

Thinking Globally, Planning Nationally and Acting Locally: Nested Organizational Fields and the Adoption of Environmental Practices

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The study of the adoption of activities to protect the natural environment has tended to focus on the role of organizational fields. This article advances existing research by simultaneously examining conflicting processes that operate in nested organizational fields at local, national and supra-national levels. It examines the recent spread of an environmental program for reducing emissions of greenhouse gases among local governments in three countries: United States, Canada and Australia. Qualitative data is used to identify the main factors that contribute to municipalities' decision to adopt this program, while event history analysis is used to test hypotheses regarding the effect of local governments' attributes, as well as of ties to state and global associations. Results show that widespread adoption of this environmental program is contingent on the development of national change agencies.

What accounts for the adoption of new organizational practices such as programs for protecting the natural environment? Contemporary institutional research has shown that organizational change is influenced by the rules and structures that are built into the wider environment. This perspective views "the quest for legitimacy" as the principal motivation for organizational attention to the institutional environment (Edelman 1990). Organizational change – or lack of change – is seen as a result of relatively homogenous institutional pressures exercised by organizational fields, or the institutions and networks of organizations that "constitute a recognized area of institutional life: key suppliers, resource and produce consumers, regulatory agencies, and other organizations that produce similar services and products." (DiMaggio and Powell 1983) Some studies have focused on organizational fields that are constituted from a diverse set of organizations sharing a common locality; yet, others have focused on organizational fields that have boundaries defined in functional rather than geographical terms (Meyer and Rowan 1977; DiMaggio and Powell 1983; DiMaggio 1991; Scott 1991, 1998).

I remain sympathetic to the institutionalist argument that organizational fields shape organizational change, but believe that it needs to be revised in two ways. First, our understanding of organizational change would benefit by an examination of competing field level dynamics and conflicting institutional processes specific

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to organizational fields. Recent studies have shown that organizational fields are characterized by various logics and ideologies that compete for meaning and legitimacy, particularly in sectors such as environmental protection (Hoffman and Ventresca 2002; Levy and Rothenberg 2002). Rather than seeing organizational changes as the outcome of an additive process of legitimation, it is more instructive to see them as a result of the contested dynamics and strategic political processes of institutionalization (McAdam and Scott 2005).

Second, organizational theory would benefit by an analysis of the institutional processes that simultaneously operate in overlapping and nested organizational fields. Some studies have conceptualized the state as the most important level of the organizational fields because states are institutional actors that have the power to define and enforce various property rights and to encourage the perception of practices originating in state action as part of the "natural order of things." (Campbell and Lindberg 1990; Dobbin and Sutton 1998) Others have emphasized that the world society is the most important level for the adoption of organizational practices such as those to protect the natural environment because the rise of a world environmental regime precedes and causes the formation of national and local structures that manage environmental issues (Meyer, Boli, Thomas and Ramirez 1997; Boli and Thomas 1997; Frank 1997; Frank, Hironaka and Schofer 2000; Schofer and Hironaka 2005). Rather than focusing on a single level at which conflicting institutional processes operate, this study argues that organizational changes such as the adoption of new practices should be analyzed within nested fields at the national, global and local levels (Holm 1995; Kostova and Zaheer 1999; Levy and Kolk 2002).

The paper develops a model for examining how conflicting processes of legitimacy and delegitimacy operate in organizational fields at local, national and supra-national levels and shape organizations' decisions to adopt new practices. More specifically, it shows that while legitimating processes at local and global levels are important for initiating the adoption of environmental practices, legitimating processes at the nation-state level are crucial for their rapid spread. This model is tested on data about the adoption of an environmental program by local governments in three countries from 1990 to 2002.

The Cities for Climate Protection Program in the United States, Canada and Australia

Empirically, the study focuses on the adoption of an organizational program to address global climate change by local governments. Starting in the late 1980s an increasing number of scientific studies have sounded the alarm on the issue of global climate change. Atmospheric scientists have called global climate change "the unintended, uncontrolled, globally pervasive experiment whose ultimate consequences could be second only to nuclear war" (World Meteorological Organization 1988), while social scientists have recognized that global warming is likely to become as important an issue as nuclear arms control was (Schelling 2002). A significant body of literature has been dedicated to studying the prospects of negotiating and enforcing international agreements to address global climate change, or the particular social, economic and political

challenges presented by this issue for various national governments.¹ Yet, only a few studies have analyzed local actions against global climate change (but see Bulkeley and Betsill, 2003; Vasi 2006).

Local actions against global climate change started in 1991 with the *Urban CO₂ Reduction Project*, a program designed to “develop comprehensive local strategies to reduce greenhouse gas emissions and quantification methods to support such strategies.” (ICLEI, 1997) Following the success of this program, two years later the International Council for Local Environmental Initiatives initiated the *Cities for Climate Protection* program, which attempts to enhance local accountability for greenhouse gas emissions reductions, and to represent local authorities within national and international political arenas (Bulkeley and Betsill 2003).² The CCP program provides an opportunity for local governments concerned about the effects of global climate change to take action by reducing their greenhouse gas emissions. Participants in the CCP program typically pass a resolution or a formal declaration reflecting their intention to address the global environmental problem of climate change and commit to reduce emissions of carbon dioxide and other greenhouse gases at the level of local governments.³

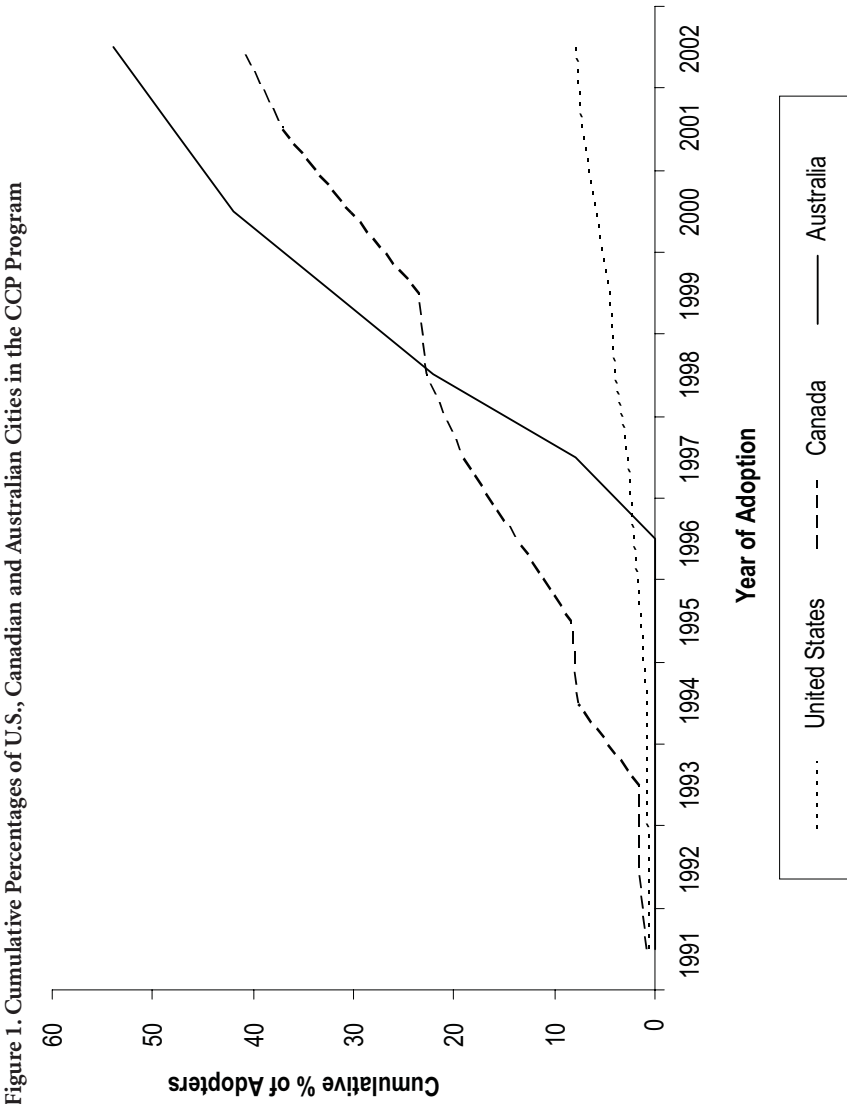
Although more than 500 local governments from around the world have adopted the CCP program between 1991 and 2002, the program’s rate of adoption varied significantly by country. For example, the program was adopted relatively slowly in the United States, somewhat fast in Canada, and faster in Australia (Figure 1). These differences are somewhat puzzling, given that all three countries have a well developed environmental NGO sector and energy sectors that rely heavily on fossil fuels.⁴ I examine three main hypotheses that may account for why the CCP program was adopted differently by municipalities in these three countries, despite their apparent similarities.⁵

Hypotheses

The adoption of environmental practices is influenced simultaneously by legitimating and delegitimizing processes operating in multi-level organizational fields: organizational structures, nation-state and world society. More specifically, this research shows that the spread of the CCP program is determined by municipalities’ development of environmental structures, ties to national change agencies and ties to global change agencies. This argument extends the existing institutionalist literature, which analyzes organizational changes mostly as the outcome of additive processes of legitimation taking place in single-level organizational fields.

Building on existing studies of organizational change, this article develops three hypotheses about the adoption of the CCP program by local governments. First, municipalities’ decision to adopt the CCP program is influenced by their organizational characteristics. Much research on the adoption of organizational innovations emphasizes internal organizational structures or specific characteristics of organizations – such as organizational size, centralization, resources or complexity – which determine their propensity to adopt innovative practices irrespective of other organizations’ behavior (Rogers 2003). For

example, Tolbert and Zucker (1983) have shown that the early adoption of civil service reforms is predicted by city characteristics such as the size of immigrant population, size of city, the socioeconomic composition and the existence of political reform movements. Thus, local governments representing communities that are large, have a high level of education and many environmental NGOs are more likely to adopt the CCP program because they are likely to be aware of the need to take action, to have the necessary resources and to perceive these practices as legitimated. Additionally, the CCP program is more likely to be adopted by local governments already involved in environmental activities because they are more likely to perceive the CCP practice as legitimated.



Second, cities' decision to adopt the CCP program is influenced by their organizational linkages to national change agencies. Studies of the adoption of innovations have shown that change agents' marketing efforts have a decisive influence on decisions to adopt innovative practices, both for individuals and organizations (Hedstrom, Sandell and Stern 2000; Van den Bulte and Lilien 2001; Abrahamson and Fairchild 2001).⁶ States provide a structured setting for the interaction of various institutional factors which either fosters or inhibits the development of change agencies or "national infrastructures for diffusion." (Cole 1985, 1989) Indeed, nation-states are often fragmented and conflictful institutional arenas characterized by potentially conflicting legitimacy processes (Hoffman and Ventresca 2002).⁷ The legitimation and delegitimation processes shape the spread of practices to protect the natural environment because they influence state governments' decisions to create change agencies with nationwide diffusion channels.⁸ For example, the fact that global climate change has been a highly contentious issue in U.S. politics (Bryner 2000; Anderson 2002) resulted in the delegitimation of governmental actions aimed to address it and prevented the development of a federal change agency. Local governments with ties to national change agencies are more likely to adopt the CCP program because these agencies' marketing efforts can offer a legitimating account for acting locally against global climate change.

Third, municipalities' decision to adopt the CCP program is influenced by their linkages to international environmental associations. Research in the world society perspective predicts that local and national environmental protection activities diffuse top-down from the world environmental regime to organizations with which it has dense ties (Frank, Hironaka and Schofer 2000).⁹ Unlike most studies in this perspective, this study considers that the spread of environmental activities cannot be reduced to a top-down process nor are actors who engage in policy formulation inside the state simply enactors of scripts derived from the rationalized world institutional and cultural order (Meyer, Boli, Thomas and Ramirez 1997). Rather, this article argues that strong links to international change agencies are important for the CCP program's adoption because professionals who are members of associations that form the world environmental regime can raise awareness about the moral imperative to "think globally and act locally" on the issue of climate change. Both qualitative and quantitative methods are used to examine the adoption of the CCP program by local governments in the United States, Canada and Australia in 1990-2002.

Qualitative Analysis

Qualitative analysis is used first to understand the factors contributing to municipalities' decision to adopt the CCP program. The key informants were local government representatives and staff members who had extensive experience with the CCP program, members of national associations that acted as change agencies (the Federation of Canadian Municipalities and the Australian Local Government Environment Network) and members of international associations that acted as change agencies (the International Council for Local Environmental Initiatives). In total, the study uses 71 interviews; most interviews were conducted

by telephone in 2002 and 2003 and lasted for 30 minutes to an hour. All interviews were digitally recorded and subsequently transcribed for use in the data analysis. The interviews were kept broad in scope in an effort to expose a wide range of motivations for the decision to adopt the CCP program. A number of documents produced by U.S., Canadian and Australian national and local governments, as well as by the Federation of Canadian Municipalities, the Australian Local Government Environment Network, and the International Council for Local Environmental Initiatives were also analyzed.

Results from interviews suggest that three factors have significantly influenced local governments' decision to adopt the CCP program. The *first factor* is prior involvement in one or more environmental activities that are similar to the CCP program. Cities involved in environmental activities are more likely to represent environmentalist communities and to have one or more "green" council members who support innovative environmentalist practices. Indeed, many of the city staff members in the United States emphasized that their city's adoption of the CCP program can be explained by the election of council members as committed to protecting the environment as their constituents. In the words of one staff member:

"Our city council members are very committed and they really push forward pretty progressive environmental initiatives such as this (CCP program). I was originally thinking that we are lucky we have such great council members, which we are, but obviously this is a reflection of the community; there is a large majority of the population in our city that is really committed to environmental issues and that's reflected in who they vote into council."

Representatives of cities involved in environmental activities such as the Clean Cities Coalition in the United States or the Green Communities in Canada are also more likely to perceive the CCP program as legitimated. For example, staff members who are involved in the Clean Cities Coalition program affirm that their city's decision to adopt the CCP program was positively influenced by city council members who are supportive of Clean Cities Coalition activities. As one staff member from a Midwest city said:

"I receive significant support from the city council on this stuff (Clean Cities Coalition activities) that we do. I am going to the city council and I am accepting a grant from the Department of Energy for the Clean Cities program for rebates for alternate fuel vehicles, that's the Clean Cities program, but it also relates to the CCP program.... The way it (CCP program) was presented to our council was that this is something that we can do, that a lot of the methods for reducing global warming emissions were things that we were already doing, so it was another way to group together the energy conservation with other programs; it wasn't too tough a thing to sell."

The *second factor* contributing to local governments' decision to adopt the CCP program is the presence of ties to national associations that act as change agencies. In Australia the main CCP change agency during the period 1997-1999 was the Australian Local Government Environment Network. ENVIRONS often used its connections to other associations of local governments and organized CCP recruitment campaigns in cooperation with the Local Government Managers Association Conference, and with the National General Assembly of Local Government run by the Australian Local Government Association. Moreover, the social marketing expertise of ENVIRONS personnel, who had in-depth experience with the Australian local governments' working environment, barriers and competing priorities, contributed greatly to the rapid spread of the program among local governments.

Another Australian change agency that had a crucial role for the rapid spread of the CCP program is the Australian Greenhouse Office. Although Australia has been sometimes characterized in international forums as a "pariah nation" for opposing the Kyoto Protocol, domestic actions have proved that Australia is a "world leader in terms of government funding for greenhouse on a per capita basis." (Papadakis 2002) The AGO, created in 1998 by the Australian federal government, has been the main agency responsible for monitoring, reporting and evaluating the CCP program as well as for providing specific packages to enable local governments to implement action plans. This unique national change agency is the first governmental organization to have a permanent body of bureaucrats and technical experts who are concerned about the global climate change issue and "who are not constrained by a department with client industries who oppose greenhouse action." (Hamilton 2000:111) Indeed, all respondents argued that the AGO was instrumental in legitimating the CCP program and convincing local governments to adopt it. According to one staff member:

"The AGO has been critical to the success of the CCP program in Australia, through its dedicated staff and resources, consistent financial support to ICLEI and local governments, and the linkages it provides to broader national and international policy and program development. The involvement of the AGO has, for example, provided the program with access to professional communications support staff. The strong support of the Minister for the Environment and Heritage has given the program a high profile with local government and encouraged the international recognition of CCP Australia as the world's most successful CCP program."

In Canada the main national change agency for the CCP program is the Federation of Canadian Municipalities. Results from interviews with local government and FCM staff members show that the Canadian federal government has been relatively supportive for the CCP program. Prior to 1998, the Canadian federal government offered financial support from a program called The 20%

Club, which was similar to the CCP program but had a more ambitious goal of reducing emission of greenhouse gases in Canadian cities by 20 percent. The main governmental agency that funded this program was Environment Canada, but only a select group of cities received their support. Simultaneously, during this period the ICLEI was marketing the CCP program on its own for Canadian cities. In 1998, The 20% Club and the CCP program merged, and the campaign was renamed Partners for Climate Protection. FCM became the main national change agency that marketed the CCP/PCP program and its nationwide networks contributed to its relatively rapid diffusion among Canadian local governments.

The FCM national change agency was able to market the CCP/PCP program quite efficiently for a number of reasons. Because FCM receives significant support from the federal government through Environment Canada and the Climate Action Fund, it is capable to distribute information widely about the benefits of the CCP/PCP program. Following the Kyoto Protocol the Canadian federal government has committed important financial resources for developing a climate change national action plan, as well as for programs on public education and climate change-related activities (Bernstein 2002). Because the FCM has many members in most Canadian provinces, it can easily reach out to cities in order to market the CCP program. As one FCM staff member states:

“With the marketing of PCP, we had a lot of high profile campaigns: FCM has its annual conference every summer and that is attended by all FCM members, and we have the Sustainable Communities conference. We also had a campaign to get municipalities to endorse model resolutions supporting Kyoto, and part of that mentioned the PCP program.”

The FCM has a very rich experience in working with representatives of local governments and employs efficient strategies for marketing the CCP/PCP program such as hiring former local government representatives. This strategy proved to be particularly effective in persuading city council members to adopt the CCP/PCP program; as one FCM staff member notes:

“In one of the provinces we had two people on the ground, one who was a former municipal staff person and other a former mayor of a major city. They’ve been both hired as consultants and they’ve been doing a lot of promotion in terms of getting recruitment. Because the message is coming from a formal mayor and a formal municipal staff person, they have a lot of credibility; they already know a lot of the players in this province. I think that it was largely because the person who was communicating the message was someone they already trusted, someone who had actually gone through the program.”

Unlike Australia and Canada, the United States had no national change agencies involved in marketing the CCP program to local governments. Global climate change is one of the most contentious environmental problems in the United States, and studies have shown that U.S.-based environmental organizations are fighting an uphill battle against the powerful fossil fuel industry for influencing the national policy on climate change (McCright and Dunlap 2000, 2003; Newell 2000; Lisowski 2002). Numerous industry front groups such as the Global Climate Coalition, the Global Climate Information Project, the Coalition for Vehicle Choice, the Advancement of Sound Science Coalition, and the American Policy Center launched massive advertising campaigns in the United States against any agreement aimed at reducing greenhouse gas emissions.¹⁰ As a consequence, the U.S. Congress has been very hostile to the idea of tackling the issue of global climate change. The Senate Budget Committee failed to allocate any funding for climate change initiatives and the House banned the use of federal funds in support of activities that could be seen as “back door implementation” of the Kyoto Protocol, including efforts to educate the public about climate change (Bryner 2000; Anderson 2002). Therefore, the U.S. government rejected any national or international policies against global climate change during the period 1991-2002, prompting some social scientists to call the U.S. government’s response to the global climate change problem a “non-policy” (Lutzenhiser 2001).¹¹

The U.S. government’s opposition to actions against climate change has delegitimated the CCP program by contributing to the perception that it is based on norms, values and expectations which are not appropriate and necessary features of local governments.¹² The federal government’s negative attitude toward national or international policies to limit greenhouse gas emissions has reinforced the view that national or local actions global climate change can harm the American economy. Members of Congress consistently focused on industry projections of high costs associated with any measures for reducing greenhouse gases, and both republican and democrat representatives depicted actions against global climate change as unacceptable for the United States.¹³ Moreover, a number of U.S. politicians have vociferously contested the very science of global climate change.¹⁴

Interviews reveal that many staff members who work on the CCP program believe their local government’s involvement in this program lacks federal support due to the influence of the fossil fuel industry. Indeed, the perception that the federal government’s climate change policies are controlled by the fossil fuel industry is widespread among those who were interviewed. As one respondent put it:

“We have a basis and a history of environmental ethic and action in our community, so it’s just a lot easier to get things going when you are in an atmosphere like that... Unfortunately that does not manifest itself at the federal level here in the U.S., because of the strength of the fossil fuel economy, whether we have a Democratic or Republican president.”

The *third factor* contributing to municipalities' decision to adopt the CCP program is the presence of ties to global associations that act as change agencies. Results from interviews indicate that ICLEI staff use two types of networks to disseminate information about the CCP program in the United States. One type is made of dense formal networks that exist between their organization and cities that are members of ICLEI; the other involves sparse informal networks that exist between staff members and representatives in different cities. Thus, ICLEI staff attends conferences organized by national associations such as the U.S. Conference of Mayors or The National League of Cities and use interpersonal communication for marketing the CCP program. According to one ICLEI staff member:

"We don't pay for booths at the U.S. Conference of Mayors meetings, but I would say that our exposure to local governments is significant. We attend (conferences) and we sometimes will speak at a panel, or will interact with people there, but it's not like, if you register for the conference and receive a packet, then ICLEI materials will be in that packet. We are relying on speaking on a panel, or circulating at different of the social events, or if we actually have an exhibit, but that's rare because the fees are usually higher than we are able to afford."

Yet, the absence of a national change agency for the CCP program in the United States limits the ability of ICLEI staff members to market this program outside the network of cities that are formally associated with ICLEI.¹⁵ Because taking local actions against a global problem does not have a simple legitimating account, ICLEI staff members are less efficient in persuading representatives of local government with which they have only sporadic interactions. Moreover, the federal government's position on the issue of climate change delegitimizes the CCP program and complicates ICLEI staff members' task of marketing the program to local governments. As one ICLEI staff member recognizes:

"There is only so much that one NGO can do and we are at the whim of what the national government decides to do and how the whole (climate change) debate is shaped in the U.S. We don't have complete latitude over that, we have to operate confined within the national government's policy... We hear a lot from the national government that climate change action is costly. We try to use the cities which are making progress with this (CCP program) to show that they are doing it without suffering any economic constraints, and in fact are benefiting."

Results from interviews also suggest that the adoption of the program by U.S. cities often requires a concentrated effort that is both top-down, from international change agents such as ICLEI staff members, and bottom-up,

from local environmental activists. ICLEI change agents' marketing efforts are more likely to be successful if they are coupled with similar efforts by local environmental activists because these local activists have more clout with their local representatives than external agents.¹⁶ Consider for following case in which a local environmental activist collaborated successfully with ICLEI staff members to convince council members from her city to adopt the CCP program:

“One of the current city councilors was at a League of Mayors meeting out on the East Coast somewhere and ICLEI had a booth at this event and the councilor stopped there and talked with the women from ICLEI and become interested. At the same time, I had an internship with a local environmental organization and they like their interns to get involved in some kind of independent project and I suggested that I work on getting our city involved in the CCP program.... I contacted ICLEI right away and this woman remembered that there was a particular councilor that has been kind of interested so I just contacted him first and, through networking and a lot of meetings up in city hall and with the council, after about two months of supplying a lot of information and talking with people and showing examples of other communities that have participated, the city council passed a resolution to join the program.”

In Australia the CCP program was adopted relatively late because ICLEI did not market this program before 1997. By comparison, ICLEI had created regional offices which marketed the CCP program in the United States and Canada in the early 1990s. Yet, after ICLEI started to market the CCP program in Australia, it collaborated closely with domestic agencies including ENVIRONS and the AGO. As AGO documents show, the partnership between ICLEI, ENVIRONS and AGO resulted in a highly effective marketing of the CCP program to Australian cities because it combined strengths from different organizations:

CCP Australia is delivered through a partnership between ICLEI and the AGO – and that partnership is stronger than ever. The partnership is based on two organizations bringing to CCP different and complementary strengths. ICLEI brings to CCP vast experience in program delivery with local government by providing tools to assist in the practical implementation of environmental programs. ... The AGO provides an invaluable policy framework that supports the role of local governments in the national context. The AGO's policy and financial support, together with its technical and program expertise, play a vital role in the program's success (AGO 1999-2000:5).

In Canada ICLEI played an important role in the early 1990s, but its significance for the spread of the CCP program gradually decreased such that by 1998 the CCP program was marketed only by the FCM. Results from interviews show that ICLEI and FCM engaged in separate marketing efforts in the early stage of the adoption of the CCP program, but after 1998 ICLEI restricted its activities to providing technical support, leaving the recruitment effort almost entirely up to FCM staff members.

Event History Analysis

Quantitative analysis is used to examine the adoption of the CCP program by U.S., Canadian and Australian municipalities. The influence of various factors on the CCP program's adoption hazard rate is measured using event history analysis with Cox regression models. The Australian, Canadian and U.S. populations include all cities over 25,000 people in 1991. Cities with fewer than 25,000 people were not included in the sample because of the difficulty in data collection.

Data

Dependent Variable

The dependent variable is the hazard of adoption of the CCP program. Data on the adoption dates comes from city clerks, city staff members who have been involved in the program, and ICLEI officials from Australia, Canada and the United States. The date of adoption was recorded in years to avoid problems caused by uncertainty in the recollection of information.

Organizational Structures

In the case of the United States, the variable city size was recorded using the 1991 United States Census Bureau data. The level of education was recorded using the 1991 USCB data on the percentage of persons age 25 or more who have a bachelor's degree or higher. The environmental orientation was measured using the Microsoft Network Yellow Pages, which allows the identification of all non-profit organizations dedicated to protecting the environment located in a particular city. The variable participation in environmental activities was coded using data from the Clean Cities Coalition. In the case of Canada, the city size and level of education were recorded using the 1996 Statistics Canada Community Profiles, and the environmental orientation was measured using Yellow Pages Canada. The environmental activities variable was coded using data from Canadian Green Communities. Finally, for the Australian population of cities the variables city size and level of education were recorded using the 1996 Australian Bureau of Statistics Basic Community Profiles and the variable environmental orientation was measured using Yellow Pages Australia. The variable environmental activities was coded using data from the Australian National Environmental Awards for Local Governments.¹⁷ The variable environmental activities was coded as dichotomous, having the value 1 if the city was involved in environmental activities previous to the adoption of the

Table 1: Descriptive Statistics

	Mean	SD
Size of population (ln)	11.02	.82
Level of education	21.57	11.47
Environmental NGOs	1.20	5.39
Participation in environmental programs	.10	.28
National change agency linkage	.10	.29
International change agency linkage	.05	.22

CCP program, and the value 0 if the city was not involved in these activities. Table 1 presents descriptive statistics for the populations of U.S., Canadian and Australian cities at risk.

National Change Agency Ties

In Canada the CCP program was marketed by the Federation of Canadian Municipalities; the formal linkages between FCM and local governments were coded using data about membership in this organization from FCM's headquarters in Ottawa.¹⁸ In Australia the CCP program was marketed through a partnership between the Australian Greenhouse Office, ICLEI and the Australian Local Government Environment Network; however, only ENVIRONS has information about formal linkages with local governments.¹⁹ No national change agencies officially marketed the CCP program in the United States.

World Environmental Regime Ties

The formal linkages between the International Council of Local Environmental Initiatives association and local governments were coded using data about membership in ICLEI from the Berkeley, Toronto, and Canberra headquarters. This variable was coded as dichotomous, with the value 1 if cities were ICLEI members previously to the adoption of the CCP program, and the value 0 if cities were not ICLEI members.

Results

Models in Table 2 test the data on the adoption of the CCP program in the United States, Canada and Australia as a factor of variables such as organizational structures, national change agency ties, and ties to world environmental associations. Results are presented in terms of four models. Model 1 includes variables which describe different organizational structures. While all variables included in this model have a significant effect on the CCP adoption hazard rate, the variable prior participation in environmental activities has the biggest effect. Thus, cities that are involved in environmental programs such as Clean Cities Coalition (in the United States) and Green Communities (in Canada), or that are recipients of National Environmental Awards (in Australia) are 8.7 times more likely to adopt the CCP program than cities that are not involved in these programs.

Model 2 includes dummy variables for cities' location. With the exception of the variables number of environmental NGOs and Australia location, all variables have a significant effect. The biggest effect is that of U.S. location: U.S. cities are 0.14 times less likely to adopt the CCP program than Canadian cities. In contrast, Australian cities are not significantly more likely to adopt the CCP program than Canadian cities. Prior participation in environmental programs has a large effect on the likelihood to adopt the CCP program – it increases it by more than five times. The variables population and level of education also have a significant effect.²⁰

Model 3 includes the effect of formal ties between local governments and national change agencies. This variable has a significant effect and increases the likelihood of adoption of the CCP program by almost 2.5 times. It also has a partial mediation effect on the variable U.S. location, since adding it to the model decreases the significance of the effect of the U.S. location on the adoption

Table 2: The U.S., Canadian and Australian Municipalities' Adoption Hazard

	Model 1	Model 2	Model 3	Model 4
Organizational Structures				
Size of population (ln)	.363*** (.017)	.564*** (.078)	.505*** (.082)	.408*** (.081)
Level of education	.017** (.007)	.042*** (.007)	.040*** (.007)	.033*** (.007)
Environmental NGOs	.022*** (.005)	-.002 (.007)	-.002 (.007)	-.008 (.007)
Participation in environmental programs	2.162*** (.188)	1.615*** (.184)	1.637*** (.184)	1.539*** (.185)
Location Dummy				
USA		-1.994*** (.200)	-1.188** (.371)	-1.255** (.367)
Australia		-.123 (.232)	.163 (.250)	-.311 (.258)
Nation-state				
National change agency tie			.897** (.337)	.617* (.336)
World Environmental Regime				
International change agency tie				1.256*** (.224)
Chi-square	676.34	764.18	825.64	1046.03

Note: * p < .05 ** p < .01 *** p < .001

hazard rate. Finally, model 4 includes the variable local governments' ties to the ICLEI world environmental association. This variable has not only a significant but also a strong effect: it increases the likelihood of adoption by more than 3.5 times. The variable participation in environmental programs also has a strong effect: it increases the likelihood of adoption by 4.6 times. In contrast, the dummy variable measuring USA location has a significant but negative effect: cities located in the United States are 0.28 less likely to adopt the CCP program than cities located in Canada. The other variables in this model have either non-significant or weaker effects.

Discussion and Conclusion

The event history analysis shows that the adoption of the CCP program is influenced by variables that operate at three institutional levels. At the *organizational structure level*, the city size and the level of education positively influence the CCP program's adoption by municipalities. One possible explanation is that large cities are more likely to be innovators than small cities because they are more likely to have the material resources required for the adoption and implementation of this program (Rogers 2003). Also, cities with high levels of education are more likely to adopt this program than cities with low levels of education because their citizens are more concerned about the environment in general and more aware about global environmental problems such as climate change. An equally plausible explanation, however, is that large cities with a highly educated population are targeted more often by CCP change agencies. Staff members working for national and international change agencies recognize that they market the CCP program to larger cities because they can make a bigger difference for the overall reduction of greenhouse gases. They also recognize that they find it easier to market the program to cities with high levels of education because they usually have a higher density of colleges and universities. For example, atmospheric scientists and public health professors have advocated for the adoption of CCP program, while college students have been involved in local campaigns against global warming and worked as interns to conduct greenhouse gas inventories in a number of cities.

Additionally, participation in environmental activities has an important influence on the CCP program's adoption. As pointed out previously, this is probably due to the fact that change agents in cities involved in environmental activities were able to connect these activities to the CCP program and, consequently, increase the perceived legitimacy of the program (Vasi 2006).²¹ Indeed, those interviewed confirmed that council members from cities involved in environmental practices that promote the use of alternative fuels and the conservation of energy are likely to perceive these practices as congruent with the CCP program's goal of reducing emissions of greenhouse gases and to see this program as an extension of the other practices. Somewhat surprisingly, however, the number of environmental NGOs does not have a significant influence on the adoption of the CCP program. One possible explanation is that this variable does not capture adequately the degree of environmental concern in a community because it is based on the number of NGOs and not on the number of people who are members of

these NGOs.²² Another explanation is that environmental NGOs have had little involvement in local governments' decision to adopt the CCP program because they focused their efforts mostly on lobbying national governments to tackle global climate change.²³

At the *nation-state level*, the presence of ties to national change agencies has an important effect for the spread of the CCP program. Because the variable ties to national change agencies has a partial mediation effect on the variable U.S. location, it is reasonable to conclude that the CCP program's lower adoption rate in the United States is partially due to the fact that the United States did not develop national change agencies. Results from interviews show that in Australia and Canada the CCP program was marketed mostly by change agencies with nationwide diffusion channels. In the United States, however, the fossil fuel lobby contributed to the delegitimation of actions against global climate change and prevented the development of a national change agency. Policies aiming to reduce emissions of greenhouse gases have met domestic opposition in all three countries due to powerful fossil fuel lobbies. The fossil fuel lobby has been quite successful in delegitimizing actions against global climate change in the United States; due to its sustained campaigns, the U.S. Congress and the federal government have vehemently opposed the development of a national infrastructure for the diffusion of environmental programs such as CCP.²⁴ The fossil fuel lobby, however, had less success in delegitimizing actions against global climate change in Australia and Canada, where the federal governments committed an increasing amount of resources for fighting global climate change at the local level and supported the development of national change agencies for the CCP program.

Finally, at the *world environmental regime level*, the variable linkage to an international change agency also has a positive influence on the adoption of the CCP program. Local governments with formal ties to ICLEI are more likely to adopt the CCP program because this association acts as an international change agency. Indeed, many of the local government representatives who were interviewed have declared that their city's decision to adopt the program was positively influenced by their contacts with ICLEI. These results suggest that, while organizational linkages to ICLEI are very important in the United States, their importance diminishes in Canada and Australia because the CCP program is marketed mostly by national change agencies.

To conclude, this study makes two important contributions to the literature on organizational change and the adoption of organizational practices to protect the natural environment. In accordance with recent arguments that the spread of environmental activities is more complicated than is suggested by a top-down or a bottom-up imagery (Johnson and McCarthy 2004), this research shows that the diffusion of environmental programs is simultaneously influenced by processes operating within nested organizational fields at local, national and global levels. Also, in agreement with recent findings that environmental problems are difficult policy issues shaped by opposing ideologies (Hoffman and Ventresca 2002), this study emphasizes the importance of examining both legitimating and delegitimizing processes that shape organizations' decisions to adopt environmental practices.

In addition, this research stimulates a more intense theorizing of the spread of innovations by using cross-national comparisons (Strang and Soule 1998). The importance of embeddedness in the world society could have been overstated if the analysis of the spread of the CCP program was limited to the case of U.S. cities. Most U.S. cities adopted the CCP program because they developed environmental structures and because they had ties to ICLEI, which made them more susceptible to ICLEI staff's marketing efforts. In the case of Australia and Canada, however, linkages between local governments and ICLEI were less important than linkages to federal change agencies that developed nation-wide channels for marketing the CCP program. Hence, it was possible to emphasize the importance of national change agencies for the rapid diffusion of the CCP program only by comparing the institutional contexts on the issue of global climate change across different countries. Cross-national research requires intensive data collecting, yet this study underscores the need for more comparative research to understand the adoption of various organizational practices.

Notes

1. For example Rowlands (1995), Paterson (1996), McCright and Dunlap (2000, 2003), Lutzenhiser (2001), Hamilton (2001), Bernstein (2002), Lisowski (2002), Papadakis (2002), Fisher (2004).
2. ICLEI is the international environmental agency of local governments founded in 1990 and formally associated with the International Union of Local Authorities. Its mission is "to build and serve a worldwide movement of local governments to achieve and monitor tangible improvements in global environmental conditions through cumulative local actions." (ICLEI, 1997:1)
3. The CCP program is innovative because it involves new organizational practices, such as measuring and reducing GHG emissions. While some local governments are engaged in programs which may unintentionally result in reductions of GHGs, only the CCP program quantifies these emissions and has the explicit goal of reducing them through sustained actions. The program typically involves five milestones: conducting a GHG emissions analysis, establishing an emissions reductions target, developing an action plan, implementing the action plan and monitoring progress (ICLEI 1997, 2000).
4. For example, Australia, Canada and the United States have similar numbers of environmental NGOs involved in the Climate Action Network – an umbrella organization created in 1989 to actively monitor and seek to influence the climate negotiations as well as national and international climate-related policies. Also, these countries have major deposits of coal, the most polluting fossil fuel, and rely heavily on coal for electricity production. Consequently, these three countries are by far the largest producers of greenhouse gases per capita in the world: in 1999 these countries produced between two and five times more greenhouse gases per capita than most Western European countries (Turton 2005).

5. The differences between these three countries are less dramatic when considering the absolute number of adopters in each country because Australia and Canada have fewer cities than the United States. Nevertheless, the Australian program has been widely recognized as the world's most successful CCP program, while the U.S. program is known to have only limited regional successes.
6. Change agencies are organizations that market innovations to potential adopters; change agents are individuals who work for change agencies and attempt to "influence client's innovation-decisions in a direction deemed desirable by a change agency." (Rogers 2003:366)
7. The concept of institutionalization designates cognitive-cultural processes "by which actions are repeated and given similar meaning by self and others." (Scott 1998:35) Legitimacy is a more general concept which includes not only cognitive-cultural but also regulative and normative processes (Scott 1998:134).
8. I define the legitimation of innovative practices as regulative, normative or cognitive processes whereby these practices' values, norms, and expectations become taken for granted as appropriate and necessary features of the organization. Consequently, delegitimation represents the processes whereby the norms, values, and expectations on which practices are based are perceived as inappropriate and unnecessary features of the organization.
9. The world environmental regime has been defined as a "partially integrated collection of world-level organizations, understandings, and assumptions that specify the relationship of human society to nature" (Meyer, Frank, Hironaka, Schofer and Tuma, 1997: 623).
10. For more information about the fossil fuel industry's campaigns, see Burton and Rampton (1997), Gelbspan (1998), or Newell (2000).
11. The chairman of the Senate Energy Committee has pronounced the Kyoto Protocol as "Dead on arrival" in 1997 while the Senate has voted 95-0 against it. The Small Business, Family Farms and Constitutional Protection Act introduced in 1999 prohibited the use of federal funds to support advocacy, development and implementation of carbon regulation policies, while the Knollenberg language inserted in numerous appropriation bills in 2000 and 2001 "shifted discussion from funding for climate protection initiatives ... to the perceived shortcomings of the Kyoto Protocol." (Anderson 2002:244) Subsequent efforts in 2003 to introduce a bipartisan bill to curb global warming by Senators John McCain and Joe Lieberman met strong opposition and were defeated.
12. As McCright and Dunlap (2003) show, the delegitimation of the global warming issue was the consequence of a sustained mobilization effort by the conservative movement to construct this problem's "non-problematicity."

13. For example, Representative Henry Bonilla (R-Texas) claimed that the Kyoto Treaty was an “anti-American effort” while Representative Ron Klink (D-Pennsylvania) warned that the treaty “would be the first major step toward the deindustrialization of this country.” (Bryner 2000: 119)
14. For example, Republican Sen. James Inhofe who has chaired the Committee on Environment and Public Works has bluntly stated during a Senate hearing in 2003 that climate change is “the greatest hoax ever perpetrated on the American people”.
15. The U.S. Environmental Protection Agency was one of the sponsors of the *Urban CO₂ Reduction Program* during the period 1991-1993. However, while the EPA funded some energy efficiency projects related to the CCP program, it was not directly involved in marketing this program to local governments.
16. Local environmental activists act frequently as brokers who link local governments with ICLEI. Recent studies of social movements emphasize the importance of brokerage as a mechanism for the spread of collective action, since brokerage entails the transfer of information that depends on the linking of two or more previously unconnected social sites (Tarrow and McAdam 2004; McAdam, Tarrow and Tilly 2001).
17. Clean Cities Coalition is an environmental programs sponsored by the U.S. Department of Energy which promote alternative fuels for transportation and energy efficient buildings. The Canadian Green Communities is an association of non-profit community enterprises which are “in the business of selling environmental action;” it includes partners from municipal governments, financial institutions, community organizations, business organizations and government agencies. The Australian National Environmental Awards for Local Governments are awards offered by the Australian Government to local governments involved in environmental protection activities.
18. Although the CCP program was initially marketed from the ICLEI international headquarters in Toronto, ICLEI collaborated informally with the Federation of Canadian Municipalities, a national association of local governments which represents the interests of Canadian municipalities on policy and program matters within federal jurisdiction. Starting in 1998, the collaboration between ICLEI and FCM became formal and the Cities for Climate Protection program changed its name to Partners for Climate Protection program.
19. AGO was established in 1998 and is a government agency dedicated to cutting greenhouse gas emissions at multiple levels: national and local governments, community businesses and national industries. ENVIRONS Australia was created in 1989 and is an association of local governments involved in a variety of sustainability practices: biodiversity conservation, natural resource management, green energy and transportation or sustainable land use.
20. For example, a city with 300,000 people is approximately 60 percent more likely to adopt the CCP program than a city with 100,000 people, while an increase by the value of one in the percentage of persons age 25 or more

who have a bachelor's degree or higher in a city leads to an increase of 4 percent in the city's likelihood to adopt the CCP program.

21. For a detailed analysis of the framing processes associated with the diffusion of the CCP program, see Vasi (2006).
22. For example, some communities may have few environmental NGOs with many members while other may have many environmental NGOs with few members; moreover, some communities may have many environmental groups working only on local issues such as conservation while other may have many groups working on global problems such as climate change.
23. Most of those interviewed declared that local environmental NGOs played a negligible role for cities' decision to adopt the CCP program; one of the few NGOs to play an important role was Clean Air-Cool Planet, a Northeastern non-profit dedicated "to implement solutions to climate change and build constituencies for effective climate policies and actions."
24. Although, as Rabe (2006) noted, the federal government's inaction has recently prompted a number of U.S. states to adopt policies such as the 2003 Regional Greenhouse Gas Initiative, these policies attempt to reduce carbon dioxide emissions from coal-burning power plants through cap-and-trade and, at least so far, did not result in the development of national or regional CCP change agencies.

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