes them as norm leaders within a constructivist framework.

Conclusion

This chapter identifies several areas of literature that frame this research and analysis of networks, subnational units, and norm diffusion. As discussed earlier, both neorealism and liberal institutionalism do not provide adequate tools for analyzing actors outside of nation states. Multilevel governance literature provides a framework from which to view the emerging jurisdictional architectures noted by scholars in the 1990s. Additionally, research that emphasized the decentering of nation state authority illustrates coordination between networks and their members that enhances the role of local authorities in international climate regimes. To better explain these networks that inhabit a key position in a system of multilevel governance, a section on TMNs explains their role in the urban response to climate change that began in the early 1990s.

My research uses the Type II classification to center the authority of cities and the influence of their networks when engaging with environmental policy. It can be argued that cities fit neatly within the “nested” jurisdictional structure of the Type I perspective. However, cities utilize TMNs as a platform for engagement with international climate regimes. ICLEI operates at multiple levels as both a platform for cities at the international level and a network that shares technical expertise among members at local levels. Because the influence of networks in norm diffusion is central to my research, an approach to viewing governance from the perspective of overlapping jurisdictions is essential in terms of analyzing the behavior of subnational and supranational actors. Additionally, the inconsistent support of international climate agreements

from the national governments of the United States and Canada strengthens the justification for using this perspective.

Analyses of European cities showed coordination between supranational and subnational entities, which drives some regional environmental policies. Currently, there is a dearth of research that analyzes the impact of TMNs on the environmental policy of cities in the United States and Canada. Scholarship on TMNs revealed the formation of a platform for cities that enhanced their capacity to collect, share, and create new sustainability ideas. My research adds to a body of literature that has analyzed TMNs in the United States and Canada. Through an analysis of member and non-member cities, I assess the impact of TMNs on the decarbonization norm. This research brings together literature from multilevel governance and TMNs to clarify the role of networks and subnational governments in the process of norm diffusion.

Second generation constructivists developed a life cycle of norms, using ideas and definitions from previous research on norms and regime theory. Finnemore and Sikkink's norm life cycle posits a significant role for norm entrepreneurs and their organizational platforms in the first stage of the norm life cycle. However, the authors noted that following the first stage of the norm life cycle it is nation states, networks, and IGOs that are the central actors in norm diffusion. As an actor in the second stage of the norm life cycle, the central function of a network is to monitor the adherence of nation states to international standards. The type of network that Finnemore and Sikkink had in mind was most likely non-governmental in its structure, which means that TMNs may be unique in their ability to influence policymakers. The role of networks, specifically TMNs, in the diffusion of environmental norms and policy is underexamined in the United States and Canada. A large portion of research dedicated to TMN and city engagement with international climate governance focuses on cities in Europe or regions where central

governments have been more consistently supportive of international climate agreements. It is for this reason that my analysis focuses on the capacity of networks to coordinate and diffuse environmental norms to cities in the United States and Canada.

My research seeks to test the principles of the norm life cycle that address the role of norm entrepreneurs, norm leaders, and networks in the diffusion of a decarbonization norm. I use cities as cases to analyze the implementation of local environmental policy over a time period of almost 30 years. Through an analysis of membership in ICLEI, this research seeks to explain the role of TMNs in the diffusion of a decarbonization norm. Additionally, this research seeks to clarify the position of cities as norm leaders within environmental climate regimes. Should the analysis confirm that local governments in the United States and Canada adopted the objectives of decarbonization, then cities can be norm leaders in the absence of leadership from central governments. This research uses the idea of “waves” of action among municipal networks to develop this timeframe.³¹⁵ The timeframe used for this dissertation also reflects the first two stages of the norm life cycle for decarbonization. In the following chapter, I outline the parameters of the analysis of ICLEI and its impact on the GHG policy of those cities that utilize the network’s resources.

³¹⁵ Bulkeley, “Cities and the governing of climate change”.

Chapter 3: Methodology

Introduction

My research seeks to answer the following questions: Are ICLEI member cities more likely than non-member cities to adopt GHG mitigation strategies? Are those cities that utilize ICLEI's programs more likely to initiate local environmental policy, specifically GHG inventories and complementary action plans?

Because my research examines the impact of TMN membership on local environmental policies, the research question is answered by the following hypotheses: (H₁) ICLEI membership has a significant impact on the environmental policy and local environmental action plans of its member cities. (H₀) ICLEI membership has no impact on the environmental policy and local environmental action plans of ICLEI member cities. Non-member cities are just as likely as ICLEI member cities to complete GHG inventories with complementary local action plans.

Additionally, my research will analyze the impact of ICLEI technical assistance on both members and non-members. The second analysis uses the same three time periods³¹⁶ for the research question on cities and the technical assistance they receive from ICLEI. The research question on ICLEI technical assistance is answered by the following hypotheses: (H₂) Technical assistance from ICLEI has a significant impact on the environmental policy and local action plans of those cities that utilize the organization's programs. (H₀) Technical assistance from ICLEI has no impact on the environmental policy and local environmental action plans of those

³¹⁶ 1991-2002; 2003-2010; 2011-2018

cities that utilize the organization's programs. Cities that do not use ICLEI sponsored or created programs are just as likely as cities that seek ICLEI assistance to complete a GHG inventory with a local environmental action plan.

This chapter will unfold as follows: First, the research design will frame the time periods used in the research, the statistical model, and the unit of analysis. Next, my hypotheses provide the predicted outcomes for the three time periods. Then, the procedures for analysis section presents issues I encountered when creating models for analysis. Additionally, this section details why I used a logistic regression in the planned statistical models and how that changed the timeline of this research. I also give a more detailed justification for the time periods used for this research. The data collection section outlines the sources of the variables used in the analysis. Finally, I conceptualize and operationalize the variables used in the study, which includes a detailed justification for the control variables.

Research Design

My research explains the impact of TMNs and their members on norm and policy diffusion of international environmental standards. I constructed my data set using 99 cities in the United States and 20 Canadian cities. I coded the independent variable using city data on ICLEI membership. Using cities as cases, I examine ICLEI's growth and role as an organizational platform for diffusers of a decarbonization norm.

My study uses a logistic regression model over three time periods. The model elucidates the relationship between ICLEI membership (independent variable) and the diffusion of an international decarbonization norm by means of GHG monitoring and action (dependent variable). The time periods under analysis are 1991-2002; 2003-2010; 2011-2018. An analysis of

three periods of time is necessary to connect this research to the idea of “waves” of municipal action on climate change.³¹⁷

Through each of the three time periods, I will control for education level, median household income, political party affiliation, population density, and employment in manufacturing. This model will assess if ICLEI membership impacts the local diffusion of a decarbonization norm. The second model will use the same control variables but assesses the impact of ICLEI technical assistance on members and non-members.

This research will use primary and secondary sources to collect the data used in the analysis. Primary sources include the United States Census, Statistics Canada, newspaper articles, and conference documents from the United Nations. Secondary sources include conference reports, scholarly literature, and advocacy network documents. I will explain the data collection for each variable in the variable section of this chapter.

Hypothesis

TMNs provided cities with organizational platforms from which to advocate for a decarbonization norm among local governments. This research hypothesizes that membership in ICLEI leads to policies consistent with Local Agenda 21, the UNFCCC, the CCPC, and a norm of decarbonization. For the second model, my research hypothesizes that ICLEI technical assistance leads to even higher rates of the objectives of decarbonization.

My research specifies objectives that lead to decarbonization at the local level from ICLEI’s CCPC, the Montreal Protocol, Agenda 21, and the evolving UNFCCC. As a non-binding agreement, Agenda 21 proposed ways in which states and local governments might

³¹⁷ Bulkeley, “Cities and the governing of climate change,” 254.

address challenges to sustainability. Chapter 28 of Agenda 21 is the most important for cities and local authorities. This chapter suggested that local authorities develop a “local agenda 21” that takes into consideration the challenges of sustainability.³¹⁸ Both the Montreal Protocol and the UNFCCC are documents of importance to ICLEI and cities that are engaged with the objectives of decarbonization. Cities and their networks have used both of these agreements to create blueprints that align to the aims of an international decarbonization norm. ICLEI’s CCPC is an example of a network that used elements of Local Agenda 21 and the UNFCCC to create blueprints for cities. For many cities, these blueprints contained the first steps towards removing anthropogenic GHGs through monitoring and local action.

My hypothesis hinges on the relationship of ICLEI members and their respective constituencies. Because cities represent the membership of ICLEI, their ability to diffuse norms is unique. The city representatives³¹⁹ of ICLEI have the authority to create local policies that adhere to international standards and a decarbonization norm. Taking into account Finnemore and Sikkink’s norm life cycle, creating policies that achieve the objectives of a norm like decarbonization makes these cities more than advocates. In this research, engagement with the objectives of decarbonization measured in this analysis is viewed as norm leadership. Cities act as norm leaders when they create policies that direct new behavior for constituents, local businesses, and government operations.

As ICLEI expanded membership, its capacity to develop initiatives and facilitate horizontal communication among members grew. ICLEI resources that helped cities translate international environmental norms to the local level were underdeveloped until the release of *The*

³¹⁸ United Nations Conference on Environment and Development. *Agenda 21, Rio Declaration, Forest Principles*. (New York: United Nations, 1992), Chapter 28.

³¹⁹ Mayors, city councils, regional authorities

Local Agenda 21 Planning Guide in 1996.³²⁰ Throughout the 1990s, ICLEI expanded its membership significantly across North America and Europe. These programs provided benefits to both members and non-members.³²¹ I expect the impact of ICLEI membership on GHG mitigation policy implementation to deepen with the progression of each time period under study. That means that there will be minimal impact of ICLEI membership during the time period 1991-2002. Likewise, ICLEI technical assistance during 1991-2002 will not have a significant impact on the GHG mitigation strategies of cities.

For both 2003-2010 and 2011-2018, I expect a significant relationship between ICLEI membership and cities that developed GHG inventories and local action plans. From 2003-2010 local governments and their networks translated international environmental agreements and objectives into blueprints for local efforts that contribute to a decarbonization norm. During the same time period, ICLEI continually updated and enhanced new GHG emissions software, aligning it with international standards for local governments.

During the 2011-2018 time period, local authorities and their networks continued to demand recognition for their contribution towards decarbonization. This resulted in the declaration from nations states that subnational governments are “stakeholders” in the international climate change regime. The implementation of the Mexico City Pact, the Local Government Climate Roadmap, and the Carbonn Registry are examples of local governments stepping up their efforts towards decarbonization. Because of these events, 2011-2018 should have the strongest relationship between ICLEI membership and reaching the first two objectives of a decarbonization norm. In the model analyzing ICLEI technical assistance, I expect a

³²⁰ International Development Research Centre (Canada), and International Council for Local Environmental Initiatives. *The Local Agenda 21 Planning Guide: An Introduction to Sustainable Development*. (IDRC, 1996).

³²¹ Non-members that benefit are those cities that seek ICLEI’s technical assistance, but not specifically membership in the network.

significant relationship between cities engaging in GHG strategies and those that seek technical assistance from ICLEI. This assistance can come in the form of membership, licensing ICLEI-software that uses Local Government Operations Protocol, or being a member of an ICLEI-created organization (CCPC).

Procedures for Analysis

There are a multitude of ways to research and analyze networks and their members who diffuse or align norms from the international to the local level. This section will explore options that could have been used to analyze the relationship between TMNs and cities in the diffusion of a decarbonization norm.

Event history analysis (EHA), also referred to as ‘survival analysis,’ is used when analyzing the occurrence of events that are time specific. Researchers employ EHA when trying to determine the patterns and causes of changes in the behavior of governments, networks, or individuals.³²² As a type of analysis, EHA could provide a broader analysis to this research as each city and year is counted as a case in the analysis.³²³ When Cox Regression is used as a tool in EHA, it models membership by those cities that joined and left the organization per unit of time.

A central reason EHA was not applicable to my research is the lack of data related to gaps in ICLEI membership. The data for ICLEI member was collected from multiple sources including city records, official ICLEI conference records, and newspaper articles detailing a

³²² Box-Steffensmeier, Janet M., and Bradford S. Jones. "Time is of the essence: Event history models in political science." *American Journal of Political Science* (1997): 1414-1461.

³²³ Swarts, Heidi, and Ion Bogdan Vasi. "Which US cities adopt living wage ordinances? Predictors of adoption of a new labor tactic, 1994-2006." *Urban Affairs Review* 47, no. 6 (2011): 743-774.

city's membership in ICLEI. Unfortunately, recording the length of network membership or identifying gaps in city membership for each year is difficult when considering the restrictions of time and funding placed on my research. This difficulty is compounded when considering ICLEI had no official membership records dating back to the 1990s and 2000s. This uncertainty could have created a problem in calculating the hazard rate³²⁴, which is inextricably linked to the dependent variable, because of incomplete information related to a city joining ICLEI, leaving the network for a number of years, and then returning.

Additional issues with EHA are sometimes revealed when selecting a continuous or discrete time measurement. A continuous time axis for my dissertation research offer more robust evidence of the diffusion of a decarbonization norm. However, as discussed above a year-by-year breakdown³²⁵ of membership information was not available for the current research presented in this dissertation. A discrete time axis, which is sometimes used in EHA analysis, works better than a continuous axis given the data collection method for this dissertation. However, in developing a discrete time analysis I would have created distinct time periods to capture municipal action, which would have been very close to the time periods presented in this study. For research analyzing the impact of network membership on the diffusion of a decarbonization norm, the benefits of EHA are diminished using a non-continuous time axis.

Using a mixed methods research framework could have resulted in a more complete analysis. Nested analysis is an example of mixed methods approach. For example, nested

³²⁴ The hazard rate is the conditional probability that an event will occur within a specific time; Mills, Melinda. "The fundamentals of survival and event history analysis." *Introducing Survival Analysis and Event History Analysis*. London: SAGE Publications (2011): 1-17.

³²⁵ Annual data related to ICLEI membership and control variables would be ideal this research.

analysis is a mixed methods approach that is generally applied to comparative politics.³²⁶ This type of analysis requires mixing a large-N analysis and small-N analysis to answer a research question.³²⁷ This approach first tests a preliminary large-N dataset. Then, upon confirmation of that preliminary analysis, a small-N analysis further strengthens the results of research by analyzing cases that represent the expected relationship.³²⁸ In the case of researching TMNs and cities, a large-N analysis would be conducted to find a quantitative relationship between TMNs and local policy outcomes. Subsequently, a small-N analysis using qualitative methods would explore in detail those cities that represent ‘pioneering’ cities in terms of environmental policy. The exploration using a small-N analysis would be case study driven, providing a more in-depth analysis of historic policy outcomes and governmental action associated with the diffusion of a decarbonization norm. The range of time involved in this research makes it challenging to use a mixed methods approach. Trying to assemble meaningful information related to events within city governments from the 1990s would be challenging in terms of qualitative methods; both in terms of establishing interviews or creating and accurately disseminating survey instruments.

For this research, I find it most appropriate to consider those cities that join ICLEI over a specific time period. Using the progression of municipal action as a marker between time period better fits within the norm life cycle literature and how a decarbonization norm developed among cities in the United States and Canada. The time periods for my research are influenced by previous research on municipal action and TMN activity surrounding climate change.

³²⁶ Rohlfing, Ingo. "What you see and what you get: Pitfalls and principles of nested analysis in comparative research." *Comparative Political Studies* 41, no. 11 (2008): 1492-1514.

³²⁷ Lieberman, Evan S. "Nested analysis as a mixed-method strategy for comparative research." *American political science review* (2005): 435-452.

³²⁸ Lieberman. "Nested analysis as a mixed-method strategy for comparative research."

The original plan for this research included running an ordinal logistic regression from 1991-2005 to find evidence of the impact of cities and TMNs on actual municipal environmental policies. The initial data coding for the dependent variable revealed problems with the frequency distribution. This variable measured the diffusion of a decarbonization norm by means of GHG mitigation techniques (Dependent Variable) to municipalities. Table 3.1 contains the original variable coding:

(Table 3.1 Here)

I constructed this variable to measure the possibilities of a municipality implementing up to four essential policy objectives to improve air quality and enhance GHG mitigation strategies. While coding this variable, it became clear that there were too many municipalities that did not achieve any of the policy objectives included in a local action plan by 2004. When presented with these issues, I ceased data collection before coding Canadian cities to analyze the distribution of my variables. The frequency distribution of American cities showed 65 cities with no local action plan or any local policy related to fleet vehicles, building codes, or ordinances about on-road traffic. 12 American cities had reached at least one of the variable objectives, while only 8 cities achieved 2 variable objectives and 6 cities achieved 3 objectives. No cities achieved all four goals. The dependent variable's low frequency distribution made it impossible to use ordinal logistic regression as a tool for analysis. For this reason, I collapsed the dependent variable into a dichotomous variable with a value of 0 or 1. Table 3.2 lists the new coding for the dependent variable.

(Table 3.2 Here)

Because I collapsed the dependent variable, the type of statistical analysis shifted to binary logistic regression.

Logistic regression is used to predict the relationship between independent variables and dependent variables when the dependent variable is dichotomous. This type of statistical technique is an extension of simple linear regression. In an analysis using logistic regression, all of the predictors are tested in one block, assessing the model's predictive ability and controlling for the effects of the control variables.

In addition to shifting to a binary logistic regression, I chose to reorganize the timeframe for this research. Reorganizing the timeframe for this research provides an opportunity to capture the growth of TMN membership in periods where the activities and organization strategies of such networks changed to increase efficiency and influence. The original timeframe for my research was 1991-2003 which leaves out the expansion of municipal networks, both regional and transnational, and the work of city leaders engaged with international climate regimes. Additionally, the low number of cities with climate change policies that aligned with the dependent variable required an extension of the timeline.

I developed the new timeframe based on the literature about municipal action on policies aimed at decarbonization. This study analyzes three time periods; 1991-2002; 2003-2010; 2011-2018. The development of these time periods is based on the idea of municipal "waves" of action from Bulkeley's 2010 research.³²⁹ It is important to note that, while the alteration to the timeframe of my research was influenced by Bulkeley, the division of the time periods is unique to my research.

³²⁹ Bulkeley, "Cities and the governing of climate change," 254.

The time period of 1991-2002 represents the first wave of municipal action in my research. Bulkeley identified that this wave began with the emergence of scholarship on municipal activity in the early 1990s and ended in the “early 2000s.”³³⁰ Throughout the time period, city leaders participated in international environmental conferences, via ICLEI delegations, and organized municipal conferences to engage with climate issues.³³¹ Additionally, ICLEI created guides for local authorities to adapt practices that were suggested in Agenda 21 to local sustainability efforts. Finally, ICLEI helped to develop and distribute technical information and software for cities to inventory GHGs and design benchmarks for reducing emissions.

The idea of the second wave of municipal action was used to create the time period 2003-2010. According to Bulkeley, the second wave was defined by the creation of municipal networks that were more regionally focused than their transnational predecessors.³³² Examples of these efforts include the expansion of Cities for Climate Change Campaigns in Australia and the Asian Cities Climate Change Resilience Network. Additionally, national municipal networks, like the US Mayors Climate Protection Agreement (MCPA), formed to challenge central government action on climate issues. All of these networks advocated for a decarbonization norm. During the second time period of this study, ICLEI and its members continued to pursue recognition at the international level for local efforts that diffuse a decarbonization norm.

During the third time period of this study, 2011-2018, cities and their networks gained clout as a stakeholder within an international climate regime. I identify this time period as the beginning of the third wave of municipal activity. Critical moments in this time period include

³³⁰ Bulkeley, “Cities and the governing of climate change,” 232.

³³¹ Under ICLEI observer status delegations of mayors and other local leaders have attended United Nations conferences and working groups since the United Nations Conference on Environment and Development in 1992. This includes all Conference of Parties since the ratification of the UNFCCC.

³³² Specifically ICLEI.

COP-16, the Durban Local Government Convention, the signing of the Mexico City Pact, and the creation of the *Carbounn* Climate Registry.³³³ During this time, local governments received recognition as “key governmental stakeholder(s) in climate change efforts.”³³⁴ For some American political groups, this was a period of growing distrust of international environmental initiatives. Anti-Agenda 21 messaging from the American conservative movement intensified during 2012. Some of this pushback against sustainability efforts could have had a negative effect on the membership of ICLEI and the programs of local authorities within the United States.

Using three time periods to test my research question provides an opportunity to examine a decarbonization norm over the course of 28 years. Given the proliferation of municipal networks related to climate change over almost three decades, I assert that ICLEI remains a relevant actor in terms of technical expertise, organizational capacity, and networking among members. ICLEI membership over these periods of time may be a useful indicator of the impact of TMNs on their member’s policy creation. As both the independent and dependent variables are dichotomous, the most appropriate statistical technique to analyze these periods is binary logistic regression. This model will assess if ICLEI membership or technical assistance impacts the local diffusion of a global environmental decarbonization norm through improving air quality by way of GHG mitigation policies at the local level.

³³³ This registry was initiated during the 2010 World Mayors Summit. The registry is maintained by ICLEI.

³³⁴ United Nations. General Assembly. “Report of the Conference of the Parties on its sixteenth session” (10 December 2010), FCCC/CP/2010/Add.1; López-Vallejo, M. *Reconfiguring global climate governance in North America: A transregional approach*. (Routledge, 2016).

Universe of Cities

I used a sample of cities to determine the impact of ICLEI membership in the diffusion of global air quality norms. This sample includes 99 American cities and 20 Canadian cities. Because this research emphasizes the role of municipal governments in the process of norm diffusion, city-limit data will be used (as opposed to Metropolitan Statistical Area data). Population values of over 150,000 determined the selection of cities used for this research. I collected population data for both Canadian and American cities from the National Census and Statistics Canada. Appendix A contains a list of cities used in this research.

Conceptualization and Operationalization of Variables

Dependent Variable: Greenhouse Gas Monitoring and Local Action Plans

This variable records the presence of local level policy among cities in the dataset. The activity of cities in creating environmental policy that protects air quality and improves on GHG mitigation strategies is central to this research. The variable is dichotomous with a coding of 0 for those cities that have not implemented any local action plan or policy that is related to GHG mitigation or air quality. I coded cities as 1 if they had conducted a GHG inventory and put forward a complementary action plan. These action plans take into account previous GHG inventories and propose local solutions that enhance decarbonization efforts. These plans include any of the following action:

1. Municipal Leaders order alterations to municipal vehicles with the goal of improving efficiency and emissions.
2. Municipal plans deal directly with emissions through building code (residential or commercial) or emissions from businesses within the city limits.
3. Municipal plans created that deal with on-road traffic, railways, and aviation that falls within the authority of a city.

4. Plans to coordinate programs that include citizens and other local stakeholders. Program examples include information sessions, community workshops, and public updates related to local sustainability action.

I collected data from primary sources to construct the dependent variable. These sources include archives of city records to confirm the announcement of GHG inventory or local action plan. The LEXIS NEXIS database was also used to locate newspaper articles recording the announcement of GHG inventories and local action plans.

Independent Variable: ICLEI Membership

My research explores the connection between TMNs and cities in the diffusion of environmental norms. With this in mind, the independent variable will record if a city in the dataset is an ICLEI member. As a TMN, ICLEI acts as an advocate for municipal leaders at the global level. A city obtains ICLEI membership by submitting an application to the organization and issuing a public statement confirming their commitment.

I collected data for the independent variable through primary documents from ICLEI, city archives, and the LEXIS NEXIS database. Initially, I planned on collecting membership data directly from ICLEI. Having submitted a request for documentation on membership, I communicated with Angie Fyfe, ICLEI's executive director. The executive director was able to provide me with three years of membership material from 2016-2018. To assemble the membership for the years 1991-2002, I used ICLEI conference material, city archives, and LEXIS NEXIS news archives to find out if or when a city joined ICLEI. I used the same collection method for 2003-2010 and 2011-2015.

Independent Variable: ICLEI Technical Assistance

It is important to examine the overall impact of TMNs on their city members' environmental policy choices. However, it is also essential to understand to what extent these networks help those cities who are not members but utilize specific services offered by TMNs. Therefore, ICLEI technical assistance will be coded and analyzed, separately from the membership independent variable, across the three time periods; 1991-2002, 2003-2010, and 2011-2018. I code cities as 1 if they are members of ICLEI, use ICLEI software to compile a city's GHG inventory, use county or regional ICLEI-membership to access the resources of ICLEI,³³⁵ or have used the consulting services of ICLEI. Cities are coded 0 if they have not utilized ICLEI in the development of local environmental policy.

This variable incorporates data from the ICLEI membership variable and a city's use of ICLEI programs or software. I collected the data for this variable from primary sources, including official city announcements, city action plans, membership lists from organizations or regions aligned with ICLEI, or software licenses purchased by a city for ICLEI GHG software.

Control Variables:

For this research, I include the following control variables: education level, median household income political party affiliation, population density, and employment in manufacturing.

Education Level

Some research suggests that education level is positively correlated to voluntary environmental policy commitments or municipal action in terms of environmental policy. Using

³³⁵ Without the city itself claiming ICLEI membership.

a two-tailed t-test, Boyle found that the education variable was one of the most influential variables associated with environmental policy commitment.³³⁶ Controlling for other variables³³⁷ enhanced the strength of education level's positive relationship to MCPA commitment.³³⁸

Krause also uses the MCPA as a dummy variable to represent city commitment to environmental policy.³³⁹ Education level was among the city level characteristics that showed a significant positive correlation with city commitment to the MCPA. The data for Krause's education variable was taken from the 2000 US Census and represented the percentage of adults with a B.A. or higher. Findings from Krause³⁴⁰ show that education level and commitment to environmental policy via the MCPA were significantly positively correlated. These studies provide some evidence that higher levels of education are correlated to an increased likelihood of committing to environmental policy change.

Brody et al. used CCPC participation as a measurement of urban commitment to environmental policy.³⁴¹ The findings of the analysis revealed a significant positive association with education level and CCPC participation. The odds ratio shows a standard deviation positive change of 7% of the proportion of college-educated in a county increases the odds of CCPC participation by 68%.³⁴²

³³⁶ Boyle, P. W. "Examination of US cities as forces in environmental policy," *Intersections*, (2010) 10(1), 181-198, 195.

³³⁷ i.e.- proportion of Bush vote, median income, proportion employed in manufacturing.

³³⁸ In the case of both the MCPA and Cities for Climate Protection Campaign, it is difficult to separate action and advocating for urban environmental policy. Any city can join either of these endeavors. However, that does not guarantee local action or the implementation of local environmental policy. For example, the success of a city to achieve the goals established in the CCPC is dependent on city financial and civic capacities.

³³⁹ Krause, R. M. "Policy innovation, intergovernmental relations, and the adoption of climate protection initiatives by US cities," *Journal of urban affairs*, (2011) 33(1), 45-60.

³⁴⁰ Krause, "Policy innovation, intergovernmental relations".

³⁴¹ Brody et al., "A spatial analysis of local climate change policy in the United States".

³⁴² Brody et al., "A spatial analysis of local climate change policy in the United States," 36.

Analyses on municipal indices of sustainability have contributed to research related to the actual progress of cities in environmental policies. Portney developed a “Taking Sustainable Cities Seriously” index to score cities based on their progress in sustainable activities³⁴³. Many items on the index developed by Portney are reflective of local environmental policy and membership in environmental networks. Using this index of sustainability seriousness, Portney then conducted a comparative analysis of twenty-four cities to test four hypotheses related to why some cities take local practices of sustainability more seriously than others.

Findings from his comparative analysis of cities indicate a significant positive relationship between higher rates of high school graduation and “sustainability seriousness.”³⁴⁴ However, when Portney extended his analysis to an OLS regression, which included the five most highly correlated variables related to the sustainability seriousness index, the education variable was not significant.³⁴⁵ Though analysis of the education variable offers mixed findings in this study, other research in urban planning has emphasized education level as a determinant of environmental policy action at the city level.

Lubell, Feiock, and Handy attempted to answer the question of why some cities have a higher level of adoption of local environmental policy, which led to the creation of an updated index for municipal sustainability.³⁴⁶ Their research showed a tendency for education levels to increase with population size. This means that education levels in dense urban centers tended to be higher than in rural areas, towns, and suburbs. The authors use a measurement of education

³⁴³ Portney, K. E. “Taking sustainable cities seriously: A comparative analysis of twenty-four US cities,” *Local Environment*, (2002) 7(4), 363-380.

³⁴⁴ Portney, “Taking sustainable cities seriously,” 375.

³⁴⁵ Portney, “Taking sustainable cities seriously,” 375.

³⁴⁶ Actual implementation of local policy; Lubell, M., Feiock, R., and Handy, S. “City adoption of environmentally sustainable policies in California's Central Valley,” *Journal of the American Planning Association*, (2009) 75(3), 293-308.

level³⁴⁷ in their regression analysis. However, the researchers collapsed the education variable into a socioeconomic variable that included median income and median housing value.³⁴⁸ The socioeconomic status variable was found not to be a significant predictor of the environmental index established by the authors. The reason for collapsing the education variable into a socioeconomic status variable is not made explicit. However, in their conclusion, the authors suggest it would be desirable to “disentangle these influences over time to determine whether one would be a more effective lever for changing policy.”³⁴⁹

Tang et al. created a “local climate change effort policy index” to measure policy action in local jurisdictions of California.³⁵⁰ The data that structured the index was MCPA membership, CCPC participation, and the presence of a local climate change action plan. Tang et al. used this index in a regression analysis against independent variables that included education as part of a variable measuring socioeconomic effects.³⁵¹³⁵² The results from the regression analysis revealed that the socioeconomic variable positively correlated with higher index scores.

The studies discussed above illustrate the importance of controlling for education level in my research. In my analyses, I expect the education variable to positively correlate to a city completing local GHG inventories and establishing action plans. My education variable is based on the percentage of individuals over 25, with a college degree. I obtained this data about U.S. cities from the U.S. Census Bureau’s online search engine.³⁵³ I collected data on Canadian cities

³⁴⁷ Proportion 4-year degree attainment

³⁴⁸ Lubell, Feiock, and Handy, “City adoption of environmentally sustainable policies”.

³⁴⁹ Lubell, Feiock, and Handy, “City adoption of environmentally sustainable policies,” 305

³⁵⁰ Tang, Z., Brody, S. D., Li, R., Quinn, C., and Zhao, N. “Examining locally driven climate change policy efforts in three Pacific states,” *Ocean & coastal management*, (2011) 54(5), 415-426.

³⁵¹ This analysis used variables from two studies: Zahran et al. (2008) and Brody et al. (2008).

³⁵² The education variable for this research represents the proportion of individuals with a bachelors or high school degree as recorded in the United States Census.

³⁵³ American FactFinder

using Statistics Canada, which is an electronic information archive that houses census and city data.

Political Party Affiliation

Political party affiliation is a variable that interests many scholars who analyze city level commitment to environmental regimes or policy change. Multiple studies analyzing municipal commitment to environmental policy have highlighted a link to partisan voting behavior.³⁵⁴

Boyle's analysis of city commitment to the U.S. MCPA³⁵⁵ highlights the influence of political party affiliation on a city level commitment to environmental policies.³⁵⁶ Boyle utilized the MCPA as a dependent variable in research that attempted to understand why some cities are advocates for environmental policy change, while others are not. Of the models used to analyze the determinants of urban environmental advocacy, a citizen characteristics model contains a variable used to measure party affiliation. The party affiliation variable is based on the proportion of those citizens that voted for George W. Bush in the 2004 presidential election. Boyle collected data for this variable from CNN Presidential Election results. Using a two-tailed t-test, Boyle found that the political party affiliation variable³⁵⁷ was negatively related to MCPA commitment.³⁵⁸ When controlling for other influential variables across all models,³⁵⁹ the

³⁵⁴ Zahran et. al., "Vulnerability and capacity"; Boyle, "Examination of US cities as forces in environmental policy"; Krause, "Policy innovation, intergovernmental relations".

³⁵⁵ The US Mayors Climate Protection Agreement (MCPA) is a city-level pledge signed by members of the United States Conference of Mayors. The pledge states that participating cities commit to using strategies to reduce emission targets (7% below 1990 levels by 2012). These include land-use policy (anti-sprawl, smart growth), environmental restoration projects (wetlands, forests), and political action (urge US Congress to pass legislation related to emission reduction). The MCPA gained strength among mayors with 600 joining on in 2007, 853 by 2008, and 1060 by 2016.

³⁵⁶ Boyle, "Examination of US cities as forces in environmental policy".

³⁵⁷ Proportion of those citizens that voted for Bush.

³⁵⁸ Boyle, "Examination of US cities as forces in environmental policy," 195.

³⁵⁹ i.e., education level, median income, proportion employed in manufacturing.

negative relationship of the party affiliation variable on MCPA commitment remained significant. Boyle's conclusion suggested that political culture, among other variables,³⁶⁰ "...effect(s) adoption of environmental policy far greater than theorists imagined."³⁶¹

In her analysis of state versus local factors influencing environmental policy innovation,³⁶² Krause used the MCPA as a dependent variable representing urban commitment to environmental policy.³⁶³ The findings from this analysis suggest a much more significant role for local characteristics³⁶⁴ as drivers of urban innovation in environmental policy. Among the local level characteristics of interest that influenced city commitment to the MCPA, Krause used a partisanship variable representing the percentage³⁶⁵ of votes that were supportive of the Democratic candidates during the 2000 presidential election. When controlling for other variables in the local level model, the partisanship variable was significantly related to an increased likelihood of a city being a signatory to the MCPA.³⁶⁶ Also, when variables, that were deemed to have a "substantial effect" on joining the MCPA were analyzed together, the partisanship variable was again significant.³⁶⁷ Like Boyle's research, Krause finds some evidence to suggest a variable representing political party affiliation or partisanship may have an impact on a city's commitment to environmental policy agendas.

³⁶⁰ Other important variables that affect environmental policy adoption to Boyle, were religious and racial diversity, greater range of age, and educational attainment.

³⁶¹ Boyle, "Examination of US cities as forces in environmental policy," 197.

³⁶² The term innovation that is used by Krause is defined as "the adoption of a policy or program by a government entity that had never before utilized it; that is, it is new to the government adopting it, but is not necessarily an altogether new idea" (47).

³⁶³ Krause, Rachel M. "Policy innovation, intergovernmental relations".

³⁶⁴ Characteristics representing state-level variables were not significant. It is not certain that using county-level participation of MCPA is an appropriate measurement of city environmental commitment to the MCPA.

³⁶⁵ County-level

³⁶⁶ It is important to note that this outcome just assumes the city will have signed the MCPA. There is no indication of outcome in terms of actual policy implementation.

³⁶⁷ Krause, "Policy Innovation, intergovernmental relations," 55.

Krause's analysis of municipal "follow-through" on MCPA commitment also revealed some interesting findings related to party affiliation and environmental policy. To test why some cities follow-through with a commitment to environmental agreements and others do not, Krause developed a Municipal Climate-Protection Index (MCPI) that could assess the progress of cities in GHG mitigation. While this index is "loosely based" on indices from Portney³⁶⁸ and Lubell et al.,³⁶⁹ the author used ICLEI publications from the US Conference of Mayors Climate Protection Center and ICLEI to craft the MCPI. Krause's research assembled a twenty-four-item index that sought to capture the ways city governments engage in GHG mitigation.³⁷⁰ The list items of the MCPI were equally weighted but separated into an industrialization component³⁷¹ and two action components. The two action components were separated by city-guided operations³⁷² and broader community objectives.³⁷³

³⁶⁸ Portney, "Taking Sustainability Seriously".

³⁶⁹ Lubell, Mark, Richard Feiock, and Susan Handy. "City adoption of environmentally sustainable policies in California's Central Valley." *Journal of the American Planning Association* 75, no. 3 (2009): 293-308.

³⁷⁰ Krause, R. M. "Symbolic or substantive policy? Measuring the extent of local commitment to climate protection," *Environment and Planning C: Government and Policy*, (2011) 29(1), 46-62, 51.

³⁷¹ The institutionalization component includes five items: (1) City-wide greenhouse gas (GHG) inventory completed; (2) GHG-reduction goal formally adopted; (3) Comprehensive plan to achieve reduction goal developed/formally adopted; (4) Responsibility for managing city's climate-protection activities designated to city employee/development/volunteer committee; (5) Funding for climate protection designated in city budget.

³⁷² City Operations included (6) Efficient lighting installed in city buildings; (7) EnergyStar-only purchase policy for city equipment and appliances adopted; (8) Conversion to 'green' city vehicle fleet underway; (9) Efficiency standards [such as Leadership in Energy and Environmental Design (LEED)] adopted for all new and retrofit city buildings; (10) Incentive programs in place encouraging city employees to travel to work using means other than a single occupancy vehicle; (11) City purchases and/or produces alternative energy for its own operations; (12) Methane recovery system installed in city-operated wastewater treatment plant; (13) City spends at least US \$2 per capita annually on public tree planting and maintenance.

³⁷³ The components associated with more broad community efforts included (14) City provides information about how to increase energy efficiency to its residents; (15) City provides financial incentives to the public and/or developers to encourage energy efficient new construction or improvements to existing buildings; (16) City requires efficiency standards (such as LEED) be met in new commercial and/or residential construction; (17) Outreach and education provided to residents regarding privately owned trees; (18) Municipal ordinances in place that dictate tree planting and/or removal specifications for developers; (19) Public transportation services provided to city residents; (20) Incentives offered for residents to take public transit (i.e. free days, reduced fares); (21) Bike lanes and/or hike and bike trails provided; (22) Planning and zoning decisions involve explicit considerations of the effect they will have on GHG emissions and/or sprawl; Separated yard waste is composted or mulched instead of taken to landfill; (24) Curbside recycling is provided to city residents.

The results of Krause's regression analysis showed that higher levels of Democratic Party representation positively correlated with an increase in a city's MCPI score.³⁷⁴ However, when the political party affiliation variable was included in a full model, which included multiple variables, party affiliation was not significantly correlated to the MCPI score. Though the results are somewhat mixed in this analysis, the study still offers some motivation for adding a variable for political partisanship.

Given the findings of the preceding literature, my research includes a dummy variable controlling for political partisanship. I hypothesize that political party affiliation will be positively correlated with GHG inventories and local action plans. Stated clearly, that means a rise in support for a liberal political party will increase the likelihood that a city will have a local action plan that includes GHG mitigation strategies and air quality standards.

I use the Office of the Chief Electoral Officer, also known as Elections Canada, to collect data for Canadian cities' voting records. Elections Canada houses an archive of the election results from 1997, 2008, and 2011. I use multiple sources to collect data for cities in the United States. Results for the 1996 Presidential Elections are gathered from county-level data collected from Dave Leip's Atlas of US Elections.³⁷⁵ Unfortunately, there was not sufficient data available at the precinct level for 1996, so county-level data was used for an approximation of municipal vote. Ansolabehere, Palmer, and Lee compiled data from 2002 to 2012 that record votes at the precinct-level for federal elections.³⁷⁶ I use this dataset to construct the political party affiliation variable for American Cities in 2008 and 2012.

³⁷⁴ Krause, R. M. "Symbolic or substantive policy?"

³⁷⁵ Leip's data is a trusted resource used by academics and recommended by a number of institutions when engaging in research that uses election data.

³⁷⁶ Ansolabehere, S., Palmer, M., and Lee, A. "Precinct-Level Election Data," *Harvard Dataverse*, (2014) v1.

I use precinct and district level voting data from the U.S. and Canada to create a variable representing political party affiliation. The variable is dichotomous, with 0 representing conservative and 1 representing liberal political party choices in elections in the U.S. (1996, 2008, and 2012) and Canada (1997, 2008, and 2011). In the U.S., those cities that voted for the Republican Party candidate for president in 1996, 2008, or 2012 are coded as 0. The American cities that chose the Democratic Party candidate in these elections are coded as 1. Districts within the city limits were accumulated for the total vote and then converted to the dichotomous variable.

The political culture of Canada and the U.S. have differences that are noteworthy for this research. Historically dominant, the Liberal Party in Canada is center left in terms of political ideology. To the left of the Liberal Party in Canada is the NDP, which generally joins with the liberal party during minority governments in parliament. Formed in 2003, the Conservative Party of Canada is the center to right political party.

While the Liberal Party has a more stable history, the conservative movement has undergone reordering. In 1993 the Progressive Conservative Party of Canada suffered massive losses in the general election that cost them 167 members, leaving them only two MPs in parliament.³⁷⁷ From 1993-2003 the conservative voters in Canada were split between a number of regional and national parties.

The Conservative Party re-formed in 2003 from a merger between the remnants of the Progressive Conservative Party of Canada and the rising Reform Party.³⁷⁸ The unification of political forces that revived the Conservative Party of Canada eventually lead to a conservative

³⁷⁷ House of Commons Elections. *Historical Archive of Parliamentary Election Results: Canada 1993*. Inter-Parliamentary Union. (1993). Retrieved from http://archive.ipu.org/parline-e/reports/arc/2055_93.htm

³⁷⁸ See Chapter One

government in 2006 with Prime Minister Stephen Harper, who served until 2015. The Conservative Party is center-right and currently the minority party in parliament.

For the 1997 elections, those cities that voted in MPs representing the Progressive Conservative, the Reform Party, or conservative Quebecois members are coded 0. Those cities voting for Liberal Party MPs are coded a 1. In the post-conservative merger period of Canadian politics,³⁷⁹ those cities that voted for MPs from the Conservative Party of Canada are coded 0. In the same time period, those cities that voted for MPs from the Liberal Party are coded 1.

Median Household Income

Median household income is a variable of interest in analyses of municipal commitment to environmental policy. In multiple studies that analyze variables that impact a city's commitment to environmental policy, median household income appears to have an effect in city-level participation related to the implementation of environmental policy.

As discussed previously, Krause analyzed variables representing state and local (urban) characteristics to find variables that influence local environmental policy.³⁸⁰ The research used the MCPA as a dependent variable that represented city-level commitment to environmental policies. The findings from her analysis suggest a link between multiple local level characteristics, including median income.³⁸¹ In an analysis including two models,³⁸² median income was negatively correlated with an urban commitment to the MCPA. This means that as the median income of a city rises, there is a reduced likelihood of commitment from that city to

³⁷⁹ 2003-2010 and 2011-2018

³⁸⁰ Krause, "Policy innovation, intergovernmental relations".

³⁸¹ Krause, "Policy innovation, intergovernmental relations": The data for the median income variable was drawn from the United States Census data for 1999.

³⁸² That included variables representing state and local characteristics

the MCPA. In the second stage of analysis, Krause analyzed variables of “substantial effect” on joining the MCPA. This analysis also posits median income as significantly negatively correlated to an urban area being a signatory to the MCPA.³⁸³

Krause’s other analysis measures factors influencing cities’ follow-through of protocols established in the MCPA.³⁸⁴ To accomplish this, the author converts MCPA protocols into an index. This study showed an impact of median income on local environmental policy. To assess the progress of municipalities in implementing real environmental policy, Krause developed the MCPI. Krause used ICLEI and US Conference of Mayors documents to develop the MCPI. The twenty-four-item index represents the ways in which city governments engage in GHG mitigation.³⁸⁵ The researcher received questionnaires from fifty-three towns and cities³⁸⁶ in Indiana that were analyzed to assess the impact of ‘supply’³⁸⁷ and ‘demand’³⁸⁸ models on the MCPI. The goal of this analysis was to reveal predictors of cities’ involvement in GHG mitigating activities. Findings suggest that in both the demand model and full model, higher median income is significantly associated with lower city MCPI scores. Both of Krause’s analyses argue that median income is an influential variable in terms of city-level environmental policy engagement.³⁸⁹

Other research, seeking to understand the impact of local social and economic variables on city level commitment to environmental policy, offered additional detail on the impact of median household income. Using a two-tailed t-test, Boyle found that median household

³⁸³ Krause, “Policy innovation, intergovernmental relations,” 55.

³⁸⁴ Krause, “Symbolic or substantive policy?,” 62.

³⁸⁵ Krause, “Symbolic or substantive policy?,” 54.

³⁸⁶ Of a possible 64 questionnaires sent.

³⁸⁷ The supply model used a variable associated with fiscal constraint, political entrepreneurship, and municipal capacity (professional abilities).

³⁸⁸ The Demand-side model used variables associate with education, income, political affiliation, manufacturing, and environmental NGOs.

³⁸⁹ Engagement in terms of local commitment or adoption.

income³⁹⁰ had a significant negative correlation with MCPA commitment.³⁹¹ Beyond the initial t-test, Boyle used a regression analysis of the most influential control variables, which showed the strength of median household income remained significantly negatively correlated with MCPA participation. Boyle noted that the median income as a measurement is a “relative measure.”³⁹² Median income does not necessarily translate to different regions and states. However, the findings that lower median income reduces the chances of a city participating in the MCPA raises questions for researchers. These findings also connect to Krause’s analyses of the MCPI and lower scores for cities with higher median income.

The preceding literature suggests that some of these environmental policies are sensitive to local characteristics, like median household income. The literature above suggests that higher median income levels should be negatively correlated with the dependent variable in this dissertation. Therefore, the higher the median income is in a city, the lower the likelihood of an established local action plan that includes air quality standards or GHG mitigation strategies, unless otherwise regionally mandated.

My research will use data collected from the U.S. Census and Statistics Canada. I used Statistics Canada’s ‘Local Area Profiles’ to collect the data for the median household income of the cities in the dataset. Local area profiles contain a large amount of data from within city limits and larger metropolitan regions. The US Census provides median household income as a percent for cities in their County and City Data Book.³⁹³ The United States Census search engine, American FactFinder, provides data for median household income data for the cities in the dataset.

³⁹⁰ Data for these variables was gathered from the 2000 United States Census.

³⁹¹ Boyle, “Examination of US cities as forces in environmental policy,” 195.

³⁹² Boyle, “Examination of US cities as forces in environmental policy,” 197.

³⁹³ Section b-5, 2000

Employment in Manufacturing

Employment in manufacturing and carbon-intensive industries plays a role in environmental degradation and city-level environmental policy. Some studies suggest that the presence of a robust urban manufacturing industry can lead to barriers in the creation of local environmental policy.

Research tracing the historical advancement of municipal environmental policy suggests a role for large-scale manufacturers that has diminished since the rise of the service sector in the United States.³⁹⁴ Portney conducted case studies and some statistical analysis of cities in the United States to determine their respective sustainability seriousness.³⁹⁵ This research argued that manufacturing employment negatively impacted the progression of urban sustainability until the eventual decline of manufacturing beginning in the 1960s. As manufacturing employment was lost to the internationalization of labor across the industrialized world, cities found little pushback from local business coalitions to enact policy related to sustainability. In Chapter 9 of his book, Portney conducted an analysis of selected cities³⁹⁶ to determine the environmental techniques and strategies that they used to promote, adopt, and implement sustainability-driven environmental policy. His analysis of the cities' development of sustainability programs revealed that a range of variation exists between cities in both "extent and content" in terms of efforts to "become more sustainable."³⁹⁷

Portney dedicated a portion of his research to a regression analysis of variables against a sustainability index. Building on previous research related to sustainability indicators,³⁹⁸ Portney

³⁹⁴ Portney, "Taking Sustainability Seriously" (2003).

³⁹⁵ Portney, K. E. *Taking sustainable cities seriously: Economic development, the environment, and quality of life in American cities*. (MIT Press, 2013).

³⁹⁶ Portney, *Taking sustainable cities seriously*: The author used New York, Los Angeles, Chicago, Houston, and Philadelphia for the analysis.

³⁹⁷ Portney, *Taking sustainable cities seriously*, 247.

³⁹⁸ The "index of Taking Sustainability Seriously" was modified from Portney's 2002 and 2003 analysis.

used a sample of 55 cities to test their sustainability seriousness. Portney modified an earlier sustainability index to create a new index with thirty-eight variables representing progress, or lack thereof, in sustainability activities.³⁹⁹ In terms of a variable representing employment in manufacturing, Portney hypothesized that cities, where the local economy is largely dependent in manufacturing, would score low on the sustainability seriousness index. Findings from a regression analysis confirm his hypothesis, as cities more reliant on manufacturing as a source of employment are less likely to pursue strategies of urban sustainability.

Boyle's analysis of MCPA membership and influences on a city's position as an advocate for progressive environmental policy highlighted a role for manufacturing employment.⁴⁰⁰ An investment model was used to test previous hypotheses related to coalitions of business and environmental action.⁴⁰¹ The investment model included variables representing proportion employed by manufacturing, median income, percent unemployed, and population per square mile. Boyle collected data for the investment model variables from the U.S. Census. Within the investment model, the researcher used a variable representing proportion employed in manufacturing to assess a relationship to MCPA adoption. The results of Boyle's regression analysis suggested that the manufacturing variable was not significantly correlated with MCPA adoption.

Even though the previous studies have mixed results, I include a variable that measures a city's portion of manufacturing employment. If a carbon-intensive industry is a significant employer in a city, it may view environmental policy as a high-cost, low-reward situation.

³⁹⁹ These activities included data from the sustainability indicators project, smart growth activities, transportation programs, pollution mitigation programs, energy resources, and organizational capacity.

⁴⁰⁰ Boyle, "Examination of US cities as forces in environmental policy".

⁴⁰¹ Gonzalez (2005) was one of the sources for this model.

Therefore, this research expects to find a negative correlation between increased employment in manufacturing and the dependent variable. This means that as employment in manufacturing increases, it is less likely that a city has established local GHG mitigation strategies.

I use both the County and City Data Book from the U.S. Census to collect data for the employment in manufacturing variable. Data on employment in manufacturing in a city is also available through the Census search engine. Through the ‘Local Area Profiles,’ data for Canadian cities are available from the Statistics Canada archives. Though it would be optimal for my analysis, a carbon-intensive industry variable is too difficult to develop in terms of data collection for over 100 cities. As a variable, employment in manufacturing is measured as the proportion of employment in manufacturing in a city.

Conclusion

This research uses logistic regression to determine the impact of TMNs and their members on a decarbonization norm through GHG monitoring and local action. In doing so, this study will determine the relevance of the variant of constructivism related to the norm life cycle and norm diffusion. It will also illustrate the role, or lack thereof, of subnational units and their networks in environmental policy creation and norm diffusion. Using three time periods, my study will fill a gap in the literature that examines the diffusion of norms in the form of local policy implementation.

This chapter examines the shortcomings of the original analysis related to my research question. In overcoming this issue, I determined, with the help of my committee, that it was best to create a new timeline for analysis and collapse the dependent variable. Collapsing the

dependent variable also provided an opportunity to use logistic regression as the statistical method for the analysis of each time frame.

The next chapter will provide a presentation of data and analysis. The presentation of data includes the Independent Variables (ICLEI Membership and ICLEI Technical Assistance), Dependent Variable (Local GHG mitigation policy), and the control variables selected for this research. The chapter will then present the model results of the three time periods using logistic regression. Finally, an explanation of the results will conclude this section.

Table 3.1: Original Coding for Dependent Variable

0	No GHG inventory and no local action plan
1	Local action plan, but no concrete policy passed related to GHG mitigation strategy
2	Local action plan and 1 of the following: <ul style="list-style-type: none"> - Municipal leadership orders alterations to municipal (fleet) vehicles with the goal of improving efficiency and emissions. - Municipal ordinances created that deal directly with emissions through building code (residential or commercial) or emissions from businesses within the city limits. - Municipal ordinances created that deal with on-road traffic, railways, and aviation that falls within the authority of a city.
3	Local action plan and 2 of the following: <ul style="list-style-type: none"> - Municipal leadership orders alterations to municipal (fleet) vehicles with the goal of improving efficiency and emissions. - Municipal ordinances created that deal directly with emissions through building code (residential or commercial) or emissions from businesses within the city limits. - Municipal ordinances created that deal with on-road traffic, railways, and aviation that falls within the authority of a city.
4	Local action plan and all of the following: <ul style="list-style-type: none"> - Municipal leadership orders alterations to municipal (fleet) vehicles with the goal of improving efficiency and emissions. - Municipal ordinances created that deal directly with emissions through building code (residential or commercial) or emissions from businesses within the city limits. - Municipal ordinances created that deal with on-road traffic, railways, and aviation that falls within the authority of a city.

Table 3.2: New Coding for Dependent Variable

0	No GHG inventory and no local action plan
1	City has conducted a GHG inventory and introduced complementary local action plan

Chapter Four: Analysis and Results

Introduction

My research seeks to examine the impact of TMNs and cities on the diffusion of international environmental norms by means of local GHG action. With this in mind, analysis in this chapter is concerned with whether ICLEI membership and ICLEI technical assistance impact cities' engagement with a decarbonization norm. This chapter reports and interprets two analyses over three time periods, 1991-2002, 2003-2010, and 2011-2018, and will proceed in three sections. First, it will restate the research questions and hypotheses. Second, it will report the results of the analysis of models for the time periods used in the study. Finally, I report the tests for multicollinearity among the independent variables.

Research Question

The literature, reviewed in Chapter Two, raises two main questions this research seeks to answer: Does ICLEI membership have an impact on GHG and air quality policy of its members? Does ICLEI technical assistance have an impact on GHG mitigation and air quality policy of those cities that utilize ICLEI-driven projects, like the CCPC, Clearpath software, and ICLEI membership? Do both ICLEI membership and ICLEI technical assistance have an impact that increases through the three time periods this research seeks to analyze (1990-2002, 2003-2010, 2011-2018)? The first question attempts to understand the effectiveness of TMNs in diffusing environmental policy through their members. The second question addresses the ability of ICLEI

to diffuse environmental norms and policy through a technical capacity that is connected, not just to ICLEI membership, but to other ICLEI created or sponsored programs.

Hypothesis

The above questions can be answered by considering the following hypotheses:

Hypothesis Model One: ICLEI Membership

(H₁) ICLEI membership has a significant impact on the environmental policy of member cities.

(H₀) ICLEI membership has no impact on the environmental policy of member cities. Non-member cities are just as likely as member cities to complete GHG inventories with complementary action plans.

Hypothesis Model Two: ICLEI Technical Assistance

(H₂) Technical assistance from ICLEI has a significant impact on the environmental policy of those cities that utilize the organization's programs.

(H₀) Technical assistance from ICLEI has no impact on the environmental policy of those cities that utilize the network's programs. Cities that do not use ICLEI sponsored or created programs are just as likely as those cities that seek ICLEI assistance to complete a GHG inventory with a complementary action plan.

The Models and Time Periods

I use binary logistic regression because the dependent variable in this research is dichotomous and because of the issues experienced in modeling an ordinal logistic regression. I initially selected ordinal logistic regression as an analytical model for this research. Ordinal logistic regression allowed for the construction of a dependent variable that measured different

important types of local policy meant to improve air quality. The proposed types of local policies included:

- local environmental action plans in combination with alteration of city fleet vehicles with the express goal of reducing emissions
- emission-reducing building code (residential or commercial)
- policy that seeks to reduce emissions from transportation-driven activity (on-road traffic, railways, aviation)

While coding the dependent variable for local GHG policies, many cities scored 0-2 within the ordinal model. It is for this reason that I chose to change to a binary logistic regression that uses local GHG inventories combined with local action plans to construct the dependent variable.

Tables 4.1, 4.4, and 4.7 report each variable with its measurement, hypothesized impact, source, and mean value in all three time periods. Tables 4.2, 4.5, and 4.8 report the ICLEI membership models in all three time periods. Tables 4.3, 4.6, and 4.9 report the ICLEI technical assistance models for all three time periods.

Models and Analysis of 1991-2002

(Table 4.1 Here)

(Table 4.2 Here)

Table 4.2 represents the results of the logistic regression model for ICLEI membership impact on local GHG inventory and plans for 1991-2002. The Model Chi-Square of 24.264 is significant ($p < 0.001$). The pseudo R squared, Cox & Snell is .190, which is weak in terms of explanatory power. As a pseudo R squared measurement Cox & Snell takes the sample size into account and has an upper limit of less than one. The probability of the measured event occurring

(i.e., GHG inventories in cities) largely determines the upper bound of the Cox and Snell measurement.⁴⁰² Event probability is calculated by dividing the number of events occurring⁴⁰³ by the total number of cities in the data set.⁴⁰⁴ For this model, the probability of a city having a GHG inventory with an action plan is .0069. Having the probability of an ‘event’ occurring is necessary to calculate the upper bound of the Cox and Snell measurement. The calculation of the upper bound for Cox and Snell is (where p is the probability of an ‘event’ occurring):

$$\text{Upper Bound} = 1 - [p^p (1-p)^{(1-p)}]^2$$

The upper bound of the Cox and Snell measurement for this model is .3978. With the upper bound measurement being only .3978, .190 for the Cox and Snell measurement can be considered weak but understanding that the upper bound is lower than other models. In the model representing the first time period (1991-2002), ICLEI membership was not significantly related to GHG inventories from cities. This result was expected in the first time period as ICLEI membership in the United States was low in general,⁴⁰⁵ and GHG inventories with action plans were very low.⁴⁰⁶ Neither the primary independent variable (ICLEI membership) nor control variables (Employment in Manufacturing, Education Level, Party Affiliation, Median Income, and Population Density) were significant. The main issues with the model reporting ICLEI membership for the time period 1991-2002 is a lack of variance within the dependent variable due to an extremely low amount of verifiable GHG inventories with complementary action plans. It is worth noting that of the seven cities that were confirmed to have a GHG inventory with a

⁴⁰² Allison, P. D. *Fixed effects regression methods for longitudinal data using SAS*. (SAS Institute, 2014).

⁴⁰³ GHG inventory with a complementary local action plan.

⁴⁰⁴ Allison, *Fixed effects regression methods for longitudinal data using SAS*,

⁴⁰⁵ 33 members total.

⁴⁰⁶ Seven GHG inventories with an action plan.

complementary local action plan in place during this time period, only one, the City of Honolulu, was not a member of ICLEI.

(Table 4.3 Here)

Table 4.3 reports the model measuring the impact of ICLEI technical assistance and local GHG inventory and complementary action plan for the time period 1991-2002. The Model Chi-Square of 23.928 is significant ($p < 0.001$). The pseudo R squared, Cox & Snell, is .188, which suggests a weak explanatory power of the model. Calculating the probability of an event (GHG inventory) occurring in this model (.069) and using that to determine the upper bound of Cox and Snell (.3978) suggests the explanatory value of the model is weak. In the model representing the first time period ICLEI, technical assistance was not significantly correlated to GHG inventories from cities. As in the case of table 4.2, the model representing ICLEI membership during the same time period (1991-2002), this result was expected. The expected insignificant result again stems from a lack of variance in the dependent variable.

Additionally, the primary independent variable representing ICLEI Technical Assistance was nearly identical to the ICLEI membership variable in the previous model. The programs that make up the primary IV in model 4.2 were underdeveloped until 2002-2004,⁴⁰⁷ specifically the CCPC and ICLEI Clearpath software available to cities (both members and non-members). As in the first model, neither the primary IV (ICLEI Technical Assistance) or control variables (Employment in Manufacturing, Education Level, Party Affiliation, Median Income, and

⁴⁰⁷ This comment is in reference to the tools available to non-members of ICLEI during the time period 1991-2002. Programs like Clearpath, the Carbons Registry, and ICLEI's work on local protocols were not yet developed and in place to provide support for non-members, as well as members of the TMN.

Population Density) were significant.

Models and Analysis of 2003-2010

(Table 4.4 Here)

(Table 4.5 Here)

This model (Table 4.5) represents the time period 2003-2010 and measures the relation between local GHG inventory with a complementary action plan and ICLEI membership. The Model Chi-Square of 27.343 is significant ($p < 0.001$). Cox & Snell pseudo R squared is .205. Using the probability of a city having a GHG inventory, .47, the calculation for the upper bound of the Cox and Snell measurement for this model is:

$$\text{Upper Bound} = 1 - [.47^{.47} (1-.47)^{(1-.47)}]^2$$

This calculation gives us an upper bound of .74909 for the Cox and Snell reported in this model. With this in mind, the reported Cox and Snell, .205, with an upper bound of .74909 is low in terms of explanatory value. ICLEI membership has a significant relationship (.001) to cities completing GHG inventories with complementary local action plans. These results indicate that ICLEI member cities are 4.4 times more likely than non-member cities to create a GHG inventory and action plan at the local level. This result was expected as ICLEI grew its membership during this time period and expanded the resources available to members to complete local inventories of greenhouse gasses. None of the control variables in this model are significantly related to the creation of GHG policy at the local level, which was surprising. As indicated in the literature reviewed for the control variable, previous research focused on indicators of local environmental policy commitment found a connection between education

level, party affiliation, and median income. The next section contains a discussion of issues with the control variables.

(Table 4.6 Here)

This model (table 4.6) represents an analysis of the time period 2003-2010 and measures the relationship between local GHG inventory with a complementary action plan and ICLEI technical assistance. The Model Chi-Square of 63.985 is significant ($p < 0.001$). The pseudo R squared, Cox & Snell, is .416. As in the previous models, I calculate the upper bound of Cox and Snell, which is .74909. This means the Cox and Snell pseudo R squared reported suggests a moderate explanatory value. ICLEI technical assistance has a significant relationship (.001) to cities completing GHG inventories with complementary local action plans. These results indicate that cities that seek ICLEI assistance are 32.7 times more likely to create a GHG inventory with a complementary action plan than cities not receiving technical assistance of any kind from ICLEI. This result was expected as this time period saw the development of Clearpath software from ICLEI, which is software available for a licensing fee from ICLEI to non-member cities, states, and other regions. Additionally, the CCPC joined with the Clinton Foundation from 2005-2008. The funding and expertise offered by the Clinton Foundation aided in the development of GHG inventory programs used by cities and expanded ICLEI's capacity to make a deeper connection with other global networks.

In the 2003-2010 time period, none of the control variables in this model are significantly related to the creation of GHG policy at the local level. As indicated in the literature review,

previous research focused on indicators of local environmental policy commitment found a connection between education level, party affiliation, and median income.

Models and Analysis of 2011-2018

(Table 4.7 Here)

(Table 4.8 Here)

Table 4.8 reports the results of the logistic regression model that tests the impact of ICLEI membership on local GHG inventory and a complementary action plan for the time period of 2011-2018. The Model Chi-Square of 45.374 is significant (0.001). The pseudo R squared Cox & Snell is .317. The probability of a city having a GHG inventory in this time period is .6722. Using this probability, the upper bound calculation is:

$$1 - [.6722^{.6722} (1-.6722)^{(1-.6722)}]^2$$

The upper bound for the Cox and Snell for this time period is .71870. This means the reported Cox and Snell measurement, .317, is adequate in explanatory value. ICLEI membership has a significant relationship (.001) to cities completing GHG inventories with complementary local action plans. These results indicate that ICLEI member cities are 9.993 times more likely to create a GHG inventory with a complementary action plan than non-member cities. This result was expected as ICLEI has been deeply connected to building networks that aided cities and regions in the development of GHG inventories for twenty-eight years. The control variable for party affiliation is significant (<.001) in the analysis for this time period. Cities with party affiliations that trend liberal are 11 times more likely to conduct a GHG inventory with a complementary local action plan than conservative cities. This effect may be due in part to the

political culture of conservative politicians and their voters who see local and international environmental policies as a threat to individual rights. I will discuss this further in the section preceding the analysis of the models. The other control variables in this model were not significantly related to cities establishing GHG inventories and action plans at the local level.

(Table 4.9 Here)

Table 4.9 represents the time period 2011-2018 and measures the relationship between local GHG inventory with a complementary action plan and ICLEI technical assistance. The Model Chi-Square of 93.294 is significant ($p < 0.001$). Cox & Snell is .543. As discussed above, the probability of a city having a GHG inventory in this time period is .6722. Using this probability, the upper bound calculation is:

$$1 - [.6722^{.6722} (1-.6722)^{(1-.6722)}]^2$$

The upper bound for the Cox and Snell for this time period is .71870. This pseudo R square measurement suggests the model has adequate explanatory value. ICLEI technical assistance has a significant relationship (.000) to cities completing GHG inventories with complementary local action plans. The results indicate that ICLEI member cities are 213.389 times more likely to create a GHG inventory with a complementary action plan than cities not receiving technical assistance of any kind from ICLEI. This result was expected due to the continued development of Clearpath software, which in this time period was utilized by other mayors and city networks (MCPA and C40). The Cities for Climate Protection Campaign (CCPC) and ICLEI also maintained adequate membership in the United States and Canada, which recorded more regional and state alliances joining the TMNs. The party affiliation variable was significant

(.005) for this time period. Cities with a more liberal party affiliation are 28 times more likely to have developed a GHG inventory with a complementary local action plan. None of the other control variables in this model were significantly related to the creation of GHG policy at the local level.

Issues with Control Variables and Significance

While four of the six models analyzed revealed significance between the primary independent variable and the dependent variable, the performance of the control variables is an issue. Correcting issues with these control variables can only help to strengthen the explanatory power of the model as a whole. This section will discuss each of the control variables utilized in each analysis and provide reasons why the control variables were either significant or not.

Research that examines the reasons why cities create environmental policy or join environmental policy networks often uses the level of education as a control variable. The education variable for this research is drawn from the U.S. Census Bureau and Statistics Canada. Both of these sources have education data at the metropolitan level. Some research has found education level positively correlated to “sustainability seriousness,”⁴⁰⁸ higher levels of adoption of local environmental policy,⁴⁰⁹ and perceived commitment to environmental policies at the local level.⁴¹⁰ All of the studies referenced above hypothesized a positive relationship between levels of education and higher levels of environmental commitment or local environmental policy. Many of the studies used to justify the level of education as a control variable for this

⁴⁰⁸ Portney, *Taking Sustainability Seriously*; Krause, “Policy innovation, intergovernmental relations”.

⁴⁰⁹ Krause, “Symbolic or Substantive Policy?”.

⁴¹⁰ Brody et al., “A spatial analysis of local climate change policy in the United States”; Boyle, “Examination of US cities as forces in environmental policy”.

research used the environmental policy commitment of cities as the dependent variable.⁴¹¹ Many studies measured cities as committed to environmental policy if they were members of a regional climate network, like the Mayors Climate Protection Agreement (MCPA). While this agreement was a significant step forward for many cities in pursuit of local environmental policy, expressing a commitment to environmental policy is not always accompanied by local action. Many cities have signed on to the MCPA, but for years did not act in a meaningful way to take local environmental policy action. While the MCPA cannot be discounted for its ability to rally mayors, city leadership, and local governments to an environmental cause (with many cities following through on local policy), a signature to the agreement is not the same as local policy action.

Research concerned with actual environmental policy implementation at the city level has also highlighted the impact, or lack thereof, of levels of education as a factor. Portney,⁴¹² Lubell, Feiock, and Handy,⁴¹³ and Krause⁴¹⁴ created indices of municipal action that is interpreted as environmental policy. While Krause found a positive significant correlation between a municipal environmental index, studies from Portney and Lubell, Feiock, and Handy did not find a significant correlation between levels of education and municipal environmental commitment as interpreted through an index. With all this in mind, educational attainment as a variable may have a more significant impact on a commitment to environmental policy when that commitment is measured by a city being a member of a regional or transnational municipal network. When a

⁴¹¹ Brody et al., "A spatial analysis of local climate change policy in the United States"; Boyle, "Examination of US cities as forces in environmental policy"; Lubell, Feiock, and Handy. "City adoption of environmentally sustainable policies".

⁴¹² Portney, *Taking Sustainability Seriously*.

⁴¹³ Lubell, Feiock, and Handy. "City adoption of environmentally sustainable policies".

⁴¹⁴ Krause, Rachel M. "An assessment of the impact that participation in local climate networks has on cities' implementation of climate, energy, and transportation policies." *Review of policy Research* 29, no. 5 (2012): 585-604.

city's commitment to environmental policy is measured as an index that takes into account policy implementation at the local level, the significance of level of education as a variable is mixed.

Many of the aforementioned studies do draw many of their data from county-level census data. My research makes the best possible attempt to construct variables at the city level. Though the county may be a good approximation, if the municipal level data was available, it was used for my dissertation research. Though the difference between county and city data may be slight, it could still be a substantial enough difference to impact the correlation with local environmental policy.

Previous research also identified median household income as a variable that could be correlated with a commitment to local environmental policy. This research expected a correlation between median income and GHG inventories with complementary action plans at the city level in four of the six analyses. However, median household income as a control variable was not significant in any of the models analyzed for this research. Two studies reported a negative significant correlation between higher median income levels within a city and lower levels of environmental commitment at the local level.⁴¹⁵ Krause uses the MCPA as an indicator of environmental commitment, finding a negative significant correlation between higher median income of a city and a reduced likelihood of a city joining becoming a signatory to the mayor's agreement.⁴¹⁶ Likewise, Boyle found that median household income had a significant negative correlation with MCPA commitment.⁴¹⁷ Research that uses sustainability indices as an indicator of local sustainability progress also showed a negative correlation between higher median

⁴¹⁵ Krause, "An assessment of the impact of the impact that participation"; Krause, "Symbolic or Substantive Policy?"

⁴¹⁶ Krause, "Symbolic or Substantive Policy?"

⁴¹⁷ Boyle, "Examination of US cities as forces in environmental policy," 195.

income and higher index scores.⁴¹⁸ The findings of these studies all suggested that adding median income as a variable in this analysis was important in terms of the overall strength of the model. A possible reason for non-significance might be connected to what level of data was used and the dependent variable in the studies used to justify the control variable of median income. All of these studies collected data from the county-level for their analysis. As noted in education, there are small differences between county and municipal data that may obscure a connection between the control and dependent variable. Also, many of the studies that included this control variable used the MCPA as the dependent variable representing city commitment to local environmental policy. As discussed earlier, using the MCPA as an indicator of a city's environmental commitment is not sufficient to measure environmental policy implementation.

Another control variable used for this research is related to the relative local power of the manufacturing industry in a city. While manufacturing industries have had a more diminished role in urban areas across the United States since the 1970s, some literature shows those industries still maintain some influence in local governance. In selected case studies of cities and their respective 'sustainability seriousness,' Portney finds a significant negative correlation between high employment in manufacturing and a city pursuing strategies of sustainability.⁴¹⁹ Boyle's analysis of MCPA signatories used a proportion of manufacturing variable in an investment model and found no correlation between MCPA adoption.⁴²⁰ Across all time periods in my analysis, the control variable used to represent the proportion employed in manufacturing was not significantly correlated to a city creating a local GHG inventory with a complementary action plan.

⁴¹⁸ Krause, "An assessment of the impact of the impact".

⁴¹⁹ Portney, *Taking sustainability seriously*.

⁴²⁰ Boyle, "Examination of US cities as forces in environmental policy".

There are a couple of reasons why this variable might not be significant and how to improve the variable overall for future research. As mentioned in chapter three, this measurement would be more precise by collecting data on industries associated explicitly with high carbon emissions. However, the lack of data from the 1990s and a limited research window made the collection of that data impossible for this particular research project. Also, the results of the limited amount of studies that have used an employment in manufacturing variable in the past make it difficult to assess a connection to local climate policy.

Of the control variables used in this research, political party affiliation was significant in two of the six models analyzed. For the United States, the variable was coded to reflect the Presidential vote choice of districts within a city's limits. For Canadian cities, I used vote totals reflecting Member of Parliament choice. In the models representing the time period 1992-2002, I expected no significance between GHG inventories and party affiliation. This research did expect significance from the two of the timelines, 2003-2010 and 2011-2018. The expected significance was due to the growing political culture of conservatives in the United States against local environmental initiatives and ICLEI as a network. A problem with using a dummy variable for party affiliation is a resulting low variation, which could have affected the analysis itself. A more detailed and precise party affiliation variable could help strengthen the model in the future.

As a network, ICLEI was instrumental in bringing together a coalition of city leaders seeking to have a voice in environmental policy in the early 1990s. This included work with conference bodies before, during, and after the Rio Summit in 1992, and on Agenda 21 and Local Agenda 21 activities. Many far-right conservative groups and politicians have labeled Agenda 21 as a United Nations plot to take land rights away from citizens of the United States,

among other charges. For nearly two decades, ICLEI has been framed by these conspiracy theorists as a central figure in the international plot initiated by Agenda 21.

By 2012, the voices of conspiracy theorists had reached the Republican National Committee that passed a resolution titled, “Resolution Exposing United Nations Agenda 21”. Preceding the RNC resolution, radio personalities and far-right political figures incited anti-Agenda 21 sentiments among Tea Party members and other political activists.

It seems that 2012 was a moment when the political culture of the conservative movement in America embraced conspiracy theories and crafted anti-environmental positions within state legislative bodies, through political committees, and conservative-leaning media outlets. With this in mind, the findings of significance in the two analyses from 2011-2018 make sense. From the late 1990s and early 2000s, a fringe movement against international environmental action, in the form of Agenda 21, reached the upper echelon of political leadership in the United States. Anti-Agenda 21 activity did not impact Canadian politics as it did in the United States. However, as Chapter One illustrates, conservative Canadian politicians have not been supportive of international environmental initiatives.

This analysis seeks to identify the impact of transnational municipal networks on local environmental policy, specifically Greenhouse Gas inventories with complementary action plans. In creating a model to assess this impact, this dissertation included control variables that would account for factors influencing the implementation of local environmental policy. Researchers on cities and their commitment to local environmental policies have made a case using each of the control variables in my study. Unfortunately, most of the control variables did not show a correlation with GHG inventories or action plans in the three timelines. In the final chapter, I will discuss how the model and control variables can be improved in future research to provide a

model with higher levels of explanatory power. In the next section, I test for multicollinearity issues by using the Variance Inflation Factor of the independent variable.

Testing for Multicollinearity

To assess possible issues with multicollinearity, I will use tests to determine the Variance Inflation Factor (VIF) of the independent variables used for this analysis. I use the VIF to measure the impact of collinearity among the independent variables in analyses using regression. If the VIF measurement reports “unusually higher than one”⁴²¹ or reports a score of eight, then there is a need to be concerned about multicollinearity.⁴²²

(Insert Table 4.10 Here)

(Insert Table 4.11 Here)

Tables 4.10 and 4.11 report the VIF measurement for ICLEI membership and ICLEI technical leadership during the time period 1991-2002. VIF measurements are all below 2, which indicates there is little reason for concern of multicollinearity issues between the independent variable.

(Insert Table 4.12 Here)

⁴²¹ Mansfield, E. R., and Helms, B. P. “Detecting multicollinearity,” *The American Statistician*, (1982) 36(3a), 158-160, 160.

⁴²² O’Brien, R. M. “A caution regarding rules of thumb for variance inflation factors,” *Quality & quantity*, (2007) 41(5), 673-690; Thompson, C. G., Kim, R. S., Aloe, A. M., and Becker, B. J. “Extracting the variance inflation factor and other multicollinearity diagnostics from typical regression results,” *Basic and Applied Social Psychology*, (2017) 39(2), 81-90.

(Insert Table 4.13 Here)

Tables 4.12 and 4.13 report the VIF measurement for ICLEI membership and ICLEI technical leadership during the time period 2003-2010. As in the case of the VIF measurements for the previous time period, the VIF measurements were all below 2, suggesting little worry for issues of multicollinearity between variables.

(Insert Table 4.14 Here)

(Insert Table 4.15 Here)

Tables 4.14 and 4.15 report the VIF measurement for ICLEI membership and ICLEI technical leadership during the time period 2011-2018. For this time period, there was no VIF above 2.

Conclusion

This chapter reports the results of the analysis from multiple time periods that test the hypothesis of this research. Hypothesis 1 postulates that ICLEI membership would have a significant impact on members completing GHG inventories with complementary action plans. Specific to this hypothesis, I expected significance during the time periods 2003-2010 and 2011-2018. As expected, the 1991-2002 time period did not find a connection between ICLEI membership and GHG inventories. As mentioned previously, this result was due to a lack of variance in the dependent variable for both models (ICLEI membership and ICLEI technical assistance) in the 1991-2002 time period. Results of the 2003-2010 analysis show a significant relationship between ICLEI membership and GHG inventories with complementary action plans, supporting the hypothesis for H1. For 2011-2018, the results again show a statistical significance

to the impact of ICLEI membership on member-cities conducting GHG inventories with action plans.

Hypothesis 2 concerns the capacity of ICLEI to extend beyond membership to diffuse norms. This hypothesis takes into account, not just ICLEI membership, but other ICLEI created or ICLEI-operated programs that cities might use to conduct appropriate GHG inventories and develop local action plans. With this in mind, Hypothesis two postulates that ICLEI technical assistance has a significant impact on cities conducting GHG inventories with complementary local action plans. As expected, ICLEI technical assistance was not significantly correlated to cities developing GHG inventories in the 1991-2002 time period. As was the case for the H₁ analysis during this time period, this model suffered from a low sample size of confirmed GHG inventories and action plans for cities. As expected, the analysis conducted on the 2003-2010 time period found ICLEI technical assistance to be significantly related to cities conducting GHG inventories and developing local action plans. This analysis was repeated for the 2011-2018 time period, finding that the impact of ICLEI technical assistance was significantly related to cities conducting GHG inventories and developing complementary action plans.

In time periods 2003-2010 and 2011-2018, there was a significant impact on cities conducting GHG inventories and action plans for both the ICLEI membership and ICLEI technical assistance variable. For both time periods, ICLEI technical assistance outperformed ICLEI membership in terms of outcomes related to city performance in developing these local environmental policies. In the 2003-2010 analysis, cities that sought ICLEI technical assistance were 32 times more likely to conduct GHG inventories with action plans, while ICLEI membership made cities only 4 times more likely to conduct or carry out the same local initiatives. Similarly, analysis of the 2011-2018 time period reported that ICLEI membership

made cities more than 9 times more likely than non-member cities to conduct an inventory and develop a local action plan. During the same time period, ICLEI technical assistance made cities 213 times more likely to assemble a GHG inventory with a complementary action plan than cities that did not utilize the ICLEI network. These results indicate a growing impact over twenty years in terms of the diffusion of a decarbonization norm from a Transnational Municipal Network of cities. Additionally, the results suggest that ICLEI members and cities that sought ICLEI technical assistance diffused a decarbonization norm to the local level more efficiently than cities that did not utilize ICLEI services. I will discuss this further in Chapter Five, where I will provide a more in-depth interpretation of the results and their implication to current and future academic work.

Models and Analysis of 1991-2002

Table 4.1: Variables, Measurement, Hypothesized Impact, and Mean Value for timeline 1991-2002

Variables	Measurement	Hypothesized Impact	Mean Value
Dependent: GHG Inventory	0= No GHG/LAP 1= City GHG Inventory and LAP	N/A	.07
Independent: ICLEI Membership (Source: ICLEI Documents, Internal City Documents, and Reports)	0= non-ICLEI city 1= ICLEI Member City	No Significance	.28
ICLEI Technical Assistance (Source: ICLEI Documents, Internal City Documents, and Reports)	0= no ICLEI assistance 1= ICLEI assistance provided	No Significance	.29
Employment in Manufacturing (Source: US and Canadian Census)	% employed in manufacturing	No Significance	10.763
Education Level (Source: US and Canadian Census)	% above 25 with BA	No Significance	18.225
Party Affiliation (Source: County /District Data)	0= Conservative 1= Liberal	No Significance	.79
Median Income (Source: US and Canadian Census)	Median Income	No Significance	\$31318.31
Population Density (Source: American Factfinder and Canadian Census)	Number of people per square mile	No Significance	3503.98

Table 4.2: Logistic Regression Model of ICLEI membership influence on GHG inventory and action plan, time period 1991-2002

Independent Variables	Logg-Odds	S.E.	Odds-Ratio	pValue
ICLEI Membership	19.726	4203.15	368889335.0	0.996
Employment in Manufacturing	0.004	.063	1.004	0.946
Education Level	-0.065	.075	0.937	0.387
Party Affiliation	17.430	6475.66	37115512.1	0.998
Median Income	0.00	.000	1.0	0.567
Population Density	0.00	.000	1.0	0.955
Constant	-37.856	7720	0.000	0.996
Model Statistics:	Value:			
Model Chi Square	24.264			
Cox & Snell	0.190			

Table 4.3: Logistic Regression Model of ICLEI Technical Assistance influence on GHG inventory and action plan time period 1991-2002

Independent Variables	Log Odds	S.E.	Odds-Ratio	pValue
ICLEI Technical Assistance	19.576	4213.772	317371129	0.996
Employment in Manufacturing	0.025	.065	1.025	0.701
Education Level	-0.040	.073	0.961	0.589
Party Affiliation	17.745	6455.35	50904908.5	0.998
Median Income	0.000	.000	1.00	0.317
Population Density	0.000	.000	1.00	0.825
Constant	-39.210	7708.921	0.000	0.996
Model Statistics:	Value:			
Model Chi Square	23.928			
Cox & Snell	0.188			

Models and Analysis of 2003-2010

Table 4.4: Variables, Measurement, Hypothesized Impact, and Mean Value for timeline 2003-2010

Variables	Measurement	Hypothesized Impact	Mean Value
Dependent: GHG Inventory	0= No GHG/LAP 1= City GHG Inventory and LAP	N/A	.47
Independent: ICLEI Membership (Source: ICLEI Documents, Internal City Documents, and Reports)	0= non-ICLEI city 1= ICLEI Member City	Significant	.39
ICLEI Technical Assistance (Source: ICLEI Documents, Internal City Documents, and Reports)	0= no ICLEI assistance 1= ICLEI assistance provided	Significant	.52
Employment in Manufacturing (Source: US and Canadian Census)	% employed in manufacturing	Significant	19.37
Education Level (Source: US and Canadian Census)	% above 25 with BA	Significant	9.14
Party Affiliation (Source: Precinct /District Data)	0= Conservative 1= Liberal	Significant	.59
Median Income (Source: US and Canadian Census)	Median Income	Significant	\$46405.45
Population Density (Source: American Factfinder and Canadian Census)	Number of people per square mile	Significant	6813.75

Table 4.5: Logistic Regression Model of ICLEI membership influence on GHG inventory and action plan, time period 2003-2010

Independent Variables	Log Odds	S.E.	Odds-Ratio	Pvalue
ICLEI Membership	1.501	.461	4.486	0.001
Employment in Manufacturing	-0.025	.039	0.975	0.975
Education Level	0.025	.043	1.025	0.569
Party Affiliation	0.641	.453	1.899	0.157
Median Income	0.000	.000	1.000	0.167
Population Density	0.000	.000	1.000	0.668
Constant	-2.538	.940	0.079	0.007
Model Statistics:	Value:			
Model Chi Square	27.343			
Cox & Snell	0.205			

Table 4.6: Logistic Regression Model of ICLEI Technical Assistance influence on GHG inventory and action plan time period 2003-2010

Independent Variables	Log Odds	S.E.	Odds-Ratio	P value
ICLEI Technical Assistance	3.489	.616	32.748	0.000
Employment in Manufacturing	-0.069	.045	0.933	0.124
Education Level	-0.021	.051	0.979	0.685
Party Affiliation	0.027	.574	1.028	0.962
Median Income	0.000	.000	1.00	0.096
Population Density	0.000	.000	1.00	0.698
Constant	-2.993	1.156	0.050	0.010
Model Statistics:	Value:			
Model Chi Square	63.985***			
Cox & Snell	0.416			

Models and Analysis of 2011-2018

Table 4.7: Variables, Measurement, Hypothesized Impact, and Mean Value for timeline 2011-2018

Variables	Measurement	Hypothesized Impact	Mean Value
Dependent: GHG Inventory	0= No GHG/LAP 1= City GHG Inventory and LAP	N/A	.67
Independent: ICLEI Membership (Source: ICLEI Documents, Internal City Documents, and Reports)	0= non-ICLEI city 1= ICLEI Member City	Significant	.34
ICLEI Technical Assistance (Source: ICLEI Documents, Internal City Documents, and Reports)	0= no ICLEI assistance 1= ICLEI assistance provided	Significant	.61
Employment in Manufacturing (Source: US and Canadian Census)	% employed in manufacturing	Significant	7.48
Education Level (Source: US and Canadian Census)	% above 25 with BA	Significant	34.16
Party Affiliation (Source: Precinct /District Data)	0= Conservative 1= Liberal	Significant	.73
Median Income (Source: US and Canadian Census)	Median Income	Significant	\$56497.40
Population Density (Source: American Factfinder and Canadian Census)	Number of people per square mile	Significant	7613.29

Table 4.8: Logistic Regression Model of ICLEI membership influence on GHG inventory and action plan, time period 2011-2018

Independent Variables	Log Odds	S.E.	Odds-Ratio	P Value
ICLEI Membership	2.302	.704	9.993	0.001
Employment in Manufacturing	0.090	.070	1.094	0.199
Education Level	0.009	.028	1.009	0.739
Party Affiliation	2.460	.591	11.701	0.000
Median Income	0.000	.000	1.000	0.128
Population Density	0.000	.000	1.000	0.816
Constant	-3.848	1.314	0.021	0.003
Model Statistics:	Value:			
Model Chi Square	45.374			
Cox & Snell	0.317			

Table 4.9: Logistic Regression Model of ICLEI Technical Assistance influence on GHG inventory and action plan, time period 2011-2018

Independent Variables	Log Odds	S.E.	Odds-Ratio	PValue
ICLEI Technical Assistance	5.363	1.143	213.389	0.000
Employment in Manufacturing	-0.022	.110	0.978	0.840
Education Level	-0.036	.044	0.965	0.416
Party Affiliation	3.337	1.180	28.146	0.005
Median Income	0.000	.000	1.000	0.432
Population Density	0.000	.000	1.000	0.964
Constant	-3.800	2.067	0.022	0.066
Model Statistics:	Value:			
Model Chi Square	93.294			
Cox & Snell	0.543			

Table 4.10: Variance Inflation Factor- GHG Inventory w/Action: 1991-2002

Independent Variables	VIF
ICLEI Membership	1.298
Employment in Manufacturing	1.075
Education Level	1.191
Party Affiliation	1.325
Median Income	1.222
Population Density	1.216

Table 4.11: Variance Inflation Factor - GHG Inventory w/Action: 1991-2002

Independent Variables	VIF
ICLEI Technical Assistance	1.272
Employment in Manufacturing	1.063
Education Level	1.180
Party Affiliation	1.300
Median Income	1.189
Population Density	1.250

Table 4.12: Variance Inflation Factor- GHG Inventory w/Action: 2003-2010

Independent Variables	VIF
ICLEI Membership	1.267
Employment in Manufacturing	1.038
Education Level	1.600
Party Affiliation	1.203
Median Income	1.546
Population Density	1.053

Table 4.13: Variance Inflation Factor - GHG Inventory w/Action: 2003-2010

Independent Variables	VIF
ICLEI Technical Assistance	1.278
Employment in Manufacturing	1.049
Education Level	1.593
Party Affiliation	1.213
Median Income	1.543
Population Density	1.048

Table 4.14: Variance Inflation Factor - GHG Inventory w/Action: 2011-2018

Independent Variables	VIF
ICLEI Membership	1.092
Employment in Manufacturing	1.057
Education Level	1.320
Party Affiliation	1.054
Median Income	1.292
Population Density	1.056

Table 4.15: Variance Inflation Factor - GHG Inventory w/Action: 2011-2018

Independent Variables	VIF
ICLEI Technical Assistance	1.242
Employment in Manufacturing	1.098
Education Level	1.321
Party Affiliation	1.147
Median Income	1.330
Population Density	1.046

Chapter 5: Conclusion

Introduction

The purpose of my research is to explore the impact of TMNs and their members on the diffusion of a decarbonization norm from the international level to the local level. Data from three time periods (1991-2002, 2003-2010, and 2011-2018) were used to test the capacity of ICLEI to diffuse environmental norms and policies to its members. Previous research has highlighted a role for sub-national and supra-national actors in the coordination and diffusion of environmental norms and policy in European countries. However, there are limited research projects that analyze the diffusion of environmental norms within the United States and Canada. I chose cities from the United States and Canada because of their central governments' reluctance to join or follow international environmental agreements.⁴²³ While these federal governments failed to meet their commitments to international environmental efforts, many cities continued to enact local policies that align with international standards.

Summary and Findings

Chapter One included a historical overview of international climate regime's response to environmental crisis, the reaction of uncommitted nation states, and the efforts of municipal leaders to enact local versions of international agreements.

Chapter Two identified literatures that frame the role of subnational and supranational actors in a system of multilevel governance and provided a framework to better understand the

⁴²³ Kyoto and the Paris Climate Agreement.

diffusion of norms. Literature on multilevel governance highlighted the decentering of nation state power and its redistribution to subnational and supranational actors, like cities and TMNs. Second generation constructivism, specifically the norm life cycle, acted as a framework from which to view the activity of non-state actors in the diffusion of norms. I used Finnemore and Sikkink's conception of norms to develop the norm of decarbonization, which has two central objectives related to GHG monitoring and action at the local level. I later used these objectives to construct the dependent variable used in the analysis for my research.

Chapter Three outlined the research design, procedures for analysis, and provided a presentation of the hypothesis. I used a logistic regression model to explore the relationship between ICLEI membership and the diffusion of GHG mitigation strategies and action, over three time periods.

Chapter Four presented the sources, conceptualization, and operationalization of the variables used in this research. The findings from the analysis in Chapter Four support hypothesis one⁴²⁴ in two of the three time periods; 2003-2010 and 2011-2018. The 2003-2010 analysis reveals the beginning of a process that brings international environmental norms, specifically GHG inventories combined with local action, to the local level. During this time period, ICLEI members were 4 times more likely than non-members to conduct GHG inventories and develop local action plans. In 2011-2018 time period, those cities that were members of ICLEI were over 9 times more likely to conduct GHG inventories with a complementary action plan than non-members. These findings indicate that ICLEI cities were significant actors in the development of environmental policy in the United States and Canada between 2003-2018. The federal response to climate change in the form of environmental policy languished during the late

⁴²⁴ (H₁) ICLEI membership has a significant impact on the environmental policy of member cities.

1990s and 2000s in the United States. As a result, many cities began community-driven projects to develop local policies to reduce greenhouse gas emissions.

The results from the analysis of ICLEI technical assistance support hypothesis two in two of the three time periods; 2003-2010 and 2011-2018.⁴²⁵ From 2003-2010 cities that used ICLEI-developed products or services, regardless of membership, were 32 times more likely to develop GHG inventories than cities that did not use ICLEI services, software, or protocols. This time period marks an expansion in the capacity of ICLEI to reach both members and non-members to diffuse standards of appropriate behavior in conducting GHG inventories and developing local action plans. During the time period 2011-2018, those cities that sought ICLEI's technical assistance were 213 times more likely to conduct a GHG inventory than cities that did not use ICLEI or its services. These two time periods confirm the second hypothesis; Technical assistance from ICLEI has a significant impact on the environmental policy of those cities that utilize the organization's programs. These findings also have implications for literature related to norms, their life cycles, and significant actors in the diffusion of environmental norms.

Implications for Theory

The findings presented in this research confirm and expand constructivist literature on norms, the impact of non-state actors in the norm life cycle, and how norm diffusion occurs within rogue states. The analysis of the time periods 2003-2010 and 2011-2018 reveal a significant role for TMNs and cities in the diffusion of a decarbonization norm in the United States and Canada.

⁴²⁵ (H₂) Technical assistance from ICLEI has a significant impact on the environmental policy of those cities that utilize the organization's programs.

My research confirms that local authorities play a role as norm entrepreneurs in the first stage of the norm life cycle. Some cities in the United States and Canada responded to international agreements by creating or proposing local ordinances to phase out contaminants like CFCs or GHGs. Until the formation of ICLEI, municipal leaders in the United States utilized domestic networks like LEOSR to challenge the federal government to adopt the decarbonization norm reflected in the Montreal Protocol.

After the formation of ICLEI, cities used the TMN as an organizational platform to coordinate blueprints of local action that aligned with international environmental standards. The use of ICLEI as an organizational platform for norm entrepreneurs conforms with the literature on norms and their life cycles. Projects initiated by ICLEI included the creation of multiple GHG emission inventory software platforms for cities and technical support for city-based projects like the *Urban CO2 Reduction Program* and the *Local Agenda 21 Planning Guide*. Additionally, the network led delegations of cities to international conferences, where city leaders acted as advocates for and contributors to an international climate regime. The activities of ICLEI illustrate the importance of the TMN as an organizational platform and network for norm entrepreneurs in the first stage of the norm life cycle.

This dissertation research also adds to our understanding of the role of TMNs in the socialization and institutionalization of a norm in the second stage of its life cycle. During norm cascade, Finnemore and Sikkink theorized that networks of norm entrepreneurs are essential for their role as “agents of socialization.”⁴²⁶ Networks are considered essential because they continue to convince state leaders to adopt ascending norms and monitor state adherence to norms. However, this research analyzes a TMN with members who are not nation states but have

⁴²⁶ Finnemore and Sikkink, “International Norm Dynamics and Political Change,” 903.

political authority beyond norm entrepreneurs or NGOs. While ICLEI certainly reinforced the socialization of a decarbonization norm, I contend that ICLEI and its members also institutionalized a decarbonization norm.

ICLEI made significant efforts to align international standards to local GHG policy by means of advancing affiliated networks, expanding the services offered to local governments, and elevating the position of local governments within an international climate change regime. In this dissertation, time periods two (2003-2010) and three (2011-2018) show a growth in the number of cities in the United States and Canada that have achieved the objectives of a decarbonization norm. Within these time periods, ICLEI's impact on the local policy of members and all cities that sought technical assistance expanded significantly. These findings coincide with research on TMNs and cities that show the proliferation of local initiatives that address reducing GHG emissions across the EU. At ICLEI-organized symposia, local governments shared project ideas and results. Local governments demonstrated their efficacy by implementing local action plans and gained legitimacy at the international level. This legitimacy was necessary for local governments to gain appropriate recognition within the international climate regime. The institutionalization of GHG monitoring systems and action plans among local governments allowed ICLEI, and other TMNs, to make the case for local governments as partners in an international climate regime.

This dissertation also adds to our understanding of 'norm leaders' in the constructivist life cycle of norms. The findings of this research support the hypothesis that TMNs influence the policies of cities by diffusing a decarbonization norm. However, cities are the final architects of local policy aimed at advancing a decarbonization norm and serve a vital role in the norm life cycle. As discussed in Chapter Two, Finnemore and Sikkink define a 'norm leader' as a nation

state government that has adopted and advocates for a specific norm. One of the reasons states are labeled as a norm leader is due to their ability to influence the legal and social structures that frame a new norm for citizens. States that are norm leaders are also influential in the second stage of the norm life cycle by convincing other states to follow a specific norm. Cities and their leadership have similar capacities by creating local policies and programs. The findings of this research and analysis point towards a more significant role for cities as norm leaders in the first and second stages of a norm life cycle.

As discussed in Chapter One, cities and their networks consistently challenged the Parties of the UNFCCC for recognition of local action aimed at fighting climate change and working towards decarbonization at the local level. Local authorities were eventually recognized as government stakeholders in an international climate regime because of their advocacy at the international level and leadership in crafting local strategies aimed at achieving decarbonization. While both the United States and Canada eventually abandoned the Kyoto Protocol, cities in those countries continued uninterrupted development of local strategies aimed at improving air quality through actions associated with decarbonization. Cities are norm entrepreneur and norms leaders because they advocate for norms and implement policies that align with international standards.

The position of cities as norm leaders becomes more significant when the city is operating within a rogue state, such as the United States or Canada. This research adds to our understanding of how subnational actors can diffuse international environmental norms in the absence of federal support. Within the norm life cycle, a rogue state is one that openly breaks or ignores a rising norm supported by the majority of states. During the end of the first time period of 1991-2002, the George W. Bush administration expressed doubts about international

environmental agreements in his refusal to sign the Kyoto Protocol. During the second time period of 2003-2011, Canada conveyed to the international community it would not follow the Kyoto Protocols beginning in 2006. During the final time period 2012-2018, the United States experienced a split in environmental leadership. While the Obama administration re-engaged with the international climate regime, the Trump administration has been antagonistic toward environmental regulation. However, the findings of this analysis indicate cities in both countries that were either ICLEI members or cities that sought ICLEI's technical assistance continued to work towards decarbonization through local action. The role of networks in the diffusion of norms within rogue states is vital in terms of staying connected to effective ways to inventory and reduce local emissions. This research demonstrates that TMNs and cities can diffuse a decarbonization norm in the absence of central government guidance, which adds to our understanding of norm leaders within the norm life cycle.

Early ICLEI members were primed towards accepting and advocating for a norm like decarbonization before joining the TMN. For example, cities like Irvine and San Diego pushed for local ordinances that aligned with the Montreal Protocol, even before the formation of ICLEI. However, the findings of this research indicate that cities lean on the resources of ICLEI, or ICLEI funded networks, in assembling their local action plans and in protocol related to GHG inventory at the local level. This means that while cities might come to ICLEI primed as norm advocates, TMNs help cities become norm leaders when their local decarbonization efforts align to international standards.

Limitations of the Research

The analysis showed a significant correlation between both ICLEI membership or technical assistance, and GHG mitigation strategies. However, the model itself is less than moderate in its predictive strength across all variables and timelines. Various improvements to the predictive strength of the models are discussed below.

Two of the control variables used in this research can be improved for future analysis to better reflect the unit being measured. I believe that while these variables were not significant, they are still valuable indicators that should be accounted for in an analysis. For example, party affiliation was coded as a dummy variable with 0 representing conservative cities and 1 representing cities that voted for the liberal political party. If the variable was changed to a ratio that represents the number of votes a candidate receives in a given election,⁴²⁷ it could provide a more accurate and detailed picture of the political makeup of cities. Additionally, the cities used in this research trend towards representation from the Liberal or Democratic party. Expanding the universe of cities can capture more politically diverse cities, to the extent that is possible in a two-party political system. The variable representing manufacturing employment in cities could also be improved with a more detailed count of the high carbon or pollutant producing industries within a city's limits. A higher level of detail could produce a city-level variable that is more representative of industries that contribute to GHG emissions. Improvement of the political party affiliation and employment in manufacturing variables will improve the R squared score and increase the explanatory value of the model.

Two other variables that would also enhance the explanatory value of the model are the presence of dedicated a sustainability official and a regional variable. The existence of a

⁴²⁷ Presidential vote in the United States and Ministers of Parliament vote in Canada.

dedicated office of sustainability or city officials for sustainability increases the likelihood of a city conducting a GHG inventory with a local action plan. A regional variable can account for regions, like the western United States, where states like California have laws that mandate cities conduct a GHG inventory.

The independent variable that represents ICLEI membership can be altered to reflect a broader membership in TMNs. The proliferation of municipal networks and agreements beginning in 2005 mark an increase in the amount and type of organizational structure of municipal networks concerned with environmental issues. Mayoral networks like the C40 and MCPA developed after ICLEI but have had a profound effect on the urban response to climate change and the challenges of sustainability. While the ICLEI technical assistance model does capture some municipal networks in which ICLEI is a contributing force (i.e., the CCPC, Carbons Registry), it cannot capture the work of other municipal networks that operate separately from the network at the center of this research.

Time and financial constraints made it impossible to collect more relevant data to examine other TMNs and their members to assess the impact of such organizations. Membership in other TMNs would have an impact on some environmental norms, especially beginning in 2005 when a large number of city-oriented networks began to emerge at the domestic, regional, and international levels. Furthermore, given more time, this research would have a higher sample of cities. An expanded universe of cities would improve the identification of outliers and the accuracy of the findings. Additionally, a survey instrument could improve the research by more detailed questions related to municipal-specific projects that reflect local environmental action. Survey data might also help fill in time periods where data was sparse.

A lack of data from the 1990s was an issue in this research. For example, collecting and verifying GHG inventories and action plans for the time period 1991-2002 was difficult due to some city archives lacking data before the early 2000s. A Lexis Nexis search of news articles did lead to the discovery of some GHG inventories and action plans during the 1991-2002 time period. However, some similar data may have been unintentionally excluded.

While a quantitative approach was able to confirm the hypotheses of this research, a mixed methods approach would provide a more in-depth view into the process of environmental norm diffusion from the international to the local level. A quantitative approach provides insight into whether ICLEI had an impact on the environmental policy and norms of its members. However, this approach can tell us nothing about precisely *how* ICLEI influenced the policy and norms of its member cities. A mixed method or qualitative approach could isolate individual city cases to find the ways in which these cities developed their local environmental policy and response to environmental issues. Without a more detailed analysis of individual city environmental activity, a more detailed account of how norms are diffused cannot be produced.

In terms of theoretical limits, this research was not able to analyze a decarbonization norm in the third stage of the norm life cycle. As discussed in Chapter Two, the third stage of the norm life cycle involves a norm becoming internalized across states and their respective domestic institutions. A norm related to GHG measurement and mitigation has not yet reached a position that is accepted by all states and their domestic institutions. At a regional level, literature points to an internalization of a decarbonization norm across the European Union.⁴²⁸ However, the abandonment of international environmental agreements in favor of economic interest from

⁴²⁸ See Chapter Two.

the United States and Canada shows that a decarbonization norm is slow to internalize across nation states globally.

Future Research

The dependent variable for this study represents GHG inventories with complementary action plans and is an adequate demonstration of local action that reflects a response to international norms. However, the variable itself can be strengthened by including other local action related to environmental policy. In future research, I plan to expand the dependent variable to an ordinal variable that includes a GHG inventory, local action plan, green fleet programs tied to local action plans,⁴²⁹ and green building codes. As discussed in Chapter 2, some scholars have created indices that account for factors of urban environmental sustainability. An index could prove to be an excellent dependent variable to measure against TMN membership across time.

A greater focus should be placed on understanding the beginnings of networks like ICLEI, which originated from other smaller domestic networks in the early 1980s. Groups like LEOSR and the LEO Project played a role in demanding a greater voice for cities in issues of international importance. With more time and resources, a researcher could provide a detailed qualitative study that expands our understanding of these municipal networks. Topics for further study include LEOSR demanding divestment from companies connected to apartheid in South Africa, the development of sanctuary cities, and early efforts to bring the Montreal Protocols to local governments through municipal policies. Some of the municipal representatives involved in LEOSR were significant in the founding of ICLEI and served as its inaugural leadership. An

⁴²⁹ An issue with including green fleet vehicle programs is that some fleet vehicle programs predate GHG inventories and local action plans.

examination of the role of these actors in early efforts to bring international norms to local levels and provide a greater voice for cities in international dialogue would add to our understanding of early urban environmental norm entrepreneurs.

Bulkeley highlights city networks' organizational changes circa 2005 that saw the proliferation of new city networks and TMNs that addressed environmental challenges.⁴³⁰ Since that time, ICLEI has created partnerships with many domestic and global networks representing cities. The connection between ICLEI and domestic environmental mayoral networks and agreements should be studied further. Many of the domestic municipal networks of mayors (National League of Cities, Mayor's Climate Protection Agreement) and TMNs (C40, Global Covenant of Mayors) partner with ICLEI in the pursuit of similar environmental goals. To what extent do these organizations aid each other in the diffusion of international environmental norms, and what can the combined work of these networks and their members tell us about the life cycle of norms? In addition, are there specific patterns of cooperation between networks that help the diffusion of norms related to decarbonization?

It is important to restate that researching the life cycle of environmental norms is difficult because of the incomplete status of environmental norms like decarbonization. While there is an agreement that sustainable solutions to environmental challenges should be a priority of nation states, economic factors or ideology have impeded a complete internalization of a decarbonization norm across all states. Many local and nation state governments support and advocate for a decarbonization norm. Yet, there is not broad enough support bordering on "ought-ness" as describe by Finnemore and Sikkink.

⁴³⁰ Bulkeley, "Cities and the governing of climate change".

To better understand how political movements might impede the progression of a norm within the life cycle, the role and impact of anti-environmental movements requires further examination. Opposition from the fossil fuel industry and anti-Agenda 21 conservatives may be a factor in governments failing to adopt environmental norms at the national level or leaving networks that improve local environmental strategies. My data shows a slight drop in the mean average of cities that were members of ICLEI from the second timeline⁴³¹ to the third timeline.⁴³² These averages corroborate other research that notes a decline in ICLEI membership beginning around 2010. However, there was an increase in the mean average of those cities that sought technical assistance from ICLEI from the second⁴³³ to third timeline.⁴³⁴ This may suggest that some cities dropped ICLEI membership, but continued to use ICLEI technical assistance to create local action plans and conduct GHG inventories. However, without more research into the specific reasons why cities left ICLEI the above suggestion is just conjecture. Understanding the impact and motivations of these groups might explain how a norm like decarbonization might reach a level of support that borders on internalization. Additionally, more research is required to see how a norm cascade might be progressing at the local level in the post-Paris agreement era. Additional research could provide insight into how local authorities have become even more vocal in their pursuit of local environmental policies.

⁴³¹ .37 in the 2003-2010 dataset.

⁴³² .34 in the 2011-2018 dataset.

⁴³³ .52 in the 2003-2010 dataset.

⁴³⁴ .61 in the 2011-2018 dataset.

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Appendix 1: Universe of Cities

0=No membership OR did not find material related to membership in ICLEI

n/a= Still a member OR could not locate documentation of when city left ICLEI

U=The city joined ICLEI during the first time period. However, the exact date is unknown. San Diego begins to appear in ICLEI documentation as a member in 2000.

Table A1: Universe of Cities		
Cities	Year City Joined UCLEI	Year city left ICLEI
New York City, NY	1999	n/a
Los Angeles, CA	1991	n/a
Chicago, Il	1991	2007
Houston, TX	2006	2015
Philadelphia,	2007	n/a
Phoenix, AZ	0	0
San Antonio, TX	2012	2007
San Diego, CA		2001
Dallas, TX	2013	n/a
San Jose, CA	1992	2004
Austin, TX	1992	n/a
Jacksonville, FL	0	0
Indianapolis, IN	0	0
San Francisco, CA	1996	2005
Columbus, OH	2018	n/a
Fort Worth, TX	0	0
Charlotte, NC	0	0
Detroit, MI	0	0
El Paso, TX	0	0
Memphis, TN	0	0
Boston, MA	2000	2013
Seattle, WA	1998	n/a
Denver, CO	1992	n/a
Washington, DC	2008	n/a
Nashville, TN	2016	n/a

Table A1 (Continued)		
Baltimore, MD	2012	n/a
Louisville, KY	1992	n/a
Portland, OR	1992	n/a
Oklahoma City, OK	0	0
Milwaukee, WI	0	0
Las Vegas, NV	2007	n/a
Albuquerque, NM	2007	n/a
Tucson, AZ	2012	n/a
Fresno, CA	0	0
Sacramento, CA	0	0
Long Beach, CA	0	0
Kansas City, MO	2007	2012
Mesa, AZ	0	0
Virginia B., VA	0	0
Atlanta, GA	2008	n/a
Colorado Springs, CO	0	0
Raleigh, NC	2006	2013
Omaha, NE	2010	n/a
Miami, FL	1993	n/a
Oakland, CA	2018	2008
Tulsa, OK	0	0
Minneapolis, MN	1993	2018
Cleveland, OH	2012	2015
Wichita, KA	0	0
Arlington, TX	0	0
New Orleans, LA	2007	n/a
Bakersfield, CA	0	0
Tampa, FL	0	0
Honolulu, HI	1998	n/a
Anaheim, CA	0	0
Aurora, CO	0	0
Santa Ana, CA	2018	n/a
St. Louis, MO	0	0
Riverside, CA	2016	n/a
Corpus Christ, TX	0	0
Pittsburgh, PA	2006	n/a
Lexington, KY	0	0

Table A1 (Continued)		
Anchorage, AK	0	0
Stockton, CA	0	0
Cincinnati, OH	2018	2008
St. Paul, MN	1995	n/a
Toledo, OH	2000	2003
Newark, NJ	0	0
Greensboro, NC	0	0
Plano, TX	0	0
Henderson, NV	0	0
Lincoln, NE	0	0
Buffalo, NY	0	0
Fort Wayne, IN	0	0
Jersey City, NJ	0	0
Chula Vista, CA	1994	n/a
Orlando, FL	2016	n/a
St. Petersburg, FL	0	0
Norfolk, VA	0	0
Chandler, AZ	0	0
Laredo, TX	0	0
Madison, WI	2000	n/a
Durham, NC	0	0
Lubbock, TX	0	0
Winston-Salem, MA	0	0
Garland, TX	0	0
Glendale, AZ	0	0
Hialeah, FL	1991	n/a
Reno, NV	0	0
Baton Rouge, LA	0	0
Irvine, CA	2001	n/a
Chesapeake, VA	0	0
Irving, TX	0	0
Scottsdale, AZ	0	0
N. Las Vegas, NV	0	0
Fremont, CA	2007	n/a
Gilbert Town, AZ	0	0
Boise, ID	2016	n/a
Birmingham, AL	2011	2017
Toronto, ON	1992	n/a

Table A1 (Continued)		
Montreal, QC	1993	n/a
Calgary, AB	1992	n/a
Ottawa, ON	1992	2010
Edmonton, AB	1992	n/a
Mississauga, ON	1992	2003
Winnipeg, MB	1996	2002
Vancouver, BC	1993	n/a
Brampton, ON	0	0
Hamilton, ON	1992	n/a
Quebec City, QC	0	0
Surrey, BC	0	0
Laval, QC	0	0
Halifax, NS	0	0
London, ON	0	0
Markham, ON	0	0
Vaughan, ON	0	0
Gatineau, QC	0	0
Saskatoon, SK	2017	n/a
Kitchener, ON	1992	n/a