Revisiting the urban politics of climate change

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Abstract

In our 2005 paper, *Rethinking sustainable cities*, we made a case for the increasing significance of climate change in the urban politics of sustainability. Taking a multilevel governance perspective, we argued that the 'urban' governance of climate protection was not confined to a local arena or to the actions of the state, but rather was orchestrated through the interrelations between global, national and local actors across state/non-state boundaries. In this paper, we revisit these arguments and examine their validity in the light of the rapidly changing landscape of urban responses to climate change and the growing academic literature in this field. We consider in turn: the ways in which climate change is shaping urban agendas; the utility of multilevel governance perspectives for understanding this phenomenon; and the extent to which we can identify a 'new' politics of urban climate change governance and its consequent implications for the development of theory and practice in this field.

Keywords: Urban governance; climate change; multilevel governance; politics; transition

Revisiting the urban politics of climate change

Introduction

During the 1990s, as the scientific community, national governments and international organisations began to negotiate their way through the set of debates that would become known as 'climate change', municipal authorities in Europe and North America also began to mobilise around these issues. In our 2005 paper, *Rethinking sustainable cities: multilevel governance and the 'urban' politics of climate change*, we reflected on this first wave of municipal responses and made a case for the increasing significance of climate change in the urban politics of sustainability. As part of this special issue celebrating the contributions that *Environmental Politics* has made over its twenty-one year history, we revisit this article and consider its salience in a world of urban climate governance that has changed rapidly in the intervening years. Far from being a little known concern amongst a minority of municipalities, the city now looms large on the international climate change agenda. For example, in 2010, the World Bank, for some a bastion of nation-state-focused development, declared that climate change was an 'urgent agenda' for the world's cities (World Bank 2010a). The significant contribution to overall levels of greenhouse gas emissions due to continued lock-in of urban development to high-carbon development paths together with the potential vulnerability of cities to the impacts of climate change has served over the past decade to bring the issue of how cities should and could respond to climate change to the forefront of many global organisations and has provoked renewed efforts at the urban scale to address these challenges.

Revisiting our analysis of the urban politics of climate change, we first summarise the main points of our previous argument, which was based on the analysis of urban responses to climate change in the UK, US and Australia (Bulkeley and Betsill 2003), and focused on case studies of climate change and planning in the UK. We find that while some of the arguments retain their validity, a great deal has changed in the urban climate change landscape and thus there is much to reconsider. In this light, we examine in the rest of the paper the ways in which new developments such as the expansion of urban climate responses to a broader range of cities and a more strategic approach to municipal climate action challenge our original analysis and the multilevel governance perspective on which it was based. We conclude by considering the implications for the development of theory and practice in this field.

Reconsidering sustainable cities and the multilevel politics of climate change

Our analysis of the emergence of climate change on urban research and policy agendas during the 1990s and early 2000s started from a curious paradox. While the discourse of sustainable cities had provoked significant interest in how cities might be implicated in, and respond to, global environmental issues, much of the analysis of how this took place was grounded in what Marvin and Guy (1997, p. 312) refer to as a 'new localism', a framework within which the 'locale is seen as a socio-spatial container in which the sum of institutional, social and physical relations necessary to achieve a more sustainable future can be found'. This framing, we argued, was limiting our understanding of the ways in which wider social, economic and political processes serve to configure the possibilities of urban sustainability in general, and of climate change responses in particular. Seeking to 'step beyond the local as a frame of reference' (Bulkeley and Betsill 2005, p. 48), we proposed that perspectives being developed to understand processes of 'multilevel governance' could provide a useful means through which to understand 'why moves towards urban sustainability are, and are not, taking place' (Bulkeley and Betsill 2005, p. 48). As originally developed by Hooghe and Marks (2001) multilevel governance is seen as comprising two, related, sets of processes: *Type I* which involves the negotiation of authority and competencies between different levels of government; and *Type II*, where multiple overlapping and interconnected horizontal spheres of authority are involved in governing particular issues. Such an approach, we suggested, held out the promise of being able to take into account the multiple sites and processes through which urban responses to climate change were configured and contested.

We focused on two cases in the UK: urban planning in Newcastle and transport planning in Cambridgeshire. In both cases we found that while issues of local institutional capacity and political conflicts were important in shaping the gap between the growing rhetoric of the need for sustainability and urban development realities, the most significant dynamics exceeded any purely local framing. We suggested, instead, that a multilevel governance approach could provide insights into the two key factors which determined the ways in which the rhetoric of climate protection was interpreted and implemented – the powers and competencies of local government, and the discursive struggles through which urban problems were defined. The Type I perspective helped us to analyse how, why, and with what effect, competencies for governing climate change were shared between different hierarchical levels of government, as well as to the disjuncture between the formal attribution of competency (e.g. to local authorities for the implementation of hard 'demand management' measures in transport planning) and the de facto sense of what it was, and was not, possible

to do at a level (where, in Cambridgeshire, managing demand was regarded as a challenge that could not be undertaken in the context of continued economic growth). Our analysis found that it was the ways in which urban development and transport planning were framed and defined that was critical in determining how climate change was taken into account. Here, we found that 'these discourses were constructed through coalitions of actors and institutions which stretch over multiple sites and scales' (Bulkeley and Betsill 2005, p. 57), including local authorities, dominant local business interests, labour unions, national policy-makers, and transnational corporations. In both cases, we found that these 'spheres of authority', which were constituted through sets of social, economic and political relations that cut across scales, served to sideline issues of climate protection and urban sustainability.

This analysis led to two important conclusions. First, that the governing of climate change is not confined to arenas of international negotiation or national policy making, but is also a critical urban issue. Second, that the 'geographical imaginary' of environmental politics, where discrete local, national and international arenas operated in parallel, needed to give way to an account which recognised the complex vertical linkages between state institutions and the emergence of new political spaces which exceed this lexicon (see also Adger *et al*. 2003, Bulkeley 2005). Reflecting on our analysis and these conclusions after a decade of subsequent research in the field gives us the opportunity to consider their validity in the light of the rapidly changing landscape of urban responses to climate change. Here, we focus on three particular facets of the argument. First, we discuss the ways in which the urban climate change agenda has evolved over the past two decades and the consequent implications for how we should engage with the urban politics of climate change. Our paper was based on research which predominantly took place during the late 1990s, and the world of urban climate responses has shifted significantly since that time in ways that raise important challenges for our analysis. Second, we reconsider the utility of multilevel governance perspectives for understanding urban climate change responses. Reviewing different ways in which the concept has been deployed, we examine its shortcomings and future potential. Third, we consider the extent to which we can identify a 'new' politics of urban climate change governance and its consequent implications for the development of theory and practice in this field.

The rise and rise of the urban climate change agenda
Given the current ubiquity of narratives concerning climate change, whether that be with respect to vulnerability and resilience, or to forms of low carbon development and transition,

within urban arenas it is hard to imagine that just a short decade ago such agendas were far from common place. Although the rhetoric of sustainable development had taken hold on urban agendas in some cities by the late 1990s, few engaged with the more abstract issue of climate change. With the benefit of hindsight, we can see that the dynamics of the urban response to climate change can be considered in two phases. The first phase, which can be termed one of *municipal voluntarism* (Bulkeley 2013), involved predominately small and medium sized cities in North America and Europe and was characterised by individuals within municipal authorities recognising the potential significance of climate change and offering some form of response. The transnational municipal networks which dominated activity during this time – ICLEI's Cities for Climate Protection programme, the Climate Alliance and Energie-cities (Betsill and Bulkeley 2004, Kern and Bulkeley 2009) -- were in this sense reminiscent of social movements with their focus on gathering intentions, knowledge and purpose towards common goals. Further, in seeking to respond to climate change, these networks and those pioneering cities with the resources and political will to do so sought to develop tactics that were based on an integrated, evidence-based, approach to climate planning and policy, and coincident with the broader direction of local governance within which accounting for performance was ever more important (Pierre and Peters 2000). The number of cities engaged with climate change grew through the 1990s and participation expanded to Asia, Australia, and Latin America. Reported actions were primarily focused on the reduction of GHG emissions from within municipal operations – a 'self-governing' approach (Bulkeley and Kern 2006), albeit one that has led to new mechanisms for financing projects, accounting for carbon, the deployment of novel technologies, and a growing political awareness about the issue of climate change (Allman *et al*. 2004, Betsill and Bulkeley 2007, Kousky and Schneider 2003, Schreurs 2008).

In seeking to roll-out comprehensive approaches to addressing climate change across urban communities, municipal governments sought to 're-frame' climate change as an issue through which other significant local agendas – air pollution, health, congestion, energy security and so on – might be addressed (Betsill 2001). Where action was forthcoming, lacking the political will and competencies to introduce new forms of regulation and having a minimal role in how critical infrastructure systems and utility services were provided, in the main, municipal governments sought to develop an enabling mode of governing through which business and communities were encouraged to act in, and on behalf of, the city (Bulkeley and Kern 2006). Taken together, the challenges of institutional capacity and of political economy that were encountered as authorities sought to engage in responding to

climate change beyond their own operations led to a more piecemeal and opportunistic approach than originally envisaged. While some cities were able to develop sufficient capacity and political will to overcome such barriers and to draw others together to sustain a programmatic approach to climate change in the city, many witnessed a growing gap between the rhetoric of a need for an urgent response and the realities of governing climate change on the ground.

The emergence of a second phase of urban response to climate change came, in part, from the challenges encountered during this initial decade. By the early 2000s, municipal authorities and other urban actors were engaged in a more overtly political approach, one of *strategic urbanism*, in which climate change became integral to the pursuit of wider urban agendas (Hodson and Marvin 2010, While *et al*. 2010). While municipal voluntarism remains a dominant response to the climate change problem, especially amongst smaller cities, this new phase can be regarded as creating an additional form of climate politics. This political shift was notable in the US where the growing intransigence of the George W. Bush administration with regard to climate change led some progressive municipal governments to form the US Mayors Climate Protection Agreement (Gore and Robinson 2009). While it was in 2000 that the US Conference of Mayors first noted the significant role that mayors could take in addressing climate change, it was in 2005 that the Mayor of Seattle, Greg Nickels, challenged mayors across the US to take action on the issue (Gore and Robinson 2009, p. 142). Following an initial agreement amongst ten of the leading US cities on climate change, a further call to action attracted over 180 mayors and by 2011 over 1000 mayors had signed up to the Climate Protection Agreement (Gore and Robinson 2009, p. 143). This approach of engaging locally elected politicians with the climate change agenda has been replicated globally, most recently with the launch in 2009 of the European Covenant of Mayors, which requires signatories to pledge to go beyond the EU target of reducing CO_2 emissions by 20% by 2020 through the formation and implementation of a sustainable energy action plan (Covenant of Mayors 2011a) and in 2011 has more than two thousand members (Covenant of Mayors 2011b). In each case, members have sought to raise the profile of cities in national and international climate debates and to put pressure on national governments (especially the US) to take more robust action.

This more overtly political stance is also evident in the engagement of global cities with the climate change agenda, primarily in the form of the C40 Cities Climate Leadership Group. This network was instigated by the then Mayor of London, Ken Livingston and his Deputy, Nicky Gavron, together with The Climate Group, a not-for-profit organization based

in London, and formed by 18 cities in 2005 as a parallel initiative to the Group of Eight (G8) Gleneagles summit on climate change. In 2007, this network entered into a partnership with the Clinton Climate Initiative (CCI) and expanded its membership to include 40 of the largest cities in the world (Ostrom 2010). Through such networks, and also on their own initiative, there is evidence that a broader range of private sector interests are becoming involved in urban climate governance. For example, the C40 network is collaborating with Microsoft to produce software for greenhouse gas emissions accounting at the city scale and HSBC's Climate Change Partnership involves activities in five of its global centers – New York, London, Hong Kong, Mumbai and Shanghai. This phase of urban climate change response is characterised by new modes of governance. While enabling as a mode of governance is still central, it is also characterised by a growing reliance on different forms of 'partnership', or the blending of public and private authority, and a renewed interest in the ways in which both public and private actors might provide new forms of low carbon and resilient infrastructure in cities (Hodson and Marvin 2010, Coutard and Rutherford 2011, Hoffmann 2011). Together with the renewed expansion of the existing transnational climate networks, these new developments have been one of the factors that has led to a growing engagement with issues of climate change in cities in the Global South (Bulkeley *et al.* 2009, Aylett 2011, Hardoy and Romero Lankao 2011; Kiithia 2011). While these networks have continued to focus on climate mitigation, adaptation is increasingly on the urban agenda. Existing networks, most notably ICLEI, have begun to focus on climate adaptation and are seeking to engage cities through the concept of 'resilience', while the Asian Cities Climate Change Resilience Network, funded by the Rockefeller Foundation, has been established precisely to promote urban responses to climate change which focus on this issue (Satterthwaite *et al.* 2008, Anguelovski and Carmin 2011, Solecki *et al.* 2011).

The types of cities and responses to climate change that now characterise the urban climate governance landscape is therefore markedly different from those upon which our analysis was based in the late 1990s and early 2000s. In keeping with the *municipal voluntarism* that characterised the period of our analysis, we focused on the ways in which municipal authorities were seeking to use existing policy and planning processes to respond to climate change, and the emerging conflicts between environmental and economic interests that this provoked. As responding to climate change has in some cities become both a more strategic concern within urban authorities, and a more mainstream economic issue, the extent to which political conflicts would now be manifest in this way is open for debate, an issue to which we turn in more detail below. In addition, it raises fundamental issues about what

might be constituted as 'urban' environmental governance. For example, critical in reshaping this landscape has been the rise of carbon markets and carbon finance. For some cities, carbon markets are seen as a means of securing resources and advancing their local agendas and they are engaging in markets in many different ways (Betsill and Rabe 2009, While *et al*. 2010). In mandatory emissions trading markets such as the EU ETS and the Regional Greenhouse Gas Initiative in the US, regulated entities are often located in urban sites providing the opportunity to finance local emissions reductions through the sale of permits. A number of municipalities were members of the Chicago Climate Exchange, a voluntary but legally binding emissions trading system which was in operation from 2000-2010. For some, the incentive was to gain experience on accounting for emissions reductions so that they would be positioned to take advantage of market opportunities down the road. A few cities have used the Kyoto Protocol's Clean Development Mechanism to finance emissions reduction activities. For example, Sao Paulo has a CDM registered landfill gas capture project that was financed by public and private partners, with the proceeds being split evenly between them and the public share being reinvested in social and environmental projects across the city (Puppim de Oliveira 2009, Setzer 2009). However, few CDM projects are of this nature and there are limited opportunities for projects in high priority areas such as building energy efficiency or transport while accessing the CDM requires existing capacity in accounting for emissions (World Bank 2010b). Few cities have directly implemented the principles of carbon markets within their own jurisdictions. For example, the City of Tokyo is the first city to implement an emissions trading scheme at the urban scale. While cities are not necessarily major players in global carbon markets, the presence of carbon markets does seem to be reshaping the ways in which cities think about climate action. The growing influence of carbon markets and carbon finance on urban climate governance lends further weight to our original argument that it is not possible to consider such processes as operating purely within a local sphere. Any such 'localist' framework would obscure not only direct lines of investment and influence, but the broader political economies of which urban responses are a part. At the same time, the emergence of carbon markets as one field within and through which municipal urban responses are being governed is one factor that raises additional questions as to whether 'multilevel governance' perspectives can sufficiently capture the processes at work, and it is to these reflections that we now turn.

Multilevel explanations?

As outlined in brief above, our original analysis of the urban politics of climate change engaged the conceptual vocabulary of multilevel governance in order to understand the ways in which resources, competencies and power were distributed both 'vertically' between levels of government and 'horizontally' through other spheres of authority and the consequent effects on urban climate governance. While scholars working in the field of cities and climate change had previously identified these issues as critical in shaping local capacity to respond to the issue (Lambwright *et al*. 1996, Collier 1997, DeAngelo and Harvey 1998), engaging the concept of multilevel governance provided a coherent framework within which to analyse these issues and to point to the critical ways in which climate change is constituted as a political problem through this web of socio-spatial relations. Analysts have since deployed these concepts to good effect to assess the ways in which urban climate governance is shaped and contested. One important direction that this analysis has taken is to analyse the ways in which 'network' forms of governance are accomplished in the absence of formal processes of enforcement and of sanction. Here, analysis has focused on the opportunities that networks provide – for accessing resources, sharing knowledge, exhibiting political leadership, for example – that are critical in providing the incentives for municipalities to join and in sustaining networks over time. In Sweden, Mexico and South Africa, research has demonstrated the importance of access to climate change knowledge and to financial resources that networks provide, but highlighted the importance of the national and local institutional contexts within which such networks are operating in shaping their ability to achieve change on the ground (Granberg and Elander 2007, Holgate 2007, Romero Lankao 2007).

At the same time, however, research has pointed to the very different logics that can underpin urban transnational climate networks, from forms of technical leadership in the case of the Cities for Climate Protection programme which Toly (2008, p. 350–351) suggests serves to promote 'neoliberal ecopolitical principles' to forms of 'norm entrepreneurship' in the case of the International Solar Cities programme within which more ambitious and radical goals are expressed. There are therefore important differences in the types of politics being promoted through networked forms of urban climate change governance, which are also unevenly experienced within networks. Kern and Bulkeley (2009, p. 316) find that 'in large networks like the Climate Alliance, the majority of the member cities are relatively passive. Membership in this case may be only symbolic', creating an inner core of active cities that participate in the internal governance and strategic development of the network and a large periphery who may be only partially engaged by network discourses and practices. Writing in

reference to three such networks in Europe, they conclude that 'networks are networks of pioneers for pioneers', contributing to the uneven landscape of urban climate governance across the region (Kern and Bulkeley 2009, p. 329).

In terms of 'vertical' or Type I forms of multilevel governance, scholars have examined the ways in which relations between local, regional and national state authorities have structured the scope for urban responses (e.g. Betsill and Bulkeley 2006, Romero Lankao 2007, Corfee-Morlot *et al*. 2009, Betsill and Rabe 2009, Puppim de Oliveira 2009, Gustavasson *et al*. 2019). This work demonstrates significant variation in the competencies and autonomy of municipal authorities between nation-states and, as we found in the cases of Newcastle and Cambridgeshire, across sectors(Bulkeley 2010; Monni and Raes 2008). However, despite the recognition of the importance of a degree of support for local action at higher levels of authority, evidence also shows that this is not a necessary condition for local action. In both the US and Australia, declarations of intent to address climate change grew most rapidly in the face of the reluctance of federal administrations to address the issue (Gore and Robinson 2009).

For many analysts, therefore, the multilevel governance framework has provided a useful means through which to assess formal divisions of responsibility and resources, as well as to understand how ideas and norms are mobilised to create particular conceptions of the climate governance problem and the relevant scope of urban responses. Reflecting on this body of work as well as our own contribution, however, there are two critical issues which warrant further exploration. First, despite the avowed concern with multilevel *governance*, analysis of urban climate change responses has placed municipal authorities at the heart of the analysis. Given, as discussed above, the growing role of carbon markets and non-state actors in the urban governance of climate change, this raises a significant challenge. At the same time, authors have begun to suggest that it is in the very process of governing climate change that forms of multilevel governance − in terms of new sphere of authority and new roles for different levels of government − are being forged. In Sweden, for example, Gustavsson *et al*. (2009, p. 70) find that 'climate networks and other networks are relatively self-governing, with collective actors challenging the territorially bounded, vertical, nature of central - local government relations', so that they can be regarded not only as a reflection of the 'rescaling of statehood' but fundamental to that process. For While *et al*. (2010) the process by which climate change comes to matter within urban and regional agendas is more fundamental, reflecting a current phase of eco-state restructuring within which 'carbon control' takes centre stage. Such analyses pose significant challenges for those broadly based

within a multilevel governance framework within which, rather curiously, relations between different parts of the state and other spheres of authority, are regarded in rather static terms.

Second, although the framework allows for an engagement with the multiple means through which climate change comes to be constructed or contested, in the main analysis has remained focused on the core policy areas within which climate change has come to be understood – for example, energy, transport, housing and waste. To date, there has been limited engagement with the ways in which, say, the activities of small and medium sized enterprises, the urban investment strategies of major companies and donors, or other processes that govern production and consumption, may serve to sustain, limit or contest urban climate responses. One example that has recently been highlighted is the limited extent to which studies of the multilevel governance of urban climate change responses has engaged with the dynamics of urban infrastructure systems (Monstadt 2009, Bulkeley *et al*. 2010). These 'socio-technical' systems are critical for they:

> structure a major part of the material metabolism in industrialized societies. They source, use, and transform huge amounts of natural resources. At the same time they are key catalysts of environmental problems like air, water, and soil pollution, and nuclear risks, and they make a major contribution to global warming' (Monstadt 2009, p. 3).

Scholars concerned with examining the role of urban infrastructure networks in shaping the contemporary urban condition have pointed to the ways in which related processes of liberalization, privatization, new technologies and regulatory ambitions have served to create a 'splintered' urban landscape across, in particular, cities in North America and Europe which used to be dominated by a universal model of service provision (Graham and Marvin 2001, Coutard and Rutherford 2010). The implications of such transformations, structured through processes of globalization, relations between financial markets and political authorities, and across different levels and sites of regulation and innovation, for urban responses to climate change have barely been articulated through the multilevel governance lens.

Despite its role in extending the horizons through which we can consider the urban politics of climate change, the overtly 'statist' focus of many multilevel governance analyses and their continued concern with the direct means through which climate change is governed may serve to limit its utility. While national and regional institutional and political contexts will continue to shape what it is and is not possible to address in climate change terms locally, the increasing complexity and fragmentation of climate governance suggests that

there is a growing need to engage more critically with where the authority and capability for addressing climate change as an urban problem lie. Further, while in our analysis we sought to demonstrate how the ability to govern climate change in both Newcastle and Cambridgeshire was constituted through the bringing together of discourses and resources from across these different political arenas, curiously for many analysts it appears that the framework provides a means through which the taken for granted divisions between the local, national and international on the one hand, and the public and private, on the other, can be maintained. As suggested above, new work in this field fundamentally challenges this assumption, suggesting that climate change is an arena within which what it means to be the state, and indeed the non-state, is being configured and contested (Bulkeley and Schroeder 2012).

A new politics?

As intimated above, the development of urban responses beyond the narrow confines of the municipality and municipally led policy and planning processes to include a range of actors, sites and processes through which climate change is being addressed serves to extend the political arena within which urban climate change responses need to be considered. In our original analysis, the boundaries of what might constitute urban climate politics were rather neatly drawn around municipalities and the protagonists on either side of a discursive and material battle to define and confine the climate change agenda. As the previous sections have made clear, the landscape of urban climate change responses now far exceeds these battle lines. In this sense, then, we can determine that there is a 'new' politics of climate change emerging in the urban arena, one which is no more 'localist' than its predecessor, but which requires an analysis which goes beyond the framework offered by multilevel governance in order to capture its complexity and its implications. This is a politics, as we have argued above, that takes multiple forms.

On the one hand, the emergence of climate change as a strategic issue for a range of urban actors is leading, as we set out above, to what some have referred to as a politics of 'secure urbanism and resilient infrastructure' (Hodson and Marvin 2010) and others describe as an era of 'carbon control' (While *et al*. 2010). Across a range of global cities, including for example London, New York, Los Angeles, Mexico City and Cape Town, new programmes for reducing greenhouse gas emissions have been accompanied by overt references to enhancing the security and independence of energy supply for cities and reducing the costs of energy for residents (Hodson and Marvin 2010, Bulkeley and Schroeder 2012). There are

multiple actors engaged in this form of urban climate politics. While the specifics vary from city to city, they range from large corporations in the financial, energy and property sectors, to non-profit organisations seeking to promote forms of energy security as a means of alleviating poverty, non-governmental organisations campaigning on climate change as one of a number of environmental concerns, and municipal officers and politicians from different departments, including environment, energy, transport and green space. Melbourne is one such city where, despite the fragmented nature of local governance in the greater metropolitan area, a co-ordinated and strategic approach to climate change has emerged over the past decade.[1] The 2002 *Victorian Greenhouse Strategy* set out a range of measures to encourage the development and use of renewable energy and reduce demand for energy, including the development of energy efficiency standards for buildings so that new developments were required to attain a 5* rating from 2005, the promotion of GreenPower energy, support for the ICLEI Cities for Climate Protection (CCP) programme in regional and rural Australia, and the formation of regional partnerships between local governments to pool efforts and resources in addressing climate change. These partnerships were formed between a range of different councils, including those in the inner suburbs facing the challenges of economic decline and infrastructure pressure, and those on the suburban fringes where housing development is proceeding apace.

One of the most successful of these partnerships has been the Northern Alliance for Greenhouse Action (NAGA)[2], whose population comprises some 25% of the population of Victoria (NAGA 2008). Initially formed as an informal network for sharing information and developing new projects amongst six of these pioneering authorities and the non-profit Moreland Energy Foundation, having completed the 'milestones' involved in the CCP programme, by the mid-2000s these municipalities, and in particular those who had adopted the CCP programme early on, began to develop more ambitious targets and innovative approaches. In 2002, the City of Melbourne adopted a target of reaching 'zero net emissions' by 2020, followed in 2007 by Moreland. On this basis, NAGA has recently developed a research project to ascertain the potential for achieving zero-net emissions across the region (NAGA 2008). Despite the recent recognition by the City of Melbourne in its Update of the 2002 strategy that the target of reaching 'zero net' emissions will not be realized, the policy ambition to achieve significant cuts in greenhouse gas emissions has been reiterated and appears to be spreading across the NAGA region. Seeking to explain the foundations of this success, participants suggest that it is the strategic significance of demonstrating leadership in this area that is the primary driver behind their achievements:

> We couldn't show how much money we have saved in total through all of these things. We probably can't show, I'm probably being unfair but we probably couldn't show how much it cost us either. We know as an organization that what we've gained reputation … and we know that we are making Melbourne … a better place to be a competitive 21ˢᵗ century city (Interviewee, Melbourne, July 2008).

In the case of the City of Melbourne, this leadership has been demonstrated through its recent membership of the C40 network. As the recent *Zero Net Emissions by 2020 – Strategy Update* states, there is 'growing recognition that the City of Melbourne needs to align with other like-minded climate change cities' globally (City of Melbourne 2008, p. 13). This involvement with an international coalition of cities not only provides access to information and resources, but also to the political kudos that arises as part of being part of a 'club' of global cities showing leadership on the issue of climate change. Such forms of leadership are not, however, without their challenges. A first issue identified by interviewees was the challenge of working within the framework of municipal governance, where 'there's only a certain amount of money that goes around; you still have to repair the roads and sweep the streets' (Interviewee, Melbourne, July 2008) and questions are often raised as to whether municipalities should be leading on climate change issues. While climate change remains peripheral for many municipalities, as one interviewee suggested, 'you're constantly at risk of doing token changes' (Interviewee, Melbourne, July 2008). A second challenge related to the conflict between environmental and economic agendas, an issue found to be particularly pressing at the urban fringe where imperatives for economic growth and development pressures are strong, and 'where councils put up barriers to development … that extend beyond [minimum requirements] then pressure is brought to bear against … the case for environmental protection' (Interviewee, Melbourne, July 2008). A final challenge concerned the feasibility and delivery of ambitious targets, and the need to avoid the creation of goals simply being conceived for political ends with little prospect of them being fulfilled. The dilemmas of setting realistic targets, managing expectations, and still seeming to 'lead' the field were evident in the discrepancy between some policy rhetoric concerning the importance of local action on climate change, the continued focus on internal emissions reductions for many councils, and the high and rising levels of emissions across the metropolitan area. As this analysis suggests, even as new forms of urban climate governance are emerging, many of the 'old' political issues remain.

Alternative understandings of how to secure and sustain urban communities are also emerging as cities seek to respond to climate change. Initiated in the UK and now to be found in cities in North America, Asia, and Australia, the Transition Towns movement is one such alternative (North 2009, Smith 2010). In common with the discourse of 'secure urbanism' regarded by Hodson and Marvin (2010) as characteristic of contemporary urban climate governance, Transition Towns seeks to promote self-sufficiency as a means of achieving both community resilience and a response to the twin challenges of peak oil and rising greenhouse gas emissions. In Transition Town Brixton (UK), sixteen different groups have been formed involving individual volunteers and some local associations, addressing issues including education, arts and culture, recycling and reusing materials, energy conservation, local food production, and the development of a local currency, the Brixton Pound. Here, rather than being concerned with the strategic dimensions of climate security and low carbon development for the city, in Brixton the Transition Towns group focuses on issues of individual and community resilience. For example, a 'draught busting' initiative seeks to engage with householders in draught proofing their homes in order to save energy, carbon and money, and also provide loans of smart meters so that householders can assess the effectiveness of their own efforts to reduce energy use (Transition Town Brixton 2011). Like other Transition Town initiatives, within Brixton there is a strong focus on the development of alternative sources of food within the community, including the development of community gardens, beekeeping, seed sharing, and planting 'edible' trees. Transition Towns do not, therefore, only provide an alternative set of possible interventions and actions in response to the 'insecurity' of climate change, but offer different visions for what sustainable and resilient urban futures might look like. Whilst some might suggest that such visions are hopelessly romantic, they serve as a reminder that the political consequences of addressing climate change in the city are not always tied into the continued domination of current patterns of political economy.

There is also evidence that alternative discourses supporting urban responses to climate change are emerging in cities in the Global South. One such example is the Kuyasa project in the Khayelitsha area of Cape Town. Led by the NGO SouthSouthNorth, the project involved providing an energy upgrade to low income housing, including retrofitting ceilings, energy efficient light bulbs and solar-hot water heating, which together reduced energy use in households (hence yielding carbon savings) and energy poverty, providing direct financial benefits, as well as providing local employment opportunities. The Kuyasa initiative is particularly innovative because of its use of the Clean Development Mechanism, a financial

instrument agreed as part of the international Kyoto Protocol as a means through which countries in the North can finance projects in the global south which reduce greenhouse gas emissions (SouthSouthNorth 2011).

While the emergence of the discourses of 'secure urbanism' and 'carbon control' posit low carbon urbanism not only as compatible with but as essential to existing patterns of economic growth (Hodson and Marvin 2010, While *et al.* 2010), these alternative forms of innovation challenge this dominant regime in two important ways. First, they seek to provide an alternative model of low carbon living, where forms of social and technical innovation are put to work to create new forms of economic and community relation. Second, they explicitly recognize that resource security is an essentially contested and unequal concept, with the result that vulnerability and resilience is highly differentiated within the city. Rather than witnessing the straightforward emergence of a homogenous and dominant regime for governing climate change in cities, the presence of these alternative forms of innovation points to a more fractured landscape, where strange bedfellows (e.g. international carbon finance and low income households in South Africa) are conjoined in developing new discourses of security and resilience, and where the potential for contestation and conflict is ever present. What this suggests is that urban climate politics is not automatically to be regarded as 'a politics reduced to the administration and management of processes whose parameters are defined by consensual socio-scientific knowledges' (Swyngedouw 2009, p. 602). Instead, conflict, albeit sometimes latent and worked through everyday practices of resistance, contestation and the formation of the alternative, is emerging over what climate change should mean and for whom, and of the consequences for the future of cities. This is not to argue that such a politics is necessarily progressive, far from it, but it is to suggest that the extension of climate politics into new urban political arenas has disrupted the straightforward conflicts between economy and environmental protection that we found in our initial work in Newcastle and Cambridgeshire.

Conclusions

Revisiting our work on urban responses to climate change just a few years later, we are struck by how much has changed. As we articulate above, the emergence of a strategic urban response to climate change has entailed an engagement with a new set of urban places, politics and agendas that lay beyond the bounds of our analysis of 'municipal' responses. Critically, we can determine the growing influence of a range of non-state actors in shaping urban climate governance and an ever more complex political economy of climate change,

woven between notions of carbon control, resource scarcity, resilience and security. At the same time, forms of 'municipal voluntarism' persist, as a growing number of municipalities take up the climate change cause. Climate change, it seems, is now firmly regarded as an issue with which cities can legitimately be concerned, albeit that the levels of engagement and interest in this agenda vary significantly.

Despite this sustained attention, and the apparent proliferation of interventions, projects and initiatives designed as part of this agenda, there remains uncertainty as to exactly what this activity might amount to. For some, the challenge remains one of accounting for the extent to which such policies and measures have made a material difference to levels of GHG emissions. Here, the rather unsatisfactory answer is that both at the level of individual cities and, perhaps more importantly, at an aggregate scale, we simply do not know. Municipal self-reporting and individual projects have demonstrated significant emissions reductions and co-benefits, but there remain challenges in accurately assessing the impact of particular policy measures against an ever moving background and of integrating assessments that have used different indicators, baseline and measurement tools (Bulkeley and Newell 2010). For others, the question is also one of the effect that the presence of climate change on urban agendas may have had in both more indirect and fundamental ways, in terms of shaping policy directions, determining courses of action that have and have not been taken, or effecting daily and mundane decisions concerning, for example, building management practices or the ways in which the road network is managed (Hoffmann 2011). As we found in our earlier work, understanding these dynamics requires both detailed fieldwork and an engagement with the political economies through which climate change is being conducted.

Recognising the parallel development of municipal voluntarism and strategic urbanism, the uneven manner in which mitigation and adaptation agendas are unfolding in a diverse set of urban contexts, and the limitations of our current understanding of the effects and effectiveness of urban climate governance requires we suggest a renewed engagement with just what a multilevel governance of climate change entails. It seems clear to us that any understanding of the multilevel governance of such processes must therefore loosen further its ties to static and scale-based assumptions of how governance is achieved, and instead consider the processes through which the political spaces of urban climate politics come to be configured and contested. For some, this may require a more critical interrogation of the discursive and institutional terrains through which climate change comes to be an issue on urban agendas. For others, this may entail stepping outside the boundaries of such institutional accounts of politics to consider the ways in which climate politics are made and

maintained through the socio-technical networks that sustain urban life. Whichever paths are chosen, moving forward in this field requires, we suggest, attention to three core agendas. First, with the growing rhetoric and realisation of the 'low carbon economy', any understanding of urban climate governance must engage more closely with literatures on urban economies and their reconfiguration in the wake of the current period of economic restructuring. Second, as climate change becomes an ever more significant part of urban agendas there is a need to consider in detail the political economies and political ecologies of such processes, and in particular their implications for issues of social and environmental justice. Finally, we suggest that as more attention is devoted to the need for climate 'smart' and 'resilient' cities, we need to ask critical questions about the political work that such discourses and practices of governing the city are seeking to achieve. Collectively, these agendas suggest that we need a more thoroughly political analysis of the urban climate governance problematic, a challenge to which we are sure the *Environmental Politics* community can rise.

Acknowledgements

Notes

1. The case of Melbourne presented here draws extensively on Bulkeley and Schroeder 2009.
2. The members of NAGA include "the Cities of Banyule, Darebin, Hume, Manningham, Melbourne, Moreland, Whittlesea, Yarra, Nillumbik Shire Council and the Moreland Energy Foundation Limited (MEFL)", see: http://www.naga.org.au/ (accessed January 2013)

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