5

City and Subnational Governance
High Ambitions, Innovative Instruments and Polycentric Collaborations?

JEROEN VAN DER HEIJDEN

'Our struggle for global sustainability will be lost or won in cities.'
Ban Ki-moon, United Nations Secretary-General (2012)

5.1 Introduction

Cities and local communities will play a key role in climate change adaptation and mitigation (Bulkeley and Betsill, 2003; Parnell, 2016; Jayne and Ward, 2017). Already in Local Agenda 21 (UNCED, 1992), adopted at the Earth Summit in Rio de Janeiro in 1992, they were recognised and explicitly mentioned as an important site for climate action. Fast forward to the mid-2010s: the Climate Summit for Local Leaders was hosted, in parallel to the Paris Conference of the Parties (COP) in 2015. This event was attended by many urban leaders and gained much recognition in the climate negotiations that resulted in the Paris Agreement. At COP22 in Marrakech in 2016, the parallel Climate Summit for Local and Regional Leaders was held. Again, this event provided cities and other local actors with an opportunity to influence international climate change negotiations. Similarly, cities were a central focus of the United Nations' Sustainable Development Goals of 2015. Meanwhile, the New Urban Agenda resulting from the bi-decennial HABITAT Conference in 2016 has a strong focus on the role of cities in climate change mitigation and adaptation (United Nations, 2016).

When surveying these developments, one might easily assume that cities are already an integral part of international climate governance (see Chapter 4). Unfortunately, the reality is less positive. In international policymaking, cities are not recognised as formal actors – after all, cities are sites as well as actors when it comes to climate action. They still have to break through institutional boundaries to make themselves heard at international climate negotiations and be recognised in international agreements. The side events at the COPs are exactly that – side events, not formal parts of the negotiations – and the

https://doi.org/10.1017/9781108284646.006 Published online by Cambridge University Press

Sustainable Development Goals, for example, are not even referenced in the Paris Agreement. Moreover, the Paris Agreement does not explicitly refer to cities, urban geographies or local settlements as actors or sites of governing, but mentions 'country-driven' processes as the key principle for organising climate action (United Nations, 2015: Articles 7, 9 and 11). In short, there is much talk at the international level about the importance of urban climate governance, but little is done to empower cities – as actors – taking meaningful action, nor is there much coordination or cohesion between the different international forums engaged with climate change governance in how they envisage the role of cities in climate action.

In response, cities themselves have become involved, as actors, in local and international climate governance interventions, experiments and networks (Hoffmann, 2011; van der Heijden, 2014; Bulkeley, Castán Broto and Edwards, 2015). This is illustrative of polycentric governance – albeit that cities and the networks they form can best be understood as units within a polycentric system rather than a specific domain (cf. Ostrom, 2010). That is, acting as (partly) independent actors, city governments and other urban leaders have begun to organise themselves around specific urban climate challenges to better understand how these can best be addressed. They do so on regional, national and international scales, following more or less formalised rules. Thus, we see multiple governing authorities acting, as explained in this chapter, at different scales, and exercising considerable independence in making and implementing norms and rules – i.e. matching the essential definition of polycentric governance identified in Chapter 1 (see also Ostrom, Tiebout and Warren, 1961; Ostrom, 1990).

In what follows, three related topics are addressed to better explain the role of cities as units of polycentric climate governance. First, cities often set higher climate governance ambitions than the nation states they are in (Reckien *et al.*, 2014). What explains this tendency of cities seeking to outperform and thus act independently of national governments? Second, cities are increasingly becoming sites and actors of experimentation with innovative governance instruments, including eco-financing and 'urban laboratories' (van der Heijden, 2016b). What drives cities to experiment with innovative governance instruments in the first place? Third, cities have begun to break out of traditional top-down, national-regional-local hierarchies and act in trans-local networks (Acuto and Rayner, 2016). How do these networks seek to overcome regional and national barriers to climate governance, and what barriers do these networks raise themselves for cities in responding to climate change? Finally, whilst the literature on these three topics – and polycentric urban climate governance more broadly – has expanded rapidly since the early 2000s, it has a strong focus on a relatively small number of cities from the global North (Evans, Karvonen and Raven, 2016). This chapter therefore

concludes with a reflection on how applicable it is for all cities in the world – including, crucially, those in the global South. It also identifies what further research is required to understand and support the full potential that cities hold as actors in – and sites of – polycentric climate governance.

5.2 High Ambitions at the Local Level

From the early 2000s onwards, cities have been in a healthy competition to be at the forefront of emission reduction efforts. For example, Sydney aims to cut its emissions by 70 per cent from 2006 levels by 2030, and New York has set itself the goal of reducing its greenhouse gas emissions by 80 per cent below 2005 levels by 2050. What makes the ambitions of these cities – and others like them (C40 Research Team and Arup, 2014) – of particular interest is that they go above and beyond the ambitions set by their respective nation states. Indeed, Sydney and New York's ambitions are more than double those of their respective countries. Comparing city-level emissions and reduction ambitions with those of nation states is somewhat like comparing apples and oranges (emissions from carbon-intensive sectors such as manufacturing and mining are normally not included in city emissions). Nevertheless, the size of this difference begs a question: why do cities set such ambitious mitigation targets in the first place?

In answer to this question, various reasons are highlighted in the literature. These can be clustered into four main themes: cities as a source and victim of climate change; cities as the low-hanging fruit in climate action; the rise of green growth and ecological modernisation thinking in cities; and national political support for urban climate action.

Starting with the first of these, cities are often considered both a key contributor to and a main victim of climate change. Most resources, including energy, are consumed in cities, and most wastes, including carbon emissions, are produced in cities. This makes cities – and particularly the high consumerist lifestyle that characterises modern urban life – a key contributor to climate change (Dodman, 2009). Because cities are often characterised by high population densities, and because cities represent the geographical epicentre of many economic activities, it will be in cities where climate change–related and other disasters will strike the hardest (IPCC, 2014). Seeking to prevent the devastating effects of such disasters, or simply seeking to save on the costs of operating cities by reducing waste or resource consumption, city governments around the world have implemented myriad regulatory interventions, subsidies and taxes to steer citizens towards more environmentally sustainable forms of living. A typical example is the emergency energy requirements introduced by the government of Tokyo in 2011. These were adopted in response to power shortages experienced from closing down all

nuclear power plants after the Fukushima nuclear power plant incident. Whilst these emergency requirements aimed at relieving the electricity net, they had the positive side effect of considerable energy savings (and thus city-related carbon emission reductions), particularly from large offices. Many large office users continued their reduced energy consumption after the emergency requirements were lifted (Nishida, Hua and Okamoto, 2016).

Second, cities have access to much low-hanging fruit. Of all anthropogenic activities, it is only in constructing, maintaining and using cities (and particularly the built-up part of cities, or simply, buildings) that we see a unique combination of well-trialled, readily available technology and knowledge to achieve emission reductions at net-cost benefit and at a large scale (IPCC, 2014). In many areas – including manufacturing, agriculture and non-city transport – some of these conditions are also present, but not in the same, unique combination. In the United States, for example, possible building-related energy savings of up to 23 per cent are worth double the costs of upfront investments, with a return rate of ten years – $1.2 trillion can be saved if $520 billion is invested (McKinsey, 2009). Some studies even go so far as to forecast that fully carbon-neutral built environments can be achieved in the United States and China by applying all currently available technologies at a net economic gain (Lovins, 2013). Again, seeking to capitalise on such expected savings, city governments around the globe have been steering their citizens to forms of living that are less carbon-intensive than what is formally required by their national governments.

A third and related argument revolves around the paradigm of green growth or economic modernisation (Dryzek, 2005). It is often argued, and sometimes empirically observed, that cities compete with each other to become the most climate-friendly city, seeking to attract investors and citizens that have a 'green' orientation (McCann, 2013). The underlying assumption here is that city policy-makers are mainly interested in economic prosperity, creating jobs and gaining votes by keeping citizens happy (Schragger, 2016). By creating an image of environmental sustainability and climate action and/or rewarding specific forms of investments, for instance reducing property taxes to encourage more energy-efficient buildings (van der Heijden, 2015), authorities seek to attract firms. This in itself can result in job creation. At the same time, creating an image of environmental sustainability and climate action may attract 'creative' people that may provide an additional boost to the economic competitiveness of a city (Florida, 2005). Such images run the risk, however, of having a merely symbolic function, with cities being unable to live up to some of the high promises they make (Johnson, Toly and Schroeder, 2015).

A final argument, but one that is sometimes hidden between the lines, is that many cities have set climate change ambitions that are higher than those of the

nation states they are in simply because they were actually mandated or supported by national governments to do so (Homsey and Warner, 2015; van der Heijden, 2017; see also Chapter 3). Despite its many flaws, Local Agenda 21 can be credited for recognising cities and their governments as an important level for climate action and addressing other societal problems. Following on from Agenda 21, national governments began requiring, supporting and promoting local action (Bulkeley and Betsill, 2003; Jayne and Ward, 2017). Returning to the example of Sydney, in 2011 the Australian government launched the National Urban Policy (Australian Government, 2011). This policy required that all jurisdictions have in place the planning systems to deliver nine specific goals. These include better urban design, more environmentally sensitive new homes and offices and preparations for climate change and natural disasters (Albanese, 2013). Seeking compliance with this policy, Australian states and territories developed long-term regional and metropolitan plans and required cities to draw up strategic development plans and indicate how they were going to meet national requirements. Being exposed to pressure from higher levels of government as well as urban climate mitigation ambitions expressed by other cities resulted in a race to the top between Australian cities to set far-reaching carbon emission reduction ambitions (COAG, 2012). Therefore, even though cities may behave as partly independent actors in polycentric climate governance, the interactions between them and other actors should be borne in mind.

5.3 Experimental Urban Climate Governance and Innovative Governance Instruments

Around the globe, cities have also become highly active in experimenting with novel governance processes and innovative governance instruments to address local and trans-local climate challenges. This 'experimental governance' is characterised by iterative rounds of trialling governance instruments within a bounded jurisdiction or population, with the ambition to adapt the instruments based on lessons learnt and to ultimately scale it up to a larger jurisdiction or population (Hoffmann, 2011; Ansell and Bartenberger, 2016). Scholars have identified hundreds of urban climate governance experiments ranging from very local ones to some at an international scale (Bai, Roberts and Chen, 2010; Bulkeley and Castán Broto, 2013; van der Heijden, 2016b). Examples include the Chicago Sustainable Backyards programme that incentivises households to create water-efficient gardens, through to the international Transition Towns Network that provides tools and processes for citizens to take local climate action (van der Heijden, 2014). These experiments seek to act on barriers that stand in the way of effective urban climate action. Such barriers may be political or legal (such as the difficulty of

mandating retrofits and upgrades for existing parts of cities), financial (such as split incentives between those who pay and those who gain from urban climate action), technological/behavioural (such as a mismatch between sustainable design and sustainable use of cities) and social (such as the risk of negatively affecting disadvantaged groups by requiring costly climate action) (van der Heijden, 2017).

The turn to experimental urban climate governance observed since the early 2000s is more than a pragmatic, local government–led approach to solving problems experienced in implementing national requirements (see Chapter 6). Urban climate governance experiments bring together local governments, private actors and civil society actors in formal and structured processes of developing, demonstrating and trialling new forms of authority and governance instruments to address climate challenges at the city level (Bulkeley *et al.*, 2015). Scholars are confident about their ability to draw lessons from experiments about what governance interventions work, where and how, and to scale them up or extend them out across the city in question, and even to other cities and countries (Sassen, 2015).

But what drives cities to experiment with innovative governance instruments in the first place? Again, the literature identifies various motivations. A first and somewhat structuralist understanding relates to the privatisation of (local) public service delivery that started in the 1970s (Hodge, 2000; van der Heijden, 2010), the 'reinventing of government' and implementation of new public management practices since the 1980s (Osborne and Gaebler, 1992; Hood, 1995) and the larger shift from government to governance that has been documented since the late 1990s (Rhodes, 1996, 2007). City governments are no longer considered the executive branch of national governments, merely implementing national legislation and regulation (Pierre, 2011). They are increasingly expected to deliver local services themselves (or have local services delivered by others) in an effective and efficient manner, and have to be transparent about their actions and be fully accountable for these – for instance through 'smart city' rankings and urban climate indexes (López-Ruiz, Alfaro-Navarro and Nevado-Peña, 2014). Facing these increasing expectations – and often assuming that satisfying them aids local economic development (an expectation that is not always based on sound evidence; see Schragger, 2016) – local governments then have little choice but to reach out to local private and civil society actors and search for innovative governance instruments. This is even more the case in a policy area like climate change, where city governments lack experience or prior knowledge about which interventions yield the most desirable outcomes.

Another literature assigns more agency to local governments, private and civil society actors. Rather than considering changing institutional and other structural conditions as forces that tie them together, it considers that all governments wish to be actively involved in addressing urban climate challenges in collaborative

processes and experiments (Bingham, 2006; Hohn and Neuer, 2006). This branch of the urban climate governance literature has very high hopes and expectations for the outcomes of these experiments (see Chapter 6). By involving a wide range of stakeholders in the development of governance instruments, their tacit knowledge can be used. This is expected to result in instruments that are 'smarter' than those developed by somewhat distant bureaucrats (Lobel, 2012). Also, by involving a range of stakeholders, instruments can be developed through a consensus-building process that allows for deeper reflection on the advantages and disadvantages of the instrument for the various parties involved. This is expected to bridge their diverse and sometimes competing views (Bulkeley and Mol, 2003). It is further expected to increase the acceptance of the instruments that are developed and implemented and, correspondingly, to improve compliance with them (Walters, 2004). In terms of the design of the new governance instruments, scholars have focused on the move away from traditional deterrence-based, hard-law instruments that penalise non-compliance, such as building codes, to soft-law instruments that reward compliance and provide positive incentives. Such positive incentives come, for example, in the form of information, the ability to advertise compliant behaviour or some form of financial compensation (van der Heijden, 2016a). Scholars further point to a move away from mandatory governance instruments towards those that ask for voluntary commitments, again assuming that compliance is more likely when individuals and firms commit voluntarily to them (van der Heijden, 2014).

That being said, an emerging body of more empirically informed literature is rather more critical of the ability of cities to actually deliver on these normative expectations. It highlights that there is often a normative assumption in the urban governance literature that all experimentation is beneficial, and that whilst there is much talk about experiments and innovative instruments, their development and day-to-day performance are poorly understood (Johnson *et al.*, 2015). The small empirical knowledge base highlights that challenges abound, and are particularly found when it comes to scaling-up and scaling-out experiments. For example, rules and regulations may lag behind to formalise experiments into urban policy, economic conditions and finance may work against scaling or the experimental setting may not fully reflect the real-world setting an instrument has to operate in (Bulkeley, 2013; Schroeder, Burch and Rayner, 2013). A specific risk associated with urban climate governance experiments is that they target frontrunners and not the majority of firms and citizens. Hence, there tends to be a mismatch between what climate action frontrunners can achieve and what 'ordinary' firms and citizens are willing to accept and are capable of delivering (van der Heijden, 2017).

In short, experiments are a popular focus for researchers and practitioners, but whether they will be successful in delivering governance instruments capable of quickly reducing carbon emissions and resource consumption at the city level remains an open question. In fact, many experiments have been found to result only in rather piecemeal solutions at best. Moreover, cities that are considered leading and lauded for their example-setting roles often are among the ones with the biggest environmental footprints (Johnson *et al.*, 2015). More problematically, urban climate experimentation is sometimes used to justify a neo-liberal development agenda and not an especially environmentally or socially sustainable one at that (Evans *et al.*, 2016). For example, it is highly laudable that certain multinationals are collaborating with cities to experiment with new information technology solutions to reduce vehicle emissions or city-related energy consumption – so called smart cities. But questions need to be asked about whether they do so out of altruistic motivations or whether they see this as pilot projects for creating new markets for their products (van der Heijden, 2014). Of course, both could in principle be true – hence the desirability of assessing the performance of climate governance experiments against multiple criteria (see Chapter 14).

5.4 Trans-local Collaborations

Yet another manifestation of polycentric urban climate governance can be found in the ongoing growth of trans-local or city-to-city networks, as well as a growth of city-to-citizen and city-to-business networks (van der Heijden, 2016b). Whilst city networks, city collaborations, sister-city agreements and so on are not a fully novel development, the active networking of cities in the area of climate action stands out from earlier, somewhat more passive initiatives (Jayne and Ward, 2017). These active networks are important but informal bodies at trans-local and international levels, comprising formal bodies at the local level (Jordan and Turnpenny, 2015). They allow cities to learn from each other, jointly experiment and seek governance solutions to urban climate problems and, perhaps most important, to bypass their national governments in the international arena. Three well-known city networks are ICLEI – Local Governments for Sustainability (originally the International Council for Local Environmental Initiatives), the C40 Cities Climate Leadership Group and the Covenant of Mayors for Climate and Energy. The first is an international network of more than 1,500 cities, towns and regions founded in 1990; the second is a network of more than 80 of the world's largest cities founded in 2005; and the third is a network of more than 7,000 local and regional authorities (mostly from European countries) founded in 2008.

To what extent do these trans-local networks help overcome regional and national barriers to climate governance, and what barriers do these networks

https://doi.org/10.1017/9781108284646.006 Published online by Cambridge University Press

themselves raise for cities in responding to climate change? Sometimes a distinction is made between 'first-wave' and 'second-wave' networks. The first attempt made to push cities to act on climate change was made by ICLEI. It strongly focused on trialling and disseminating knowledge about technological solutions for climate mitigation. Following on from this, academics began writing 'best practice' books that were often linked to the then-popular notion of green growth and ecological modernisation. The first-wave city networks strongly revolved around creating knowledge for cities by cities (Jayne and Ward, 2017). C40 and the Covenant of Mayors can be considered 'second-wave' city networks. For these second-wave city networks, knowledge creation and dissemination is still important, but they also seek to have the voice of cities included in international climate negotiations (Johnson *et al.*, 2015; it has been argued that first-wave cities are now engaged in this too). Representatives of ICLEI, C40 and the Covenant of Mayors were, for example, highly active at COP21 and COP22 (see earlier). Such international events allow cities to showcase their best practices, and challenge their nation states and others to go one step further in their commitments to climate action.

There is some evidence that city networks help overcome regional and national barriers to climate governance, including the difficulty of developing and implementing mandatory regulation and the lack of institutional capital in, particularly, smaller municipalities (van der Heijden, 2014). Progressive cities in less progressive nations may find like-minded cities in more progressive nations – there is an abundance of information available for members and non-members on the websites of these networks. By combining resources (funds, staff and so on), these networks are, in theory, capable of carrying out more rigorous experiments than cities can achieve on their own (Bansard, Pattberg and Widerberg, 2016). That said, even though such networks are reporting successes, it remains doubtful how valid these statements really are. The quality of data underlying the statements is sometimes questionable, simply because it is exceptionally difficult to measure reductions in carbon emissions or even energy consumption at the city level (Bulkeley, 2013). The networks might attract already well-performing cities rather than poor-performing ones and provide an unrepresentatively high willingness of cities to take climate action (van der Heijden, 2017). The reported successes might work in one city but not another. Thus, a big challenge for the climate networks is to find a balance between providing very general and very tailored information on governance interventions (Johnson *et al.*, 2015). Finally, cities may seek to join these networks seeking co-benefits that may not always stem from a genuine concern about climate change. For example, by participating in the networks, cities hope to attract investors, new workers and residents (Brenner, 2004; Jonas, Gibbs and While, 2011).

In short, while the urban climate governance literature was initially positive about the opportunities provided by city networks and their potential to spur urban climate action, recently it has taken a more critical turn. Moving beyond questioning the successes reported by these networks, scholars have pointed out that they easily become 'networks of pioneers for pioneers' (Kern and Bulkeley, 2009). Rather than being all-inclusive, the networks run the risk of becoming exclusive clubs that only provide benefits (such as knowledge on urban climate action, or being represented in international climate change negotiations) to their members, somewhat at odds with some of the normative assumptions of polycentric theory (see Chapter 1). Others have highlighted that even members of a network do not always have equal access to all the benefits of membership (Lee, 2015). For example, cities in the global North may find it easier to bear the costs of sending representatives to networking events than cities in the global South. An issue that has received less attention in the literature thus far is that these networks may produce an illusion of active and successful cities in the area of climate action (van der Heijden, 2017). While both ICLEI and C40, for example, proudly advertise the proportion of the global urban population that they affect – 25 and 15 per cent, respectively (C40, n.d.; ICLEI, n.d.) – it could just as well be argued that after three decades, many cities are still not members.

Furthermore, by looking at the urban governance experiments and innovative urban governance instruments that these networks consider illustrative of outstanding performance, it becomes clear that many only deliver quite moderate rather than transformative climate action. For example, the C40 network has an annual awards ceremony, the Climate Change Leadership Awards, to '[reward] important, innovative policies and programmes that reduce emissions and improve sustainability' and to 'recognize those successes, catalyze ambition, and share lessons with cities around the world' (C40, n.d.). In 2013, one of these awards was given to 1200 Buildings in Melbourne, a programme that supports property owners in finding finance for building retrofits. At the time that it was awarded for being a 'world-leading governance innovation for improved urban sustainability' (C40, n.d.), only a mere five buildings had actually been retrofitted. In 2014, an award was made to the Amsterdam Climate and Investment Fund, a revolving loan fund. This was made to the city of Amsterdam for its 'leading position in the transition to low-carbon cities' (C40, n.d.), but at the time it had only issued some five loans, mainly to support highly conventional technological upgrades of buildings (see, for further examples, van der Heijden, 2017). If such action is among the best within the member cities, one may wonder what the rest are up to, and whether cities are really being truly challenged by their city networks to take ambitious climate actions.

There are, of course, good reasons for these city-to-city networks to provide their members with exclusive rewards, to put them in the spotlight in the international arena and to create a narrative of climate activity initiated and supported by them. The supply of networks is sufficient – to the extent that some have to compete for members. On a more positive note, showcasing good practice, however marginal, may spur other cities to take action too. But too much promise and too few results could just as easily backfire. For example, whilst ICLEI initially attracted many cities in the United States, substantial numbers have terminated their memberships as a result of changing political ideologies, interest group pressures and declining membership benefits (Krause, Yi and Feicock, 2015). It has been observed that some of these networks have over time become increasingly neo-liberal, seeking to expand and hold their membership base. Rather than a race to the top, there is a risk of a race to the bottom, in which the survival of the network becomes an end in itself (cf. Johnson *et al.*, 2015). Put differently, the (dominant) city networks may even become a victim of their own success. With a growing membership base came a need to professionalise and formalise, but with the move from being voluntary networks of cities to being large and powerful city interest groups came all the problems that are typically found in bureaucratic organisations – turf wars, a focus on quantity over quality and managerialism (see further Wilson, 1989). That said, absent a benchmark of what constitutes 'good performance', it may be difficult for cities and their networks to spur city-level action that is genuinely transformative. Without that, it is also very difficult to assess the efficacy of cities as units in systems of polycentric governance.

5.5 Conclusions

This chapter has addressed polycentric urban climate governance in action. When stepping back and reflecting on the various examples and forms of polycentric urban climate governance discussed, a number of observations stand out. First, city governments often set higher climate action ambitions than the nation states they are in. Second, cities are very active in experimenting with novel climate governance instruments. In doing so, cities self-organise active collaborations with private and civil society actors. Third, cities participate in trans-local and often international networks to develop and share information about urban climate mitigation and adaptation, and seek to influence international climate negotiations. Policymakers, practitioners and academics often express high hopes for city governments and other urban leaders in addressing climate change. The forms and examples of (polycentric) urban climate governance discussed in this chapter are repeatedly used to argue that it will be cities rather than nation

states that will take the most meaningful climate actions in the future (Barber, 2013; Sassen, 2015; Knieling, 2016). One could frame it even more dramatically than this, as did the former UN Secretary-General, quoted in the epigram of this chapter.

But how well-founded is Ban Ki-moon's trust in the capacity of cities (including local governments and private and civil society actors) to take meaningful climate action? In line with other critical scholars (Johnson *et al.*, 2015), this chapter urges some caution when considering cities 'the *key* to addressing the global climate change problem' (C40, n.d.; emphasis added). First, some care. The forms and examples of polycentric urban climate governance discussed in this chapter point to a growing reliance on private and other non-governmental actors in collaborative governance processes. Urban governance theory easily assumes that efficiency through such collaborations and democracy go hand in hand (Davies and Imbroscio, 2009). Yet the involvement of private and other non-governmental actors, particularly multinational companies, pushes urban climate governance further towards neo-liberalism and market-based interventions, and further strengthens the focus on technological fixes rather than behavioural change (Johnson *et al.*, 2015). Also, with cities acting independently of their national governments, national climate policies no longer ensure that all citizens contribute equally to and benefit from climate action. This begs a need for stronger accountability systems (see Chapter 19), involving (perhaps elected) city officials who can represent and look after the interests of all citizens, especially those more vulnerable to its impacts (Pierre, 2011).

Second, some realism. Whilst the polycentric urban climate governance literature is burgeoning, scholars – myself included – only tend to focus on a handful of (leading) cities. More often than not, these are part of the three main, dominant city networks. The more active cities in these networks – the ones, incidentally, that receive the most scholarly attention – tend to be larger cities in the global North. Yet, whilst climate change is on the agenda of some of the larger cities, particularly in the global North, it should be remembered that in many others it is not: '[c]limate change simply remains "un-governed" in cities' (Bulkeley, 2013: 104; see also Reckien *et al.*, 2014). In short, we have substantial knowledge about polycentric urban climate governance in a small number of predominantly large cities in the global North, but we know very little about polycentric urban climate governance in general. Hence, we are not well equipped to determine how far cities are genuinely capable of self-organising (Johnson *et al.*, 2015) as polycentric theory suggests. This is troubling for two reasons. First, urbanisation is taking place predominantly in the global South, particularly in Asia and Africa. Solutions that are found to 'work' in the global North are often found to generate less positive outcomes when

transferred to the global South – or even have negative outcomes there (Gupta *et al.*, 2015; van der Heijden, 2017). Second, it remains unclear whether the trends visible in large cities are also found in smaller ones (Sassen, 2001). Smaller cities likely face different barriers than larger cities and have fewer capacities than their larger neighbours. Hence, solutions that are found to 'work' in larger cities may not easily transpose to smaller ones (Homsey and Warner, 2015).

Third, some downscaling of expectations. Following on from these points, the evidence base to support claims about the opportunities and constraints of (polycentric) urban climate governance is thin at best – and at worse may be imbued with a great deal of wishful thinking. There is no doubt that city governments and other local leaders (including private and civil society actors) are organising themselves around specific urban climate challenges to better understand how these can be addressed, following more or less formalised rules, and do so independently from national governments. It is particularly hopeful to see highly progressive cities in countries that are very conservative when it comes to taking climate action – for instance those that have (or had initially) not ratified the Kyoto Protocol or the Paris Agreement (Lee, 2015). Yet the room cities have for climate action is shaped by the prevailing national, political and legal context (Johnson *et al.*, 2015). In particular, the national, legal and policy setting hampers what cities can do locally in terms of self- and facilitative governance, limiting the possibilities for self-organisation by cities (Schroeder and Bulkeley, 2009; Schragger, 2016). Thus, some of the high hopes that have been expressed about the benefits of polycentric climate governance are not being borne out in practice. This begs the need for a more critical approach to studying polycentric urban climate governance than has hitherto been the case.

To conclude, it is difficult to determine whether polycentric urban climate governance will be 'the key to addressing the global climate change problem' (C40, n.d.). It is encouraging that city governments and other urban leaders have begun to reach out to each other, have begun to take climate action that reaches beyond action taken by nation states, and have not been unduly held back by the lack of formal (inter)national recognition. It is troublesome, however, that polycentric urban climate governance has been studied only in a relatively small number of cities, that we have a limited knowledge base about whether it really delivers on its promises, and that we have a very poor understanding of what this approach to governing means in areas with the very highest levels of urbanisation, namely those in the global South, and particularly Asia and Africa.

References

Acuto, M. and Rayner, S. (2016). City networks: breaking gridlocks or forging (new) lock-ins? *International Affairs*, 92(5), 1147–1166.
Albanese, A. (2013). Our cities, our future. *Urban Policy and Research*, 31(3), 251–253.
Ansell, C. and Bartenberger, M. (2016). Varieties of experimentalism. *Ecological Economics*, 130, 64–73.
Australian Government (2011). *Our Cities, Our Future*. Canberra: Australian Government.
Bai, X., Roberts, B. and Chen, J. (2010). Urban sustainability experiments in Asia: patterns and pathways. *Environmental Science and Policy*, 13(4), 312–325.
Bansard, J., Pattberg, P. and Widerberg, O. (2016). Cities to the rescue? Assessing the performance of transnational municipal networks in global climate governance. *International Environmental Agreements: Politics, Law and Economics*, 1–18.
Barber, B. (2013). *If Mayors Ruled the World*. New Haven, CT: Yale University Press.
Bingham, L. (2006). The new urban governance. *Review of Policy Research*, 23(4), 815–826.
Brenner, N. (2004). *New State Spaces*. Oxford: Oxford University Press.
Bulkeley, H. (2013). *Cities and Climate Change*. New York: Routledge.
Bulkeley, H. and Betsill, M. (2003). *Cities and Climate Change*. Abingdon: Routledge.
Bulkeley, H. and Castán Broto, V. (2013). Government by experiment? Global cities and the governing of climate change. *Transactions of the Institute of British Geographers*, 38 (3), 361–375.
Bulkeley, H. and Mol, A. (2003). Participation and environmental governance: consensus, ambivalence and debate. *Environmental Values*, 12(2), 143–154.
Bulkeley, H., Castán Broto, V. and Edwards, G. (2015). *An Urban Politics of Climate Change*. Abingdon: Routledge.
C40. (no date). www.C40.org [accessed 25 January 2017].
C40 Research Team and Arup. (2014). *Global Aggregation of City Climate Commitments*. New York: C40/Arup.
COAG. (2012). *Review of Capital City Strategic Planning Systems*. Sydney: COAG Reform Council.
Davies, J. and Imbroscio, D. (2009). *Theories of Urban Politics*. London: Sage.
Dodman, D. (2009). Blaming cities for climate change? An analysis of urban greenhouse gas inventories. *Environment and Urbanization*, 21(1), 185–201.
Dryzek, J. (2005). *The Politics of the Earth – Second Edition*. Oxford: Oxford University Press.
Evans, J. (2011). Resilience, ecology and adaptation in the experimental city. *Transactions of the Institute of British Geographers*, 36(2), 223–237.
Evans, J., Karvonen, A. and Raven, R. (eds.). (2016). *The Experimental City*. London: Routledge.
Florida, R. (2005). *Cities and the Creative Class*. London: Routledge.
Gupta, J., Pfeffer, K., Verrest, H. and Ros-Tonen, M. (2015). *Geographies of Urban Governance*. New York: Springer.
Hodge, G. A. (2000). *Privatization*. Boulder, CO: Westview Press.
Hoffmann, M. (2011). *Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto*. New York: Oxford University Press.
Hohn, U. and Neuer, B. (2006). New urban governance: institutional change and consequences for urban development. *European Planning Studies*, 14(3), 291–298.
Homsey, G. and Warner, M. (2015). Cities and sustainability: polycentric action and multilevel governance. *Urban Affairs Review*, 51(1), 46–73.

Hood, C. (1995). The 'new public management' in the 1980s: variations on a theme. *Accounting, Organizations and Society*, 20(2–3), 93–109.
International Council for Local Environmental Initiatives (ICLEI). (no date). www.ICLEI .org [accessed 25 January 2017].
Intergovernmental Panel on Climate Change (IPCC). (2014). *Climate Change 2014*. Cambridge: Cambridge University Press.
Jayne, M. and Ward, K. (2017). *Urban Theory*. London: Routledge.
Johnson, C., Toly, N. and Schroeder, H. (2015). *The Urban Climate Challenge*. Abingdon: Routledge.
Jonas, A., Gibbs, D. and While, A. (2011). The new urban politics as a politics of carbon control. *Urban Studies*, 48(12), 2537–2554.
Jordan, A. and Turnpenny, J. (2015). *The Tools of Policy Formulation*. Cheltenham: Edward Elgar.
Kern, K. and Bulkeley, H. (2009). Cities, Europeanization and multi-level governance: governing climate change through transnational municipal networks. *Journal of Common Market Studies*, 47(2), 309–332.
Ki-moon, B. (2012). 'Our Struggle for Global Sustainability Will Be Won or Lost in Cities', Says Secretary-General, at New York Event. Available at: www.un.org/press/en/2012/sgsm14249.doc.htm [accessed 31 January 2017].
Knieling, J. (ed.). (2016). *Climate Adaptation in Cities and Regions*. Oxford: Wiley Blackwell.
Krause, R., Yi, H. and Feicock, R. (2015). Applying policy termination theory to the abandonment of climate protection initiatives by U.S. local governments. *Policy Studies Journal*, 44(2), 176–195.
Lee, T. (2015). *Global Cities and Climate Change*. London: Routledge.
Lobel, O. (2012). New governance as regulatory governance. In *The Oxford Handbook of Governance*, ed. D. Levi-Faur. Oxford: Oxford University Press, 65–82.
López-Ruiz, V., Alfaro-Navarro, J. and Nevado-Peña, D. (2014). Knowledge-city index construction: an intellectual capital perspective. *Expert Systems with Applications*, 14(12), 5560–5572.
Lovins, A. (2013). *Reinventing Fire*. New York: Rocky Mountains Institute/Chelsea Green Publishing Company.
McCann, E. (2013). Policy boosterism, policy mobilities, and the extrospective city. *Urban Geography*, 34(1), 5–29.
McKinsey. (2009). *Unlocking Energy Efficiency in the U.S. Economy*. New York: McKinsey.
Nishida, Y., Hua, Y. and Okamoto, N. (2016). Alternative building emission-reduction measure: outcomes from the Tokyo cap-and-trade program. *Building Research and Information*, 44(5–6), 644–659.
Osborne, D. and Gaebler, T. (1992). *Reinventing Government*. Reading: Addison-Wesley Publishers.
Ostrom, E. (1990). *Governing the Commons*. Cambridge: Cambridge University Press.
Ostrom, E. (2010). Polycentric systems for coping with collective action and global environmental change. *Global Environmental Change*, 20(4), 550–557.
Ostrom, V., Tiebout, C. and Warren, R. (1961). The organization of government in metropolitan areas: a theoretical inquiry. *American Political Science Review*, 55(4), 831–842.
Parnell, S. (2016). Defining a global urban development agenda. *World Development*, 78(C), 529–540.
Pierre, J. (2011). *The Politics of Urban Governance*. Houndmills: Palgrave Macmillan.

Reckien, D., Flacke, J. and Dawson, R. *et al*. (2014). Climate change response in Europe: what's the reality? *Climatic Change*, 122(1), 331–340.
Rhodes, R. (1996). The new governance: governing without government. *Political Studies*, 44(4), 652–667.
Rhodes, R. (2007). Understanding governance: ten years on. *Organization Studies*, 28(8), 1243–1264.
Sassen, S. (2001). *The Global City*. Princeton, NJ: Princeton University Press.
Sassen, S. (2015). Bringing cities into the global climate framework. In *The Urban Climate Challenge*, ed. C. Johnson, N. Toly and H. Schroeder. London: Routledge, 24–36.
Schragger, R. (2016). *City Power*. Oxford: Oxford University Press.
Schroeder, H. and Bulkeley, H. (2009). Global cities and the governance of climate change: what is the role of law in cities? *Fordham Urban Law Review*, 36(1), 313–359.
Schroeder, H., Burch, S. and Rayner, S. (2013). Novel multisector networks and entrepreneurship in urban climate governance. *Environment and Planning C*, 31(5), 761–768.
Smith, A., Voss, J. and Grin, J. (2010). Innovation studies and sustainability transitions: the allure of the multi-level perspective and its challenges. *Research Policy*, 39(4), 435–448.
United Nations (UN). (2015). *Paris Agreement*. New York: United Nations Treaty Collection.
United Nations (UN). (2016). *New Urban Agenda*. New York: United Nations.
United Nations Conference on Environment and Development (UNCED) (1992). *Agenda 21*. New York: United Nations.
van der Heijden, J. (2010). Smart privatization: lessons from private sector involvement in Australian and Canadian building regulatory enforcement regimes. *Journal of Comparative Policy Analysis*, 12(5), 509–525.
van der Heijden, J. (2014). *Governance for Urban Sustainability and Resilience*. Cheltenham: Edward Elgar.
van der Heijden, J. (2015). On the potential of voluntary environmental programmes for the built environment. *Journal of Housing and the Built Environment*, 30(4), 553–567.
van der Heijden, J. (2016a). Eco-financing for low-carbon buildings and cities: value and limits. *Urban Studies*, 54(12), 2894–2909.
van der Heijden, J. (2016b). Experimental governance for low-carbon buildings and cities: value and limits of local action networks. *Cities*, 53, 1–7.
van der Heijden, J. (2017). *Innovations in Urban Climate Governance*. Cambridge: Cambridge University Press.
Walters, W. (2004). Some critical notes on 'governance'. *Studies in Political Economy*, 73(1), 27–46.
Wilson, J. (1989). *Bureaucracy*. New York: Basic Books.