

**Local Action for the Global Environment:
Municipal Government Participation in
a Voluntary Climate Protection Program**

by

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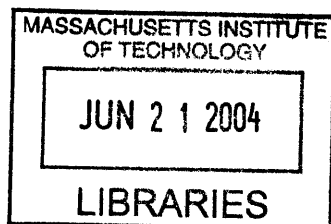
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ABSTRACT

The Cities for Climate Protection™ (CCP) campaign is a voluntary environmental program for municipalities, which is increasingly being applied around the world by local governments taking action on climate change. This thesis investigates the reasons for adoption, barriers and drivers of implementation, and potential outcomes of municipal CCP implementation, through case studies of six communities in New England and Eastern Canada, at different implementation levels of the CCP program. Three actors from each case were interviewed and their responses analyzed to identify patterns, common themes and any differences based on implementation level.

Major findings include the importance of an internal champion for adoption and implementation, and the significance of education and issue framing for increased implementation. Interviewees mainly observed social outcomes, including increased awareness and climate change institutionalization within municipal government operations. Based on the study, recommendations for policy and program development are provided to more effectively engage municipalities in local climate action within the New England and Eastern Canadian region.

Keywords: climate change, municipalities, local government, cities for climate protection, voluntary environmental program, New England, Eastern Canada

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Chapter 1: An Introduction to Local Climate Action

Denver, Colorado is converting its entire municipal vehicle fleet to more fuel-efficient models and alternative fuel vehicles. Toronto, Ontario is working with businesses to construct more energy efficient buildings. The Town of Amherst, Massachusetts has partnered with a utility company to sell lights and appliances that use less energy to its residents. And the City of Whitehorse, Yukon developed a “Driving Diet” strategy to reduce fuel consumption in the transportation sector. These are just a few examples of local governments that are part of an international campaign of over 600 cities and towns engaged in local climate action - reducing the emissions that contribute to climate change and improving the quality of life in their communities.

Climate change is the most significant environmental threat of our time, and national, state and local governments are planning now for a fossil fuel limited future, despite the inaction of key nations in international climate change negotiations. Beyond rising temperatures, scientists also predict changes in ecosystem health, sea level rise, changes in weather patterns and other harmful impacts on human life -- droughts, floods, increased spread of disease and other destructive events (McCarthy and Intergovernmental Panel on Climate Change. Working Group II. 2001). It is generally accepted that burning fossil fuels and land use change are the major causes of climate change, and the evidence continues to grow even stronger that the observed warming is attributable to human activities (Watson, Albritton et al. 2001). Though several uncertainties remain, the range of climate and socio-economic impacts predicted are enough to warrant action now. Indeed, the hundreds of cities and towns involved in the international campaign are a demonstration of this sentiment.

Why would a small community or even a large city take action on such a global issue? The predicted impacts of climate change threaten economies, populations and natural resources at both the global and the local scale. Entire regions of the world

spanning several nations may be altered, but the people who rely on those resources for subsistence will feel the impacts in their own communities. And the local governments responsible for the welfare of these communities are realizing the need for action.

Local governments are in an advantageous position to take action on climate change not only because of their vulnerability to the impacts, but also because of their ability to decrease emissions directly through public building and infrastructure projects and energy purchasing, and their capacity to persuade their community to take action - to lead the people. This direct and indirect control over greenhouse gas emissions amounts to an infinite number of ways to lessen the environmental impact of cities and towns. This potential is given further weight by the growing interest of state, regional and national policymakers to coordinate with municipalities in their jurisdictions on climate action plans and policy. And for good reason; given the large percentage of people living in cities and the percentage of emissions generated in urban areas, state and regional climate action plans will not succeed without local government implementation.

But despite the enormous potential for local governments, local climate action can mean many different things. The hundreds of cities involved in the international Cities for Climate Protection™ (CCP) campaign have all adopted this voluntary program, but the level of implementation efforts varies greatly. Many join in name only, while others are committed to some capital projects. Fewer others have created local climate action plans, which they will implement over the course of five to ten years. And fewer still have evaluated their progress or measured any outcomes.

With the ultimate goal of encouraging more cities and towns to take action and lessen their collective greenhouse gas emissions, it is important to have a better understanding of the factors leading to local action, and the potential outcomes of such efforts. What are the reasons for voluntary municipal adoption of the CCP program?

What are the drivers of implementation and the barriers to further progress? And what are the outcomes that can be expected from varying levels of implementation?

To answer these questions, this thesis examines six communities engaged in local climate action through the Cites for Climate Protection™ program. The municipalities are in New England and Eastern Canada, and represent three different levels of local implementation. Through interviews with key informants and qualitative analysis I compare the factors driving implementation and the barriers to progress between and among these cases. I also explore the motives behind program adoption, and the types of outcomes that government staff, elected officials, and citizens observe.

Exemplified by these six communities, it appears that municipal environmental program implementation in the case of climate protection varies greatly. The no cost, low risk characteristics of the program and the potential for financial benefits were two common factors that led to municipal program adoption in every community. The presence of an internal champion and the realization of cost savings were common drivers of implementation in every case. Though not measured at present, in each community important social and economic outcomes from program participation were reported.

Several findings from this study suggest methods for increasing the level of local climate action. The significant role of the internal champion in program adoption and implementation implies that targeting new communities should focus on potential champions within municipal government. Active community organizations and local issue framing are the two factors found to support higher levels of implementation, suggesting that enlisting the help of community groups and local institutions can play an important role in making progress. The ability to frame climate change as an important local issue was also found to support higher levels of implementation, lending support for communication and education strategies that emphasize the local

impacts of climate change and opportunities for local action to reduce emissions. Despite the lack of program evaluation and environmental outcome measurements, social outcomes such as increasing government and community awareness, institutionalization of climate change in government operations, public health benefits, and political impact, were the most commonly observed outcome from implementation. The need for program evaluation and monitoring present in the six communities could be addressed by recognizing these social impacts, in addition to the environmental and economic benefits of reducing emissions.

Developing approaches to effectively reduce greenhouse gas emissions, as well as to adapt to climate changes, are a responsibility of government at all levels, and will require the attention of the local planner and the community activist as well as state and federal policy makers. To aid in these efforts, research can assist in identifying successful local strategies and actions, and provide guidance on expected outcomes from local climate action. Exploring the role of municipalities in addressing climate change not only adds to climate policy research, but can also provide information for local officials and citizens on how to best engage in local climate action.

Chapter 2: Voluntary Environmental Programs

Local Environmental Problems

Polluted rivers, smog, and overflowing landfills are some of the most vivid images of local environmental problems, and these and other issues have spurred action by government at all levels. Local governments often address such local environmental problems, yet they are also increasing their response to global issues like climate change. Sources of greenhouse gas emissions exist within municipalities and the impacts will be felt by the people within those communities, leading local governments to react by reducing their emissions and preparing for global change.

Interest in local environmental policy is building due to the spatial restriction in benefits and costs of environmental goods and bads, the growing understanding of the environmental impact of our lifestyles and behaviors within localities, and the recognition that local policy is an important determinant of environmental outcomes (Farthing 1997). Activists and government officials alike are becoming more proactive in managing the environment, and the range of responses to environmental problems continues to grow. Due to this heightened level of local environmental action and response, local environmental policy is emerging as a distinct area of public policy and study (Agyeman and Evans 1994).

Communities know themselves best and are often closest to the sources of environmental problems as well as the people and organizations that can have the greatest impact. Though one city acting alone may have little global impact, greater than 50% of the world's population now lives in cities and this figure, as well as the environmental impact of cities worldwide, is growing exponentially.

A Local Solution: Voluntary Environmental Programs

Understanding the factors that both contribute to and obstruct the implementation of local environmental programs and policy are vital to improving the scope and efficacy of environmental protection at the local level. A municipal government, also referred to here as local government, is the government responsible for governance and service provision at the city, town, or county level. Municipalities are required by state, provincial, and federal laws to comply with many environmental protection measures, including wetland protection, clean air and clean water provisions, solid waste and regulations addressing other media. In addition to these compliance schemes, many municipal governments are electing to proactively address environmental issues, both through ad hoc initiatives, and through international, organized environmental programs.

One area of regulatory alternatives gaining popularity are voluntary environmental programs. A voluntary environmental program (VEP) is a program, commitment, or other agreement that encourages an organization to improve its environmental performance (Carmin, Darnall et al. 2003). As opposed to traditional command and control regulations, voluntary and cooperative approaches to environmental management often emphasize flexibility, negotiation, and innovation in meeting environmental goals (Harrison 1998). The effectiveness of voluntary policy instruments is frequently questioned, and often does not compare well with regulatory options (Goodman 2004). Despite the question of policy instrument efficacy, given the growing number of VEPs and their use by local governments, there is clearly a need for expanded research of their implementation and outcomes as applied to municipalities.

A majority of VEPs target firms or facilities. However, an increasing number of government agencies, including municipal governments, are making environmental

commitments to these programs. For example, some municipal governments are adopting environmental management programs, such as ISO 14,000. And several local governments are participating in the US EPA's WasteWise program, which was initially designed for industry waste reduction. In Canada, the Accelerated Reduction and Elimination of Toxics (ARET) program is a key example of voluntary efforts to reduce corporate environmental impacts. ARET seeks, through voluntary actions, the virtual elimination of 30 toxic substances and significant reductions in emissions of another 87 toxic substances (EnvironmentCanada 1997).

Many communities have a long history of voluntary action and of developing municipal environmental programs. Though now mandatory in many areas, curbside recycling programs started in pioneering communities as a voluntary response to landfill limitations. Another example of voluntary environmental action by local governments is the recent development of sustainability initiatives, through which a handful of communities across the US and Canada, like Burlington, Vermont, have developed sustainability programs to measure indicators of sustainable development. Communities that are interested in proactively managing their environment are developing these initiatives to address not only environmental protection, but also social equity and economic viability, the three pillars of sustainability.

In addition to the phenomenon of municipalities taking part in programs designed for business and developing their own environmental programs, new VEPs are emerging with the specific intent of involving municipal governments in environmental protection. In contrast to the individually created programs, VEPs for municipal governments offer a structure and framework for local environmental action, as well as assistance (technical, planning or financial) and other benefits. Although still limited in number, municipal VEPs include Clean Cities from Rebuild America, Green Communities, Local Agenda 21 and the Cities for Climate Protection™.

One organization that is a driving force behind municipal VEPs is the International Council for Local Environmental Initiatives (ICLEI). Local Agenda 21, one of the first and only municipal VEPs, is sponsored by ICLEI. Local Agenda 21 aims to incorporate sustainable development principles into municipal operations and planning, and is based on the Agenda 21 document adopted by the United Nations Conference on the Environment and Development (UNCED) at the 1992 Rio Earth Summit (Agyeman and Evans 1994).

ICLEI also developed and facilitates the international Cities for Climate Protection™ (CCP) Campaign, the focus of this study. The campaign was developed in the early 1990s to help local governments reduce greenhouse gas emissions and take action to minimize their contribution to climate change. The CCP program is unique for several reasons: it is one of the only VEPs designed specifically for municipal government participation, and it is internationally accepted as a means for local governments interested in climate protection. In addition to the distinctiveness of the CCP program, it is an exciting area of study because of the potential for local governments to both reduce greenhouse gas emissions within their community and to influence the decision making of their residents, businesses and institutions. Despite lack of local control over centralized or large scale energy production in most nations, there is enormous capacity for local implementation and change in energy efficiency, renewable energy in distributed generation, alternative transportation choices, and long-term municipal planning (UNCED 1993; Bulkeley and Betsill 2003).

VEPs: Municipal Adoption, Implementation & Outcomes

This thesis uses research on VEPs to help understand the drivers behind municipal participation in the CCP program. In the sections that follow, three main areas of previous research are discussed; reasons and proves for adoption of voluntary environmental programs, implementation drivers and barriers, and the outcomes that can be expected at the local level.

Adoption: What matters?

The first step in VEP participation is making the commitment and officially signing on to the program. These commitments can be made through resolution or other formal memorandum of understanding that signals the agreement, usually non-binding in nature, to formal, negotiated contracts. Municipal governments commonly adopt new programs by formal resolution signed by council or executive order by the Mayor or other political leader.

A great deal of research on VEPs in the US focuses on adoption drivers for firms and facilities in the private sector. Some of the incentives for private sector VEP participation include the threat of legislation or other regulatory pressure, greater room for negotiation and flexibility for industry, and the potential for quicker decision-making and greater progress compared to traditional environmental rule-making (OECD/IEA 1997). Benefits that also act as incentives for business participation are profit maximization through product differentiation and public relations improvements.

In contrast to the private sector, limited research has been conducted on municipal VEP adoption. While there are apparent differences, it is likely that municipalities share some of the motivations for adopting VEPs as firms (see Table 2-1 for a list of factors for examination). One recent study examined adoption of the Cities for Climate Protection™ program in the US. Through interviews with key informants in 23 communities, the major driver of program adoption was determined to be the presence of an internal champion, someone working within municipal government and willing to take on the lead role. Very few cities cited activist citizens or non-governmental organizations as influencing the decision to adopt the program (Kousky and Schneider 2003).

Table 2-1: Program Adoption

Factors affecting VEP Adoption	Description
Regulations	Existing or pending environmental regulations prompting action
Profit/Competition	Environmental marketing advantage
Internal champion	Presence within the organization of an individual willing to take on the issue
Community pressure	Demand or pressure from citizens or activists
Flexibility	Provides flexibility for compliance with existing rules or regulations
Public relations	Public acknowledgement of VEP participation

Implementation: What drives action?

Implementation, put simply, is accomplishing or completing the task at hand (Pressman and Wildavsky 1973). Implementation is examined here in an attempt to understand why some communities are more willing or able to take action than others, and why the level of implementation varies so widely across communities. Often implementation is thought of as the easy task after setting policy or designing programs, when in fact it is more likely that implementation itself is the most difficult problem to tackle (Pressman and Wildavsky 1973). Because program adoption does not necessarily lead to action or the commitment to implementation, it is important to examine the drivers for implementation as separate from those that motivate program adoption.

Daniel Press (2002) developed a model for local environmental policy capacity that provides a useful framework for understanding VEP implementation. Local environmental policy capacity is defined as, “a community’s ability to engage in collective action that secures environmental public goods and services” (Press 2002; Press and Balch 2002). The model suggests that local environmental policy capacity will be highest in communities where environmental problems are local and visible, local financial resources are relatively large, community expectations and demand are high,

and where there is strong political leadership. While the latter three characteristics seem to point to reasons for active CCP participation, the problem of climate change is neither uniquely local nor immediately visible.

Research conducted on sustainable city initiatives provides further insights into municipal environmental program implementation. One study on demographics found high levels of implementation were correlated with community age and manufacturing jobs (Portney 2003). In contrast, the same study indicated that government spending, per capita income, unemployment, and racial diversity did not affect implementation. Another study of sustainability initiatives found the reaction to a local environmental problem to be the main motivating factor in developing and implementing a local environmental program (Parkinson and Roseland 2002). The authors of this study also found that stakeholder involvement contributed to implementation of local environmental programs is (Parkinson and Roseland 2002).

Research on implementation of climate programs suggests that the way in which the issue of climate change is framed can affect implementation. Framing climate change as a global issue can be a barrier to success in local action and achieving outcomes, especially given the findings that visibility of environmental problems is a motivating factor for municipalities (Parkinson and Roseland 2002; Press and Balch 2002). However, another study found only a very small difference in willingness to act on climate change based on a local versus national framing of the issue in Pennsylvanian communities (Yarnal, O'Connor et al. 2003).

Finally, research on the implementation of the CCP program itself in communities from three countries (UK, NZ and US) points to five factors influencing the level of implementation: a committed individual, availability of funding, local power or control, the framing of climate change as an issue, and political will (Bulkeley and Betsill 2003). In addition, the authors suggested that it was the pre-existence of

other voluntary energy or sustainability programs that were major drivers of CCP implementation. This study also acknowledged the variation in level of implementation, hinting that despite the growing numbers of CCP member communities, perhaps the number of participants should not be the measure of success, which brings us to the next question for municipal VEP participation – what influences outcomes, and how is progress or success defined? Table 2-2 below summarizes the factors that previous research suggests could affect municipal VEP implementation.

Table 2-2: Program Implementation

Factors affecting program implementation	Description
Visible environment	Degree of visibility given the environment in a community
Resources/Funding	Level of funding and other and staff or volunteer time available for implementation
Political leadership	Presence of supportive and vocal community leaders and/or politicians
Internal champion	Presence and persistence of an individual within the organization
Presence of a local environmental problem	Presence of a local pollution source or visible environmental problem in the community
Issue framing	Local, national or global framing of the climate change issue
Other VEP participation	Participation in VEPs for energy or other environmental issues
Sustainability vision	Established sustainability initiative, plan or vision for the community
Demographics/community demand	Population in support of local environmental action

Outcomes: What are the outcomes of local environmental programs?

In any study of environmental programs and policies, it is important to look at not only adoption and implementation, but also to assess the related outcomes and effectiveness. Are communities in the CCP program measuring their success, and if so, how do they define or measure these outcomes? Searching for evidence of outcomes is

more difficult than finding policy outputs - such as plans, policies and public hearings - but is arguably more important to the accomplishing the goal of climate protection or any other environmental goal (Press 2002). Environmental outcomes, though difficult to define, include such general measures as air quality, preserved land acreage, or reduced local environmental impact. The CCP program provides a useful framework for exploring policy outputs including an emissions inventory and a local action plan, but because policy outputs do not necessarily translate into the desired outcomes, it is important to try to examine the outcomes of local climate action as well.

In any environmental program, three types of outcomes are possible: environmental, economic, and social (Koontz, Steelman et al. 2004). Examples of environmental outcomes include reduced pollution, improved ecosystem health, and biodiversity conservation (see Table 2-3 for a list examples by outcome type). Economic outcomes can be financial savings, improvements in local economy, or direct monetary benefits. Social outcomes are much broader in scope and include measures such as community knowledge, capacity building, institutional learning, political change, and civic engagement (Burby and May 1998; Koontz, Steelman et al. 2004).

Table 2-3: Program Outcomes

Type of outcome:	Examples:
Environmental	Cleaner air quality Open space preservation Biodiversity conservation Reduced greenhouse gas emissions
Economic	Financial savings Increased property values Improved local economy Increase in employment
Social	Civic engagement Community awareness Social capital Institutional learning Political change

The CCP program is marketed as a performance-based environmental management program, the main purpose of which is to reduce greenhouse gas emissions and the impact of the city on the global climate ((ICLEI)). However, there is less emphasis on potential outcomes or measurements beyond environmental improvement: are economic or social outcomes observed or measured at the local level? The extent to which any of these outcomes are realized can help further understanding of the effectiveness of local climate action.

The ubiquitous instruction to “think globally, act locally” implies the ability of critical masses of local communities to impact global environmental conditions, and consensus exists on the potential for environmental impact reduction at the local government level (Portney 2003). Despite the potential, investigations of some municipal voluntary environmental initiatives find that they are generally too early in their progress to have any real environmental outcomes (Parkinson and Roseland 2002; Portney 2003). However, looking beyond the environmental outcomes, some research has found that the economic and social outcomes of local climate protection programs are substantial (Seht 2002). If not already measured, environmental outcomes as well as economic and social outcomes are possible, and the extent that it is “too earlier to tell” about environmental outcomes could help prompt decision makers to focus on additional and innovative measures of success.

Conclusion

The growing number of city managers, environmental policy makers and community activists who are looking to municipal governments to reduce adverse local environmental impacts support the need for study of a VEP such as the Cities for Climate Protection™ program. In the study design and analysis, I will address the factors found to affect VEP implementation and adoption (Tables 2-1 and 2-2), in order to identify which ones are important to municipal VEPs. In addition, I will seek the

types of outcomes listed in Table 2-3 in municipalities implementing the CCP program. Though the literature explored in this chapter is useful for these purposes, the CCP program should not be considered in isolation of other levels of governmental policy or non-governmental programs. Therefore, the next chapter provides an overview of the regional and international policy context for climate action, followed by a detailed description of the CCP program.

Chapter 3: Climate Policy and the Context for Local Climate Action

Before exploring the case of local climate action, it is important to understand the policy context in which these actions take place. Despite the complexities of climate change as a scientific and environmental management problem, many conclusions can be drawn about the potential for sub-national policy development and implementation. In this chapter, the status of international climate policy is described in light of the US and Canadian approaches, and the regional Climate Change Action Plan of the New England Governors and Eastern Canadian Premiers (NEGECPP). The subject of this study, the international Cities for Climate Protection™ program is then examined in terms of implementation and scope, including an overview of the municipal participants and their progress in New England and Eastern Canadian.

The Global Context

At an international scale, climate change is addressed through the United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol, the international protocol for implementation of the Framework Convention calls on developed countries to reduce overall greenhouse gas emissions by 5% through various national targets and timetables. However, the protocol has yet to come into force or become legally binding, in large part because of the US's refusal to ratify. Despite this snag in negotiations, several of the parties to the UNFCCC have already made national commitments to reduce emissions and are moving forward with implementation.

In 1992, the US signed on to the United Nations Framework Convention on Climate Change, but in 2001 the federal administration made clear its decision not to ratify the Kyoto Protocol. Though there is little hope of the current administration agreeing to any international protocol for reducing greenhouse gas emissions, there is a large and growing number of policies and programs being put into action to protect the

climate in the US without federal government support. In contrast, the Canadian federal government ratified the Kyoto Protocol in December of 2002 and is formulating a sectoral approach to emissions reductions focusing on industry and utility sectors, the major sources of greenhouse gases.

Significant government action is being taken to reduce greenhouse gas emissions in the US and Canada at the sub-national, state and local levels, and some have found that this is even more evident in the US, despite the fact that Canada ratified the Kyoto Protocol (Bramley 2002; Rabe 2002). Governments at all levels are increasing their recognition of the multiple benefits of emissions reductions, and many are taking action, regardless of international or even national policy impasse. The emergence of an international agreement between US states and Canadian provinces is one unique example of such sub-national action. Additionally, hundreds of municipalities across the globe are engaged in climate protection work through the international Cities for Climate Protection™ program.

Even with a federal policy or commitment in place, many aspects of climate policy implementation will be the responsibility of state and local governments, not federal agencies. National regulations include environmental standards and pollution constraints, but these regulations often require enforcement and implementation tasks to be undertaken by states and metropolitan areas, who in turn rely on local governments to educate and inform the public, and implement measures in their own municipality. The Kyoto Protocol itself declares that climate change will be addressed most effectively at “the lowest, most accessible, and policy-relevant” level (Rabe 2002).

An International, Regional Approach to Climate Change

In 2001, the New England Governors and Eastern Canadian Premiers (NEGECPP) conference adopted a regional Climate Change Action Plan (CCAP) to address climate

change and lay out a strategy for reducing greenhouse gas emissions in the region. Because of the significant amount of emissions from personal behavior and individual homes and buildings, NEGECP will not meet the goals of the CCAP without engaging municipalities in greenhouse gas reduction planning and policies.

The NEGECP conference has coordinated on regional policy issues since 1978, and meets annually to draft non-binding, voluntary resolutions addressing issues of economic development, public health, border safety, environment, energy, and other pressing regional matters. Past resolutions have led to groundbreaking regional efforts on air pollution issues such as acid rain, mercury, and most recently, climate change.

Proposed at the annual meeting of the NEGECP conference in Halifax in July 2000, and based in part on the success of the NEGECP Mercury and Acid Rain Action Plans, the governors and premiers agreed on the need for a plan to address climate change in the region (Shea 2003). The Climate Change Steering Committee, a regional steering committee of environment and energy officials, was formed to draft the plan. The Climate Change Action Plan was submitted to and accepted by the NEGECP at its meeting in Westbrook, Connecticut in August 2001.

The NEGECP Climate Change Action Plan (CCAP) calls for a long-term greenhouse gas emissions reduction of 75-85% below 1990 levels (see Table 3-1), which is the highest reduction of any published action plan to date. Additionally, the CCAP is significant because of the carbon-intensity of the region. The data undoubtedly show that the US and Canada are two of the highest, if not the highest, emitters of greenhouse gases in the world. If the six New England states and five Eastern Canadian provinces were classified as a country, it would be the 12th largest emitter of greenhouse gases in the world, with emissions equivalent to that of Egypt or Spain (Hamel 2003). Given the lack of US federal policy, combined with Canadian ratification of the Kyoto Protocol

and the ambitious emissions target of the NEGECP, this is a precedent-setting international agreement to protect the climate.

Table 3-1. Goals of the NEGECP Climate Change Action Plan (NEG/ECP 2001)

SHORT-TERM (2010): REDUCE REGIONAL GHG EMISSIONS TO 1990 LEVELS

MID-TERM (2020): REDUCE REGIONAL GHG EMISSIONS TO 10% BELOW 1990 LEVELS

LONG-TERM (NO DATE): REDUCE GHG EMISSIONS SUFFICIENTLY TO ELIMINATE

DANGEROUS THREAT TO CLIMATE – ESTIMATED AT 75-85% BELOW 2001 EMISSION LEVELS

It is important to note that the CCAP is not a binding agreement, nor is it an agreement between specific elected leaders (Shea 2003). The plan is meant to be a guiding document for future action, and although it provides nine general strategies for action (see Table 3-2), it does not prescribe identical actions for each jurisdiction, but rather the plan calls on each state and province to develop their own action plans to meet the regional goals. While some of the action items in Table 3-2 are clearly the responsibility of state and provincial governments, such as reducing energy demand, reducing impacts, and promoting public awareness are very much within the grasp and responsibility of local governments.

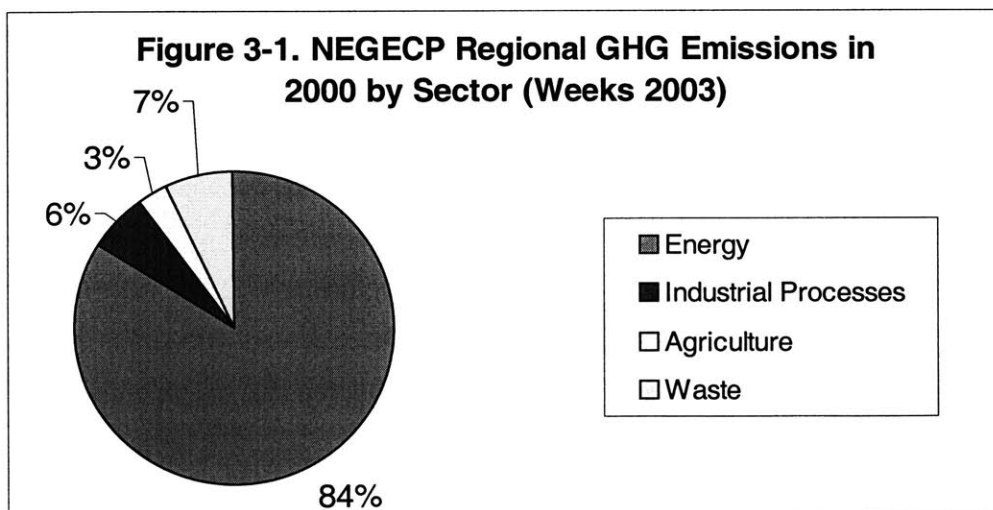
Table 3-2: Action Items of the NEGECP CCAP (NEG/ECP 2001)

1. THE ESTABLISHMENT OF A REGIONAL STANDARDIZED GHG EMISSIONS INVENTORY
2. THE ESTABLISHMENT OF A PLAN FOR REDUCING GHG EMISSIONS AND CONSERVING ENERGY BY EACH JURISDICTION
3. THE PROMOTION OF PUBLIC AWARENESS
4. STATE AND PROVINCIAL GOVERNMENTS TO LEAD BY EXAMPLE
5. THE REDUCTION OF GREENHOUSE GASES FROM THE ELECTRICITY SECTOR
6. THE REDUCTION OF THE TOTAL ENERGY DEMAND THROUGH CONSERVATION

7. THE REDUCTION AND/OR ADAPTATION OF NEGATIVE SOCIAL, ECONOMIC AND ENVIRONMENTAL IMPACTS OF CLIMATE CHANGE
8. A DECREASE IN THE TRANSPORTATION SECTOR'S GROWTH IN GHG EMISSIONS
9. THE CREATION OF A REGIONAL EMISSIONS REGISTRY AND THE EXPLORATION OF A TRADING MECHANISM

Regional Greenhouse Gas Emissions

Regional greenhouse gas (GHG) emissions estimates for the New England and Eastern Canadian region from years 1990-2000 were recently compiled by the Northeast States for Coordinated Air Use Management (Weeks 2003). The rise in emissions is generally consistent with other inventories. Emissions climbed from 332 million metric tons of carbon dioxide equivalent in 1990 to 367 in 2000, an increase of 10.5 percent (Weeks 2003). According to the report, the six New England states and the five Eastern Canadian provinces emit about the same amount of GHG as Spain or Poland. Figure 3-1 below shows how the emissions break down by sector and source. Transportation emissions account for roughly forty percent of total energy emissions, or about thirty-three percent of total regional emissions.



Because of the rise in emissions since the baseline year of 1990, the NEGECP will need to achieve at least a thirty-five million metric ton drop in GHG emissions by 2010 in order to meet the first goal of the plan.

CCAP Progress and Future Actions

The nine action items of the CCAP have guided climate protection work in the region, and within each state and province for the past three years. This section describes some of the coordinated efforts of NEGECP that are relevant to municipal governments.

The CCAP Lead By Example workgroup developed a survey and report that described GHG reduction activities and policies in each jurisdiction (NEG/ECP 2002). Local governments are looking at some of these policies and programs, for example, those that address vehicle fleets and government buildings, to help inform local policy. Many jurisdictions, including Quebec, Rhode Island, New Hampshire and Vermont have completed their respective climate action plans, and many others will soon be releasing draft plans to the public, such as Massachusetts and Connecticut. Recognizing the potential for local government involvement, several of the states and provinces are currently forming programs to coordinate with their municipalities as part of the state or provincial action plans.

In March 2004, NEGECP held a public symposium on climate change adaptation with a focus on natural resources, which addressed several local government issues such as coastal development and land use planning. NEGECP is also reconvening a transportation committee to prioritize an agenda for addressing transport and mobility, which will likely lead to policy developments affecting local governments. Finally, a new focus on partnerships with cities and towns, to be modeled after the success of the College and University partnership effort; in 2003 NEGECP challenged universities and

colleges to join them in climate change action and so far has received a commitment from over forty percent of the higher education institutions in the region.

Regional Challenges

Despite recent progress and leadership of the NEGECP on climate change, the CCAP faces much criticism. The New England Climate Coalition, a consortium of non-profit organizations and lobbying groups released a report in September, 2003, detailing demands to improve the regional plan (Dutzik 2003). While the CCAP is still in the early stages of implementation, the report calls attention to the prediction that if all action items of the CCAP were implemented, the resulting emissions reductions would not meet the plan's targets for 2010 and 2020. The rising trend of regional greenhouse gas emissions is a stark reality for most nations, and the NEGECP region is no different. The regional emissions are forecasted to grown by thirty percent by 2020 in a "business as usual" scenario (Hamel 2003). Here, transportation sector emissions are the culprit; state plans and the CCAP are just beginning to address transport and mobility emissions, but they face many legislative, political and geographical obstacles in terms of vehicle emissions standards and regional transportation patterns.

NEGECP & Local Government Action

The Climate Change Steering Committee (CCSC), a body of representatives serving each of the NEGECP jurisdictions, meets three times annually to determine policy, planning, and program objectives for implementing the CCAP. In October 2003, the annual agenda-setting meeting identified voluntary partnerships with municipalities as a priority for this year, based on the 28th NEGECP conference Resolution 28-7, which declared a commitment to "work to develop voluntary partnerships with cities and towns to increase the efficacy of our climate change work".

Dozens of local governments in the region are already taking action on climate change. The primary avenue of action is the Cities for Climate Protection™ (CCP) program, developed and run by the International Council for Local Environmental Initiatives (ICLEI). Municipalities are using other programs that offer governmental assistance in energy conservation, such as EPA's Energy Star and building efficiency benchmark tools, but these are often used in conjunction with CCP.

There is significant interest in coordinating this local climate action with the regional CCAP. The CCSC has already received over twenty-five letters of interest from CCP municipalities on the issue of coordinating local efforts with the CCAP regional plan. The New England CCP community network, which meets on a semi-annual basis, included this issue in their work plan for the coming year. The Federation of Canadian Municipalities (FCM) is in the middle of completing a five-year strategic plan for engaging municipalities in sustainability planning, with climate change as one component of a broader sustainable communities campaign.

Many local governments across the country have made it a policy priority to reduce greenhouse gas emissions. As mayors, we know that actions that promote energy conservation and efficiency, sustainable transportation (such as expanded mass transit, alternative fuel vehicles, and bike and pedestrian safety amenities) and reduce solid waste also reduce greenhouse gas and criteria pollutants emissions and bring a host of benefits to our communities. These actions reduce financial waste for local governments, businesses and citizens; they make our communities more livable; they increase spending and economic investment in our communities; and they increase the quality of life for current and future generations.

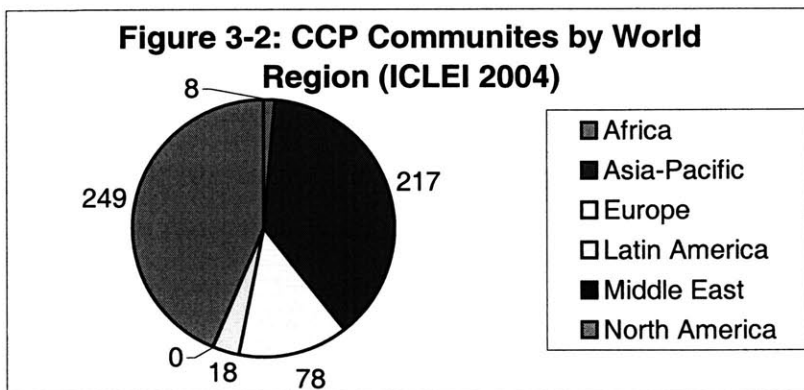
In addition to these benefits, two other reasons have recently emerged that put reducing greenhouse gas emissions at the top of the policy priority list. The first is energy security. Switching to cleaner energy sources, practicing conservation and maximizing energy efficiency will ease U.S. dependence on foreign fossil fuel-based energy, and at the same time improve local air quality and public health.

The second driver is the simple fact that the people in our communities are calling on us as elected leaders to address global warming. A public mandate is emerging in cities and towns across the country calling for governments at all levels to protect the global climate. (ICLEI 2003)

Over one hundred and fifty US Mayors signed the above Statement on Climate Change on October 21, 2003 (ICLEI 2003). As this statement shows, climate protection is of growing importance to local elected officials, yet it covers only a limited viewpoint of why a local government would initiate action on climate change. The motivations behind signing a city council resolution or taking community action – developing policy, implementing programs, and promoting public awareness – are not necessarily the same, and neither are the actors responsible. Similarly, participation in a formal program and its defined process may lead to varying types of outcomes, and does not necessarily result in the desired or marketed environmental outcomes.

The Cities for Climate Protection™ Program

The Cities for Climate Protection™ (CCP) program evolved in the early 1990's, and is run by the International Council for Local Environmental Initiatives (ICLEI). Currently, almost 600 cities worldwide have adopted the program (see Figure 3-2), including 144 in the US and 116 in Canada, in total representing an estimated eight percent of global greenhouse gas emissions (ICLEI 2004). With about fifty percent of the world's population in urbanized areas, the attention to cities in addressing climate change is a necessary reality.



Cities and towns can opt to become program participants by signing a non-binding resolution by city council or other government structure. Once adopted, CCP program participants are encouraged to use ICLEI's five-step milestone process for emissions reductions:

- MILESTONE I: Complete an inventory of municipal and community greenhouse gas (GHG) emissions.
- MILESTONE II: Set a target for municipal and community GHG emission reductions, determined by base year inventory and forecasting data.
- MILESTONE III: Develop a Local Action Plan of strategies to reach the target reduction.
- MILESTONE IV: Implement the Local Action Plan.
- MILESTONE V: Monitor and Evaluate Results. (ICLEI 2004)

The first step is to complete an inventory of municipal greenhouse gas emissions by energy and electricity use, transportation fuel, and solid waste for the entire community including residential and commercial sectors, in addition to municipal operations. ICLEI commissioned special software to complete this task, available to participating communities for a small fee. Milestone II uses this inventory and analysis to determine a target for reducing greenhouse gas emissions. Milestone III is the creation a local action plan to provide strategies and specific actions to meet the community reduction target. The last two milestones of the CCP program are implementing the local action plan, and evaluating progress and monitoring results. This five-milestone framework provides a linear, step-by-step guide for local governments to enable emissions reductions by municipal government, residents, businesses, and institutions in a comprehensive and coordinated manner.

However, many CCP participants, faced with resource constraints and other barriers, are still in the initial stages of implementation. Due to such constraints, few municipalities have documented the emissions reductions that were set forth in their

target from milestone two. Active implementation does not necessarily require a local action plan, and this project is designed to explore the success and outcomes of municipalities in different stages of implementation.

A lack of local control or decision-making power does not seem to be a major barrier for implementation of the CCP program. This is in part due to the finding that with respect to climate protection, local governments have several advantages over higher levels of organization: significant and direct of control over greenhouse gas emissions through land use and transportation planning, established success with other local environmental initiatives, access to community knowledge and expertise, ties to major businesses and institutions, potential for creation of financial incentives for climate action, and the ability to influence individual behavior related to climate impacts (UNCED 1993; Bulkeley and Betsill 2003).

Municipal Action Overview in the NEGECP Region

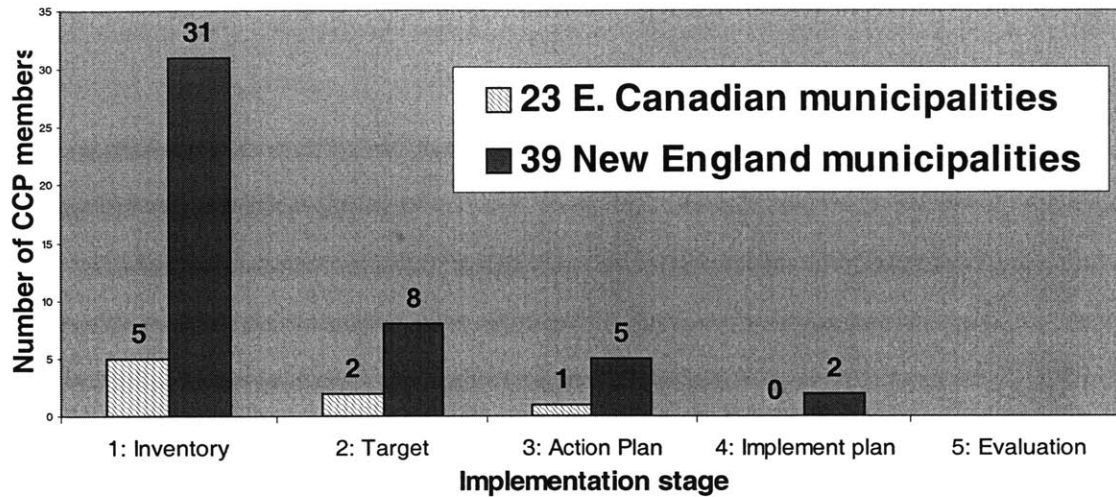
In the NEGECP region there are sixty-two municipalities participating in the CCP program, including thirty-nine in New England and twenty-three in the five Eastern Canadian provinces (see Table 3-3). The Federation of Canadian Municipalities (FCM) implements ICLEI's CCP program in Canada, where it is called the Partners for Climate Protection (PCP) program. The Canadian program is virtually the same as the CCP program elsewhere, except for some additional resources made available to FCM member municipalities such as the Green Municipal Funds and Sustainable Cities Challenge. In this paper "CCP participants" refers to PCP participants as well unless otherwise noted.

Table 3-3: Cities for Climate Protection™ communities in New England and Eastern Canada

Amherst, MA	Fairfield, CT	New Haven, CT
Annapolis Royal, NS	Falmouth, MA	Newton, MA
Arlington, MA	Fredericton, NB	Northampton, MA
Augusta, ME	Gander, NB	Pawtucket, RI
Barnstable, MA	Gloucester, MA	Portland, ME
Bathurst, NB	Halifax, NS	Quebec, QC
Boston, MA	Hamden, CT	Quispamsis, NB
Boucherville,	Hartford, CT	Sackville, NB
Brattleboro, VT	Keene, NH	Saint John's, NF
Bridgeport, CT	Laval, QC	Salem, MA
Brookline, MA	Lenox, MA	Shutesbury, MA
Burlington, VT	Lunenburg, NF	Somerville, MA
Cambridge, MA	Lynn, MA	Springfield, MA
Canso, NS	Marystown, NF	St. Stephen, NB
CCRPA, CT	Medford, MA	Stamford, CT
Charlottetown, PEI	Moncton, NB	Watertown, MA
Chelsea, QC	Montreal, QC	Williamstown, MA
Chittenden County, VT	Mulgrave, NS	Windham, CT
Conception Bay South	Nashua, NH	Worcester, MA
Dorchester, NF	New Glasgow, NS	

There is great variety in the level of implementation of the CCP communities in the region, as there is in CCP implementation worldwide. Figure three shows the breakdown of municipalities in New England and Eastern Canada by milestones one through five (emissions inventory, target reduction, local action plan completed, local action plan implemented, and progress evaluated).

Figure 3-3: CCP Progress in New England and Eastern Canada (FCM December 2003; ICLEI December 2003)

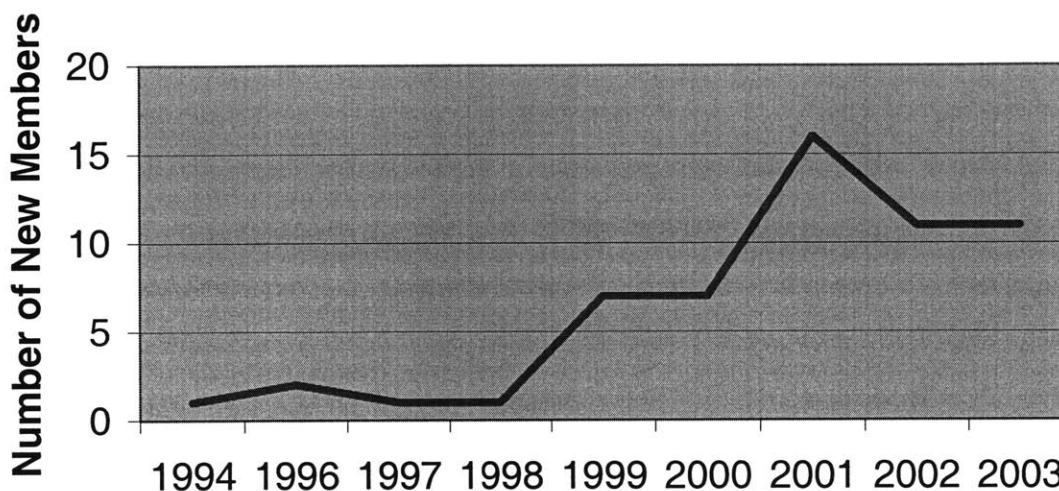


It is interesting to note that although both the US and Canadian cities have few action plans in place, almost all of the US participants have completed emissions inventories, while only five out of the twenty-three Canadian participants have done so (FCM December 2003; ICLEI December 2003). There are many possible reasons for this outcome such as increased staff support in the form of student interns in New England, greater or lesser emphasis on the emissions inventory as a baseline, or the possibility that many participants are still in the progress of developing an inventory and have not yet officially reported this step to program directors.

Another significant variable, when looking at the different levels of local implementation across the region, is the amount of time communities have participated in the CCP program (see Figure 3-4). Due to the resources and time required to collect data and calculate emissions inventories, it is not surprising that many cities have yet to complete this task. In most cases, developing a community-wide action plan is an even greater endeavor. ICLEI recognizes these obstacles and provides specialized software, and occasionally assists cities and towns with the temporary hiring of interns to

conduct baseline inventories, but participation ultimately demands the commitment of city staff, key stakeholders and community leaders.

Figure 3-4: Municipal Adoption of CCP Program By Year in the NEGECP Region (FCM 2003; ICLEI 2003)



Conclusion

In order to forge more successful local partnerships in the future to enable NEGECP to meet the goals of the regional CCAP, it is important to have a solid understanding of the critical success factors and potential outcomes of local action today. Assuredly, the CCAP is a bold start for a sub-national, non-binding agreement between jurisdictions with a long history of cooperation. But it can be invaluablely strengthened with the support and coordination of municipalities working towards the same greenhouse gas reduction goals. In light of the local implementation advantage, this study aims to answer the following: How can NEGECP most successfully engage cities and towns to take action on climate change to help them meet the goals of the Climate Change Action Plan? In order to answer this question, we need to know why municipalities adopt the CCP program, why some are more aggressive in their implementation, and what the potential outcomes are at the local level.

Chapter 4: Study Design and Methods

Why do municipalities elect to adopt voluntary environmental programs? What accounts for the difference in level of implementation between municipalities? What are the observed and potential outcomes and measures of success from municipal VEPs? This research uses a multiple case study to answer these three questions with the purpose of contributing to policy coordination and program development in the New England and Eastern Canada region.

Study Design

This research began with an analysis of secondary data on municipal participation in the Cities for Climate Protection™ (CCP) program in New England and Eastern Canada as available from ICLEI and FCM (FCM December 2003; ICLEI December 2003). Using these data on municipalities in the program and their implementation level in terms of the five-milestone process (see Table 4-1), six communities were selected as sites for this analysis. Semi-structured interviews with several members of each community were the primary source of data.

Table 4-1: Five milestones of the CCP program (ICLEI 2004):

Milestone I: Complete an inventory of municipal and community greenhouse gas (GHG) emissions.

Milestone II: Set a target for municipal and community GHG emission reductions, determined by base year inventory and forecasting data.

Milestone III: Develop a Local Action Plan of strategies to reach the target reduction.

Milestone IV: Implement the Local Action Plan.

Milestone V: Monitor and Evaluate Results.

Case selection

Using the data from ICLEI and FCM, purposive sampling was used to select a range of CCP municipalities to demonstrate variation in implementation stage and to provide a range in geographic location and population size (Yin 2003). Three

municipalities each in New England and Eastern Canada were selected primarily to demonstrate a range of active implementation levels; one from each country at milestones one, two and three from Table 4-2.

In order to assess differing degrees of implementation, cases were selected initially on the basis of the amount of time a municipality has been in the CCP program. Time since program adoption is an important issue because the range of program adoption dates covers a period of almost eight years. Holding the adoption date constant, within approximately twelve months, can help to avoid any variance in participation and outcomes due to time in program. After these criteria were met, an attempt was made to use municipalities of different sizes to vary government resources and demographics at a basic level.

Table 4-2: Case Selection

Implementation Stage	Municipality	CCP Adoption Date	Population
Milestone I: Emissions inventory	Fredericton, NB	6/1/2001	78000
	Portland, ME	4/1/2001	64,000
Milestone III: Local action plan	Saint John's, NL	1/1/2001	101,000
	Keene, NH	4/20/2000	22,000
Milestone IV: Implement action plan	Brookline, MA	4/25/2000	57,000
	Bathurst, NB	4/1/2001	23,000

The six cases above represent the widest range of active implementation within a fourteen-month adoption period, which is the longest I felt comfortable using in order to have “time in program” remain constant. The first category, including Fredericton and Portland, includes cities that are implementing measures but have not yet begun the action plan process. The next category of implementation includes St. John’s and

Keene, the municipalities that are implementing some measures, and are in the process of developing a municipal plan for action. Brookline and Bathurst represent the highest level of implementation, in which these communities are implementing policies and programs as a result of developing a local action plan.

Methods

Interviews were conducted with key informants, starting with the central CCP staff person (local government staff responsible for the CCP program). Snowball sampling techniques were used to identify other key informants from at least two other groups – elected officials and active citizens. The three key informants, CCP staff person, elected official, and active citizen, all were involved in the program or aware of it since the adoption date. In each community at least three interviews were conducted, for a total of seventeen interviews with one exception; only one informant was located in Portland, Maine.

Interviews

The interview instrument consisted of a semi-structured set of mostly open-ended questions (see Appendix A). Wording of the interview instrument was revised after feedback from the first interviewee. Interviews were conducted in person whenever possible and by telephone in some cases, for a total of thirteen in-person and four telephone interviews. All in-person interviews were tape-recorded and transcribed. Notes and some direct quotations were taken during telephone interviews.

Analysis

Data for analysis consisted of all interview notes and transcriptions. Using these transcripts, I first used a simple descriptive code for different responses about adoption, implementation, and outcomes. Upon successive readings of the transcripts, I developed a pattern code to interpret the responses and cluster them around common

themes (Miles and Huberman 1994). Following this interpretation, I grouped the transcripts by community to check internal validity by comparing statements from informants of the same community. In Chapter 5, the cases are analyzed in three pairs according to implementation level based on Table 4-2. Chapter 6 provides analysis of the six cases across these pairings to identify any other patterns, as well as concluding remarks and policy implications.

Opportunities and Limitations

Case selection based on the status or level of implementation in each community is hindered by the information available, in that it is based on what municipalities report to ICLEI or FCM. There is a potential for underreporting to these agencies because of the time lag between action and reporting, and therefore this information may be biased. In some ways, the five milestones are arbitrary in that most communities essentially begin implementing emissions reduction measures throughout the process even without a community plan. However, this case selection strategy was designed with the hope of improving understanding of municipal government use of this framework for implementation.

The decision to focus entirely on the northeast region of the US and Canada instead of a broader geographic scope of communities stems from the unique, sub-national climate policy developments in this region. The New England Governors and Eastern Canadian Premiers Climate Change Action Plan is an ambitious agreement between sub-federal governments in the US and Canada, which is driving unmatched state and provincial climate action in the region. This presents an opportunity to take a more critical look at the potential for municipal action. Studying communities in New England and Eastern Canadian cases also allows for comparison in different federal policy situations. These unique characteristics of the case studies will be examined in the conclusions in Chapter 6.

Chapter 5: Municipal Government Case Studies

This chapter examines the reasons and process for voluntary adoption by municipalities, the drivers and barriers to implementation, and the types of potential outcomes. Six communities out of fifty-nine Cities for Climate Protection™ (CCP) program participants in New England and Eastern Canada were chosen as case studies primarily because of their variation in program implementation levels. In these six communities, seventeen interviews were conducted with key informants. To facilitate analysis, the six communities are grouped in three pairs according to the implementation level recorded by survey (FCM December 2003; ICLEI December 2003), each containing one municipality in US and one in Canada. In each group, the drivers of adoption and implementation are compared, as well as the barriers to action and the resulting outcomes. Chapter 6 will contain a discussions and conclusions, based on an examination of patterns across all six communities.

It is important to note that although these six communities are at different levels of implementation according to the program's five-milestone framework, they are all actively engaged in at least some projects or programs to reduce their greenhouse gas emissions. In the words of an informant from Keene, New Hampshire:

And that's true with almost any planning process. You're never really static, moving from one point to another, especially in this case where there are skeptics out there.

Communities are not waiting to act until they have a full local action plan adopted. Instead, what typically happens after program adoption is the interim selection of climate action measures, most commonly those that focus on municipal operations such as buildings and streetlights. Project and policy development continues as communities progress through to the target setting, planning and implementation milestones.

Milestone I: Fredericton & Portland

Milestone I in the CCP program is creating a greenhouse gas inventory of both municipal operations and community wide activities, including the residential, commercial, and transportation sectors. Portland, Maine and Fredericton, New Brunswick are the two communities that are still in or just completing this first phase of the program.

Adoption

Fredericton, New Brunswick, became a Partners for Climate Protection (PCP) member in June, 2001¹. The capital city of the province, Fredericton has a population of about 78,000 and sits on the St. John River, surrounded by open space. High tech is booming in Fredericton, while industry and manufacturing is essentially absent, at least within the municipal boundary. Quality of life is an important aspect for both the residential population, and the tourism and marketing of the City.

The Fredericton City Council adopted the program by resolution, at the suggestion of one councilman, who had attended a national conference where he heard about the program. With the help of volunteers, Fredericton completed its inventory of emissions from municipal operations (buildings, fleets, lighting) but has yet to complete the community inventory for residential, businesses, institutions, and transportation. The Assistant City Manager is running the city's PCP efforts, and has compiled a long list of completed and planned projects that reduce Fredericton's greenhouse gas emissions, including a revamped recycling program and city building energy retrofits.

Fredericton's drive for program adoption was lead primarily by a committed leader in the City Council as well as the Assistant City Manager. Additional staff

¹ The Partners for Climate Protection is run by the Federation of Canadian Municipalities since they took over the Cities for Climate Protection™ program from ICLEI. For all purposes of this analysis, the two programs are identical, and both use the five Milestone steps to climate protection.

support of the initiative, as well as the opportunity to take credit for a lot of work already underway, drove program adoption according to a city official:

I was quite interested in it, only because I knew of all the things we were doing. And our staff seemed to really think it was an exciting thing to do. I think basically because we've been doing a lot of it anyway. When you think about greenhouse gases, we're so focused on saving money and reducing energy anyway, it just fit very nicely in with our culture. So staff were very much okay with it.

Two other concepts that guided program adoption in Fredericton were creating a positive relationship with the Provincial government on the issue of climate change, and promoting a more positive image of the city:

I think we wanted people to know that we weren't the bad environmental guys so this kind of also played into that image that we wanted, that we do things environmentally and here's a program that we've committed to. So, I think there were some other factors involved, that we wanted to use the program to help raise our image as an environmental organization.

Portland, Maine joined CCP just two months before Fredericton, in April of 2001. A vibrant waterfront community just 100 miles north of Boston, Portland's population of 64,000 is expanding and becoming a regional draw. Community members were identified as an important factor in program adoption, and as one city official described the mindset of Portland's residents:

For the most part Portland's a very environmentally-minded city. Residents here are really proud of our recycling program. It's a city that cares about its neighborhoods and the environment generally... We are a tourist destination. We have a vibrant waterfront, and people care a great deal about open space and parkland. So I think those are probably some factors. Neighborhoods are very strong. Quality of life is very important here.

Portland was approached by ICLEI to participate in CCP, as a result of funding from the Kendall Foundation to spearhead more community involvement in ICLEI's program throughout New England². A graduate student intern in Portland's

² Several of the New England communities began work on CCP through interns supported by this grant, including Keene and Brookline.

Department of Public Works completed the inventory in 2001, but unfortunately the release of the inventory coincided with a city budget crisis, and they have not been able to move forward with the climate action plan. However, Portland officials are in contact with ICLEI about funding another intern to help pull together a local action plan. Similar to Fredericton, Portland has completed several projects in the interim that aim to reduce energy use and emissions, including traffic light upgrades and alternative fuel vehicle purchasing.

In both communities, technical assistance throughout the emissions inventory process and software accessibility were important benefits of joining the program, as well as encouragement from and opportunity to network with other communities pursuing the same goals. Neither community noted any concern about costs or risks in the adoption process, pointing to the fact that membership in the program is free, with only a small fee for the inventory software purchase. Signing on to the program was essentially seen as a risk free opportunity in both Fredericton and Portland.

Implementation

Though still in Milestone 1, Fredericton and Portland are actively seeking resources and other support to develop local climate action plans and move forward with implementation. Almost three years after program adoption, what are the factors driving the continued push for implementation, and what do they see as the obstacles in their way?

The presence of an internal champion, someone within the city government committed to climate action, was critical to implementation in both cities. In Fredericton, the fact that the city is taking a lead on the issue has recently prompted a local environmental group to become involved and may lead to university action as well. A city staff interviewee in Fredericton pointed to the city councilor who originally suggested adopting the program as a critical factor in their success so far:

I think the most important thing is having an elected official who is championing it. Staff can't do it on their own, or they're going to have to make the case on the financial, business case. But I think the elected person is critical, at a fairly respected level.

Similarly, a Portland staff person within the Public Works Department is continuing to search for resources to move the program forward to the next implementation level.

The potential to save money was also given as a key driver of implementation in both Fredericton and Portland, whether in relation to a specific project, city-wide policy or the need for a local action plan. A Portland interviewee regarded the cost savings as the most important driver of local action:

Budgets are really important, these days especially. If we can come up with some savings in that regard it's always key... Most of the changes we've implemented have to do with budget savings. You get the immediate cost savings and the environmental benefits, not that they're secondary but they're a nice result with the savings, they coincide with the savings.

In both communities, financial assistance from other government agencies has driven some specific energy efficiency projects, such as traffic light technology upgrades.

The intern who completed the inventory in Portland was a critical factor in their success to date, without which little work would have progressed according to the city staff. Fredericton has had a similar experience with outside assistance, in which volunteers have completed half of the audit, but now city government is stepping in to move the process forward. City staff see resource allocation by the City Council in Fredericton as allowing for greater implementation in the future, and this year's budget includes \$25,000 for staff support to begin to develop the local action plan.

The competition for environmental leadership has influenced the implementation level in Fredericton to some degree, but this seems not the case in Portland. Fredericton recently competed against Halifax, Nova Scotia, another PCP participant, to see who could get the most people to walk to work for one day. All of the interviewees were very proud of the fact that although Fredericton is much smaller than

Halifax by population, they won the competition. Overall, city staff are looking to be the first to meet their emissions reductions target:

I think every community that undertakes this wants to be the community that says we've met the Kyoto goals, and I don't know that any community has yet been able to say that and that would be quite a notoriety to say that.

Public sentiment towards the environment in general was well regarded in both communities. Though not necessarily a major driver of implementation, the environmental values of residents were mentioned in both cases as supportive of program implementation:

We push the quality of life here. If you come here you're going to get free high speed internet and all the technical, but you also live in a park like setting. We don't have any heavy industry here, we don't have any smokestacks, and we don't allow them here because it's not the kind of economic development that we're seeking. We spend a lot of money on our community parks, our trail system and planting trees and think it's a recognition that people in Fredericton want this natural environment. I think that probably can explain some of the sentiment towards the climate change initiative. People realize that we don't produce very much here, most of our pollution comes from the Ohio valley right? And nothing we do here is going to impact that, but people also know it's the right thing to do. It hasn't, I don't think, motivated them to action yet. I think there's great sentiment here for the environment because people here... you go outside town and can fish for salmon. People are very close to the environment here. But I think until they actually see the negatives - like we don't get any smog here. If you go further down the St. John's they get a lot of smog and air quality warnings, but we don't get much of it here because it doesn't quite get here.

This quote from a Fredericton official also describes the absence of visible environmental problems in the city, which was also the case in Portland.

Contrary to similar case studies (Bulkeley and Betsill 2003), is my finding that broader sustainability initiatives or related energy programs have had no influence on program implementation in Fredericton or Portland, and in fact it may be the opposite effect. Neither community is working on a sustainability initiative, nor do they participate in other energy programs. This year's updated municipal plan for

Fredericton will include for the first time a chapter on the environment, a big portion of which will be a piece on climate change planning, an example of climate action guiding sustainability initiatives and the institutionalization of climate action in government operations.

As a barrier to implementation, resources play a central role. Resources and the competition with other city priorities were common negative influences on implementation in both communities. In terms of non-financial resources, community partners and stakeholder involvement have not contributed to implementation either community, though both places are planning to strike committees or convene larger stakeholder groups in the near future.

Several of the interviewees in Fredericton pointed to education and communications as a key barrier to implementation. A Fredericton resident expressed the problem of communicating climate change, in terms of how to frame it positively:

Education is the primary barrier. There is a steep learning curve, people are so overwhelmed with negative messages about climate change that they feel hopeless. The challenge will be to identify outreach and communication strategies that don't sound alarmist, but are positive.

Framing climate action effectively is a challenge that goes hand in hand with the observed barrier of education. Climate change is not seen as an urgent public concern in either community, and this also contributes to the important role of education and issue framing for progress in implementation. A Portland official described the level of concern as "interested to a point," and that point was lowered when the city was facing budget problems and the CCP program suffered. Public communication strategies for local climate action are planned for the future in Fredericton and Portland, but to date neither has developed a marketing message or strategy for public communication.

Outcomes

Minimal measurements of program outcomes exist in terms of environmental or economic benefits in either community at this early stage of implementation. If anything, staff have the cost saving figures for some completed projects, but not the emission reductions calculations or environmental benefits.

Social outcomes have been observed in both communities, but not measured. Though none of the interviewees felt that climate change awareness had increased in the general community, all witnessed a growing awareness and knowledge base within city government and among elected officials. A signal of this growing awareness is the willingness to change behavior, as noted by Fredericton staff:

An outcome I guess is that our staff are quite keen on this, and are looking for opportunities. They're actually coming up with the ideas themselves. The green procurement, no one asked the manager to do that, he did that himself. The fleet size, the police department voluntarily agreed to go to a smaller vehicle. I had a supervisor come to me to ask if he could drive a quarter ton instead of a half ton (pick up) because he thought the optics were bad for him driving the big vehicle when we've committed to this. So those I think are better outcomes than forced - it's like education over enforcement. I'd rather people did it out of behavior than forced to.

According to Portland staff, they are also witnessing a higher awareness and interest in climate action from government officials and staff:

I know that there is interest, and people are trying to do the right thing. And one of the things is that our purchasing agent who came down to Worcester with me to get involved - he's certainly interested. His boss has been pushing him to become more aware of alternative fuel vehicles for instance. There certainly is recognition that we need to some stuff here.

Fredericton staff also identified the section in the upcoming city plan on climate change to be one of the most significant outcomes of the PCP program to date, a good example of the institutionalization of climate change at the local level.

Summary

Local government officials from Portland and Fredericton are actively pursuing implementation of specific projects, through both outside assistance and increased city

commitments, but are still in early stages of the milestone framework. Internal champions and costs savings play a major role in driving implementation, while resources, education and issue framing present the most significant barriers. Interviewees observed mainly social outcomes, including increased awareness about climate change by government officials, and the institutionalization of climate action in government operations. However, no measurements of progress are available at this stage of implementation.

Milestone III: St. John's & Keene

Moving beyond the emissions inventory (Milestone 1) the next step is to set a target for emissions reduction (Milestone 2) and then develop an action plan to reach that goal (Milestone 3). Both Keene, New Hampshire, and St. John's, Newfoundland completed inventories with interns funded by outside organizations, and are now committing city staff time to developing local action plans. Keene released a draft climate action plan in February 2004, after interviews took place, and St. John's is just beginning to pull together a committee to prepare a plan.

Adoption

St. John's, Newfoundland, joined the PCP program in January 2001. It is the largest city in the province; approximately 100,000 people live within the municipal borders, the center of a larger metropolitan region. A citizen from Toronto, another PCP city, approached the top environmental manager in the city about joining the program, and they put it before council for adoption. The city council had little reaction or objection to joining the program. According to one city staff person "they signed it because it was free, sounded good. They didn't know what they were signing."

St. John's was one of the first municipalities in Newfoundland to adopt PCP, and part of the impetus was to be competitive in the region. The benefits of becoming one of the first PCP members included access to certain grant programs available to Atlantic

Canada, as well as access to the inventory software. St. John's PCP program expenditures have mostly come from city budget, though some funding was secured from the Green Municipal Enabling Fund, a federal matching grant program. One staff person from environmental management (a subsection of the Planning and Engineering Department) has been dedicated to the program, but their time available for implementation has decreased from 80% down to about 30% currently.

The City of Keene is a small community of about 22,000 residents in southwest New Hampshire. ICLEI representatives approached the Mayor about the program initially, and the City Council signed a resolution to join the CCP program in April of 2000. At the time of adoption, there were questions within the council about costs, but because the only initial cost was \$500 for the inventory software, this was easily overcome in council discussions.

Keene received funding from ICLEI to support a graduate student to complete the emissions inventory and analysis. The Planning Department is facilitating the City's CCP efforts, through both the Director's guidance and staff assistance. Keene received significant attention for being the first municipality in New Hampshire to join the program. Nashua, the only other city now participating in the state, is relatively inactive in the program.

Keene officials acknowledged that program participation as a small community adds value because of their view on environmental leadership. Different from the notion of competing with other communities for recognition or innovative credit, Keene officials have a more altruistic view of their role in adopting the CCP program. According to City staff, the benefit of program participation lies more in the potential to have a broader political impact:

To show some leadership to actually begin to change not only people's habits perhaps or to think about alternatives, but to influence bigger change at other levels of government. And I think

that's actually where we gain more value in the climate change issue. Even if we turned off all our emissions completely, big stinking deal. But because we've taken a leadership role we are able to have some influence on the bigger picture, and not just at a local government level but at a higher level. So the value of the city is longer term, higher awareness of the climate change issue.

Implementation

Although Keene and St. John's are in different stages of the climate action planning process, many similarities emerge. Similar to Fredericton and Portland, neither community's implementation is driven by sustainability initiatives or other energy programs. Another consistency between these two cases and the previous two is the lack of a visible environmental problem as a driver of local environmental action.

All the interviewees in both cities pointed to an internal champion of climate change as the main driver of implementation, and the reason for their success in the program. In each case, the internal champion was the city staff person in charge of the program. In St. John's, access to funding sources has enabled several projects to go forward, and this, in addition to having someone to go to in city hall, has been a critical success factor for their PCP efforts. The CCP committee that was established in Keene has taken the lead from the internal staff person, and is now strongly committed to seeing the projects recommended in the action plan through to completion. The potential to save money and the general political will of the community have also played into Keene's drive for program implementation. As one Keene official put it, the reason why they have been so successful in the CCP program is threefold:

There's been support from some key leadership. There has been enough of a solid economic argument made for any of the measures that we have done. There's generally an acceptance of a need to provide leadership on the issue.

Though Keene now has an appointed stakeholder committee helping to write the local climate action plan, neither community's experience with implementation was driven by community demand or grassroots action. St. John's has not yet convened

stakeholders or combined resources from partnerships with local community groups or businesses. However, interviewees in both communities acknowledged the importance of community input and noted their interest in engaging more actively with their residents and local businesses.

Resources, both money and competition with other interests, are probably the most obvious barrier to implementation of the program, and were often the first to be mentioned. However, several interviewees in Keene cited education as the primary barrier to implementation, and in St. John's all interviewees cited education, with the purpose of convincing others to take action, as the single most important barrier to further implementation. According to a St. John's official:

We need to get a lot more people here on our side. We're always preaching. I don't know if people recognize climate change and some of the environmental issues as being pressing enough to start doing anything. But when you throw in the economic benefit to it people tend to listen to it a little bit more. So just getting people on side is probably our biggest barrier.

An argument was made by St. John's officials that communities have resources or have access to resources, but that it is a matter of picking a few priorities and not necessarily doing all possible projects at once.

Though climate change is not seen as an urgent issue by the general public in Keene according to interviewees, the city has received press coverage locally and nationally. As far as community awareness is concerned, climate change isn't even "on the map" in St. John's, and as one St. John's resident put it, the potential for communication and education on the issue of climate change is enormous:

But climate change isn't well enough understood here in terms of how it will affect people locally and that's a communications problem... For example, I remember a couple of years ago if you talked about fisheries and climate change, two things that are well connected, if that was true (had we talked about fisheries and climate change together), then Atlantic Canadians would have been in the front of the line to sign up for mitigating strategies... Temperature charts don't seem to work for Newfoundland because we actually cool under the near term scenarios. So that's kind of a running joke. But when you think of it, we are so resource dependent in this province from

the icebergs that fuel our tourist industry, the shoreline infrastructure, ninety percent of our communities are at sea level on the shoreline.

Here, issue framing is clearly identified as one way that education and communication could be more effective for implementing a local climate protection program. In contrast, Keene officials often make presentations to local groups where they do try to bring in the local impacts and opportunities to frame the issue as one that local governments should care about.

Outcomes

Similar to Fredericton and Portland, there is little evidence of measuring progress at the Milestone 2 to Milestone 3 stage in these communities. In addition, the types of outcomes observed on a qualitative basis are very similar to those cited at the earlier level of program implementation.

Both Keene and St. John's respondents cited financial savings as an important outcome of the program. In Keene, all measures in the proposed action plan include economic as well as environmental benefits. St. John's staff have calculated some of the financial savings for completed projects, but not the emissions reductions. However, a recent feasibility study for capturing methane from a local landfill will hopefully provide some potential environmental measures to consider.

In terms of increased awareness as a result of participation in the program, most of the respondents were quick to say that the level of awareness in the general community has not changed. Although there are several projects with potential emissions reductions in St. John's, they are not being directly linked to climate change in the press or other communications. However, energy efficiency in St. John's government operations is on the rise, and they are looking to make new construction as "state of the art" as possible. The awareness and willingness to change of government officials in Keene has risen markedly throughout the CCP implementation process, and

this phenomenon has extended to the stakeholder committee and their representative organizations.

The benefits to public health were also noted in both communities as a significant outcome of the program. Given that greenhouse gas emissions are not a visible air pollutant, nor is climate change a simple concept to understand, many people including ICLEI representatives, often emphasize the co-benefits of emissions reduction projects such as air pollution reduction, increased quality of life, and public health benefits (ICLEI 2004). A St. John's resident explained the importance of the co-benefit outcomes:

I should also say that the potential benefits, or as ICLEI says the co-benefits, that's the doorway. It's almost a program that's invisible, that's future, it's kind of like talking about god - you've got to believe in it. But if you talk about things that you associate with that, the co-benefits like health impact being improved that's the way to go. Go through the door of the co-benefits to get to the ultimate real meal deal of the program, which is about greenhouse gas emissions reduction.

Ample evidence of change in government operations and the institutionalization of climate change exists in Keene. In a recent green building project, one interviewee noted a significant direct effect of CCP implementation:

And we got them to go with a geothermal system, which was about a 7 year payback. The shift to considering a 7 year payback was gigantic - and people don't realize how important that is. A huge change. Finally getting people to realize that the big cost in most of the city's capital expenditures is not buying and renovating buildings, it's operating it for 50 or 100 years. So they finally saw that and that was very good.

Keene's city government has also recently adjusted their general budget policy to allow for life cycle cost accounting, at the direct request and pressure of CCP staff in city hall.

Another unique outcome cited by a Keene interviewee was their ability to have a broader political impact:

We now have a much greater awareness of what our potential impact is and how we can influence change long-term. My take on it is, that because we are a small city, our overall GHG emissions are a very small percentage of anything out there obviously, and that we can make a

significant difference as a percentage decrease without really impacting the bigger picture. But our real value has been to think about this as a political movement.

Summary

Program adoption in Keene and St. John's was seen as a low risk venture for both communities, and was adopted by both city councils with little resistance.

Implementation is also driven in these communities by an internal champion, and supported by the potential to save money. Education and issue framing were perceived as considerable barriers for St. John's and Keene, as well as the ability to sustain resources for implementation. Financial savings were identified as an important outcome of implementation, but several social outcomes were observed as well including changes in government operations and staff awareness, public health benefits, and the potential for broader political change. However, neither community is currently measuring their progress towards environmental, economic, or social outcomes.

Milestone IV: Brookline and Bathurst

Milestone IV, the next step after developing a local action plan and getting it adopted by city council, is implementing the plan and following through to reach the emissions reduction target. Brookline, Massachusetts, one of the most commonly praised CCP communities in New England for its success, and Bathurst, New Brunswick, the only Eastern Canadian community with a local action plan in place, provide two very interesting stories of local commitment to climate protection. In keeping with the previous four cases, the no cost and low risk characteristics of the program influenced these communities' decision to adopt, as well as the access to funding and other forms of assistance.

Adoption

Bathurst, a small coastal city in northern New Brunswick, joined the PCP program in April 2001. With a population of about 23,000, commercial fishing and industry drive the local economy. This case is unique because Bathurst Sustainable Development (BSD), a non-profit community organization, actually runs the PCP program in partnership with the city. According to one respondent, the city “could not afford the process” and has relied on this community organization for implementation and technical assistance. The Bathurst City Council signed a resolution to become a PCP member community at the suggestion BSD, and it is BSD who completed the emissions inventory and created the local climate action plan in 2001. The plan contains a list of sixteen actions the city can take to reduce emissions, including reducing outdoor lighting, instituting a public transit service, the use of distributed generation, and tree planting.

The partnership between city government and community organization seems to be a mutually beneficial one, according to a BSD representative:

The fact that we’ve been able to reward the city, and the level of acknowledgement helps. We are so proud, we are lucky enough to have had funding for projects, that have started up this buzz.

People have confidence in thinking this way, and it builds a sense of confidence and pride in the city. Generally the population wants to go green.

Community values and public relations are considered here as lending support to program adoption.

The Town of Brookline joined the CCP program in April, 2000, and released its Climate Action Plan in February 2002, containing an analysis of the inventory and a comprehensive list of emission reducing measures for municipal government and the community, organized by waste, energy and transportation. With a population of about 57,000 people, Brookline is an urban community next to Boston, a popular place to live because of its public transit, greenspace and its urban sense of place. Brookline also benefited from ICLEI sponsored intern to complete the emissions inventory. Town

officials noted a sense of competition among local cities as an additional motivation for adoption, as well as the large population of politically active, well-educated residents who often support such initiatives:

Brookline prides itself on being a leader in many things and being an environmental leader. There's a lot of competitiveness with other communities around. Keeping up with the Jones's. It's always good, it always works when you are trying to convince the administration to do something, if Cambridge and Newton are doing it as well. And that works especially well with the citizens. Brookline has such a large and vocal population that they were really interested in this as well and they've sort of been helping the town administrator and the board of selectmen to stay interested throughout the process.

Brookline was one of the first New England communities to complete a climate action plan, which was written by an individual in the Parks and Open Space Department, the agency primarily responsible for implementing the CCP program.

Implementation

Why have these communities progressed further in the milestone process? Do they have access to different resources, or fewer barriers to overcome? Implementation in Brookline and Bathurst is primarily driven by a persistent internal champion, although in the case of Bathurst that person works from within the community organization, not the local government. Both implementing agencies are highly motivated by cost savings, and have been able to successfully fund implementation to this point through either the use of provincial and federal grant money as is the case with Bathurst, or through ICLEI supported interns, and a dedicated budget for town staff in Brookline. Although Brookline residents seem to place more value on their environment, respondents in both communities were initially influenced by community values.

A community activist group called Climate Change Action Brookline (CCAB) formed around the same time as the town became a CCP member. Though dropping off

somewhat in its momentum, this community organization has been a constant supporter of the Town, as well as sometimes an advocate for increased action by the local government. CCAB's members include some of the most well-known and outspoken climate activists in the region, and this has helped the Town to focus its efforts. According to town officials, combining the three factors of resource allocation, an internal champion and a community organization has led to their success:

Definitely the good people in town hall, the resources that we have had to spend on it, the connections that Brookline made with Tufts, the strong pressure from citizens to get involved and to stay involved.

The City of Bathurst benefited from a similar relationship with a community organization, though in this case that organization is not an advocate but rather the implementation agency itself. The City of Bathurst is primarily "interested in saving money" according to residents. That motivation is fed by BSD's willingness to research and implement projects to reduce greenhouse gas emissions, such as sustainable transportation, solar mapping, and energy efficient building construction, which in turn result in financial benefits for the municipal government. BSD has also helped to identify grant opportunities to further the implementation of different projects.

According to one city resident, the critical success factor for implementation in Bathurst is the involvement of this community organization, and specifically the internal champion within BSD;

One of the big reasons has been the local coordinator, she has been a catalyst to get things going, willing to organize things...Mainly somebody to coordinate it and get people interested in it. In a small city with little resources, the community organization has filled the role of both advocate and financial assistant to push ahead with implementing the program. A representative from BSD identified this as a window of opportunity for other communities:

What they need most to get going is to find out who is really going to be the climate change champion in your neighborhood! Reach out and touch them – outreach! Even if there isn't an

organization, one could form. The human resources value of the world in is the people – who wants this job? Get together and work it out together.

Both communities were also able to articulate the local impacts and opportunities of climate change at the municipal government level. Though as the following quote explains, ICLEI encourages this method of issue framing, Keene was the only other community that was framing climate change as a local issue:

I think it's framed through exactly how ICLEI teaches us how to frame it: a global issue, and here are the local causes and the local impacts. And here's what you can do at a local level, and here's why it's important to the town and the community. We haven't really tied it to health and other air pollution issues. I'd say just more to broad quality of life issues - tying transportation and traffic and congestion to GHG emissions.

This comment from a Brookline official suggests that framing climate change as a local issue can help to increase the level of implementation. Bathurst officials also saw benefits in the framing of climate change as a local sustainable development issue:

Society in general is still living in a bit of a denial state, they don't see climate change as something that is happening in your community, That's why its important to bring the local connection in on all of our projects: this is YOUR watershed , this is how it's impacting your watershed, storm surges. Coming home now, people are reporting drops in water tables, seeing changes in species migration. All these things, and showing them the studies, brings it into reality.

Further supporting the importance of issue framing is the result from Fredericton and St. John's, where framing climate change as an important issue to local people was seen as a direct barrier to implementation.

Barriers to implementation in Bathurst and Brookline were very similar to those in the other cases, and were mainly perceived of as a lack of additional resources, especially for capital projects, as well as competition with other interests and priorities, and the general resistance to change. A Bathurst official explained this resistance as:

Like in any place else, people's resistance to change. Some people want to do nothing, because they figure if they do nothing they do nothing wrong. Overcoming people's ignorance of the whole global picture.

Resistance to change was also noted by Brookline officials and residents as a major barrier to implementation, in light of the current economy:

It's not that Brookline wouldn't fund it, it's the state budget - lack of funding for municipalities... Fiscal situation is the biggest problem, the fact times are tough, and the biggest thing is that that creates a psychological environment that makes it even more difficult for people to try new things.

Outcomes

Though neither community has revisited their greenhouse gas emission inventory or conducted other comprehensive evaluations, there is some evidence of attention to progress at this level of implementation. Most notably, Bathurst is the only community out of the six cases to have a scheduled time period for measuring outcomes; in 2005 they will redo their energy and emissions inventory to assess their progress. Though Brookline does not have a plan for measuring progress, the Town does have some cost and emissions benefits calculations for completed projects, such as their traffic light upgrade. According to town staff, their measurement of progress is incomplete:

Not in holistic sense, as in according to the campaign. There've been a couple things: we calculated the financial savings from the LED lights because Brookline was one of the front runners on that. I remember it really surprised some people - no one had bothered to go back and see the savings from the LED lights and it was pretty astonishing.

Interviewees in Bathurst observed that government officials and the broader community are more aware of the issue of climate change, and what they can do about it. In terms of government operations, a BSD representative noticed the following changes:

A complete turn around in vocabulary, talking about ecological impacts, climate change. They may not realize it, but 6 years ago they didn't have any of it. They do seem to be linking GHG emissions to other issues. The term "and greenhouse gas emissions" keeps getting slipped in.

Community awareness is summed up in the phrase that people generally feel that “If there’s something that we can do about it, then we should” according to a Bathurst resident.

A Bathurst resident expressed the view that the political impact of many communities working together is more important than the benefits of action in one small community:

It’s getting other people to be involved in the same thing - it’s not just our community. If it becomes part of a global network of each community doing their little bit.

Brookline interviewees observed mostly social outcomes, including the willingness of government staff to change as a result of increased awareness and interest from town staff and officials. One resident also observed an increase in community awareness:

Just getting people to recognize that it’s an issue, and that there is something that we can do about it. That working on the climate change, whether at the local level or at the federal level, doesn’t mean that we’re going back to the 1950’s. There’s all kinds of new technologies and ways we can work to reduce emissions and really make our lives better.

Summary

Brookline and Bathurst are furthest along in implementation and share one characteristic that distinguishes them from the other four communities: the presence and cooperation of a community organization. They are both also very actively framing climate change as local issue. Similar to the other communities are the presence of an internal champion and the importance of cost savings as implementation drivers. Barriers to progress include the competition for resources and a general resistance to change. Both communities observed environmental, economic, and social change, but Bathurst is the only one of the six communities with a plan for measuring outcomes.

Conclusion

While these three levels of implementation are useful to compare these communities, several questions remain unanswered: Do implementation drivers or barriers differ between the US and Canadian communities? Do observed outcomes really vary by implementation level? Are there any themes common to all communities? If outcomes are not being measured, how should progress or success be defined for local climate action? These and other questions are addressed in the next chapter through a discussion comparing all communities, policy recommendations, and concluding remarks.

Chapter 6: Discussion & Conclusions

This chapter expands the analysis to discuss findings across all six communities, comparing and contrasting their experience in the Cities for Climate Protection™ (CCP) program. Charts are used to help illustrate patterns in program adoption drivers; to determine possible explanations for the varying levels of implementation; and to look for any differences in outcomes. Following this cross-case analysis are concluding remarks on the limitations of this study, and policy recommendations for increasing local climate action.

Discussion

The CCP program has many characteristics in common with voluntary environmental programs (VEPs) for industry, and participants share many of the same motivations for adoption and implementation, like the competition for environmental leadership and public relations benefits. However, several of the results are distinct from industry VEPs and suggest that a municipal VEP is indeed a different type of program: the importance of framing climate change as a local issue, the view of community organizations as drivers for increased levels of implementation, and the implication of social outcomes.

Adoption

CCP program adoption was seen as a low cost, and low risk venture for municipal governments across the board. Associated with this was the added benefit of access to technical assistance and financial support, also seen as an adoption driver by all communities. Table 5-1 displays the adoption drivers cited by key informants, showing no patterns by implementation level or geography beyond these two common themes.

In some cases competition played a role in the decision to adopt the program; competing with other local communities to be the known as the leader, or competing for funding were incentives for some to join. Opposite of this response was that of several communities that were driven by the ability to lead other communities in collective action, a more altruistic reasoning for program participation. Also present in some of the communities was the notion that adopting the program promoted and credited work already completed municipalities, which could be considered a subset of the public relations incentive that drove some cases of adoption. Community values, or community demand, were cited as a reason for program participation in three of the communities.

Figure 5-1 ADOPTION DRIVERS

	Milestone	No cost/ low risk	Public relations	Access to assistance	Competition	Community values	Leadership role	Credit for past work	Intergovernmental relations
Fredericton NB	I	✓	✓	✓			✓	✓	✓
Portland ME	I	✓	✓	✓		✓			
St. John's NL	III	✓		✓	✓			✓	
Keene NH	III	✓		✓			✓		
Bathurst NB	IV	✓	✓	✓		✓			
Brookline MA	IV	✓		✓	✓	✓	✓		

Implementation Drivers

Despite the result that in each community a different agency or actor is charged with program implementation (Assistant City Manager, Public Works Department, Planning Department, Environmental Management, Parks and Open Space Department, and a community organization), the results of the analysis show more commonalities than differences. Or as Debra Roberts, Environmental Manager for Durban South Africa keenly put it, “the problems are the same, it is just the names and the faces that change” (MassCCP 2004).

In all of the cases, this internal champion from city government (or in Bathurst Sustainable Development) is a major driver of implementation and was most often cited as the reason for success and achievement. Another implementation driver common to all communities are the real and potential cost savings. Competition, environmental values and political leadership were noted in some cases as important to success in program implementation, but no pattern emerges from those responses (see Figure 5-2)

Figure 5-2 Implementation Drivers

	Milestone	Internal Champion	Cost savings	Competition	Environmental values	Outside assistance	Internal resource allocation	Issue framing	Political leadership	Community organization
Fredericton NB	I	✓	✓	✓	✓	✓				
Portland ME	I	✓	✓		✓	✓				
St. John's NL	III	✓	✓			✓	✓			
Keene NH	III	✓	✓		✓		✓	✓	✓	
Bathurst NB	IV	✓	✓				✓	✓		✓
Brookline MA	IV	✓	✓	✓	✓		✓	✓		✓

There are some patterns that emerge from Figure 5-2 that may explain some of the variation in implementation level between the three pairs. The first is the pattern of outside assistance versus internal resources allocation. In the earlier levels of implementation, outside assistance from grants and other sources played a key role, while later on the internal allocation of resources - city budgeting and staff - were critical to success. The one exception is Bathurst Sustainable Development, which for the purpose of this analysis is considered to be the "internal" agency charged with implementation, since for all practical purposes BSD is the true program participant. A Fredericton official spoke about the need for resources and the importance of the planning process in terms of progress:

The biggest barrier right now is resources in order to put in the municipal plan. I'm fully convinced that if we're able to put a plan together for the municipality that we would get great buy in. I think we could really generate some great results. And I think it's something that people would really be proud of. I don't think the things that people would be encouraged to do would be that difficult, but it's making sure that people do them, start measuring and draw a baseline.

That's our biggest hurdle right now, getting resources dedicated to get us to the next step.

The last sentence of this comment also supports the notion that internal resource allocation is critical for implementation. Fredericton has received funding for some specific projects from outside sources, but city officials see the dedication of city funding as the next, and necessary step. The commitment of \$25,000 in the current fiscal budget for action plan writing gives credit to this conviction.

Another distinction is the ability to frame the issue of climate change positively - that it will have local impacts but that there is a lot that citizens and local governments can do about it. Keene, Bathurst and Brookline were the communities with the strongest articulation of this communication strategy, and all three exhibit the highest levels of implementation (Keene recently completed the action plan and is moving on to Milestone IV).

Lastly, the role of the community organization appears to influence implementation level. The two communities demonstrating the greatest level of implementation were both either directly or indirectly driven by community organizations. In Brookline, the community organization pressed the Town to take action and remained an advocate for climate protection as well as a support for Town government. In Bathurst, the community organization itself is implementing the program in partnership with the City, through planning, technical assistance and grant opportunities.

Contrary to case studies suggesting that sustainability and energy programs are driving CCP implementation (Bulkeley and Betsill 2003), I did not find in any of the

cases either a sustainability plan or other energy or environmental program driving the implementation efforts. Instead it seemed to be exactly the opposite, and in many of the communities program implementation actually led to a sustainable city initiative or was supplemented by participation in other energy programs. In addition, whereas some studies have proposed that local environmental action is prompted by visible environmental problems or pollution (Press 2002), there was no evidence of this driving implementation in these cases.

The general lack of stakeholder input for program implementation was another finding common in the six cases that does not support previous research or anecdotal evidence. While the CCP program as a whole is seen as a community driven process, this was not entirely the case in any of the selected communities. Instead, the program more often resembled a “one man show” delivered by a committed internal champion. Of the six cases, Keene was the one case where a stakeholder group was enlisted for implementation, but this was not cited as an important driver by any of the interviewees.

Implementation Barriers

While resources and competing interests were very often cited as a barrier to further implementation, education was noted just as often as a significant barrier to progress (see Figure 5-3). However, when comparing all six cases, there is no apparent pattern for these factors.

Resistance to change is perceived of as a barrier to the four most active communities. This could be a result of the increased level of implementation encountering more resistance due to the increased level of action itself. Another barrier that could be brought on by the higher level of implementation is the loss of momentum. Residents from Brookline and Keene expressed concern over the decline of citizen activism or involvement, which they felt had either happened or could happen.

One Keene resident described this condition as the “burnout” that happens in environmental activism.

In addition, framing the issue of climate change in a way that appeals to the public and encourages behavior change is seen as a key challenge in two communities. The result that issue framing is seen as a barrier in two communities at earlier stages in the process further supports the proposal that successful issue framing may in part be driving some of the higher levels of implementation seen in the cases of Keene, Brookline and Bathurst.

Figure 5-3 Barriers to implementation

	Milestone	Resources	Education	Competing interests	Issue framing	Resistance to change	Momentum loss
Fredericton NB	I	✓	✓	✓	✓		
Portland ME	I	✓		✓			
St. John's NL	III		✓		✓	✓	
Keene NH	III	✓	✓	✓		✓	✓
Bathurst NB	IV		✓			✓	
Brookline MA	IV	✓		✓		✓	✓

Measuring outcomes is not a priority for any of the communities involved in this study, and none have attempted to quantify their progress to date in either a regular or comprehensive fashion. Bathurst is the only community with a plan for measuring progress, with another emissions inventory scheduled for 2005. The lack of measurements seems to be in part due to the difficulty in proving cause and effect, and to relative newness of the program in most cases, combined with the competition for time as a barrier for implementation. A Keene official described this issue and the local outcomes well:

Even to try to measure in terms of your utility bill, there's so much happening in city government even in a small one like this, it's hard to say well here's a cause and effect relationship between having joined ICLEI and taking on these measures and saving money. But what happens is, in my opinion, if a city government is active and progressive and trying to make changes that really benefit its citizens, a lot of those types of changes have this wonderful commonality with climate change initiatives. For instance, if the waste department is looking into energy savings because it saves the taxpayers money, well look at the benefit it has: greenhouse gas emissions benefit, air quality benefit, all of these things have these benefits that go together so nicely.

Despite the emphasis on other benefits of implementation, none of the six communities are measuring air quality or any other co-benefits.

While none of the interviewees mentioned environmental outcomes resulting from implementation, they often described the importance and observation of social and economic outcomes. This could perhaps be due to the way the question was asked, but it may also reflect the more prevalent recognition of social and economic change. Observed outcomes included government and community awareness, political impact, institutionalization of climate change, public health benefits and cost savings (see Figure 5-4)

The lack of environmental outcome measurements may be due in part to the absence of accountability in the program structure. CCP communities are not required to take action after program adoption, and neither are they penalized for inaction. Though common in the US, voluntary environmental programs addressing climate change are often criticized for their inability to achieve real environmental outcomes because of the lack of accountability and oversight involved (Welch, Mazur et al. 2000). Additionally, recent studies have pointed to the lack of rigor and standards for VEPs as potentially detrimental to their purpose of achieving better environmental outcomes than standard regulation (Darnall, Carmin et al. September 2003).

Though some of the communities have calculated emissions reductions and/or operating cost savings for specific energy projects, the most commonly cited outcome was increased awareness in local government staff and elected officials. Even without a community driven process, or public concern about climate change, the message is still getting through to those within municipal government, suggesting that internal communication is effective. Encouragingly, many examples were given of the changing culture of local government towards climate change, as well as instances where the issue is becoming more institutionalized at the municipal level. The fact that the two smallest communities out of the six cases, Keene and Bathurst, were the only two to recognize political impact as an outcome of implementation may indicate an important benefit to smaller communities of program participation.

Figure 5-4 Outcomes

	Milestone	Government awareness	Community awareness	Cost savings	Institutionalization	Public Health	Political impact
Fredericton NB	I	✓		✓	✓		
Portland ME	I	✓		✓			
St. John's NL	III	✓		✓	✓	✓	
Keene NH	III	✓	✓	✓	✓	✓	✓
Bathurst NB	IV	✓	✓		✓		✓
Brookline MA	IV	✓	✓	✓	✓		

The one outcome that seems to differ with implementation level is the increase in community awareness. Interviewees in Keene, Bathurst and Brookline all noted some rise in public awareness about climate change and capacity for impact. Respondents from these three communities were also the only ones to emphasize local issue framing, which may have lead to this observed outcome. This suggests that it may be more

important to local governments to build the necessary community support for local climate action, than to assess environmental outcomes, and that actual greenhouse gas emission reductions may be further down the road than we think. (EXPAND)

Study Limitations

Study of local climate action could be improved through a wider selection of cases. While these six communities displayed no apparent difference between US and Canadian location, including more state and province jurisdiction in the case selection could have been beneficial to further investigate the difference in jurisdiction's affect on implementation.

Interviews with key informants functioned as the main data source for this study. A limitation of interviews is that they can introduce subjectivity. Additionally, interview question phrasing itself can affect the answers elicited. With more time, more interviews could have also aided information gathering – especially for Portland, Maine, where only one interview was conducted. Nonetheless, interviewees in this study articulated many of the issues well, and were consistent within each community.

Policy Implications

Because of state and regional climate policy developments in the study area, there is heightened interest in engaging more municipal governments in local climate action. The New England Governors and Eastern Canadian Premiers (NEGECP), under their regional Climate Change Action Plan, are interested in developing voluntary partnerships with cities and towns to increase the efficacy of their climate action work. In addition, several individual states and provinces are developing municipal outreach and coordination programs in the NEGECP region. Here, policy recommendations from the findings are provided for three purposes: to inform how to engage more municipalities in local climate action, to offer some strategies for increasing the level of municipal implementation, and to propose some measures for program outcomes.

What do the findings indicate about encouraging more communities to adopt the CCP program?

The two common drivers of municipal adoption were the lack of costs and risks involved and the access to assistance. These characteristics of the program are important to those considering adoption and should be explicitly emphasized in outreach to municipalities.

In each community an internal champion played a crucial role in both adoption and implementation, but that person was not necessarily the typical “environmental manager.” Finding the individual to be the internal champion would be one step towards increasing the amount of communities involved in the CCP program, and the implications of this study suggest that that person can be one of virtually any positions in city governments or community organization. Outreach to municipalities should not focus only the environmental personnel, but instead cast a wider net to find the internal champion necessary.

One strategy for identifying and contacting the internal personnel in municipalities critical to adoption and implementation is to develop an “ambassador program,” in which CCP communities act as ambassadors of climate action to help engage their neighboring municipalities. The likelihood that current CCP staff people can identify potential internal champions in communities that are not already participating is relatively high. If each CCP community contacted one neighboring community, this could serve as a more effective means of expanding program adoption by targeting the relevant decision-makers and future champions.

Which findings indicate strategies for increasing the level of local implementation?

Here, the drivers of implementation and barriers can help inform attempts to increase local climate action. The internal champion and cost savings were the two

implementation drivers common among all six communities. However, there were several factors that differentiated the cases by implementation level.

For lower levels of implementation, outside assistance for technical support or project funding played a very important role, but as communities progressed in implementation, internal resource allocation was a more significant driver. This suggests that in order to move forward in the five milestones, communities need to be able to commit some resources internally to implementation and not rely solely on outside sources.

Smaller communities may be less able to commit city funds or staff time to CCP implementation because of the smaller scale of municipal government. Another approach that could aid smaller communities is to adopt and implement through a regional organization or association of municipalities. Such is the case for one of the newest members in New England, the Central Connecticut Regional Planning Authority. Though dependent on the existence of a regional authority, this strategy could also enhance implementation of regional initiatives such as transportation and land use planning, issues that challenge many of the member communities.

In the communities farthest along in the program, a community organization was a major driver of implementation. In one community, the organization was seen as an advocate and support organization, and in the other the community organization was the program implementer. Whatever role the organization plays, this suggests that communities should seek out partner organizations to aid and encourage local climate action. Emphasizing the utilization of community organizations and other strategic partners such as higher education institutions could also help communities overcome the barriers of resources and competing interests.

Framing climate change as a local issue with local impacts and local opportunities to have an impact was also seen as a driver of local implementation for the more successful communities. Supporting this was the finding that two communities at earlier implementation stages saw local issue framing as a barrier for implementation. The ability to frame this global issue as one that a small community can do something about played a pivotal role in the cases studies. In order to help more communities achieve higher levels of implementation, more emphasis should be placed on issue framing and training provided to internal champions.

Related to issue framing was the finding that education was seen as a barrier for several communities. None of the respondents indicated that climate change was an issue of concern for the general public. While climate change education is a government-funded initiative in Canada, education in the US mostly derives from advocacy organizations. This finding is a call to these organizations and government agencies to step up their efforts. One way to increase the capacity for education at the local level is to centrally create a communications campaign and outreach materials that can then be tailored by each participating community. In a study of communication strategies of CCP communities worldwide, none were found to have an overall communication strategy or plan for climate change education (Lundgren 2002). The lack of public education strategies found in the six communities also mirrors this result. A communication strategy that clearly frames climate change as a local issue could significantly aid progress, and could be centrally developed by state or provincial government and disseminated for use by multiple municipalities.

What do the findings suggest about the potential local outcomes and measures of success?

It is clear from the six cases that the most important outcome observed is not the direct environmental benefits of greenhouse gas emissions reductions. The outcomes that were most commonly identified were the increase in government awareness, and

the cost savings from implementation. Other social outcomes that were observed were some increases in community awareness, a broader political impact, institutionalization of the issue in government operations, and public health benefits.

A possible lesson from this finding is that communities should focus more on these alternative outcomes than solely environmental outcomes, especially given the finding that none had been able to measure their environmental progress to date. In addition, CCP participants could benefit from more emphasis on the evaluation phase of the milestone process. Instead of evaluation being the fifth step in a linear framework, the evaluation component could be more iterative and present throughout the five-milestones. This is not to suggest that municipalities put more time and effort into the emissions inventory software, but instead to look at alternative measures of progress such as community awareness, public participation, and outreach and education. Using measures of social outcomes could also help the program gain more credibility in some communities; because significant emissions reduction may require several years of implementation, focusing on more immediate outcomes could help the program gain more momentum and buy in.

The emphasis on social outcomes supports the very nature of the CCP program, which is to involve the entire community in local climate action, not just to reduce the environmental impact of government operations. Local climate action plans focus on community as well as municipal government activities, and the process of creating the action plan was seen by many of the interviewees as primarily an education and awareness process to help create support for implementation.

These findings suggest that measuring progress should take into account not only change in community environmental impacts, but also social change. And

according to one Brookline resident, social outcomes are both more visible and more appropriate for measuring progress:

I wouldn't quantify the success in terms of huge reductions, I think it's more qualitative. I think that people in town government now are much more aware of the issue and what we can do about it, and that we do have some control. We have a lot more work to do in terms of implementing actions and meeting the actual goal of emissions reductions. But I think we've gotten over the first hurdle.

This is not to say, however, that environmental outcomes are not possible or should not be measured. In many ways, all six communities are at too early a stage to measure emissions reductions. Given the limited resources of municipal governments to revisit the emissions inventory, and the outcomes they are currently observing and emphasizing, it makes sense to also somehow measure progress or otherwise acknowledge the social and economic benefits.

Conclusion

One of the purposes of this case selection and study design was to enable identification of any differences between US and Canadian municipalities. However, the challenges and opportunities for local climate action are similar despite the different political contexts. Though only six communities were studied, no apparent patterns exist in the data to separate American from Canadian communities based on their experiences with program adoption, implementation or outcomes. Furthermore, though a small number of interviewees talked about the need for better state or provincial policies to support municipal climate action, none of them mentioned implementation barriers presented by their respective federal governments.

This suggests that perhaps local governments in New England and Eastern Canada are more dependent on their state or provincial governments for support and enabling legislation to take action on climate change than they are affected by federal level decisions. With ratification of the Kyoto Protocol in Canada, the federal government has already committed to emissions reductions. The Canadian strategy is

developing into a sectoral approach, with little to no regulatory framework expected for local governments, and instead focusing on the greenhouse gas intensive industries and large emitters (Canada 2002). US municipalities are also unlikely to face federal regulations for greenhouse gases, especially given the current state of federal policy on climate change.

Hundreds of communities worldwide, including those in developing countries where greenhouse gas regulations are even less expected, are already volunteering to reduce their emissions without the threat of pending legislation. But without regulations, what can be done at the community level about climate change and greenhouse gas emissions? While voluntary action may not always be considered the most effective solution, in the case of local climate action there is an abundance of opportunity and interest in the CCP program and the potential collective impact of municipal level action.

In general, CCP program participants in the US and Canada are very optimistic about the potential impact of their efforts, despite the sense of overwhelming scope of climate action. According to one Bathurst resident:

All we can do is give our very best, try to motivate our people and explain to them the critical importance of each citizen – can't force them, but can give them recognition and support. You're not going to be dead before you feel the impacts! Now it is already happening – people have to understand that it is no longer something that is going to happen in the next lifetime. Very likely we are all going to witness the loss of the polar bear

The work needed at the local level seems infinite, but almost all seventeen interviewees felt that their communities were progressing in the right direction.

Carrying on this optimism, it is likely that the sixty-two communities in New England and Eastern Canada are just the beginning of a growing movement of proactive municipalities in the region. With the NEGECP Climate Change Action Plan in place, and mounting interest from the Governors and Premiers in engaging more

municipalities in local climate action, we should expect to see greater CCP participation in the future. Based on this study's findings, CCP participation could be further enhanced with some policy coordination and outreach to local governments and community organizations in order to increase program adoption rates, raise implementation levels, and emphasize the full range of potential outcomes.

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Appendix A: Interview Guide

1. Who decided to adopt the program? And how - by council resolution?
2. Were there any objections to joining / or objections to climate protection in general? If yes, why did they object?
3. Who were the key supporters of the decision to adopt? Citizens, government officials, politicians, neighboring communities, government agencies or other organizations?
4. Is climate change seen as an urgent public interest issue in your community? If yes, by whom? By you?
5. What role, if any, did "community environmental leadership" play in the decision for program adoption? Do you think that your community leaders/ the municipality are interested in being recognized as environmental leaders?
6. What role, if any, did costs or benefits play in the decision making for adoption?
 - What about issues of expectations - did the fact that adopting the program meant "no cost and no penalties" to the municipality factor into the adoption decision?
7. Did any pending legislation or state/province level policies - GHG emissions caps or reporting requirements - play a role in your community's decision to join?
8. What do you see as the most important advantages of joining the program?
9. Who and what agency(s) are charged with implementing the program in your community? Who are the main partners in the implementation? (Community members, city departments, businesses, institutions, other organizations...)
10. Since you can join without being required to take any action, why do you think your municipality is pursuing implementation?
11. How much of your resource capacity to implement climate protection measures is drawn from within or outside city government?
 - city budget - how much has been spent on the program including staff time, capital expenses, and programs?
 - Have you received any state or provincial government assistance?
 - What about federal funding or technical support?

- Any in kind or other assistance from local partners? Such as interns, materials, labor, technical
12. How much has the implementation process relied on stakeholder involvement?
If a lot, who are the stakeholders involved and through what kind of process?
 13. Has your community benefited from strategic partnerships with local businesses, institutions or other organizations? If yes, in what ways?
 14. How “visible” are environmental resources and conditions in your community?
 15. How is the problem of climate change communicated and framed for the community and the local government?
 - 1) Is local or national or global framing used in communicating?
 - 2) Is climate change reduced to local, visible problems in your community such as sea level rise?
 - 3) Is climate change tied closely to other existing issues such as air pollution or transportation? (Co-benefits)
 16. Does your community have a larger sustainability vision or program?
 - If YES, is the CCP/PCP program a main driver of a larger vision OR a small component mixed in with other issues?
 17. Are there other ongoing voluntary environmental programs that seek community-wide objectives? If YES, Do you see them as helping or detracting from the CCP/PCP efforts?
 - Examples of such programs: Energy Star, Rebuild America, Clean Cities
 18. Are you aware of the regional Climate Change Action Plan (2001) for New England and Eastern Canada?
 - Describe role of NEGECP and state plans – regional body interested in increasing partnerships with cities and towns.
 - a) If yes: Have you had any connection, contact or support from this regional initiative?
 - b) Do you think there could be a mutually beneficial relationship between your community and this regional plan? If yes, what would you suggest?
 19. Under this regional plan, each state and province must complete their own action plan: Are you aware of your state/province’s efforts to develop a Climate Action Plan?

- a) Have you or your municipality been involved in this level of planning in any way?
 - b) Do you think there is anything that the state should do to better inform communities about climate change and their policy choices? Or any role for states/provinces in coordinating with municipalities?
20. To you, what have been the most critical success factors thus far for implementation of climate protection measures in your community?
21. What are the key barriers to further implementation?
22. What do you think are the most important outcomes at the local level from this work?
23. Has there been any attempt to judge progress in climate protection by outcomes instead of by those outputs?
24. Has participation in this program had any effect on government operations?
25. Has awareness of the issue of climate change increased in your community? Why, and how do you know?
26. How successful do you perceive this climate protection work in your community and why?
- To answer this:
- 1) How would you define success in climate protection for your community?
 - 2) Is success based on the ICLEI/FCM performance-based program on emissions reductions, or on some other outcome measurement?
27. Do you think that your community should institute additional or different measures of success? If yes, which ones do you think are the best measures - outcomes or outputs?