General Article

Urban Climate Politics in Emerging Economies: A Multi-Level Governance Perspective

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Abstract

Several scholars have pointed to the increasing salience of cities in the global endeavour to reduce dangerous climate change to 1.5°C. However, we still lack systematic comparative analyses on how urban climate initiatives evolve in different political-administrative systems of countries in the global South and what role transnational city networks play in that context. This question is specifically important with regard to the role of cities in contributing to reaching the targets of the Paris Agreement. Against this backdrop, this article explores the vertical and horizontal integration of cities' climate actions in the multi-level climate governance landscapes in Brazil, India, Indonesia and South Africa. We contend that while transnational city networks provide significant support to cities in some cases, their tools and practices can only reach their full potential where they encounter committed local administrations and when they are not constrained by domestic political-administrative and economic factors.

Keywords

Emerging economies/global South, multi-level dynamics, transnational city networks, urban climate governance

Introduction

The adoption of the Paris Agreement and the goal of reducing global warming to 1.5°C foresees a strong role for cities to contribute towards reaching this target (UNFCCC, 2015). According to several authors,

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cities are more agile in their efforts to mitigate greenhouse gas (GHG) emissions than national governments, as they are not caught up in tenacious international bargaining processes (Acuto, 2013; Barber, 2013). When implementing experimental policies and involving a broad range of non-state actors, cities are seen as frontrunners in (global) climate governance. However, the Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5°C underlines the need for coordinated multi-level governance to effectively implement mitigation and adaptation measures (IPCC, 2018). Without such a coordinated approach involving actors across governmental levels, the success of cities' contributions to reaching the target of the Paris Agreement will remain questionable (Fuhr, Hickmann, & Kern, 2018).

Multi-level climate governance entails a horizontal and a vertical dimension (Hickmann & Stehle, 2019). In the horizontal dimension, transnational city networks (TCNs) are important actors, supporting local governments in their efforts to address climate change. Over the past decade, several scholars have contended that the involvement of cities in transnational governance can accelerate their actions to curb GHG emissions under certain conditions (Bulkeley & Betsill, 2013; Gordon & Johnson, 2018; Hickmann, 2017; Kern & Bulkeley, 2009). In the vertical dimension, cities are integrated in national political-administrative systems, which shape their ability to act on climate change. National governments can take an enabling role by directly supporting or incentivising urban climate actions (Kern & Alber, 2008; Melica et al., 2018). At the same time, factors in the national political-economic context may impede urban climate governance, for instance, by subsidising carbon-intensive technology or by limiting cities' authority on infrastructure or transportation politics (Stehle, Höhne, Hickmann, & Lederer, 2019).

Urban climate actions are thus embedded in a complex web of horizontal and vertical relationships with actors operating at different levels and scales. While each of the two dimensions has been analysed extensively in the literature, little attention has been paid to the ways in which their interfaces affect urban climate initiatives, particularly in countries of the global South. This article therefore enquires as to what extent the integration of city governments in varying vertical and horizontal multi-level climate governance systems across countries impacts the way in which they carry out climate action.

It does so by tracing the characteristics of urban climate mitigation actions in four of the world's biggest emerging economies that have substantial GHG emissions: Brazil, India, Indonesia and South Africa. The cities we focus on are São Paulo and Rio de Janeiro in Brazil; Rajkot, New Delhi and Bengaluru in India; Jakarta, Balikpapan and Bogor in Indonesia; and Johannesburg, Cape Town and Durban in South Africa. In this contribution, we concentrate the analysis on comparing the vertical integration of climate change mitigation actions in the respective national domestic context, as well as their horizontal involvement in TCNs. While other variables may also be influential, this focus allows us to shed light on the institutionalisation of climate change responses in the hitherto under-researched multi-level context of political-administrative systems in countries of the Global South.

We proceed as follows: In the next section, we outline the conceptual framework for studying the integration of urban climate politics from a multi-level governance perspective. On this basis, we first compare the vertical frame for urban climate actions by investigating countries' national climate policies, as well as their degree of decentralisation. Second, we examine the extent to which the horizontal integration in TCNs has supported the cities' climate responses. Third, we explore climate mitigation actions of the city governments by tracing organisational and policy changes. Finally, we summarise and discuss our main findings in regard to the differences in vertical and horizontal integration of the cities analysed, then we draw some general conclusions.

A Multi-Level Governance Perspective on Urban Climate Politics

Scholars concerned with the environment frequently use the concept of multi-level governance (Hooghe & Marks, 2001; Marks, 1993) to conceptualise the various linkages between international institutions, national governments, and sub-national and non-state actors in global environmental policymaking (Gupta, 2007; Weibust & Meadowcroft, 2014). In their seminal contribution, Hooghe and Marks (2003) distinguish between two types of multi-level governance perspectives. Type I largely resembles a federal system, with a relatively stable set of governmental levels and a central body that maintains key responsibilities and overarching authority. Political, administrative and financial powers are distributed across these levels to varying degrees, which are 'deconcentration (establishing local units of higher level governments), devolution (creating elected local governments with autonomous powers), and delegation (essentially contracting a central function to a public or private entity)' (Smoke, 2015, p. 98). Type II depicts a more flexible or polycentric system, in which a plethora of different actors and institutions across multiple spheres of authority are simultaneously involved in policymaking (Ostrom, 2010).

Hooghe and Marks (2003) argue that Type II governance arrangements are often embedded in Type I governance systems and are thus not mutually exclusive (p. 238). They suggest that Type II governance is likely to emerge on particular policy issues that conventional governmental organisations of Type I governance often struggle to cope with, and which transcend national jurisdictions (Hooghe & Marks, 2003, p. 240). For the analysis of complex and differentiated policy domains, such as climate change, the concept therefore offers a useful tool. It accounts for the emergence of new governance arrangements (Hickmann, Fuhr, Höhne, Lederer, & Stehle, 2017), which have contributed to a 'layered system of co-existing levels of authority' (Stephenson, 2013, p. 821). Moreover, it enables scrutiny of the interaction of local governments with public and private actors from above, within and below the nation-state, such as (trans-)national networks, business companies or civil society organisations (Piattoni, 2010). These external actors can provide policy solutions, financial assistance, knowledge and new normative understandings to domestic public actors.

By adopting such a perspective, we trace the integration of urban climate actions in multi-level (climate) governance systems. First, we analyse the vertical linkages between urban climate actions and the respective national setting by looking at two factors: (i) the degree of decentralisation and (ii) the characteristics of national climate policymaking. Decentralisation is a crucial factor as it defines the extent to which cities are able to independently design, finance and implement policy solutions to climate change (Bulkeley & Betsill, 2003). Intermediate levels of government, such as state and provincial governments, might also play an important role in vertical governance dynamics. This holds in particular for the case of India, a federation, where the authority of states strongly impacts the scope of decision-making at the city level. National climate policymaking is crucial as it sets the overall framework for cities to act on climate change, reduces uncertainties by defining functions and, in the best case, allocates funds to cities for implementing climate actions (Kern & Alber, 2008).

Second, we examine the horizontal linkages between urban climate actions and the tools and practices of TCNs. Here, we focus on different modes of engagement that exist between city administrations and two prominent TCNs, i.e., the *C40 Cities Climate Leadership Group* (C40) and *ICLEI – Local Governments for Sustainability* (ICLEI). Due to their expected ability to provide cities with a form of 'extra-legem' empowerment (van der Heijden, Bulkeley, & Certomà, 2019) in their responses to climate change, these networks can support cities, for instance by strengthening local capacity to establish GHG emission inventories as well as risk and vulnerability assessments, promoting the exchange of best

practices as well as by learning, and initiating and supporting climate projects and policies (Acuto, 2013; Bertoldi, Kona, Rivas, & Dallemand, 2018; Betsill & Bulkeley, 2004, 2007; Hickmann, 2016; Lee & van de Meene, 2012; Román, 2010; Toly, 2008). Recently, we have witnessed the emergence of large umbrella organisations such as the *Compact of Mayors* and the *European Union's Covenant of Mayors* which merged with the *Global Covenant of Mayors for Climate and Energy* in 2016 (Kona, Bertoldi, Monforti-Ferrario, Rivas, & Dallemand, 2018). However, from a more critical stance, scholars have questioned climate actions promoted by TCNs, arguing that changing local realities and a lack of inclusion in their composition may limit the sustainability of their impact (Acuto & Rayner, 2016; Stehle et al., 2019).

Third, we investigate to what extent the embeddedness in such a multi-level system allows for an institutionalisation of urban climate actions into continuous policies and stable organisational structures at the local level. Building on Capano (2009), such processes can range from no change, to incremental (i.e., small to medium change that does not significantly alter the status quo), up to major change. We define the different stages as follows: small policy change implies the setting up of GHG inventories and pilot projects, whereas small organisational change is present when a few officials work on climate issues. The establishment of climate action plans and the creation of climate change units mark a medium policy and organisational change. Finally, major policy change exists when a coherent climate policy or large-scale transformational projects are implemented, and major organisational change if functional cross-sectoral committees are established in addition. In the final section, we discuss how the different forms of integration in multi-level governance systems across cities shape their climate actions and draw a conclusion.

Methodological Approach

In this article, we compare the integration of cities in the respective multi-level governance context of Brazil, India, Indonesia and South Africa from 2005 to 2018. We selected these countries based on the following criteria: First, the four emerging economies display climate policymaking activities at both national and subnational levels, which indicates that the topic has some salience in the domestic political discourse and is not merely driven by exogenous factors. Second, all four countries exhibit relatively decentralised political-administrative structures, giving subnational governments the de jure function to establish policies and organisational capacity on climate-related matters. Third, the four countries encompass cities in their jurisdiction(s) which are members of either one or both of the TCNs, C40 and ICLEI. At the same time, the cities display different modes of engagement with the networks. In Brazil, São Paulo and Rio de Janeiro are long-time members of both C40 and ICLEI. Several cities in India are ICLEI members and some of them, such as Rajkot, have actively participated in ICLEI projects. While New Delhi has been a C40 member for a long time, the network classified it as temporarily inactive in 2018. In contrast, Bengaluru is among the Indian cities that only joined C40 in 2015. In Indonesia, Jakarta is the sole member of C40, while Balikpapan and Bogor are among the few Indonesian cities that are active members of ICLEI. South Africa's three biggest cities, Johannesburg, Cape Town and Durban, are active C40 and ICLEI members.

For our empirical analysis, we employed a qualitative approach. We are aware that this entails the risk of running into potential pitfalls, such as selection bias, false information or misinterpretation. In order to limit the probability of these deficiencies, we validated our findings utilising triangulation with three different sources of data and methods of data collection (Flick, 2004; Rothbauer, 2008). First, we conducted an extensive review of the scholarly literature on decentralisation reforms, climate policymaking,

and transnational involvement in the four countries. Second, we systematically evaluated the content of urban climate-relevant documents, such as strategies, action plans and policies. Third, during two field trips to each of the countries between 2016 and 2018, we conducted semi-structured expert interviews with public officials at all levels of government and a broad range of stakeholders, such as scholars, experts, representatives of TCNs and members of non-governmental organisations (Bogner, Littig, & Menz, 2009).

The Vertical Integration of Cities' Climate Action in National Contexts

In looking at the vertical integration of cities' responses to climate change in national systems, we first consider the degree to which decision-making and funding authority are decentralised to municipal governments. Second, we examine the extent to which urban climate actions are incentivised and supported by national policy initiatives.

Decentralisation of Climate Politics

One of the main threads of discourse in environmental literature is the debate on which level of government is most effective level for taking action on climate change (Gupta, 2007). While some scholars propose the international level as the appropriate forum for this task, others suggest that protection of the climate has to start at the local level (Melica et al., 2018). During the 1980s and 1990s, the principle of subsidiarity was adopted in many countries along with decentralisation reforms, giving local governments the mandate to make and implement policies, and national governments the task of establishing and monitoring overall rules and guidelines (Follesdal, 1998). However, decentralisation reforms were often not fully implemented, particularly in countries of the global South (Fuhr, 2012). This frequently left local governments with a number of functions they were expected to deliver, but without the necessary authority and mandate to raise the funds needed for such an undertaking (Poteete & Ribot, 2011). Also, frictions with the existent constitutional landscape could cause overlapping mandates and complicated intergovernmental coordination (Agrawal & Ribot, 2003).

Our cases demonstrate an interesting variation in the degree of decentralisation. South Africa displays a high level of overall devolution, a relatively high degree of fiscal decentralisation, but strong centralisation in the energy sector. The South African Constitution of 1996 gives cities authority in respect to climate governance, yet the ambiguous division of tasks between the governmental spheres creates challenges for urban climate governance (Republic of South Africa, 1996). In addition, the devolution of environmental functions to the local level has not been accompanied by substantial transfers of funds, turning the provision of environmental services into an unfunded mandate (Hickmann & Stehle, 2019). The energy sector, responsible for the gross share of urban GHG emissions, is particularly conflict-ridden. Even though cities' mandate technically enables them to generate electricity, they are admonished to purchase coal-based electricity generated by the parastatal utility Eskom (Jaglin, 2014). Furthermore, because of the fact that municipalities gain almost a third of their budget from surplus tariffs on distributing electricity generated by Eskom, they shy away from introducing renewable energy (Elsässer, Hickmann, & Stehle, 2018). Nonetheless, some cities have attempted to circumvent the vague constitutional definition that ties them to unsustainable energy consumption and started to establish schemes that allow small-scale, independent renewable electricity generation that feeds into the municipal grid (Baker & Phillips, 2019).

Brazil also makes a case for strong devolution but lacks strong fiscal autonomy. The protection of the environment and reduction of pollution are concurrent responsibilities of the national government, the states and the municipalities (Federal Republic of Brazil, 1988). The mandate of municipalities encompasses local environmental matters and allows local policymaking to complement federal and state legislation (de Macedo, Setzer, & Rei, 2016). However, one of the main barriers to successful urban climate action is a low degree of fiscal decentralisation, which leaves cities without meaningful financial instruments for transformation (Fernandes, 2007). In addition, salaries and conditional transfers for health and education make up the largest share of the municipal budget, while only 10 per cent remains for other expenses, climate change being one of them.

Cities in Indonesia find themselves in limbo, as recently granted authority to municipal governments is successively being recentralised. Decentralisation reforms in 1999 provided cities with a number of mandates (Firman, 2002), but between 2004 and 2014, the national government gradually reinforced oversight through a number of laws and empowered provinces alongside cities (Moeliono, 2011; Republic of Indonesia, 2014). In addition, important issue-areas, such as energy production and distribution, are now mostly centralised (Republic of Indonesia, 2014). Even though cities and provinces hold some competences regarding transport, waste and energy efficiency, they are left with limited leeway to implement climate actions (Hickmann et al., 2017). In addition, the lack of fiscal decentralisation makes cities dependent on the support of higher governmental levels to finance urban actions, such as the procurement of public buses in the case of Bogor.

Indian cities' climate actions are constrained by a lack of powers, resources and capacity, despite the national government's acknowledgement of local governments as the third governmental tier in 1992. India's central government upholds its strong guiding position by providing funding for urban issues such as transport, and the states maintain control and decision-making authority in many urban areas. Although states have been instructed to transfer 18 state functions to the local level, many cities still do not have sufficient competences and resources to independently enact urban climate actions (Beermann, Damodaran, Jörgensen, & Schreurs, 2016; Chu, 2016; Khosla & Bhardwaj, 2019; Nandi & Gamkhar, 2013; Venugopal & Yilmaz, 2009). While cities possess mandates on waste management, retrofitting of municipal buildings and street lighting, national and state-level policies shape the better part of urban politics which impact climate change. In terms of political decentralisation, elected city officials have equally low authority. State-appointed municipal commissioners hold the most powerful position within city governments, and not elected mayors, as for example in the case of Rajkot (Stehle et al., 2019).

National Climate Policy Frameworks

National climate policies is the second important factor that shapes a city's ability to act on climate change (Kern, 2019; van der Heijden, Patterson, Juhola, & Wolfram, 2018). Particularly in the context of low accountability and inadequate capacity at the local level, central governments may be reluctant to decentralise functions or fiscal control. Under such conditions, they can provide cities with special purpose transfers and request them to develop their own climate strategies. However, if a national policy or strategy is established without consulting local governments or without assigning crucial climate-related responsibilities to city governments, it might not only ignore urban realities but may hinder the implementation of climate actions in urban areas. Interestingly, none of the Nationally Determined Contributions (NDCs) of the four countries analysed explicitly mentions the city level, except when pointing out that urbanisation is a major challenge; when stating that adaptation, in particular, has a local

dimension; and when announcing that more local capacity-building is planned (Federative Republic of Brazil, 2015; Republic of Indonesia, 2016; Republic of South Africa, 2015). Out of the four emerging economies under study, India is the only country that mentions urban climate actions in its NDC, mainly in the context of the central government-driven 'Smart Cities Mission' and 'Atal Mission for Rejuvenation and Urban Transformation'. However, the Indian NDC fails to refer to any specific role for city governments in these broad-ranging missions which are not climate change-centred themselves (Government of India, 2015).

National climate policies can also be the result of competition between subnational and national governments (Schreurs, 2008). If a city is a frontrunner for action on climate change, a national government might feel the pressure to appear equally progressive and mimic policymaking. This could foster national climate activities but could also result in window dressing with policies that are unlikely to be fully implemented. Brazil's national climate policy from 2009 can be interpreted as such a negative case. Here, Rio de Janeiro and São Paulo had the lead in climate policymaking (Barbi & da Costa Ferreira, 2013). Just a few months before the national election in 2009, in reaction to the strong green presidential candidate Marina da Silva, the central government issued a national climate policy and made strong commitments at the fifteenth Conference of the Parties (COP 15) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Copenhagen in 2009 (Viola & Franchini, 2013). Nonetheless, most action plans that were assembled under this policy ceased or were revoked. The policy also lacked specific action and support for cities. Instead, after the recent discovery of offshore oil, the government's energy policy thwarted cities' efforts to reduce GHG emissions in the transportation sector by subsidising cars with diesel motors and lowering taxes on diesel.

So far, South Africa has not adopted a binding climate law, although the bill has been under review since 2018. The 2011 National Climate Change Response White Paper, which has not been implemented yet, only briefly refers to the role of municipalities and does not define their mandate or related funds (Republic of South Africa, 2011). Overall, the country's effort to reduce GHG emissions is still hampered by its heavy reliance on coal-based electricity combined with various instances of state-capture. The parastatal company Eskom has sought to maintain its dominant position as the main energy provider. For a few years, it even obstructed the decarbonisation of the energy sector by blocking the national auctioning of licences for renewable energy generation (Baker & Phillips, 2019).

In Indonesia, climate policies started to gain momentum under President Yudhoyono, after the 2007 international climate change conference took place in Bali (Ardiansyah, Melati, & Anjani, 2015; Höhne, 2018). At this point, the decision-making authority was concentrated at the national level without involving subnational entities, and the President established the National Council on Climate Change in 2008 and issued the National Action Plan for Reducing Greenhouse Gas Emissions in 2011 (Anggraini, Boer, & Dewi, 2011). The central government mandated provinces to develop climate action plans, while cities were invited to implement principles of green development under a national programme, but were not obliged to develop their own climate action plans (Simarmata, Dimastanto, Santoso, & Kalsuma, 2014). These developments have hindered a comprehensive engagement by municipal governments with climate change issues, which has, for the most part, only been broken up when external actors, such as ICLEI, have supported cities like Bogor or Balikpapan in the development of urban climate change actions plans. Furthermore, political-economic factors such as national fuel subsidies and the continuing use of coal counteract or even prevent municipal efforts on energy efficiency and renewable energy (Stehle et al., 2019).

India's central government has been the driving force in the development of the country's climate policy since 2007. In 2008, the Prime Minister's Council on Climate Change presented its National

Action Plan on Climate Change. It defined eight National Missions in climate-relevant policy areas, but only the National Mission on Sustainable Habitat directly engaged with climate change actions in cities, while still lacking implementation. The national government only asked states to develop action plans on climate change, but did not foresee any specific role for city governments (Atteridge, 2013; Dubash, 2013; Dubash & Jogesh, 2014; Dubash & Joseph, 2016; Republic of India, 2008). However, national programmes such as the Solar Cities Programme and the National Urban Renewal Mission have supported cities in financing activities such as the installation of solar energy cells on municipal buildings or the procurement of public buses, as in the case of Rajkot (Bhardwaj & Khosla, 2017; Stehle et al., 2019). But these actions are mostly small-scale and, in the case of the energy sector, limited to municipal buildings as the jurisdiction for energy generation lies with states and the national government. Overall, the increasing energy consumption and demands for individual transport counteract these initiatives (Stehle et al., 2019).

In a nutshell, we can state that decentralisation is an important precondition for urban climate actions across all countries but apparently not sufficient for their initiation. The devolution of mandates in sectors relevant to climate change may accelerate urban climate actions. However, for city governments to finance such actions, devolved mandates require simultaneous political and fiscal decentralisation, or otherwise remain empty shells. Second, while national climate action plans, policies or laws are in place in all four countries, their impact on urban climate action differs substantially. Power plays and turf wars between national, provincial and local elites, insufficient devolution of competencies and resources, and a reliance on fossil fuels present strong obstacles to the vertical integration and coordination of climate aspects.

Horizontal Integration of Cities in Transnational Cities Networks

In the horizontal dimension, we analyse the involvement of municipal governments with C40 and ICLEI. In our previous research, we have identified five main modes of engagement that TCNs use: (i) generation of information, (ii) support and capacity building, (iii) peer-to-peer learning, (iv) engaging political leadership, and (v) finance (Stehle et al., 2019). In this section, we trace the way in which TCNs have engaged with city governments and highlight a number of particularities across cities.

TCNs supported the initial uptake of climate actions across cities in Brazil, but their involvement has largely depended on local leadership, which can disrupt the institutionalisation of climate actions (de Macedo et al., 2016). ICLEI has been instrumental in creating awareness on climate issues among many city officials. For example, in collaboration with the Konrad Adenauer Foundation, ICLEI supported peer-to-peer learning by facilitating the CB27, an annual conference of the heads of the environmental departments of the 27 largest Brazilian cities. São Paulo was a founding member of C40 and at the network's annual conference in 2007, the city's mayor announced the intention to introduce a climate policy (de Macedo & Jacobi, 2019; Johnson, Toly, & Schroeder, 2015). Both networks supported the drafting of this climate policy, which was adopted in 2009 (de Macedo et al., 2016). With strong support from ICLEI, Rio de Janeiro took initial steps to tackle climate change. Since joining C40 in 2006, it has been continuously implementing climate-related projects in key focus areas of the network. However, in São Paulo and Rio de Janeiro, the transnational involvement on climate issues was strongly tied to the mayor's political agenda. This turned out to be an obstacle for their institutionalisation, when a change of mayors in both cities weakened or halted their long-time involvement in the networks. The opposite development can be observed in Salvador, where the new mayor agreed to establish a climate secretariat and the city subsequently joined C40 in 2015.

Notwithstanding the dominant role of central and state governments in India's climate policy, some cities have become members of TCNs in the past few years. However, there is little indication that the C40 membership of five Indian cities has bolstered their climate actions (Hickmann et al., 2017). In 2018, C40 temporarily marked Delhi as inactive on their website. Nevertheless, the network has highlighted several best practices of Indian cities despite their shortcomings, such as Bengaluru's comparably malfunctioning waste management, as very progressive. ICLEI, in turn, has in the absence of strong municipal decision-making authority, strived to support cities' actions by improving intergovernmental coordination on climate governance. For instance, the network assisted the national government during the development of the Smart Cities Mission and the Solar Cities Programme. At the same time, it supported cities to implement the programmes by sharing best practices and providing training, online tools and consultants. ICLEI also supported the development of Rajkot's climate action plan and implemented pilot projects such as one on LED street-lighting (Stehle et al., 2019).

In Indonesian cities, the two networks have been engaged in fostering climate actions in different ways. Jakarta joined C40 in 2007 (Susanti, 2011) but has rarely participated in network-wide initiatives, except for its recent involvement in the clean buses initiative (C40, 2015). City staff have also benefited from peer-to-peer learning during the course of an ongoing project on a public bus system. In addition, C40 supported Jakarta to further develop its GHG inventory and was also instrumental in motivating the city to formulate its GHG reduction commitment in 2009. ICLEI has supported both the initial establishment of GHG inventories and the formulation of climate action plans and GHG emission reduction targets in Bogor and Balikpapan. Furthermore, ICLEI has facilitated study tours for these cities' officials, such as on Warsaw's public transportation system (Stehle et al., 2019).

In South Africa, ICLEI and C40 have enhanced cities' knowledge on sustainable transformation processes, facilitated political backup for climate actions within local and national governments, and aided access to external funding. ICLEI substantially contributed to creating awareness about climate change among city officials in the early 2000s and supported Cape Town and Durban to establish GHG inventories of municipal emissions (Holgate, 2007). With strong support from ICLEI, Durban's environmental department developed a number of climate-related policies and prepared for COP 17 in 2011 (Roberts, 2010). C40 supported Johannesburg in requesting funding for the densification project, 'Corridors of Freedom'. As a consequence, the city obtained a major loan from the French development agency, Agence Française de Développement (AFD) and the Global Environment Facility (GEF). In Cape Town, having C40 membership aided city officials to enlist Mayor Patricia de Lille's support for climate change, resulting in her participation in COP 21 in 2015 (Hickmann & Stehle, 2019).

In essence, we find a remarkable variance in the ways in which cities interact with TCNs. Across most participating cities, TCNs have initiated climate (planning) actions and created climate awareness. However, their ability to make a lasting impact seems to rely on national conditions and the local context. The following section analyses policy and organisational changes at the local level leading towards the institutionalisation of climate actions.

The Institutionalisation of Climate Responses at the City Level

Cities have adopted varying response strategies to combat climate change and established different organisational structures and policies. In this section, we illustrate the different degrees of institutionalisation that urban climate politics display across cities by tracking organisational and policy changes over the period from 2005 to 2018.

Before focusing on specific pathways, we highlight a number of recurring tendencies across our cases. First, climate policies are more likely to be implemented if a mayor (in Brazil and South Africa) or a municipal commissioner (in India) is a member of the ruling party at the national or state level, as this permits favourable access to financial resources and rule-setting at higher governmental levels. Second, frequent changes of municipal staff severely hamper the institutionalisation or entrenchment of climate actions in cities. Third, the introduction of climate actions can lead to conflicts between the 'losers' and 'winners' of new technologies or infrastructures. For instance, protests took place in several cities when municipal or privately owned public transportation companies replaced informal transportation networks.

Focusing on individual case studies, the following developments are significant: Brazilian cities such as Rio de Janeiro and São Paulo established climate units within their environmental secretariats in the early 2000s and were instrumental in developing municipal plans to reduce GHG emissions (Kahn & Brandão, 2015). In São Paulo, an intersectoral committee was created in 2009 to coordinate the implementation of the city's climate policy (Barbi & da Costa Ferreira, 2013; Romeiro & Parente, 2011; São Paulo, 2009). Rio de Janeiro established a similar committee, but it failed to convene on a regular basis (de Macedo et al., 2016). Large-scale political changes, the economic crisis in 2013, and a number of structural economic obstacles seem to have trapped local action on climate change in a state of inertia (Stehle et al., 2019). In 2013, São Paulo's new mayor replaced climate-related activities with a focus on pro-poor development. As of 2017, previous major changes had been reversed. The city has not reached its reduction targets, and meetings of climate committees have stopped. A similar development took place in Rio de Janeiro after the municipal elections in 2016.

Varying degrees of organisational and policy change have also occurred across South African cities. In Cape Town, major changes in policies and organisational setup have been implemented by the city government. Since 2001, the city has built an encompassing policy framework on climate issues and established a number of bodies to facilitate cross-sectoral coordination (Mokwena, 2009). Over the years, the Energy and Climate Change Unit has significantly increased its staff and technical capacity (Holgate, 2007). These major changes can mostly be attributed to the commitment of public officials and a local network of dedicated non-governmental organisations and academia. Durban shows medium organisational and policy change, with a strong environmental department leading climate policymaking, and a smaller mitigation unit, which was instrumental in developing the city's climate change strategy (Roberts, 2008). With two city officials working on climate issues and no climate policy in place, Johannesburg only undergoes small organisational and policy changes. However, the city densification project, Corridors of Freedom, incorporates climate aspects and is expected to have a positive impact on reducing emissions (Pieterse, 2019).

Only few Indonesian cities have witnessed medium organisational and policy changes. With the support of ICLEI, Balikpapan and Bogor, among others, have formulated climate action plans and set up small units in environment or development planning agencies. These two cities, in addition, have created intergovernmental coordinating teams on climate change and integrated low-carbon aspects into mid-term development plans. But they have, overall, very few people and funding available for these issues, even though they have benefited from ICLEI's capacity-building initiatives. Most of their climate actions are limited to small-scale projects, even though Bogor is in the process of introducing a public bus system (Stehle et al., 2019). In 2009, Jakarta established a Provincial Climate Action Plan, formulated a GHG reduction target and, in the following years, integrated some climate aspects in the mid-term development plan and the Spatial Plan for 2030 (Anggraini et al., 2011; Susanti, 2011). Furthermore, the provincial government of Jakarta created a small unit on climate change within its Environmental

Agency. Recently, Jakarta has even been increasingly engaged in expanding public transport systems and in fostering energy efficiency in buildings. However, these activities are exceptional and rarely change the prevalent logic of urban sector policies.

Cities in India have adopted no or small organisational and policy changes, as in the cases of Delhi or Bengaluru. The exception is Rajkot, where a medium policy change was implemented with the support of ICLEI through pilot projects, their local scale-up on solar energy and energy efficiency, and through the establishment of a GHG inventory as well as a low-carbon development plan. However, most cities do not have permanent staff working on climate issues, although some have created informal climate working groups. Changes in Rajkot were, moreover, facilitated by the fact that the city government is ruled by members of the same party that rules the state, making it easier to secure support from the state government for the implementation of energy-related climate actions (Stehle et al., 2019).

All in all, this shows that leadership and political prioritisation are a crucial condition for the implementation of urban climate actions, but this can also result in policy reversals when a city government changes. Furthermore, national political-economic factors strongly shape a city's ability to act, notwithstanding decentralised decision-making authority and capacity or support by TCNs.

Summary and Discussion

In our previous research, we have examined the influence that TCNs can exert on the distribution of public authority on climate change in different countries of the global South (Hickmann et al., 2017). While we found evidence for a very limited to moderate influence of TCNs across all cases, mostly by initiating urban climate actions, we also identified a number of constraining political-administrative and economic factors in the respective national context (Stehle et al., 2019). Especially in regard to the institutionalisation of climate actions, we observed that the extent to which TCNs were able to exert influence was intrinsically linked to the varying dynamics of multi-level governance in the respective national and local contexts (Hickmann & Stehle, 2019).

In this contribution, we have put forward the argument that the embeddedness of cities in varying systems of multi-level governance considerably shapes their climate actions. We provided empirical evidence on the different national, transnational and subnational contexts in which these actions are embedded (see Table 1). To bring these strands together, we provide four examples of how variations in the vertical and horizontal dimensions can result in complex context conditions for urban climate actions across countries.

(1) Johannesburg serves as the first example. The devolution of functions and decision-making authority to city governments would enable the city to establish its own strategy to achieve GHG emission reductions. However, the fact that the municipality gains approximately one-third of its budget from distributing coal-based energy generated by the parastatal utility, Eskom, creates a perverse incentive to continue using carbon-intensive energy. At the national level, a system of state capture by the coal mining and energy sector prevented the adoption of binding national climate legislation and the roll-out of a cost-effective renewable energy system. Nonetheless, the fact that cities can obtain foreign loans with the approval of the national government enabled Johannesburg to receive funding to implement a transformational project. This process was facilitated by its membership in C40.

(2) São Paulo is the second example. The city introduced ambitious GHG emission reduction targets with its climate law in 2009. However, the fact that municipal decision-making authority on climate-related matters has not been accompanied by a sufficient transfer of fiscal authority or a special-purpose

Table 1. The Embeddedness of Urban Climate Actions in Multi-Level Governance Systems.

		Brazil	India	Indonesia	South Africa
MLG TYPE I VERTICAL INTEGRATION IN NATIONAL CONTEXT	**Decentralisation**	Devolution, low fiscal decentralisation	Part-devolution, part-deconcentration, strong central and state governments, low local autonomy	Devolution, low fiscal decentralisation, shared powers with provinces	Devolution, medium fiscal decentralisation
	Climate Policy	Rather symbolic climate legislation in place, no reference to cities	Strong lead by central government, cities left out in national strategy	Strong lead by central government, cities left out in national strategy	Lack of binding legislation, cities in functional grey zone
MLG TYPE II HORIZONTAL INVOLVEMENT IN TCNS	**C40**	Low to medium	Very low	Low to medium	Low to strong
	ICLEI	Low to medium	Medium	Medium	Low to strong
CHANGES IN TCN MEMBER CITIES	**Policy Change**	Medium	Small to medium	Small to medium	Medium to major
	Organisational Change	Medium to major	None to small	Small to medium	Small to major

Source: Authors' own compilation.

grant on climate action turns the tight municipal budget on climate change into the subject of electoral campaigns. When the city's new mayor won the election by advocating pro-poor development, this was to the disadvantage of the climate agenda and led to a policy reversal. Similarly, the involvement with TCNs, which had promoted the ambitious policy, was halted.

(3) The third example is Rajkot. Indian cities do not possess much decision-making power or funds to implement climate action. However, it was possible for ICLEI to facilitate several projects and climate actions in Rajkot, mostly for the following reason: The network included both the city and the state governments in its advocacy work which were ruled by the same party, thereby securing higher-level political support.

(4) In Bogor, our fourth example, a young and ambitious mayor quickly showed interest in greening Bogor. In order to achieve his vision of 'Green Bogor', he developed a climate action plan with the support of ICLEI, even though the central government did not foresee such a role for cities. One of the major problems, the traffic jams, was sought to be resolved through the introduction of a bus rapid transit system. This, however, led to protests and strikes by mini-bus drivers and the city had to rely on higher governmental levels for the procurement of buses for financial reasons. Although transnational networks can sometimes fill some governance gaps, public support by higher governmental levels is often needed for implementing climate actions or plans and conducting large-scale projects.

Conclusions

Three main findings stand out with regard to our empirical analysis: First, the extent to which cities engage in TCNs is shaped by factors in the vertical domestic dimension. In sectors relevant to climate change, the degree of fiscal, administrative and political decentralisation across sectors strongly impacts cities' ability to engage with TCNs. For instance, the climate actions of Indian cities stagnated due to the lack of decentralised functions and capacitated staff at the local level. This implies important messages for policymaking. There is an obvious need to build up competencies, resources and capacities at the urban level, but also to collaborate with those governmental levels that hold the necessary mandates and resources for addressing climate change. Furthermore, in order to tackle an issue as complex as climate change, it is key to break with mono-level and silo interventions and take a holistic approach spanning across levels, dimensions and sectors.

Second, the scope of support that TCNs can provide to cities to break out of national carbon lock-ins is relatively limited. Across almost all country cases (less so in the case of India), vested national political-economic interests in maintaining fossil fuel-driven economies largely constrain cities' leeway to achieve GHG emission reductions. This finding is of particular relevance for future research, as we still lack a thorough understanding of how positive but also negative policy feedback loops work across governmental levels. Particularly, the national economic context has huge implications for the extent to which energy-related climate actions can be implemented by and at the local level. Therefore, these aspects need to be integrated in further analyses of the role of cities and their networks in the global response to climate change.

Third, the process of institutionalising urban climate solutions promoted by TCNs can be highly volatile or vulnerable, depending on local or national political preferences. If local governments or populations do not possess sufficient resources or higher-level political support, a climate change agenda can be perceived as counteractive to pro-poor interests. In our view, this has important implications for policy and academia, as both have to improve their understanding of existing and emerging trade-offs between political preferences in light of the 2030 Agenda for Sustainable Development with its 17 Sustainable Development Goals.

This leads us to the following conclusion. While the integration of cities in each of the dimensions is an important precondition for enabling climate actions, cities are not sufficient on their own. In fact, if the interplay of a city's vertical and horizontal involvement is not coordinated, there is an implicit risk that the actions in all dimensions mutually counteract themselves. For instance, the hope that exogenous actors can provide a quick and lasting cure for problems that have a global urgency but rank low on a local political agenda is unrealistic. Therefore, we argue that instead of isolated actions in each of the dimensions, a whole-of-government approach is necessary to secure the implementation of climate actions in urban areas. Embedding—and up-scaling—local climate action effectively within a national multi-level framework will be key for reaching the 1.5°C target.

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