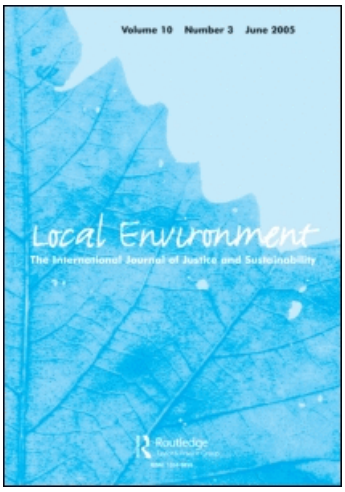

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GUEST EDITORIAL

Looking Back and Thinking Ahead: A Decade of Cities and Climate Change Research

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To many observers of climate change politics, 1997 was an important milestone because of the completion of the Kyoto Protocol negotiations. With considerably less fanfare, 1997 was also the year in which *Local Environment* published its first article on the topic of cities and climate change (Collier 1997). By 1997, there was a growing movement of sub-national governments and local communities working to place climate change on the local agenda. These efforts were facilitated by the creation of three transnational city networks—Climate Alliance, Cities for Climate Protection (CCP),[1] and Energie-Cités—with several hundred members concentrated in North America and Europe. A decade later, the networks of communities, cities and states responding to climate change have multiplied. Existing networks have increased and diversified their membership. For example, the CCP network now has campaigns in South America, South East Asia, Australia and Japan involving over 650 local governments. New networks have also been established. Mirroring the G8 meeting in the UK in 2005, the Mayor of London hosted a meeting of twenty large cities from around the world seeking to act on climate change. In May 2007, forty large cities, under the auspices of the C40 Cities Climate Leadership Group and sponsored by the Clinton Climate Initiative, met in New York to discuss their role in mitigating climate change. While the framework of international negotiations remains important, cities are now acknowledged as a critical arena in which the governance of climate change is taking place.

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It has been in the pages of *Local Environment* that the most sustained analysis of this phenomenon has taken place over the past decade.[2] Early interventions in the academic debate focused, understandably, on making the case for the local dimension of climate change. These papers addressed a number of critical issues including: 1) the extent to which local governments have the jurisdictional scope to influence emissions of greenhouse gases (Collier 1997; DeAngelo and Harvey 1998); 2) the sectors within which local governments have capacity to reduce emissions of greenhouse gases (Collier 1997); 3) examples of actions being undertaken at the local level (Collier 1997; DeAngelo and Harvey 1998; Agyeman et al. 1998; Easterling et al. 1998; Angel et al. 1998; Kates et al. 1998); and 4) the means through which local governments can audit their progress towards targets for emissions reductions (Agyeman et al. 1998; Easterling et al. 1998; Kates et al. 1998).

This special issue is an opportunity to take stock of the academic debate on cities and climate change. Looking back over the past decade, we see that the topic has become accepted as a legitimate area for research. The international research community has recognized that there is an important local dimension to climate change policy as evidenced by the continued debate in *Local Environment* (Ackerman 2000; Allman et al. 2004; Betsill 2001; Davies 2005; Darier and Schüle 1999; Lindseth 2004; von Seht 2002; Wall and Marzall 2006; Wilson 2006; Yarnal et al. 2003) and elsewhere (Bulkeley and Betsill 2003, 2005; Bulkeley and Kern 2006; Dhakal 2004, 2006; Kousky and Schneider 2003; Lindseth 2005), as well as the emergence of the Urban and Regional Carbon Management research community (see Betsill and Dahkal this volume). In addition to documenting the myriad ways in which local authorities have engaged the issue of climate change over the past decade, the research agenda has shifted toward a more systematic analysis of the processes, drivers and barriers involved in mitigating climate change at the local level, and have started to acknowledge the critical issue of adaptation. The papers in this special issue seek to further these debates. Though much has changed, three key issues identified in the early contributions in *Local Environment* remain critical to the study of cities and climate change: the multi-level nature of climate governance; the role of knowledge in local climate policy; and the stubborn gap between the rhetoric and reality of local climate policy. In the remainder of this editorial, we demonstrate how the contributions to this special issue address these three key issues before concluding with our perspective on the future research agenda in this field.

Multilevel governance and policy fragmentation

One of the most important contributions of the academic research on cities and climate change has been to highlight the dispersed nature of climate change governance. While most have focused on the international level as the primary locus of climate change governance, Collier (1997: 40–41) called attention to the role of local authorities in climate protection and placed her analysis of local climate change actions in the European Union within an explicit 'multi-level policy framework'. The current literature on

multilevel governance often distinguishes between two types of multilevel governance (Hooghe and Marks 2003). Type I conceptions emphasize the multiple tiers at which governance takes place, typically differentiating between administrative units (e.g. cities, states, countries) where governments are the central governing authority. Type II forms of multilevel governance are dominated by networks between public and private actors across levels of social organization.[3]

The nature, opportunities and constraints of Type I multilevel governance for local climate policy has been a recurring theme in the debate. In some cases, researchers have highlighted a shift from the national to the local level as the central site for climate governance. For example, Knuth et al.'s contribution to this volume draws attention to the various types of local and regional actors in the United States, including universities, that are attempting to fill the void left by the absence of leadership at the federal level. More commonly, the scholarly debate has focused on the vertical interactions between different levels of government as a factor shaping the capacity for local climate change governance. For example, DeAngelo and Harvey (1998) explored in some detail the implications of different degrees of 'vertical autonomy' between local, regional and national governments on the capacity of cities to address emissions of greenhouse gases. Similarly, Knuth et al. (this volume) argue that 'in the type of bureaucratic control universities exert over emission-producing activities and their level of autonomy to implement emission reduction programs, universities have powers equal to or exceeding those exercised by city governments.' Where different levels of government are not autonomous, vertical linkages can be enabling or constraining in terms of local climate protection. For example, Granberg and Elander (this volume) find that the Swedish government have created an enabling context for local action, with the provision of dedicated funds. Parker and Rowlands' (this volume) study examines the response of local authorities when the Canadian federal government cancelled the EnerGuide for Houses program which was central to local efforts to enhance energy efficiency and control GHG emissions. Rather than being held hostage to the whims of 'higher' levels of government, municipalities in the Waterloo region were able to join forces and develop partnerships with local utilities to continue the program.

All of the contributions to this volume call attention to the prominence and importance of Type II forms of multilevel governance in local climate protection. Collier (1997: 44–45) raised the importance of transnational networking as a process of policy co-ordination, facilitating the exchange of information and experiences. In this volume, Granberg and Elander suggest that 'networking within and across municipal borders has become commonplace in local and regional climate change governance' (see also Young 2007). Other papers reflect this theme, with the ICLEI Cities for Climate Protection network being influential in the development of local climate change policy in Mexico (Romero-Lankao, this volume), South Africa (Holgate, this volume), Canada (Parker and Rowlands, this volume) as well as Sweden (Granberg and Elander, this volume). However, transnational networks are not the

only, or even the most important, form of co-operation. While in Sweden, 72% of authorities co-operate in a dedicated climate change network or a network which covers climate change issues, most frequently this takes place at the national rather than international scale (Granberg and Elander, this volume). At the same time, partnerships between public and private actors around particular projects are becoming a key feature of local climate change policy. For example, Holgate (this volume) found that the city of Cape Town has benefited from a partnership with the University of Cape Town's Energy Research Center, which has conducted research on climate and energy issues for the local government, and with the local utility (Eskom), which has been key in reducing peak energy demand.

Despite these attempts to 'join up' climate change governance across levels of social organization, climate policy often remains fragmented at the local scale. The papers in this volume document how attention remains fixed on issues of energy demand reduction, rather than tackling harder issues including transport and adaptation to the impacts of climate change (Granberg and Elander, Storbjörk). At the same time, the cross-cutting nature of climate change governance poses problems for the institutional make up of local government, resulting in a lack of 'fit' between the nature of the problem to be governed and the institutions undertaking governance. In Mexico City, the 'administrative structure of city's governance differs from its boundaries and carbon-relevant socioeconomic and ecological functioning', leading to a lack of fit which has hampered local efforts to address climate change (Romero-Lankao, this volume). This problem can be exacerbated by institutional change. In Johannesburg a process of 'semi-privatisation' has occurred within the local authority which 'creates a silo effect where communication between different agencies, utilities and the city administration are fragmented' (Holgate, this volume). While solutions to problems of fit are often sought through deploying the sorts of strategies for multilevel governance discussed above, where there is a lack of capacity to do this joining up it is clear that the potential of local climate change strategies is curtailed.

Knowledge-policy interfaces

A second key theme in research on cities and climate change has been the role of knowledge in shaping policy. Several of the early contributions linked emissions profiles from specific cities to the different policy challenges with which local authorities are confronted in attempting to reduce emissions of greenhouse gases (Angel et al. 1998; DeAngelo and Harvey 1998; Kates et al. 1998). In policy circles, the importance of getting this 'technical' knowledge (Holgate, this volume) right has been seen as a critical foundation of successful climate protection policies. Transnational networks have invested heavily in creating tools through which local authorities can create emissions inventories and forecasts, in order to determine where policy interventions are likely to have the most success. The papers in this volume suggest that this technical knowledge does indeed count when it comes to making a

difference locally. In their case-study of University Park, Penn State, Knuth et al. (this volume) found that the production of an emissions inventory both 'laid important groundwork for Penn State's subsequent mitigation efforts by revealing substantial historical and projected growth in University Park's annual GHG emissions' and built 'an important working relationship with university stakeholders, creating a shared body of knowledge' about local emissions (see also Holgate, this volume). At a different scale, Parker and Rowlands (this volume) argue that the process of undertaking household energy audits provides knowledge about 'which investments would offer the greatest return in energy savings' and has led to previously overlooked actions being undertaken.

Acknowledging the role of specific actors in producing knowledge for climate policy, it becomes clear that this is not a neutral, value-free process. Romero-Lankao (this volume) documents the important role of epistemic communities and policy networks in Mexico City where climate change was framed as a local issue by expanding conceptions of urban air pollution, giving it policy traction which it might otherwise lack. Yet, as she argues 'the influence of these groups, individuals and networks should not be overestimated. Although these groups have been crucial at enhancing a learning process, they have not been able to push effective policy actions' (Romero-Lankao, this volume). In Sweden, Storbjörk (this volume) documents how the process of determining the nature of flood risk has been fundamental to the process of attributing responsibilities for acting on the potential impacts of climate change. As she argues, in a context where 'what flood risks one is actually trying to adapt to and what risk-levels are seen as reasonable is far from evident', there is a lack of willingness to address the adequacy of the knowledge underpinning risk management leaving questions of responsibility for outcomes hanging in the air (Storbjörk, this volume). Granberg and Elander (this volume) make a similar argument in the same context, suggesting that the uncertainty of climate change risks is traded against the certain economic rewards of continued waterfront development. As we have suggested elsewhere, 'rather than being a technical issue, of the need for more information or better practice ... the interpretation and implementation of climate protection locally is a political issue, where different actors and groups seek to have their understanding of the problem, and its solutions, acted upon' (Bulkeley and Betsill 2003: 185).

Rhetoric or reality?

A third issue which has dominated the debate on cities and climate change over the past decade has been the persistent 'gap' between the policy discourse of the relevance and importance of local action for climate protection and the reality on the ground. Collier (1997) identified three factors as influencing the level of engagement and action among European municipalities – the history of engagement with environmental issues locally, the nature and extent of local competencies in climate-related policy sectors, and the availability of financial resources. Similarly, our study of local climate protection

in Australia, the UK and the US found that the presence of political champions, access to financial resources, local government competencies and capacity, local issue framing, and political will to address emerging conflicts were the key factors affecting the extent to which the rhetoric of climate policy was translated into local realities (Bulkeley and Betsill, 2003).

To some extent, these early arguments regarding local government capacity are reinforced in the contributions to this special issue, especially in those studies focusing on policy development at the municipal level. In South Africa, (Holgate, this volume), the 'primary difficulty cited by Johannesburg officials is a lack of capacity, where the city official charged with overseeing climate change policies and the ICLEI CCP program is also responsible for waste, air and water quality management of the city'. In Mexico City, various capacity issues including personnel and funding are also critical (Romero-Lankao, this volume). Granberg and Elander (this volume) point to the importance of national level funding in promoting local action but at the same time how the competitive nature of this funding, and the need to provide matching resources, means that those municipalities without the capacity to bid for resources remain outside the climate change loop.

Alongside these issues of capacity and resources, the papers in this volume point to the importance of how climate change is framed locally, and the political battles which are being fought as appropriate responses to climate change risks are being sought. Here, a critical issue is the extent to which climate change is prioritised in relation to other social and economic concerns. In terms of considering the potential impacts of climate change, Storbjörk (this volume) points out how 'overcoming event-driven risk management and it-won't-happen-here-mentalities ... illustrates difficulties in gaining and maintaining political priority in competition with other pressing local issues.' These conflicts may be particularly strong in cities in the global South where officials must confront issues of poverty and unemployment as well as more traditional 'local' environmental concerns such as air and water quality (Holgate this volume; Romero-Lankao this volume). The contributions to this special issue reinforce the need to reframe global climate change as a local issue, often by linking it to problems already on the local agenda. In Mexico City, this has meant addressing greenhouse gas emissions as part of a broader strategy to combat air pollution (Romero-Lankao this volume). An unexpected energy crisis in Cape Town provided a window of opportunity for local officials to partner with the local utility to reduce energy demand and promote energy efficiency (Holgate this volume). This strategy appears to be particularly important in cases where there is an absence of leadership from the national government.

While these and other previous contributions to the debate on cities and climate change clearly identify a gap between words and action, other contributions to this special issue suggest that the picture is not so clear. Those papers which focus on the processes of project implementation – be that in relation to household energy conservation (Parker and Rowlands, this volume) or emissions reductions at the campus and community levels in

the US (Knuth et al. this volume) – are able to point to concrete changes in policy and process, with resulting emissions savings.

Research agendas

Over the last decade, academic research has helped to consolidate our understanding of the role of cities in addressing climate change. In both the scholarly debate and in practice, cities have been recognized as an important site of climate governance. As discussed above, the contributions to this volume help us see how the debate has evolved. They also point to gaps in existing research and new directions for work in this area. In particular, three issues standout: 1) how cities in the 'global South' are responding to the issue of climate change; 2) whether and how local authorities are planning for the impacts of climate change; and 3) the importance of action or community-based research in achieving social change.

To date, the majority of studies have focused on the experience of cities in industrialized countries, leading to the question of whether findings can be generalized to cities in the global South. The absence of research on cities in the global South is somewhat surprising given that local authorities in some of these countries have taken up the issue of climate change through participation in transnational networks such as the CCP. In other words, research lags behind practice on this question. Some inroads have been made, including two contributions to this volume (Holgate and Romero-Lankao) as well as ongoing work by the Urban Environmental Management Program at Japan's Institute for Global Environmental Strategies (e.g. Dhakal 2004, 2006). Interestingly, this work suggests that local authorities in the global South face many of the same obstacles to dealing with climate change as their counterparts in the North (e.g. fundamental issues of capacity, including personnel and budgetary issues; see Bulkeley and Betsill 2003), although it is likely that these challenges are more severe in the South. Not surprisingly, Romero-Lankao (this volume) argues that controlling greenhouse gas emissions in developing country cities is likely to be a low priority given their relatively small contribution to the problem and the myriad other challenges that local authorities must contend with. Similarly, research on cities in the North finds that concern for climate change is rarely the primary driver for local policy action and that many cities are persuaded to control greenhouse gas emissions when doing so will address other issues with which they are already concerned (Betsill 2001). Romero-Lankao (this volume) as well as Dhakal's (2004, 2006) work in Asia, indicate that local concerns with air quality may be a venue for integrating emissions controls into local policy action in cities in the global South.

A second gap in the current academic debate relates to adaptation. The vast majority of studies have examined the ways that local authorities address climate change by seeking to mitigate greenhouse gas emissions. We have a limited understanding of whether and how cities are planning for the impacts of climate change. This research gap is also reflected in policy practice, where 'municipalities seem to give higher priority to mitigation

than to adaptation' (Granberg and Elander, this volume). This observation is somewhat puzzling given that municipalities have a long-standing interest on issues such as health and flood risks (Storbjörk, this volume) and, despite relatively small contributions to overall emissions, cities are likely to be vulnerable to climate impacts (Romero-Lankao this volume). Pielke et al. (2007) argue that there is an urgent need to end the 'taboo' on adaptation in both climate change research and policy circles, and they call for a more integrated discussion of the relationship between mitigation and adaptation in climate protection. Indeed, Storbjörk (this volume) and Granberg and Elander (this volume) both take this approach, noting that mitigation and adaptation are complementary approaches to the problem of climate change.[4] Nevertheless, they suggest that local adaptation efforts may face many of the same obstacles as mitigation initiatives. In Sweden, planning for adaptation to climate-related hazards is hindered by the absence of guiding principles at the national level, lack of technical information about vulnerabilities, and political conflicts over local priorities (Granberg and Elander, this volume; Storbjörk, this volume).

The contributions to this special issue point to a third area for future research. Over the past decade, academic research on cities and climate change has highlighted a number of opportunities and obstacles to local climate change governance, and yet there has typically been a disconnect between scientific research and policy practice. Academic research potentially plays an important role in facilitating local climate action given the findings that local governments often lack the financial resources, technical capacity and staff to develop and implement local climate change policies. Several of the contributions to this volume suggest that there are significant opportunities for action or community-based forms of research in which members of the academic community partner with local stakeholders to identify research needs to address local concerns (see also Moser and Dilling 2007; Whyte 1991). The Centre County Community Energy Project (3CEP) at Penn State University is a particularly creative example (Knuth et al., this volume). 3CEP connects students with local stakeholders through a service-learning course in which students combine academic research with community service. In Canada, the University of Waterloo partnered with a network of community actors through the Residential Energy Efficiency Project to support the provision of energy audits within the Waterloo Region (Parker and Rowlands, this volume). In Cape Town, South Africa, the University Energy Research Center conducts research to help local officials assess the impact of policies on energy use (Holgate, this volume). This type of action research places universities not as a source of 'truth' for 'power', but as a fundamental building block in local strategies for climate protection. We hope that this special issue will contribute towards this movement, and to the greater understanding of how local action can make a difference to this critical global problem.

Notes

[1] A program of the International Council for Local Environmental Initiatives (ICLEI).

[2] Some articles appeared in other publications prior to 1997 (e.g. Harvey, 1993; Lambright et al., 1996). However, since 1997 there has been at least one article every year on the topic of cities and climate change in *Local Environment*.

[3] For a discussion of multilevel governance specific to the issue of cities and climate change, see Betsill and Bulkeley (2006).

[4] For other examples of research on adaptation in the cities and climate change literature, see Wilson (2006) and Wall and Marzall (2006).

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