

Harald Fuhr (University of Potsdam)
Thomas Hickmann (University of Potsdam)
Chris Höhne (University of Münster)
Markus Lederer (University of Münster)
Fee Stehle (University of Potsdam)

Carbon Governance Arrangements and the Nation-State: The Reconfiguration of Public Authority in Developing Countries

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First Draft – Comments are very welcome!

Abstract

In recent years, several scholars of world politics have observed a relocation of authority in different issue areas of global policy-making. This development appears to be particularly evident in the field of global climate politics where a number of authors have highlighted the gradual loss of authority by national governments and the emergence of new *spheres of authority* dominated by actors other than the nation-state. In fact, due to the existence of a regulatory gap in this policy domain, various new governance arrangements have emerged which work simultaneously at different levels (some *top-down* and others *bottom-up*) to cope with the problem of climate change. However, despite several broader descriptions and mapping exercises, we have little systematic knowledge about their workings, let alone their impact on political-administrative systems. Given these shortcomings, in this paper we explore how (and how far) different types of globally operating governance arrangements have caused changes in the distribution of authority within national governments and their public administration. We will focus on two stylized governance arrangements: one that operates bottom-up (i.e. *Transnational City Networks*, TCNs) and another that operates top-down (i.e. *Reducing Emissions from Deforestation and Forest Degradation*, REDD+). Departing from our hypotheses that the former is likely to lead to more decentralization and the latter to more centralization of environmental policy making, we will present some preliminary findings from our case studies in Brazil, India, Indonesia, and South Africa.

Keywords: Public Authority; Global Climate Governance; Developing Countries; REDD+; Transnational City Networks; Global South

1. Introduction: New Carbon Governance Arrangements and Public Authority¹

Scholars and practitioners alike agree that global climate governance has become highly complex in recent years. Given the difficulties among national governments in adopting effective means of implementation to cope with the issue of climate change, a plethora of new carbon governance arrangements has emerged during the past decade (Bulkeley 2010; Hoffmann 2011; Newell, Pattberg, Schroeder 2012). These involve both state and non-state actors operating at different societal levels and within two stylized patterns. From the perspective of the nation-state, some work top-down (primarily driven by international institutions) and others work bottom-up (primarily driven by private or sub-national entities). These arrangements are assumed to initiate novel patterns of authority or even new *spheres of authority* (Rosenau 1992; Rosenau 1997).

The increasing institutional complexity of the global climate governance landscape has lately attracted the attention of numerous authors. While some discuss the pros and cons of *fragmentation* (Biermann, Pattberg, Zelli 2010; Zelli 2011; Zelli, van Asselt 2013) or highlight the development of a *regime complex* (Keohane, Victor 2011; Van de Graaf, De Ville 2013), others emphasize the development of *governance experiments* (Hoffmann 2011), *orchestration* (Hale, Roger 2014) or a *polycentric approach* to global climate policy-making (Ostrom 2010). Moreover, several authors (Betsill, Bulkeley 2006; Bäckstrand 2008; Newell, Pattberg, Schroeder 2012; Green 2014; Hickmann 2016) explicitly or implicitly assume that such institutional complexity is accompanied by a “reconfiguration of political authority across multiple levels and between public and private actors” (Bulkeley 2010: 231). The emergence of new *spheres of authority* implies that there is a vertical and/or horizontal devolution of the legitimate use of power, and that such authority is either deliberately delegated or transferred (Kahler, Lake 2003; Zürn 2013).

However, despite several broader descriptions and mapping exercises of the various new carbon governance arrangements, we have little systematic knowledge about their workings within national jurisdictions, let alone their impact on political-administrative systems. In particular, we lack empirical studies on whether public authority has really shifted vertically or horizontally since the nation-state with its various administrative levels is often regarded as a *black box* in the field of global climate policy-making. While some studies have been carried out in OECD countries (Selin, VanDeveer 2012; Fisher 2013), hardly any research has been conducted in non-OECD countries with the exception of Brazil (Hochstetler, Viola 2011). This lacking evidence is especially surprising, as most scholars would agree with the argument that governments and administrations are key when it comes to understanding the bottlenecks in global climate policy making (e.g. WBGU 2012). In this paper, we will address this research gap and explore the question of whether and to what extent different types of globally operating carbon governance arrangements generate changes in the distribution of public authority in developing countries.

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The paper proceeds as follows. In *Section 2* we will sketch our conceptual and analytical framework. In *Section 3* we will describe the two carbon governance arrangements we have selected for our analysis (i.e. *Reducing Emissions from Deforestation and Forest Degradation, REDD+* as well as *Transnational City Networks, TCNs*). In *Section 4* we will present preliminary findings from our case studies in Brazil, India, Indonesia, and South Africa, and draw conclusions in *Section 5*.

2. Conceptual and Analytical Framework

To what extent do carbon governance arrangements act as game changers that lead to a reconfiguration of public authority and how can we actually measure reconfigurations of authority? One could first think about a variety of functional as well as interest- and resource-based explanations that focus theoretically on the role of international actors, on individual policy-makers and bureaucrats. In our research, we have chosen a two step approach for modeling and analyzing such reconfigurations triggered by globally operating governance arrangements in specific policy fields, in our case: climate policy, and more specifically in forest policy and urban climate policy (see below *Section 3*) in developing countries.

In a first step, we depart from the idea that the type of carbon governance arrangement and its specific modus operandi matters for the way in which such a reconfiguration vis-à-vis national public administrations takes place. For example, while one governance arrangement may predominantly choose the national level, i.e. national governments and ministries as primary partners in its transnational cooperation, another may choose the sub-national level, with its governments and communities as beneficiaries. Given such differences, we thought that we should be able to observe the implications of such cooperation over time. Moreover, due to the (at times: massive) resource allocation of the international partners, we should expect changes in the quality of decision-making of the respective governments and possibly changes at the intergovernmental level. Consequently, and in a second step, we expected to be able to observe and analyze reconfigurations of authority through a varying degree of (de)centralization in specific policy fields and use it as a proxy for operationalizing and measuring the supposed changing patterns of authority.

This has led us to two key assumptions: we expect that (i) the more resources are channeled via top-down governance arrangements and the more a specific country is involved with these arrangements, the more likely central governments will regulate, coordinate, and monitor, with the potential effect that the national level will be strengthened and former decentralization efforts will be reversed (*conceptual assumption 1*); (ii) the more resources are channeled via bottom-up governance arrangements in forest and urban policy-making and the more resources are channeled into climate-related activities undertaken by local governments, the more this will lead to decentralization in the recipient countries (*conceptual assumption 2*). Thus, in short, we suppose that top-down governance arrangements generate a trend towards more centralized decision-making, while bottom-up governance arrangements are expected to strengthen decentralization efforts in the field of forest and urban policy-making.

The literature on public sector decentralization provides particularly interesting insights when it comes to decision-making among different levels of government (Pollit 2005; Cheema, Rondinelli 2007). In this strand of literature, decentralization is defined as the devolution of decision-making and expenditure authorities from central to regional and/or local government (Campbell, Fuhr 2004), or, in other words, devolving decision-making capacities from the top (Friberg, Fuhr, Obser, et al. 2006). The bulk of this research has highlighted that instead of winning and losing authority, federal/national, district and local levels are very often required jointly to build their capacity and interact closely with each other in order to provide public services effectively and legitimately (Shah 2005; Fuhr 2012). Using decentralization as an adequate proxy for the abstract term *reconfiguration of authority* allows us to access a pool of established concepts to measure this change.

Consequently, we will evaluate such the reconfiguration of public authority in developing countries in terms of a *shift in the degree of (de)centralization* (see above conceptual assumptions 1 and 2). More specifically, we will investigate whether there have been any discernible changes in the composition of responsibilities and competencies in forest and urban policy-making among central and sub-national governments. We will analyze the period from 2005 to 2015 (using 2005 as the base year for our observations).² This will allow for inter-temporal as well as cross-sectional comparisons (Blatter, Haverland 2012: 44f). Furthermore, we expect to be able to ascertain the changes that our carbon governance arrangements have induced at the different levels involved. To do this, we will focus on three dimensions of decentralization that capture the division of competencies and responsibilities across different levels of government (Pollit 2005). In particular, we differentiate between three types of decentralization: (i) administrative, (ii) fiscal, and (iii) political decentralization. *Administrative decentralization* seeks to redistribute authority, responsibility, and financial resources for the provision of public services among different levels of government. *Fiscal decentralization* seeks to redistribute authority to raise revenues in favor of sub-national units (especially local governments) in order to carry out decentralized functions more independently. *Political decentralization* involves the devolution of power to citizens and their elected representatives.

3. Top-Down and Bottom-Up Carbon Governance Arrangements

Based on the above framework, we have chosen two globally operating carbon governance arrangements that are located at each end of the spectrum: one that operates top-down and one that operates bottom-up. Our first research object is the top-down governance arrangement *Reducing Emissions from Deforestation and Forest Degradation* (REDD+) that was officially launched in 2007 to protect the remaining tropical forests (Lederer 2011; Lederer 2012b; Lederer 2012a). The fundamental principle behind REDD+ is to set proper incentives for developing countries to protect their forests from deforestation and

² The year 2005 is an adequate starting point both for REDD+ and for TCNs. In 2005, forestry emerged in the international climate negotiations (COP 11 in Montreal) and reforestation started to become part of a post-Kyoto mechanism. In the same year, TCNs started becoming active in international climate policy and the C40 network held its first summit in London.

degradation, which is widely regarded as an essential and cost-effective means of mitigating climate change (Stern 2007; Eliasch 2008). REDD+ is largely driven by a variety of globally operating players working together, comprising both state and non-state actors. Our second research object concerns the emergence of *transnational city networks* (TCNs), representing a bottom-up governance arrangement that addresses the issue of climate change. TCNs can be generally defined as a non-hierarchical, horizontal, and polycentric cooperation between city governments across different countries (Pattberg, Stripple 2008; Kern, Bulkeley 2009; Bulkeley, Betsill 2013). Established in the early 1990s (Campbell, Fuhr 2004), TCNs seek voluntary commitments from local authorities for reducing greenhouse gas (GHG) emissions (Schreurs 2008; Bulkeley 2010). Mostly using their own resources, TCNs act as policy entrepreneurs and agenda-setters, trying to overcome the constraints imposed by national and international administrative decision-making, partisan politics, and political timetables (Acuto 2013).

The two carbon governance arrangements, REDD+ and TCNs, are of interest from both a scholar's and a practitioner's perspective. Theoretically, the analysis of REDD+ and TCNs is relevant since both arrangements are located at opposite ends of the spectrum comprising top-down and bottom-up approaches. We thus expect to observe different impacts in terms of how reconfigurations of public authority work in practice. Moreover, the findings will also lay the groundwork for ascertaining whether such governance arrangements result in significant policy changes that many scholars have assumed take place. The latter step is highly relevant to practitioners since there is little knowledge about the effects the numerous initiatives might have on a country's administrative capacity and whether the large investments currently underway make a significant difference on the ground.

Case Selection

In our co-variational analysis (Blatter, Haverland 2012: 42; King, Keohane, Verba 1994: 137f.), we compare countries that exhibit REDD+/ TCN activities with countries where no such activities take place, or where only low activity is present. We have also included one country where both activities are present to initially assess whether and how the expected trends (recentralization in forestry and decentralization in urban climate change activities) potentially have contradictory effects on the overall field of environmental policy-making. Given our focus on the global South, our universe of cases comprises all developing countries with regard to the presence of the two governance arrangements under investigation. In an attempt to control for the existing degree of decentralization, we have only chosen countries with a similar level of decentralization (see first row in Table 1).

In addition, we differentiate between those countries that are significantly involved in either REDD+ or TCNs (see the first two columns in Table 1), those countries that have a significant involvement in both governance arrangements (see column three in Table 1) and those where neither the one nor the other is significant (see column four in Table 1). In the first row the case selected not only serves as a case for studying the influence of REDD+ activities, it also constitutes a crucial control case for a country not involved in significant

TCNs activities (similarly, the same holds for the country in column two that is not actively engaged in REDD+). The country in the third column might allow us to observe both effects at the same time but playing out in different sectors (urban activities vs. forestry), and the country in the last column serves as another control case.

REDD+ and TCNs

We define ‘significant REDD+ activities’ as funds directed towards national readiness and implementation actions of REDD+ until November 2015, which amount to more than US\$ 20 million.³ For being able to see actual changes on the ground, REDD+ funding which totals less than US\$ 20 million per country is regarded as too little to lead to changes as hypothesized in our research design. The *Voluntary REDD+ Database* (FAO 2016) provides information on delivered funding for environmental actions. It is supposed to present only financial means that are for the purpose of domestic REDD+ actions. But as every stakeholder is free to provide this voluntary information, a lot of non-REDD+ funding is listed in this database. However, it is the most comprehensive one and was therefore used to categorize countries. All information being used were compiled as presented by donors and crosschecked with data presented by the respective recipient countries. In order to qualify as REDD+ funding, the project description had to mention REDD+ actions as project activities.

We have chosen C40 amongst other TCNs because we expect to be able to examine significant shifts in the redistribution of authority after cities have become a member in the C40 group due to the groups’ noteworthy influence on enabling sub-national networking across countries. C40 consists of more than 80 of the world’s largest cities and empowers cities to “connect with each other and share technical expertise on best practices” (C40 2016a). Out of the countries that have member cities in the C40 group, we selected those where at least two cities are active members with significant activities, because only then we can make significant statements about policy diffusion processes that support developments towards a decentralization of the policy field. Active membership is defined by whether a city effectively implements at least one project initiated by C40 and conducted in collaboration with the network. Information on project activities were compiled from the C40 website (C40 2016a) and by an online search (November 2015). City projects which are listed on the website, but do not mention any involvement of C40 were not regarded as C40 projects.

Our Cases

As Table 1 indicates, we have chosen Brazil, India, Indonesia, and South Africa as case study countries. The four selected countries have significant forest and woodland cover (less so in South Africa) and mega-cities with potentially huge climate change impacts, which makes them relevant for research.

³ Data were compiled prior to COP 21 to the UNFCCC held in Paris in order to have a pre-Paris-Agreement overview of REDD+ and C40 activities.

Table 1: Case Selection

		<i>Significant REDD+ activity, but less than two active cities in C40</i>	<i>No significant REDD+ activity, but at least two active cities in C40</i>	<i>Significant REDD+ activity and at least two active cities in C40</i>	<i>No significant REDD+ activity and less than two active cities in C40</i>
Level of Centralization	<i>Low</i>	Central African Republic, Colombia, DC Congo, Ghana, Guyana, Indonesia , Malaysia, Mexico, Papua New Guinea, Peru, Philippines, Tanzania	China, South Africa	Brazil	Argentina, Benin, Bolivia, Guatemala, India , Mongolia, Morocco, Nicaragua, Nigeria, Pakistan, Sri Lanka, Vanuatu
	<i>High</i>	Cameroon, Congo-Brazzaville, Costa Rica, Ecuador, Ethiopia, Gabon, Kenya, Laos, Vietnam			Bangladesh, Bhutan, Cambodia, Chile, El Salvador, Egypt, Honduras, Panama, Paraguay, Thailand, Uganda, Venezuela, Zambia

In the ‘significant REDD+ activity, but less than two active cities in C40’ column, Indonesia is the most active country. According to the Voluntary REDD+ Database, various bilateral and multilateral donors have made funding commitments of about US\$ 530 million during the last years (Norway, Germany, Australia, USA, UK, Denmark, Italy, FIP, FCPF, UN-REDD). Only Brazil was promised more funding on REDD+. Jakarta is the only Indonesian city that is an active member in C40 and implements a C40 project on clean buses. Besides this one project, it has not participated in any major C40 initiative.

In the ‘no significant REDD+ activity, but at least two active cities in C40’ column, South Africa stands out. Johannesburg, Cape Town, Durban and Tshwane are C40 members. Johannesburg hosts three C40-sponsored projects, the ‘Climate Proofing of Urban Communities’ Project, the Green City Bond, and the Rea Vaya Bus Rapid Transit System. Cape Town has been a C40 observer city until recently, but joined the network in 2014. Together with Tshwane, Cape Town joined a C40 Clean Bus initiative in the same year. Durban only obtained its full membership status in 2015, and has so far no C40 sponsored project in place. Forests cover 7.6% of South Africa’s total land area, 33% of the country is covered by woodlands. Donors have pledged little more than US\$ 300,000 for REDD+ activities in South Africa and the country does not participate in the program.

In the ‘significant REDD+ activity and at least two active cities in C40’ column, Brazil is clearly the most important global player when it comes to tropical forests. Containing 13% of the world’s forests, the country has the second largest forest area in the world and various donors have pledged about US\$ 890 of REDD+ funds to Brazil’s government. The cities of

São Paulo, Rio de Janeiro, Curitiba, and Salvador are members of C40 and have implemented numerous projects in cooperation with the network. São Paulo can furthermore be described as a frontrunner city when it comes to climate change adaptation and mitigation and has influenced national policy making by its ambitious emission reduction targets.

In the 'no significant REDD+ activity and less than two active cities in C40' category, we have selected India as a control case. Although 23 % of India's land area is covered by forest and even though its government has (successfully) influenced international REDD+ negotiations, it has not participated in any multilateral REDD+ program. Donors pledged about US\$ 17 million to India, but besides the USA no other major bilateral donor is very active there. It has received grants and loans from Japan but only for technical assistance and we do not expect any impact on shifts in public authority. Five of its cities participate in C40 (Mumbai, Delhi, Kolkata, Bangalore, Jaipur), but neither has a project.

4. Empirical Analysis

In the following sub-section, we will summarize the initial findings from our desk studies on the four selected countries. They provide the background for our more detailed empirical studies, which will take place in these countries during 2016 and 2017. In each sub-section, we will provide an overview of forest governance issues and review existing urban climate policies. In this manner, we will investigate whether significant shifts among levels of government have been taking place during our observation period from 2005 to 2015.

4.1 Indonesia

The Republic of Indonesia is a three tier political system, which has been characterized as decentralized since the Regional Governance Law 22 of 1999 (Bünthe 2008: 38). Indonesia is an archipelagic country, which is highly vulnerable to climate change. However, it is also the fifth largest GHG emitting country in the world, accumulating almost 2 Gt CO₂eq in 2012, from which 61,6% were released by deforestation only (Anderson, Kusters, McCarthy, et al. 2016: 31; WRI 2016). Indonesia has one of the world's highest deforestation rates that resulted in the reduction of its forest cover from 65.4% of the land surface in 1990 to 50.2% in 2015 (Indrarto, Murharjanti, Khatarina, et al. 2012: 1, 43; World Bank 2016). But cities have also become major sources of GHG emissions in Indonesia, due to a high urbanization rate and increasing fossil fuel based energy use (Colenbrander, Gouldson, Sudmant, et al. 2015: 25, 31). The annual GHG emissions of the capital city of Jakarta, for instance, already amount to 44.6 Mt CO₂eq (Sugar, Kennedy, Hoornweg 2013: 103).

Forest Governance in Indonesia

The Indonesian Constitution of 1945 determines that land and their natural resources are under state control. Based on the Forestry Law 5 of 1967, the central government declared almost 75% of the land to be state forest (Brockhaus, Obidzinski, Dermawan, et al. 2012: 32). The Regional Governance Law of 1999 then provided districts with the competences to

manage their forest resources and to issue timber extraction permits (Indrarto, Murharjanti, Khatarina, et al. 2012: 27-28; Ardiansyah, Marthen, Amalia 2015: 6). This led to extensive logging by companies, despite the Forestry Law 41 of 1999, which authorized the Ministry of Forestry to manage the state forest (Indrarto, Murharjanti, Khatarina, et al. 2012: 27-28; Ardiansyah, Marthen, Amalia 2015: 35, 79). In 2002, the Government Regulation 34 finally ended this practice by assigning the authority for the issuance of logging permits to the Ministry of Forestry. However, the Estate Crops Law 18 of 2004 gave sub-national leaders the right to issue estate crop permits outside state forests, which led to an expansion of plantations and further deforestation (Indrarto, Murharjanti, Khatarina, et al. 2012: 11, 28, 31-32). Finally, the Regional Governance Law of 2014 centralized forestry and restricted the role of districts to managing grand forest parks (Anderson, Kusters, McCarthy, et al. 2016: 31; Ardiansyah, Marthen, Amalia 2015: 7, 35).

During the government of President Yudhoyono, REDD+ and climate change was put at the top of the national agenda (Ardiansyah, Marthen, Amalia 2015: 13) and most of the elements of the national REDD+ and climate policy framework were defined as presidential matters. The government strengthened authority at the national level by creating new institutions, such as the National Council on Climate Change in 2008 and the REDD+ Task Force within the President's Office in 2010 which was replaced by the REDD+ Agency in 2013 (Resosudarmo, Ardiansyah, Napitupulu 2013: 77, 79-80; Agung, Galudra, Van Noordwijk, et al. 2014: 755). This led to a struggle about the institutional lead on climate change between the Ministry of Environment, the Ministry of National Planning, the REDD+ Task Force and the National Council of Climate Change which contributed to the weak implementation of climate change policies (Resosudarmo, Ardiansyah, Napitupulu 2013: 79-80, 82, 86-87; Ardiansyah, Melati, Anjani 2015: 119). In 2015, the new President Widodo stopped this institutional turf war by integrating the REDD+ Agency and the National Council of Climate Change in the new Ministry of Environment and Forestry (Anderson, Kusters, McCarthy, et al. 2016: 33).

The President also strengthened central government's authority by enacting new policies, strategies, and regulations. He eventually surprised the nation by pledging to reduce Indonesia's GHG emissions by 26% compared to business-as-usual scenarios in 2020 and by 41% with global support (Indrarto, Murharjanti, Khatarina, et al. 2012: 50; Brockhaus, Obidzinski, Dermawan, et al. 2012: 30). Moreover, he signed a letter of intent with Norway in 2010 which promised Indonesia up to US\$ 1 billion for verified REDD+ activities (Luttrell, Resosudarmo, Muharrom, et al. 2014: 67). Out of this agreement emerged in 2011 the two-year presidential moratorium on new forest licenses for areas outside and inside state forests, thus interfering with sub-national affairs, which has since then been renewed twice (Anderson, Kusters, McCarthy, et al. 2016: 33; Ardiansyah, Melati, Anjani 2015: 117; Indrarto, Murharjanti, Khatarina, et al. 2012: 67).

Thus, the forestry sector has been characterized by a constant and increasing degree of centralization since 2002. The development of the REDD+ framework since 2010 may have intensified this centralization trend, as authority has been strengthened at central government level through presidential decrees. Moreover, the increase of authority at the

provincial level has only been within the limits of the national REDD+ framework, while districts have mostly been sidelined during our observation period.

City Governance in Indonesia

Before the country's decentralization policy in 1999, Indonesia was characterized by a very centralistic planning process as defined in the Spatial Planning Law of 1992 (Moeliono 2011: 88-89, 91, 135). After decentralization, however, the central and provincial governments lost significant power to the cities in many policy fields (Moeliono 2011: 135, 140-141). In addition, changes in fiscal relations led to an allocation of 61.5% of total country's revenues to sub-national governments in the budget of the year 2001, instead of only seven percent in the past (Firman 2002: 239).

By 2004, provinces and cities were responsible for development and spatial planning, business, environment, and infrastructure – i.e. policy fields with impacts on urban GHG emissions (ROI 2004: 9-10). With regard to taxes, spatial planning drafts, and regulations concerning the annual budget, a hierarchy between the government layers was also reintroduced as lower tiers regulations and drafts could be revoked from higher ones (Moeliono 2011: 168-169).

After 2005, however, a trend towards centralization started. The Spatial Planning Law of 2007 strengthened the provinces alongside the cities, while stipulating a hierarchical top-down spatial planning system with guidance and directives from the upper governmental tiers as well as approval and review mechanism with regard to lower tiers' plans (Moeliono 2011: 182-183, 186). In 2007, central government's competences were further enlarged by the Government Regulation 38, which determined that governmental affairs, which had formerly belonged entirely to the authority of sub-national governments, would henceforth be jointly shared with the central government. Furthermore, sub-national governments have been obliged to follow central government's norms and procedures, while the central government even gained the authority to take over the provision of obligatory sub-national governmental affairs, such as environment, public works, development planning, housing, enterprises, land issues, and space layout, in case the provinces or districts are not ensuring a minimum service standard as defined by the central government (ROI 2007: 4-5, 8-10).

Climate change started to gain momentum on the Indonesian urban development agenda from 2007 onwards due to the organization of the UNFCCC conference in Bali and the political leadership of President Yudhoyono (Ardiansyah, Marthen, Amalia 2015: 13). At this time, Indonesian cities and provinces were already equipped with comprehensive competences in climate related policy fields. The capital city of Jakarta joined C40 in 2007 (Susanti 2011: 24), but it has remained quite modest in its network activities so far, as it has not participated in any of the seven major C40 initiatives and has only taken part in one C40 mitigation project on clean buses (C40 2015a: 1-2; C40 2016a). Jakarta has been more active in terms of attending workshops on topics like sustainable communities, green buildings, and bus rapid transit (C40 2012; C40 2013a; C40 2013b).

During the observation period, a recentralization trend could be observed which already started in 2005 and continued until 2007, while henceforth remaining largely constant until the Regional Governance Law of 2014. This law basically incorporates all the developments of the preceding laws and regulations, while clarifying the hierarchical relations of the governmental tiers, assigning to higher ones more possibilities to act and to intervene than to lower ones, thus indicating a further strengthening of the previous recentralization trend (ROI 2014: Article 7-13, 16-18). Hence, it is apparent that the central government's influence in urban climate policies has expanded in the past few years. Provinces have also gained more urban and climate governance authority than cities, while being constrained by the national framework. Consequently, the very modest C40 participation of Jakarta did apparently have little impact on the decentralization of climate change related policy fields. On the contrary, the central government has remained the central player in climate politics so far.

4.2 South Africa

South Africa is by its Constitution of 1996 a quasi-federal *multi-level government* and is divided into a national, a provincial, and a local sphere, which are “distinctive, interdependent and interrelated” (ROSA 1996). The Parliament consists of the National Assembly and the National Council of Provinces, representing the interests of nine elected provincial governments (Cameron 2012). The local sphere currently consists of 278 municipalities, eight of them metropolitan, 44 district and 226 local municipalities. South Africa's economy is highly emissions intensive, its national GHG emissions in 2012 added up to 0.47 GT of CO₂eq, mainly caused by mining, heavy industry, and high levels of energy consumption (WRI 2016). To support economic growth, the government subsidized fossil fuel based energy generation until 2009, leading to the cheapest electricity prices in the world (Edkins, Marquard, Winkler 2010; Baker, Newell, Phillips 2014). The *International Energy Agency* estimates that 94% of South Africa's electricity is generated from domestically produced coal (IEA 2015; Climate Action Tracker 2015b). The country's GHG emissions from land-use change (including deforestation) only contribute to 5% of the country's total GHG emissions (ROSA 2011). Afforestation is considered as a short-term option for emission reduction, but the potential to cut emissions is comparably low.

Forest Governance in South Africa

Natural forests in South Africa only cover about 0.5% of land in total, plantation forestry covers about 1%, and woodlands collectively cover about 33%. Between 2005 and 2015 there has been no record of a change in forest cover (DOF 2015). The majority of South African forests are commercial plantations, with 70% of them being privately owned and 30% owned by the government. Communities without formal tenure rights occupy 33% of state lands and an unknown number of private lands (DOF 2015). The forest sector in South Africa falls under national legislative competence, with the exception of several state forests whose management has been delegated to provincial governments (FAO 2004). Forest management in South Africa still bears traces of the country's colonial and apartheid history,

which administered forests through hierarchical line management in the government's departments and ignored community needs, who were in most parts of the country excluded from the use and access of natural forests (Grundy, Wynberg 2001). Therefore, South Africa's new Constitution stresses the right of access to environmental resources and (in its bill of rights) guarantees every citizen of South Africa the right to a healthy environment and protection of the environment (ROSA 1996).

The constitutional decree was implemented through a series of policies and laws. The National Environmental Management Act (NEMA) of 1998 stipulates the involvement of communities in conservation activities (ROSA 1998). Further legislation was the National Forestry Action Program of 1997 (NFAP) and the National Forests Act of 1998 (NFA). The NFA provides for the devolution of authority on forest management to local communities, but reserves forest ownership to the national government without granting formal rights to communities, thus pursuing a strategy of co-management (Alden Wily 2002; Rahlao, Mantlana, Winkler, et al. 2012; Brown 2009). Communities are granted the right to apply to manage any forest by agreement with the national government, which maintains the supreme authority over licensing and managing the forest (ROSA 1998). The Forest Law has been amended in 2004 by a participatory forest management regime that regulates the management of forests through local user groups in more detail (Brown 2009; DOWAF 2004). It also provides directives on the privatization of forests in South Africa and specifies the inclusion of local communities in privatization (Mayers, Evans, Foy 2001).

In spite of such provisions, the political procedures remain largely unchanged and the power of granting community forestry concessions still remains with the national level. There is practically no evidence for a transfer of management rights to community management entities in the fiscal year 2013/14 (DOWAF 2004) or for the integration of forestry programs into provincial and municipal development plans (NT 2013). At the local level, power structures on the management of forests seem to remain unchanged and communities are denied access to forests in several cases (Matose, Watts 2010). This would support the accusation often addressed to South Africa of having progressive policies but falling behind when it comes to their implementation. Most relevant for the focus of our paper, political administrative structures in South Africa remain largely unchanged in the forest sector in the period from 2005 to 2015.

City Governance in South Africa

South Africa's biggest cities are Johannesburg (4.4 million), Cape Town (3.4 million inhabitants), and Durban (3.1 million). About 60% of the country's population live in urban areas, most of which suffer from infrastructural deficiencies that still result from the negligence of townships during the apartheid regime. South African cities are therefore facing major development challenges (Pasquini, Shearing 2014). In addition to rapidly expanding informal settlements, an increasing demand for basic services and challenges in the transportation sector, cities are extremely vulnerable to the adverse effects associated with climate change (Cameron 2012; ROSA 1996). The decentralization of powers and

functions to local governments by the Constitution of 1996 gives cities substantial responsibilities. One of the most conflicting issues in environmental urban governance in South Africa is the matter of energy policy. While electricity distribution is a core municipal function, a large degree of authority on energy issues remains at the national level and municipalities have to purchase their electricity from Eskom, the one and only state-owned enterprise that provides electricity in South Africa (Jaglin 2014). Licenses for renewable energy sources have to be requested from the National Energy Regulator (NERSA).

During the past few years, South African cities have increasingly participated in transnational city networks. Johannesburg is still facing serious challenges in terms of taking action on climate change, but has implemented several infrastructure programs, such as, for example, the railway connection between Pretoria and Johannesburg and the public transportation system in Johannesburg. Johannesburg has been a C40 member since 2006 and hosted the C40 Summit in 2014. Moreover, at COP 21 it won the C40 Award for issuing a green bond index to attract green local investors (C40 2015e). In 2009, the city established the Johannesburg Climate Change Adaptation Plan (CCAP) with subsequent adaptation activities, including a Vulnerability Assessment and Risk Management Plan and a disaster response mechanism (Johannesburg 2015). The city's administration has also ensured the integration of climate change as a cross-cutting issue.

Cape Town is the second largest economic hub after Johannesburg and is often cited as a best practice case in sustainable urban development (Holgate 2007). The city is a member of ICLEI and became a member of the C40 group in 2014. Besides establishing a rapid bus system, the city has undertaken climate action in the buildings, transport, waste, and energy sectors (CDP Cities Report 2013). In 2006, Cape Town was the first South African City that approved an Energy and Climate Change Strategy. It adopted institutional changes that ensured ownership, professional management and accountability. Moreover it established innovative features such as 'Energy for a Sustainable City' and the 'Energy and Climate Change Committee' (Cape Town 2011).

Durban, is the largest port city on Africa's East Coast, and an early adapter of local action on climate change (Roberts 2010). The city has been a member of ICLEI since 1994, joined the Cities for Climate Protection (CCP) in 2000 and the C40 group in 2015. In 2003, Durban developed a GHG inventory and in 2006, Durban's city leaders launched an adaptation strategy, which has been updated ever since for several times, addressing the planning for water resources, human health and disaster risk management. The main institutional actor was the Environmental Planning and Climate Protection Department (EPCPD). Founded in 1994, the department has increased its staff from one single employee to nowadays 21 employees, and gained considerable political influence (Roberts 2010).

While environmental departments or task forces have been set up in all of the three South African Cities, it is difficult at this juncture to ascertain whether these developments can be ascribed to the growing influence of transnational city networks or whether they are merely a reaction to the growing body of national legislation on climate change which assigns municipalities several duties in regard to climate change adaptation and mitigation (ROSA 2011; DOEA 2004; NPC 2012).

4.3 Brazil

Brazil consists of 26 federal states and one federal district that are divided into 5,561 municipalities. Since the 1980s, the Brazilian government has undergone major decentralization reforms and has evolved to one of the most fiscally decentralized countries in Latin America (Gregersen, Contreras-Hermosilla, White, et al. 2004). The Constitution of 1988 allocates competencies and legislative authority between all three levels of government that have the common duty to preserve an 'ecologically balanced environment', which includes forest and natural resource management (Gebara, Fatorelli, May, et al. 2014; NCA 1988). With more than 206 million inhabitants, Brazil is the fifth largest country of the world, both in size of area and population. Environ 85% of Brazil's population live in urban areas. Being among the world's top ten GHG emitters, Brazil's emission profile is unique compared to other emerging economies but similar to that of Indonesia. The main share of the country's total emissions of 2 Gt CO₂e in 2005 did not result from energy consumption, but from enormous deforestation in the Amazon, mostly due to cattle and soy production activities (Viola 2013; WRI 2016). In 2005, AFOLU emissions accounted for approximately 77% of the total CO₂ emissions of the country, while only 16% were caused by the energy sector (Viola 2013; MCTI 2013). For that reason, Brazil intends to achieve its pledges to reduce its GHG emissions mainly by reducing deforestation (Climate Action Tracker 2015a; FROB 2009).

Forest Governance in Brazil

Until the end of the military regime in 1984, forest management in Brazil was highly centralized (Banerjee, Macpherson, Alavalapati 2009). With the establishment of the democratic government and the adoption of the constitution in 1988, state governments gained profound autonomy, mostly through fiscal decentralization. But while resources and tax raising authorities were transferred to the state governments, functions were not sufficiently clarified or remained at the central level (Gregersen, Contreras-Hermosilla, White, et al. 2004). Within the forestry sector, weak law enforcement and missing transparency led to exploding rates of deforestation and timber exploitation and the distribution of land titles were subject to criminality and corruption (Rajão, Azevedo, Stabile 2012). In 1995, Brazil's deforestation crisis peaked with an annual deforestation rate of about 29,000 km²; representing 0.8% of the remaining forest cover (INPE 2008). Increasing domestic pressure and international attention forced governments to take action, above all the central government.

In 2004, for example, the government formulated the National Plan to Prevent and Control Deforestation in the Brazilian Amazon (PPCDAm) and set up a highly advanced monitoring system (DETER—Detection of Deforestation in Real Time) at the National Institute for Space Research (INPE). It allowed to track deforestation in real time and strengthened law enforcement on deforestation in the Amazon (Assunção, Gandour, Rocha 2012; Caviglia-Harris, Sills, Bell, et al. 2016; Di Gregorio, Fatorelli, Pramova, et al. 2016; FROB 2004). The Plan also centralized the responsibility in the matter of Amazon deforestation in the

president's office to facilitate inter-ministerial coordination and collaboration and improve the integration of the federal police and the public prosecutor for law enforcement (Nepstadt, McGrath, Stickler, et al. 2014). Moreover, the Brazilian Public Forest Law has regulated the establishment of public forests and created the Brazilian Forest Service (SFB) since 2006 (FROB 2006). The SFB has been assigned to execute several functions IBAMA had once administered, and has mandated to establish decentralized structures of forest management (Bauch, Sills, Rodriguez, et al. 2009).

The new regulations and institutional changes significantly contributed to the remarkable decrease in deforestation from 2005 onwards (Assunção, Gandour, Rocha 2012). Additional factors that contributed to the decrease of deforestation rates were a soy moratorium, which banished producers growing soy on land cleared after 2006, and the Critical Counties Program of 2007 (Nepstadt, McGrath, Stickler, et al. 2014; Inoué 2012). Brazil's National Policy on Climate Change was approved in 2009. The forestry sector is expected to provide the major contribution for the national emission reductions by two goals: The achievement of zero net loss of forest cover by 2015 and zero illegal deforestation, which should be reached by integrating climate change policies and existing regulations to control deforestation (FROB 2009; Di Gregorio, Fatorelli, Pramova, et al. 2016). To reach these targets, the government established the Amazon Fund comprising US\$ 1 billion, which is the country's largest climate fund. Projects are supported by non-reimbursable investments to monitor, prevent, and combat deforestation through performance-based payments. By the end of 2015, the Fund had approved 80 projects with an amount of US\$ 566 million, out of which US\$ 223 million have been disbursed (Amazon Fund 2016).

The most recent forest policy document is the National REDD+ strategy whose formulation process started in 2010. It was established by the Executive Group on Climate Change (GEx) under the Inter-Ministerial Committee on Climate Change (CIM), the Inter-Ministerial Working Group on REDD+ (GT REDD+), as well as the REDD+ Task Force (TF), and was published shortly before the start of COP 21 in October 2015. The strategy defines a number of objectives regarding governance structures and the allocation of functions between the three levels of government as well as the integration and coordination in respect to existing policies (Fatorelli, Gebara, May, et al. 2015; FROB 2015b). The process and its final outcome demonstrate the tensions between central government and the federal states that exist in Brazil concerning forest governance (Jagger, Brockhaus, Duchelle, et al. 2014). Prior to the start of the policy formulation process, Amazon governors joined in the multi-jurisdictional Governors' Climate and Forest Task Force (GCF) to add some weight to their claims concerning REDD+ at the national level. They advocated a 'nested approach' to REDD+ financing and urged for the establishment of sub-national programs, arguing that the engagement of stakeholders at the state and local level would improve participation and transparency (May, Millikan, Gebara 2011).

The state governments took a lead in activities for the implementation of REDD+ initiatives even before the national strategy got published, but requested access to funds from REDD+ for improving their institutional capacity and executing the roles ascribed to them by decentralization (Fatorelli, Gebara, May, et al. 2015; May, Millikan, Gebara 2011; Duchelle,

Cromberg, Gebara, et al. 2014). Moreover, the state governments pushed for having a say regarding the decentralization of regulation and for increased representation in several executive bodies (GCF 2014). In spite of these efforts, however, the outcome can so far not be considered a victory for Brazil's federal states. Only two state governments are permanent members in the National Commission for REDD+, but what will presumably cause even further dispute is the rejection to use international offsetting mechanisms by Brazil, a fact that will undermine existing Memorandum of Understandings on carbon trading between Amazon states and foreign governments (Di Gregorio, Fatorelli, Pramova, et al. 2016; FROB 2015a).

The results regarding our conceptual assumptions are mixed, mostly due to the fact that the legal and institutional landscape in the forestry sector in Brazil is highly fragmented. On the one hand, legal amendments have improved the decentralization of forest management and community participation. The national government apparently does not attempt to revoke the decentralization of forest management authority. On the other hand, one can also observe that while the national government transfers forest protection and management functions to state governments, it refuses to grant the federal states with direct access to REDD+ funds and has centralized monitoring, reporting, and verification mechanisms. At the same time, state governments have been pushing for a further decentralization of powers and REDD+ funds and joined up with other regional governments in the GCF.

City Governance in Brazil

The two largest cities in Brazil are São Paulo with 12 million inhabitants and Rio de Janeiro with 6.5 million inhabitants (IBGE 2015). The urbanization rate is expected to grow in the years to come, a fact that makes cities an important player in national politics and at the same time forces them to adapt infrastructure, energy supply, and transportation systems, and respond to environmental risks caused amongst other things by the coastal location of Brazil's major cities (Fernandes 2007). Similar to the forest sector, the Constitution of 1988 provided the basis for enabling urban reform and municipal autonomy with the chapter on urban policy (NCA 1988). A public consultation process resulted in amending the chapter by environmental, social, and property-related aspects, and several municipalities implemented ground-breaking policies under public participation. While Brazil gained international recognition for this model, the urban reform process has been slowed down due to a lack of federal legislation and the opposition of certain interest groups (Fernandes 2007).

Most of the major Brazilian cities have implemented municipal plans to reduce emissions and set up councils for urban climate action (Kahn, Brandão 2015). São Paulo joined ICLEI in 1994 and was a founding member of the C40 group in 2005 (Johnson, Toly, Schroeder 2015). In 2003, the city established its first GHG inventory with estimated annual emissions of 15 million tons CO₂ eq. A major share of emissions was generated by the energy sector with 76% of total emissions, whereof 89% were generated by road transport. The solid waste sector generated 23% of the city's emissions (Johnson, Toly, Schroeder 2015). In 2005, the city initiated the policy-making process for a climate change policy with the establishment of

a Municipal Committee on Climate Change and Sustainable Economy that represented actors from civil society, academia, municipal and state governments, and environmental organizations (Barbi, da Costa Ferreira 2013). The climate policy that São Paulo adopted thereupon in 2009 was very proactive and inspired both the state and national climate change policies by setting the concrete goal for a GHG emission reduction of 30% compared to emission levels from 2005 to 2010 (São Paulo 2009). The policy encompasses concrete action plans for mitigation and adaptation to climate change and the implementation follows a cross-cutting, multi-sectoral approach (Barbi, da Costa Ferreira 2013; Romeiro, Parente 2011). Several other climate-related policies have been adopted since then, targeting public transportation and traffic, energy efficiency in buildings, and solid waste management and the city has implemented different projects in collaboration with C40 on Solid Waste, Clean Transportation, and Green Economic Development (C40 2016b).

Rio de Janeiro is the second largest city of Brazil. Following the example of São Paulo, it established a municipal Forum on Climate Change in 2009 which led to the adaption of the city's Climate Change policy in 2011 and a pledge to reduce its GHG emissions by 8% until 2012, 16% until 2016 and 20% until 2020 (Rio de Janeiro 2011). Rio joined the C40 network in 2006 and has implemented projects in collaboration with C40 in four out of the seven C40 categories on Solid Waste, Clean Transportation, and Sustainable Urban Development (C40 2015g; Cohen 2010). A further relevant city is Curitiba that was one of the first cities to implement ambitious and sustainable public transport systems and serves as a best practice for many other members of the C40 network. It is also a C40 innovator city due to its longstanding experience with sustainable urban solutions (C40 2015d). The city has implemented projects in six out of seven C40 categories. Beyond that, Salvador is also a member city and joined C40 in 2014.

With regard to our conceptual assumptions described above, it seems important to note that the achievements in urban development in Brazil have mostly emerged due to efforts from the local level and faced a strong opposition from the central level (Fernandes 2007). Urban action on climate change can hence be described as originating at the bottom and scaling up. But although urban governments have received far-reaching competencies since 1988, several important sectors remain under the exclusive competence of the national government; namely energy sources, energy generation and pricing (Setzer 2009; Fernandes 2007). Nonetheless, cities in Brazil can be described as frontrunners in climate change adaptation and mitigation, overtaking the nation-state in climate change regulation and initiating the diffusion of good examples that have inspired other cities and states.

4.4 India

India's federal political system is characterized by three governmental tiers and a strong role for the central government (Wagner 2006: 87-89). Accumulating almost 2.9 Gt CO₂eq in 2012 (including land-use change and forestry), India ranks third among global emitting countries (WRI 2016). One of India's main GHG emission drivers is the power sector which contributed 32% of total GHG emissions in 2010 (excluding land-use change and forestry)

(Climate Action Tracker 2016), while lands and forests rather serve as carbon sinks, having removed 127 Mt CO₂eq in 2012 (WRI 2016). Despite the expansion of India's forest cover from 21.5% of land area in 1990 to 23.7% in 2015 (World Bank 2016), many experts doubt that deforestation has halted and criticize that 40% of the forest area is degraded or understocked (Prip, Wallbott 2014: 24). The role of cities as GHG emitters is still rising, as India's urban population is projected to increase from 400 million to 800 million by 2050, while many of them are also highly vulnerable to climate change (Beermann, Damodaran, Jörgensen, et al. 2016: 1, 4). Delhi and Greater Mumbai are already major GHG emitters (38.6 Mt CO₂eq and 22.8 Mt CO₂eq) (Ramachandra, Aithal, Sreejith 2015: 473, 489-490).

Forest Governance in India

The British colonial Forest Act of 1927 and rulings by the Indian government after independence allowed the highest governmental tier to declare land as state forest, leading to a nationalization of 97 % of the forest area (Kashwan 2015: 100; Madhu 2005: 2131; Prip, Wallbott 2014: 24). While the national government increased its authority on forestry issues henceforward by the centralization of key aspects of forest administration in 1975 and the passing of the Forest Conservation Act in 1980 (Kashwan 2015: 100; Fleischman 2015: 3), the National Forest Policy of 1988 sought to involve local communities in the management of forests (Aggarwal, Das, Paul 2009: 6). The central government issued Joint Forest Management Guidelines in 1990. It helped 'State Forest Departments' to commonly manage forests with the local village assemblies ('Gram Sabhas') in Joint Forest Management Committees (Aggarwal, Das, Paul 2009: 7; Prip, Wallbott 2014: 25-26). Despite their obligation to share forest revenues with local communities, states were often successful in capturing the benefits. "Joint Forest Management" has hence been criticized as a top-down approach, which fails to substantially involve local communities (Vijge, Gupta 2014: 24).

During the government led by Prime Minister Manmohan Singh, climate change was put on India's domestic agenda in 2007. In this year, the Prime Minister's Council on Climate Change put forward a National Action Plan for Climate Change in 2008 (Atteridge 2013: 63, 65). The action plan prepared the ground for the National Mission for a Green India of 2010, which aspires to increase India's forest cover to one-third of the total land area by investing US\$ 8.5 billion (PMCCC 2008: 34; Prip, Wallbott 2014: 30). The Green India Mission envisaged an increased authority for the 'Gram Sabhas' as the new overseers of Joint Forest Management Committees (Vijge, Gupta 2014: 24; MOEF 2010: 26, 41). In addition to the empowerment of local institutions, national and state institutions have also been assigned authorities, showing a continuing role for the higher tiers.

The central government envisioned that a majority of the mission's activities could qualify for REDD+ and was hoping to become financially rewarded by external donors (Vijge, Gupta 2014: 19). Therefore, the mission stipulated the setting up of a so-called REDD+ cell in the Ministry of Environment and Forests in order to develop a REDD+ strategy and pilot projects, as well as to provide support to national and sub-national institutions (MOEF 2010: 36). As it was only staffed with one official, it is not clear whether it can fulfill its tasks (Prip, Wallbott

2014: 30). In 2014, the central government adopted a REDD+ Reference Document and published a Draft National Policy on REDD+. While this Document is highlighting the importance of sub-national empowerment, the Draft National Policy on REDD+ puts a strong emphasis on institutional strengthening at the national level.

India has not yet received any grants from multilateral REDD+ funds like the Forest Carbon Partnership Facility. The central government has not been interested in REDD+ readiness support from donors as it has perceived itself as already being prepared for global REDD+ implementation flows. As a result, REDD+ activities on the ground have remained very limited (Vijge, Gupta 2014: 20-22; Prip, Wallbott 2014: 31).

Although India's forest governance is often presented as one of the best examples of decentralized forest management in the world (Vijge, Gupta 2014: 23), it is apparent that in 2005, India's forest governance was still not decentralized to the local level. By 2015, the picture has lightly changed as decentralizing approaches have gained more momentum with the introduction of the Forest Rights Act and the empowerment of the 'Gram Sabhas' by the Green India Mission. However, such a decentralization has often not happened on the ground due to reluctance by state governments (Vijge, Gupta 2014: 24). In the future, India's forest governance may become even more centralized again, as the proposed Draft National Policy on REDD+ is envisaging a strong authority for the central government, while only minor roles for the state governments and no responsibility for the local level.

City Governance in India

In 1992, the 73th and the 74th Amendment of the Constitution recognized for the first time local governments as India's third governmental tier, which often were prior to that acting as states' implementation agencies (Fisher 2014: 159; Heller, Harilal, Chaudhuri 2007: 628). It recommended the transfer of 18 state functions to the local level in land use and development planning, waste, and infrastructure (Nandi, Gamkhar 2013: 56; Fisher 2014: 159). However, the amendments did not envisage the devolution of financial powers to the local governments. Furthermore, states were given the right to decide over the extent of power devolution. Over time, this has left many cities without sufficient authority and resources (Nandi, Gamkhar 2013: 56-57; Chu 2016: 284).

In 2007, the central government under the leadership of the Prime Minister Singh started to engage in climate change by introducing a top-down climate action plan (Atteridge 2013: 58, 60, 67). The plan includes eight national 'missions' in various policy areas, such as renewable energy, energy efficiency, and sustainable habitat, which are directed towards the development needs of India, while also addressing climate change (PMCCC 2008: 13). As the central government is highly dependent on the state's actions for realizing the missions (Chu 2016: 284), it mandated them to develop State Action Plans on Climate Change in 2009 (Dubash, Jogesh 2014: 1). By end of 2014, however, only nine states possessed an endorsed action plan, while 27 states and four union territories had only produced draft plans (Nachmany, Fankhauser, Davidová, et al. 2015: 5-6). While the National Capital Territory of

Delhi already presented an action plan in 2009 (Hughes 2013: 48; ICLEI 2014), Mumbai's State of Maharashtra has not yet presented one (Alankar 2015: 8).

Despite the priority for economic development and the strong role of central and state governments in urban and climate governance (Beermann, Damodaran, Jörgensen, et al. 2016: 6, 8), five Indian cities are already C40 members, although none of them has implemented any C40 project so far. While Delhi as a long-standing C40 member is the only city, which is associated with a C40 initiative in the field of measurement and planning (C40 2016a), the other long lasting member Mumbai has only been linked to a completely private project financed by the Clinton Climate Initiative in one of its suburbs in 2008 (C40 2011). The other three Indian C40 member cities – Bengaluru, Jaipur, and Kolkata – have only joined the network in 2015 and are mostly inactive (C40 2015c; C40 2015b; C40 2015f). In its INDC of 2015, the central government envisages plenty of development actions, which shall contribute to mitigating climate change as well, and which will largely take place in urban areas. However, its governance structure stipulates a strengthened role of the central government in urban development politics (Phadke, Waghmode 2016). Only two out of five Indian C40 cities (New Delhi and Jaipur) have been chosen by the central government to be among the first 20 cities to participate in the mission (The Hindu 2016).

During the past decade, climate action has been introduced in a top-down manner by the central government. Authority on climate change has also increased at the state level, while the city level has mostly been left out in the national framework. However, the amount of Indian C40 members has increased significantly in 2015, pointing perhaps to an increased future role of the network in India. Climate action in cities may be strengthened locally in the future as well, as India's INDC envisages various measures in urban areas.

5. Conclusion

As our discussion has shown, the academic debate on the effects of globally operating carbon governance arrangements is based on weak empirical foundations. We know very little about the supposed 'reconfiguration of authority' within the nation-state and their public administrations. In our research, we have proposed a way to operationalize this term and developed an approach that takes the devolution of decision-making and expenditure authorities from central to regional and/or local government as a proxy for the evaluation of the changing patterns of authority in developing countries. We have focused our research on two stylized carbon governance arrangements: one that operates top-down REDD+ and another that operates bottom-up TCNs. Departing from our conceptual assumptions that the former is likely to lead to more centralization and the latter to more decentralization within the field of environmental policy-making, we have presented some preliminary findings from our desk studies on Brazil, India, Indonesia, and South Africa.

Our case studies indicated that there are no easily detectable patterns. Each country case has a specific historic constitutional and political background that strongly influences, and sets the pace for, the way in which current climate policies are carried out. However, two findings from our empirical analysis stand out: First, there are very mixed results when it

comes to the impact of TNCs. Despite the fact that cities in all countries have been quite active in climate change initiatives, we have found little evidence in our desk studies that the C40 Group has significantly influenced the way in which climate policies are carried out in the countries under investigation. Consequently, we have not found evidence for a stronger decentralization in the field of environmental policy-making. This does not mean, however, that there is no such influence and that urban policy elites operate in a void and independently from their national environment. Nevertheless, the research tools we have employed so far for our desk analyses may be way too weak to ascertain such processes in public policy-making.

Second, in all case study countries the role of sub-national governments in the forestry sector has either been weak historically (and despite constitutional mandates), such as in India and South Africa, or there have been recent shifts towards a gradual (re-)centralization of forest policies. These changes are particularly evident in decentralized Indonesia as well as in federalized Brazil. Interestingly, both countries have (had) high levels of deforestation and have therefore received a lot of international attention. They have also been heavily involved in REDD+ activities, with much guidance from the national government and their central administration. We do not know precisely whether (and to what extent) REDD+ activities may have influenced such trends, but there are a number of indications suggesting that international donors expected a consistent REDD+ approach by recipient countries and therefore a functional centralization in this particular area. We will need to follow up these processes more closely and with more sophisticated research tools in our field studies in Brazil, Indonesia, India and South Africa in the upcoming months.

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