
ARTICLE

Mitigating Climate Change in US Cities: opportunities and obstacles

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ABSTRACT *This study examines opportunities for and obstacles to the mitigation of climate change in US cities using the example of the Cities for Climate Protection (CCP) campaign sponsored by the International Council for Local Environmental Initiatives. The CCP experience suggests a number of ways in which municipal governments can control greenhouse gas (GHG) emissions but also highlights several obstacles that make it difficult for local officials to do so. First, climate change is generally framed as a global issue. The CCP experience suggests that climate change is most likely to be reframed as a local issue when the preferred policy response (controlling GHG emissions) can be linked to issues (e.g. air quality) already on the local agenda. Secondly, even when local governments recognise that they should do something to control GHG emissions, institutional barriers make it difficult for municipalities to move from political rhetoric to policy action. Finally, it is questionable whether local initiatives can make meaningful contributions to climate change mitigation in the absence of policy changes at the state and national levels.*

MICHELE M. BETSILL, *Mitigación del cambio climático en las ciudades de los Estados Unidos: oportunidades y obstáculos. Este estudio examina oportunidades y obstáculos para la mitigación del cambio climático en las ciudades de Los Estados Unidos usando el ejemplo de “Ciudades para la Protección del Clima” (CCP), campaña patrocinada por el Consejo Internacional para Iniciativas Ambientales Locales (ICLEI). La experiencia del CCP sugiere un número de formas en que los gobiernos municipales pueden controlar las emisiones de gas efecto invernadero (GEI) pero también resalta varios obstáculos que hacen esto difícil para los funcionarios locales. Primero, el cambio climático es generalmente enmarcado como un asunto global. La experiencia del CCP sugiere que el cambio climático es más probable que sea renmarcado como un asunto local cuando la respuesta de política preferida (controlar emisiones de GEI) puede ser relacionada con asuntos que ya están en la agenda local (ej. calidad del aire). Segundo, aún cuando los gobiernos locales reconozcan que ellos deben hacer algo para controlar las emisiones de GEI, las barreras institucionales hacen difícil que las municipalidades se muevan de retórica política a una acción política. Finalmene, es cuestionable si las iniciativas locales puedan*

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hacer contribuciones significativas a la mitigación del cambio climático en ausencia de cambios de política en el estado y a nivel nacional.

Introduction

Municipal governments must be included in global efforts to mitigate climate change. Although the political emphasis has primarily been on developing an international response to global warming through the negotiation of the United Nations Framework Convention on Climate Change and the Kyoto Protocol, countries will not be able to meet the commitments contained in these agreements without the assistance of city governments. Half the world's population lives in urban areas and a significant portion of the human activities that lead to global climate change are concentrated in cities (Organisation for Economic Co-operation and Development (OECD), 1995; Rayner & Malone, 1997; Kates *et al.*, 1998; O'Meara, 1999). Municipal governments have considerable authority over land-use planning and waste management and can play an important role on transportation issues and energy consumption, all of which have implications for greenhouse gas (GHG) emissions (Collier, 1997; Rayner & Malone, 1997; Agyeman *et al.*, 1998; DeAngelo & Harvey, 1998; Kates *et al.*, 1998; Bulkeley, 2000).

Indeed, a growing number of municipal governments are joining global efforts to mitigate climate change through the control of GHG emissions. In the USA, for example, more than 75 local governments currently participate in the Cities for Climate Protection (CCP) campaign sponsored by the International Council for Local Environmental Initiatives (ICLEI). Officials in each of these cities have publicly recognised global climate change as a legitimate local concern and have committed themselves to addressing that threat by controlling local GHG emissions. Many of these communities have successfully developed and implemented policies and programmes to reduce emissions.

The CCP communities present an interesting empirical puzzle because there are a number of reasons why municipal governments might not be expected to take action on the issue of climate change. In the USA, for example, there is no federal mandate for local action and the Clinton Administration's voluntary programme for controlling US GHG emissions generally overlooked the role of cities, focusing instead on business and industry (Clinton & Gore, 1993). From a rational choice perspective, it makes little sense for a city government to expend resources to control its GHG emissions, since it is not at all clear that action to control emissions in one particular place will have any measurable effect on the overall threat of global climate change. Moreover, controlling local emissions will do little to protect a particular community from the potentially adverse effects of climate change, since "emissions of GHGs have no direct local effects: local regions will be impacted on only through the impact of GHGs on global-scale climate" (DeAngelo & Harvey, 1998, p. 115). Finally, climate change is generally framed as a global problem with future impacts. As a result, city officials often have little understanding of how they contribute to the problem of global climate change and/or how they might be affected by the impacts of climate change in the future. They feel distant from the problem in

both space and time and are thus unlikely to see global climate change as a legitimate local concern (Wilbanks & Kates, 1999).

This study uses the CCP campaign as a site for examining opportunities for and obstacles to municipal action on global climate change. It begins with a discussion of the local dimensions of global climate change and identifies a number of ways in which municipal governments can control their GHG emissions. The CCP experience suggests that in addition to the climate-related benefits of controlling local GHG emissions, cities realise co-benefits, including economic savings and other environmental benefits. Why, then, are more city governments not taking action to control GHG emissions? The CCP experience also highlights at least two obstacles to the development of local policies and programmes to control GHG emissions: the global framing of climate change; and institutional barriers. Global climate change is most likely to be reframed as a local issue when the preferred policy response (controlling GHG emissions) can be linked to issues (e.g. air quality) already on the local agenda. However, even if local officials recognise that they *should* take action to control GHG emissions, institutional barriers make it difficult for cities to move from political rhetoric to policy action. It is also questionable whether local initiatives can make meaningful contributions to mitigating global climate change in the absence of policy changes at the state and national levels. The study concludes that municipal leaders should ‘think locally, act locally’ when it comes to global climate change.

The CCP Campaign

A growing number of municipal governments recognise that global climate change has an important local dimension. ICLEI’s CCP campaign is a vivid example of this trend.¹ ICLEI, which was established in 1990, works “to build and support a worldwide movement of local governments to achieve tangible improvements in global environmental conditions through the cumulative impact of local actions” (ICLEI, n.d.). Its members consist of more than 300 local governments and their associations from around the world.

ICLEI began working on the issue of global climate change in 1991, when it launched the Urban CO₂ Reduction Project, involving 14 municipalities in North America and Europe.² This campaign, which ran until 1993, was designed to “develop comprehensive local strategies to reduce greenhouse gas emissions and quantification methods to support such strategies” (ICLEI, 1997, p. 5). On the basis of the success of the Urban CO₂ Reduction Project, ICLEI launched its CCP campaign in 1993. The CCP campaign seeks to recruit local governments representing 10% of global GHG emissions and provides technical assistance to help them control those emissions. As of March 2001, the CCP campaign had more than 400 members world-wide, including 79 in the USA (see Table 1).

To become a member of the CCP campaign, local governments pass a city council resolution or other formal declaration of the city’s intention to address the threat of global climate change by controlling local GHG emissions (ICLEI, 2000). Members also commit themselves to passing through a series of five

TABLE 1. US participants in the ICLEI CCP campaign (as of March 2001)

Alachua County, FL	Denver, CO	Newton, MA
Albuquerque, NM	Durham, NC	Oakland, CA
Ann Arbor, MI	Fairfax, VA	Olympia, WA
Arcata, CA	Fort Collins, CO	Orange County, FL
Arlington, MA	Hillsborough County, FL	Overland Park, KS
Aspen, CO	Honolulu, HI	Philadelphia, PA
Atlanta, GA	Keene, NH	Portland, OR
Austin, TX	Little Rock, AR	Prince George's County, MD
Berkeley, CA	Los Angeles, CA	Riviera Beach, FL
Boston, MA	Louisville, KY	Sacramento, CA
Boulder, CO	Lynn, MA	Saint Paul, MN
Bridgeport, CT	Madison, WI	Salt Lake City, UT
Brookline, MA	Maplewood, NJ	San Diego, CA
Broward County, FL	Medford, MA	San Francisco, CA
Burien, WA	Memphis, TN	San José, CA
Burlington, VT	Mesa, AZ	Santa Cruz, CA
Cambridge, MA	Miami Beach, FL	Santa Fe, NM
Chapel Hill, NC	Miami-Dade County, FL	Santa Monica, CA
Charleston, SC	Milwaukee, WI	Schenectady County, NY
Chicago, IL	Minneapolis, MN	Seattle, WA
Chittenden County, VT	Missoula, MT	Springfield, MA
Chula Vista, CA	Montgomery County, MD	Takoma Park, MD
Corvallis, OR	Mount Rainier, MD	Tampa, FL
Dane County, FL	New Orleans, LA	Toledo, OH
Davis, CA	New York, NY	Tucson, AZ
Decatur, GA	Newark, NJ	West Hollywood, CA
Delta County, MI		

'milestones' designed to help them control those emissions. These include conducting an emissions analysis to establish a baseline, selecting a reduction target and then developing and implementing a plan to achieve that target. ICLEI provides CCP members with technical assistance and training to help them complete these milestones, including workshops, funding to conduct emissions analyses (in the USA, these funds typically come from the US Environmental Protection Agency (USEPA) and specially designed software to help city officials calculate past and current emissions, evaluate options for reducing emissions and tracking the effects of reduction measures, in terms of both cost savings and GHG emissions.

ICLEI (2000) estimates that the CCP communities in the USA have reduced their annual GHG emissions by 7.5×10^6 tonnes (an average of 100 000 tonnes per city). US ICLEI officials suggest that this is a conservative estimate, since many of the cities do not quantify all of their activities with GHG reduction effects (ICLEI, 2000; Young, 2000). ICLEI officials emphasise the *cumulative* effect of local GHG reduction measures. Nevertheless, this is a fraction of the 1800×10^6 tonnes of GHGs emitted by the USA each year (USEPA, 2001), which begs the question of whether these local initiatives make

a meaningful contribution to global climate change mitigation. This question is addressed in the section below on the limitations of local climate change mitigation.

Opportunities for Local Climate Change Mitigation

CCP governments use a range of policy options for controlling local GHG emissions. Many begin by looking to their own municipal operations and trying to reduce emissions generated through their day-to-day activities. For example, in 1996, the city of Denver, CO, began installing light-emitting diodes (LEDs) in all red traffic lights and 'don't walk' signs in the city's 1200 intersections. LEDs consume considerably less electricity than incandescent bulbs (6–25 W versus 69–150 W) and last much longer (100 000 + hours versus 8000 hours). The city expects to realise \$5 million in savings in energy and maintenance costs *after* covering its initial investment. Lower energy use translates into an annual saving of 5300 tonnes of carbon dioxide, the equivalent of planting a 2266 acre forest in the middle of the city or removing 1094 cars from the road (Winer, n.d.). Fourteen other CCP communities have initiated LED retrofit projects resulting in annual GHG reductions of 60 000 tonnes (ICLEI, 2000).

Municipal governments can also cut GHG emissions by enhancing building energy efficiency through codes and ordinances establishing insulation and lighting standards for new construction as well as retrofits of existing structures. In the transportation sector, city governments can invest in alternative transportation infrastructure, such as cycle paths and mass transit systems. They can also encourage people to use existing systems with bus pass programmes. In addition, local officials can purchase alternative fuel vehicles for mass transit and the municipal fleet. Municipal governments also have significant opportunities to achieve GHG reductions through solid waste management programmes, including methane recovery and recycling. Eleven CCP cities have implemented landfill methane recovery and use programmes for a combined emissions reduction of nearly 2×10^6 tonnes/year (ICLEI, 2000). Cities can also meet local energy demand using renewable energy sources, such as solar and wind power.

In addition to the climate-related benefits of controlling local GHG emissions, CCP cities realise a number of other co-benefits, including considerable economic savings. In 1999, US CCP members reported savings of \$70 million in energy and fuel costs (ICLEI, 2000). Improving energy efficiency contributes to job creation through the use of local contractors and can also facilitate economic development. An OECD report on urban energy practices notes that local policies that "incorporate environmental objectives can improve the competitive position of cities in their challenge to attract investments, business and high-skilled workers" (OECD, 1995, p. 21).

Reducing local GHG emissions can also provide cities with additional environmental benefits, including improved air quality. Many local activities that produce GHG emissions produce other pollutants that have more direct effects on local air quality, including tropospheric ozone, nitrous oxides and sulphur oxides. Thus, efforts to reduce GHG emissions also lower emissions of these substances, thereby improving local air quality (STAPPA/ALAPCO, 1999).

Improving mass transit and alternative transportation opportunities also enhances local air quality while simultaneously addressing the problem of traffic congestion. Finally, CCP cities report that controlling GHG emissions contributes to improved ‘liveability’ in their communities. Citizens enjoy a higher overall quality of life due to improved air quality (better health), and more efficient homes and offices (thus more discretionary income). In addition, CCP cities note a strengthened sense of community as development patterns begin to place people in closer proximity with their work, schools and services (ICLEI, 1998).

Localising Global Climate Change

The CCP experience demonstrates that local governments have a variety of opportunities for controlling local GHG emissions and that doing so has co-benefits that help municipalities address other issues. Why, then, are more city governments not taking action to control GHG emissions? A fundamental problem is that climate change is generally framed in global terms, so many local decision makers do not see it as something with which they should be concerned. Some municipal governments have succeeded in ‘localising’ global climate change by linking the policy of controlling GHG emissions with other issues already on their agendas.

Among US cities, there is distinct variation in the extent to which municipal officials frame global climate change as a local issue.³ While officials in CCP communities generally recognise the local dimension of climate change, officials in many other cities continue to view climate change as a global issue—one that local communities need not concern themselves with until there is a state or federal mandate requiring them to do so. It is interesting to note, however, that in many CCP cities officials have localised the *policy* of controlling GHG emissions (which happens to be the primary response to climate change) rather than the *problem* of climate change.⁴ Kingdon (1995) argues that many issues get on government agendas this way—by presenting preferred policy options (e.g. reducing GHG emissions) as solutions to problems the government is already addressing. In other words, it calls for a more indirect strategy that does not require “tracing a narrow line of causality from emissions to climate to impacts” (Rayner & Malone, 1997, p. 333) for localising global climate change.

Local Hooks

The ICLEI CCP campaign routinely emphasises the relationship between GHG emissions and other local issues, such as air quality and growth. In many communities, these issues serve as ‘hooks’ on which to hang the issue of climate change and prompt municipal officials to reframe climate change as a local issue. In Milwaukee, WI, for example, officials focus on the link between GHG emissions and ‘smart growth’. Cambridge, MA, Mayor Anthony Galluccio noted that he found the idea of climate protection to be extremely daunting when he came to office. His view changed, however, when he discovered that measures to control GHG emissions would contribute to the community’s quality of life

(Galluccio, 2000). It is notable that most CCP cities have a prior interest in environmental issues, perhaps making officials in these cities more receptive to information about what they can do to control GHG emissions (OECD, 1995; Kates & Torrie, 1998).

Not all US communities have hooks on which to hang the issue of climate change. For example, Indianapolis, IN, has not historically given environmental and energy conservation issues high priority. One possible hook is the city's concern about local air pollution. Indianapolis is in danger of becoming an ozone non-attainment area (thus violating the Clean Air Act), and the city's Air Management Office has several initiatives designed to reduce the emission of harmful air pollutants. At present, however, the issue is not high on the agenda of municipal decision makers, and officials continue to view the problem of GHG emissions as an entirely separate issue to be dealt with in the future following a state and/or federal mandate.

Political Leadership and Entrepreneurs

Political leadership on environmental issues can help create opportunities for linking climate change with issues already on the local agenda. For example, Denver, CO, Mayor Wellington Webb (a Democrat in office since 1991) wishes the city to be viewed as an environmental leader. Several city officials explicitly noted that Mayor Webb is committed to having the city 'lead by example' on environmental issues.

Political leadership on environmental issues may be a necessary but not sufficient condition for localising global climate change. Studies in the UK, Sweden and Australia have found that local initiatives to control GHG emissions are often driven by entrepreneurial individuals within city government (Collier & Lofstedt, 1997; Bulkeley, 2000). For example, Overland Park, KS, got involved in the CCP campaign thanks to the work of one industrious city council member. A USEPA official commented that when demand for controlling emissions comes from inside city government, there are considerably fewer political obstacles.

Institutional Barriers to Municipal Action

Even when municipal leaders recognise the controlling of GHG emissions as a legitimate local concern, they face several institutional barriers that make it difficult to translate political will into policy action. The first has to do with the way city governments are organised; there is often no institutional home for climate change policy making. Secondly, many cities lack the administrative capacity to develop local policies and programmes for controlling GHG emissions. They may not have the human resources available to oversee the city's climate protection programme and/or personnel may lack the technical knowledge necessary to monitor and analyse local GHG emissions. Finally, many cities are not willing to invest financial resources in controlling GHG emissions, since doing so often requires significant up-front costs.

Bureaucratic Structure

Climate change, like most environmental problems, is a cross-cutting issue and does not fit the way the majority of city governments organise themselves (Nijkamp & Perrels, 1994; O'Meara, 1999). Most city governments are divided into a few specialised departments and divisions with very specific mandates. Officials focus on their narrow tasks, often with little interaction with individuals in other divisions or departments. In contrast, controlling GHG emissions requires collaboration between officials working in the areas of waste management, transportation, public works, utilities, health, land-use planning and air quality management who rarely sit at the same table.

Translating political will into policy action thus requires that city governments institutionalise their efforts to control GHG emissions and designate responsibility for co-ordinating climate-related activities across city government. Some cities, such as Denver and Fort Collins, CO, have chosen to house this task in an environmental department, while others rely on planners and engineers located in public works departments (e.g. Madison, WI) to co-ordinate the programme. Departments that do not traditionally view environmental protection as part of their mandate may be less likely to devote the resources necessary (both human and financial) to establish an effective programme for reducing the city's GHG emissions. Regardless of where a city chooses to locate its CCP programme, there must be a specific mandate calling for co-ordination with other departments and divisions on the development of policies and programmes to control GHG emissions.

In August 2000, the city of Portland, OR, formed its Office of Sustainable Development by merging the city's solid waste and recycling programme, the energy programme and the green building programme (City of Portland, 2001). This enables the city to co-ordinate not only its activities related to climate change but also other issues related to sustainability. Interestingly, several officials noted that the CCP campaign provides a useful framework for advancing a city's broader environmental agenda. As mentioned above, all environmental issues require some level of co-ordination across city departments. The CCP programme helps municipal governments establish a mechanism for monitoring climate-related activities and for collecting and disseminating climate-related information. These linkages, developed in the name of climate protection, can also be used to facilitate local responses to other environmental problems.

Administrative Capacity

Not all communities have the administrative capacity to develop local policies and programmes to control GHG emissions. Because of the co-ordination challenge, addressing climate change at the municipal level is extremely time-consuming. Ideally, cities need to dedicate personnel to this task rather than adding it to the existing portfolio of already overworked officials. Most US cities are unable and/or unwilling to commit the necessary resources for creating such a position, particularly because there are often more pressing issues on a city's agenda.

Furthermore, individuals dedicated to climate protection must have the technical capacity to collect and analyse data related to local GHG emissions. This can be a highly complex process and most cities do not have adequate access to all of the types of data they will need (Kates *et al.*, 1998; Bulkeley, 2000). Once the inventory is completed, officials must continue to track local emissions and update the inventory. In the USA, ICLEI has been successful in helping cities obtain grants (often from the USEPA) to hire an intern to conduct the initial emissions analysis. However, this does not address the long-term capacity issue.

Personnel can also increase their technical capacity by attending ICLEI workshops and conferences. For example, at the eighth national CCP workshop, held in New Orleans, LA, 20–23 September 2000, elected officials from 40 CCP communities and staff from 70 communities attended workshops on sustainable transportation. Such workshops provide a valuable opportunity for CCP members to share best-practice information and can lead to international partnerships. The cities of Fort Collins, CO, and Cebu, the Philippines, are currently working together to address solid waste management issues (ICLEI, 2001). However, in Milwaukee, WI, the city government will not pay for officials to attend such conferences, making it difficult for individuals to obtain information that could help them control local GHG emissions.

Budgetary Constraints

City governments will ultimately need to implement new policies and programmes if they are to reduce their GHG emissions. However, city budgets may constrain the flexibility of officials to invest in GHG reduction projects (Nijkamp & Perrels, 1994). In many communities, environmental programmes are viewed as ‘luxury’ expenditures; these programmes are often hit first when there is a budget shortfall (Press, 1998). Such projects are also likely to require considerable up-front investments. Officials in CCP communities often try to convince city council members to invest in energy conservation technology, arguing that the money saved in energy costs can be used to recoup the initial investment and pay for additional measures in the future (an accounting procedure known as ‘performance contracting’). City budget officials, who tend to be short-term thinkers, are sceptical of such arguments. If they are persuaded to approve funds, they are more likely to proceed on a step-by-step basis rather than investing in a larger package that would be more cost-effective in the long run. They may also ask officials requesting new funds to cut funds for other current programmes.

Cost-effectiveness is the ultimate criterion on which city councils make budget decisions. It is thus important for city officials requesting money for climate-related projects to demonstrate the economic benefits. ICLEI’s CCP campaign, which encourages local governments to quantify such savings, can provide information to strengthen the case. Another strategy is to use discretionary funds to develop small-scale demonstration projects within the community. For example, when the utilities director in Denver, CO, became interested in the LED project, he used funds from his own research and development budget to make the initial investment. When he approached traffic services to enlist their

help with the project, they were reluctant to divert their own resources. The utilities director assured them that there would be no cost to them, thus helping them buy into the project. When the time came to request city funds to expand the project, the director had an economic analysis available with evidence of immediate economic benefits (in terms of energy saving). Unfortunately, most city officials do not have discretionary funds at their disposal. Through the CCP campaign, ICLEI hopes to collect quantified data on the economic savings derived from GHG-reducing activities.

Limitations of Local Climate Change Mitigation

Although a growing number of municipal governments in the USA are taking action to control local GHG emissions, it is clear that climate change is not the primary driver behind these initiatives. In fact, GHG reductions are often a by-product of policies and programmes designed to address more pressing local problems. In most CCP cities, local policies and programmes to control GHG emissions are motivated by the recognition that these activities contribute to other objectives, such as saving money, reducing local air pollution, enhancing alternative transportation and increasing the ‘liveability’ of their communities. ICLEI officials emphasise the co-benefits of controlling local GHG emissions and often point to climate protection as a secondary consideration. Can this strategy ultimately lead to a meaningful local contribution to global efforts to mitigate climate change?

Business as Usual?

Many of the GHG emissions savings reported by CCP communities are realised by calculating reductions from policies and programmes that already exist. In other words, cities are merely repackaging existing efforts as ‘climate’ initiatives and are not going beyond business-as-usual. Non-CCP communities may also be installing LED traffic signals but do not quantify GHG savings from those programmes. Is it appropriate to say that CCP cities are doing more in terms of climate protection? Meaningful local action to address climate change will require municipal governments to develop *new* policies and programmes to achieve *additional* emissions reductions above what would have happened anyway. Calculating savings from existing programmes may actually create a disincentive to move beyond business-as-usual by fostering a sense of complacency. CCP cities may feel they are already doing a lot to address climate change and may thus not look for ways to further decrease emissions.

The CCP programme does encourage communities to evaluate existing programmes in terms of GHG reductions in order to demonstrate to local governments that addressing climate change is consistent with things they are already doing. The campaign then works with communities to identify the “low-hanging fruit” (Young, 2000)—to focus on some of the easier ways in which city governments can achieve short-term savings while they grapple with making the long-term changes that will ultimately be necessary.

CCP staff also try to encourage cities to look for new opportunities to achieve emissions reductions through an ongoing process of monitoring and reporting. City governments must submit annual reports outlining initiatives that have been developed in the past year and estimates of GHG reductions. In developing its local action plan, the city of Fort Collins, CO, clearly identifies ‘new’ measures “that emerged initially through Cities for Climate Protection discussions, having the primary intent to reduce greenhouse gases” (City of Fort Collins, 2000, p. 41). These new measures include replacing traffic signals with LEDs, increasing renewable energy sources for electricity and enhancing energy efficiency in government buildings. When combined with ‘pending’ measures, which would have been proposed regardless of their GHG-reducing capabilities, the city estimates that it could reduce its 2010 emissions by 500 000 tons beyond business-as-usual.

Even when new local initiatives are not driven by climate change or GHG emissions concerns, it may be the case that they would not have been developed in the absence of local concern for these issues. For example, the city of Ann Arbor, MI, recently negotiated a franchise agreement with local utilities stating that any company selling electricity in the city had to provide customers with a green power option (ICLEI, 2000). The CCP campaign, through the local emissions inventory, raised awareness among city officials of the relationship between electricity power sources and local issues, such as air quality (including GHG emissions) (Young, 2000).

Role of State and National Policies

Despite the progress being made in some US cities, it is clear that an effective international effort to mitigate global climate change must ultimately involve all levels of government and society.⁵ Many GHG-producing activities are outside the jurisdiction of municipal governments. For example, most major US cities must contend with regional transportation issues that involve dozens of municipal governments. Any effort to reduce traffic congestion and/or improve alternative transportation options must be co-ordinated at the regional level. Similarly, municipal governments may be unable to alter the practices of local businesses headquartered in other locations (Wilbanks & Kates, 1999).

Most US cities also have limited control over local utilities and are thus unable to induce energy conservation and/or fuel switching by energy providers (DeAngelo & Harvey, 1998; Kates & Torrie, 1998). Where local utilities are municipally owned, city governments are able to influence investments in alternative energy sources as well as pricing, both of which could serve to reduce the contribution of GHGs from this sector (OECD, 1995; Collier & Lofstedt, 1997). For example, the cities of Seattle, WA, and Austin, TX, both of which have municipally owned utilities, are currently working to increase green power options in their communities (Austin Energy, 2000; City of Seattle, 2000). In the absence of municipal ownership, city governments can send market signals to local utilities in the form of demand for green power. Ultimately, however, national regulations will also be necessary to encourage large-scale energy conservation and fuel switching (Harvey, 1993; Kates & Torrie, 1998).

Conclusion: ‘think locally, act locally’

All levels of government and society must be actively involved in efforts to control GHG emissions “so that complementarity and mutually reinforcing measures are concurrently implemented” (DeAngelo & Harvey, 1998, p. 134). Although municipal governments will not hold back global warming by themselves, it is clear that they have the potential to make a contribution to international efforts to mitigate climate change and must be encouraged to do so. Ironically, the findings of this study suggest that the most effective way to get municipal governments to mitigate global climate change is by *not* talking about global climate change; the best strategy may be to ‘think locally, act locally’. The experience of CCP communities indicates that global climate change is most likely to be reframed as a local issue when city officials recognise that actions to control GHG emissions also address other local concerns already on their agendas. Localisation requires the prior existence of a local hook on which to hang the issue of global climate change.

Localising global climate change is an important first step in developing a municipal response to global warming; it helps generate political support for reducing local GHG emissions. However, not all communities are able to move from reframing to policy action. There are several institutional barriers that make it difficult for cities to develop and implement policies and programmes for mitigating climate change: the issue does not fit the way most city governments organise themselves; many city governments lack the administrative capacity to monitor their GHG emissions; and there are often budgetary constraints that make it difficult to invest in emissions reduction activities.

Ultimately, motivating local action to mitigate global climate change calls for an indirect strategy, focused on the ways in which emissions-producing activities are embedded in broader community concerns (Rayner & Malone, 1997). The primary benefit of an indirect approach is that it avoids many of the political debates about climate change science that have plagued international efforts to address this issue (Sarewitz & Pielke, 2000). Several officials noted that it really does not matter whether global climate change science is credible. Since the emphasis is on how reducing GHG emissions can help the city address other (more pressing) problems, questions of the scientific basis for climate change rarely come up. When and if they do, city officials can easily reply that these are actions they should take anyway.

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development of the project. She is deeply grateful to the individuals interviewed for the project, who were generous with their time and resources.

Notes

- [1] It is important to note that this is not the only example of local concern with global climate change. A number of other national and international associations for local governments have also put climate change on their agendas. These include the International City/County Management Association, Climate Alliance (Europe), the US Conference of Mayors and the State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials (STAPPA/ALAPCO).
- [2] Participants in the Urban CO₂ Reduction Project included: Ankara, Turkey; Bologna, Italy; Chula Vista, USA; Copenhagen, Denmark; Dade County, USA; Denver, USA; Hanover, Germany; Helsinki, Finland; Minneapolis, USA; Portland, USA; Saarbrücken, Germany; Saint Paul, USA; and Toronto, Canada.
- [3] The following discussion draws heavily on 27 semi-structured interviews with officials in five CCP communities (Denver, CO; Milwaukee, WI; Madison, WI; Fort Collins, CO; Cambridge, MA) and one non-CCP community (Indianapolis, IN). The author also interviewed regional climate change co-ordinators for the USEPA as well as the head of the USEPA's State and Local Climate Change Program and the recruiting director for the US ICLEI CCP campaign. In addition, she attended a 1-day workshop in Cambridge, MA, on 'Climate Protection: what you and US cities can do' (see Betsill, 2000).
- [4] An exception (and a question for future research) may be coastal communities with clear vulnerabilities to the potential impacts of climate change.
- [5] By 'effective' is meant that atmospheric GHG concentrations are stabilised.

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