

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

Much of the literature on global policy-making is currently concerned with the evolving patterns of authority in world politics. This is particularly evident in international climate policy where a number of scholars have highlighted the gradual loss of authority by national governments with the emergence of new “spheres of authority” dominated by other players. Due to the existence of a regulatory gap in this policy area, a number of new “governance arrangements” operate simultaneously at different levels – some top-down, others bottom-up – in their efforts to address the problem of climate change. Yet, despite several broader descriptions and mapping exercises, and the repeated claim that such arrangements have led to new roles and transformed public authority, we have little systematic knowledge about their workings, let alone their impact on the political-administrative systems.

Given these shortcomings, this research project sets out to explore how (and how far) different types of globally operating governance arrangements have led to changes in the distribution of authority within national governments and their public administration. We will focus on two stylized 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+). The primary objective of this research project is to analyze whether newly emerging climate governance arrangements lead to a reconfiguration of public authority across different levels of political and administrative decision-making within participating nation states, and what the consequences are in terms of actual policy-making.

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1 State of the Art and Preliminary Work

After more than two decades of multilateral negotiations aimed at addressing and jointly managing climate change risks, scholars and policy-makers have become increasingly frustrated and disillusioned with the existing international climate regime (Lederer 2015; Hale et al. 2013, Chapter 4). Although the obstacles to agreeing upon international collective action have largely been identified, a fundamental breakthrough in the negotiations is unlikely to occur in the near future (Fuhr 2010; Lederer 2010a; Keohane & Victor 2011; Victor 2011; Dimitrov 2013). In response to this policy gap, a number of new governance arrangements have emerged in the area of climate change (Bulkeley & Newell 2010; Hoffmann 2011; Newell et al. 2012). These include 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 and transnational organizations) and others work bottom-up (primarily driven by non-governmental organizations or subnational entities). These arrangements are assumed to initiate new patterns of authority or even “new spheres of authority” (Rosenau 1992; Rosenau 1997) that either complement or substitute national action or the intergovernmental policy process (Abbott 2012). Drawing on this, our research proposal focuses on these arrangements and asks whether they do indeed lead to a reconfiguration of public authority and what the consequences are in terms of actual policy outcomes. In the parts of this document that follow, we briefly summarize the scholarly debate on these arrangements, identify existing research gaps and then describe our own contributions to the field.

Emerging Climate Governance Arrangements and Public Authority – What We Know

Scholars and practitioners alike agree that global climate governance in recent years has become highly complex. While some discuss the pros and cons of “fragmentation” (Biermann et al. 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 “experimental climate governance” (Hoffmann 2011), “orchestration” (Hale & Roger 2014) or a “polycentric approach” to international climate policy (Ostrom 2009; Ostrom 2014). Moreover, most authors 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; see also Betsill & Bulkeley 2006; Bäckstrand 2008; Newell et al. 2012; Green 2013). The “emergence of new spheres of authority” implies that there is a vertical and/or horizontal transfer of the legitimate use of power, and that such authority is either deliberately delegated or transferred (Kahler & Lake 2003; Zürn 2013, 409f; Green 2014). Although many scholars have repeatedly stressed that non-nation-state actors actively participate in multi-actor, multi-level climate governance (Pattberg 2007; Biermann et al. 2009; Hoffmann 2011; Green 2013), it is not clear whether this leads to an actual reconfiguration of public authority, how this can be conceptualized and operationalized, and if it indeed occurs, how this affects domestic policy outcomes.

Gaps in Research – What We Don’t Know

Given the above debates, there are *two* research gaps that warrant further consideration. First, the claim that new spheres of authority have evolved in global climate governance lacks empirical evidence. We have very little knowledge about whether public authority has really shifted vertically or horizontally as the nation-state with its various administrative levels is largely regarded as a *black box* in the field of global climate policy-making. Some studies have been carried out in OECD countries (Selin & VanDeveer 2012; Fisher 2013), however hardly any research has been conducted on non-OECD countries (a notable exception is Brazil, Hochstetler & Viola 2011). This lack of 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 international climate change policy (e.g. WBGU 2012). In our research project, we will address this gap by empirically investigating authority shifts within nation-states and public administrations. We will thus propose analyzing the degree of centralization that allows us to operationalize and to measure the supposed shifts of authority (see 2.3).

Second, even less research has been conducted to analyze the potential consequences that “new spheres of public authority” may have for national climate policies. Although most scholars maintain a considerable level of optimism, particularly when it comes to the activities of non-state actors, we know little about these rapidly changing institutional settings, whether they indeed induce a new quality of policy making on the ground, and whether they contribute to more effective climate governance – or cause gridlock instead. During the past decade, political science research has mostly concentrated on analyzing non-state solutions and cooperative arrangements in global and national climate policy, but has neglected to explore the role played by states, governments and public administrations and how they gradually adapt to a changing environment (exceptions are Barry & Eckersley 2005; Meadowcroft 2012). Interestingly, there is a body of literature from the neighboring discipline of Public Management (Bogumil et al. 2007; Jann 2009) that highlights how different governance arrangements and multi-level governance (Wälti 2004; Rondinelli & Cheema 2007), and public-private partnerships (Beisheim & Fuhr 2008; Beisheim 2011) have often triggered innovations in government, including at the subnational level (Campbell & Fuhr 2004), but such research has rarely been taken into account – another research gap we intend to start closing.

Our Own Contributions

In our own research on globalization and governance in developing countries (Fuhr 2005; Hönke & Lederer 2012) and on climate governance arrangements in emerging economies (Fuhr et al. 2007; Lederer 2010b; Lederer 2013a), we have observed that public authority within nation-states – despite its inherent weaknesses and criticisms – still plays a pivotal role in how the rules of the game are set (Fuhr 2012; Lederer 2012a; Lederer 2012c). In a joint research project on the Clean Development Mechanism, we showed that effective and legitimate governance arrangements can be set up and that they provided adequate solutions. In particular, our notion of “varieties of carbon governance” (Fuhr & Lederer 2008; Fuhr & Lederer 2009) has strongly influenced the ongoing scholarly debate. We have also studied the role of cities (Fuhr & Campbell 2004) in the subnational policy making process (Fuhr 2012) and in REDD+ (Lederer 2011; Lederer 2012b; Lederer 2013b). Finally, we collated our own research findings and published a first study on the role of decentralization in REDD+ (Fuhr & Lederer 2014).

1.1 Project-Related Publications

1.1.1 Articles published by outlets with scientific quality assurance, book publications, and works accepted for publication but not yet published

Fuhr, H (2012) The Seven Traps of Decentralization Policy. *Bisnis & Borikrasi: A Journal of Administrative Sciences and Organization* 18 (2), 1-12.

Fuhr, H, Lederer, M (2009) Varieties of Carbon Governance in Newly Industrializing Countries. *Journal of Environment and Development* 18 (4), 327-345.

Fuhr, H (2005) Constructive Pressures and Incentives to Reform: Globalization and its Impact on Public Sector Performance and Governance in Developing Countries. In: R Hodges (ed.) *Governance and the Public Sector*, 525-549. Edward Elgar, Cheltenham.

Fuhr, H, Campbell, T, (ed.) (2004) *Leadership and Innovation in Subnational Government: Case Studies from Latin America*. World Bank, Washington, DC.

Lederer, M (2012a) Market Making via Regulation: The Role of the State in Carbon Markets. *Regulation & Governance* 6, 524-544.

Lederer, M. (2012b) REDD+ governance. *Wiley Interdisciplinary Reviews: Climate Change* 3 (1), 107-113.

Lederer, M. (2012c) The Practice of Carbon Markets. *Environmental Politics* 21 (4), 640-656.

Lederer, M (2011a) From CDM to REDD+ - What do we know for setting up effective and legitimate carbon governance. *Ecological Economics* 70, 1900-1907.

1.1.2 Other Publications

Fuhr, H, Lederer, M (2014) Governing REDD+ - A Multi-level Challenge: What Do We Know? What Can Be Done? BMZ and GIZ-IWP, Bonn.

Lederer, M (2013b) The Future of Carbon Markets: Carbon Trading, the Clean Development Mechanism and beyond. In: U Frauke, Nordensvärd, J (ed.) *Low Carbon Development: Key Issues*, 94-106. Routledge, London.

2 Objectives and Work Program

2.1 Duration of the Project

The proposed project will be carried out over a period of 36 months from January 2015 to December 2017.

2.2 Objectives

The primary objective of the proposed research project is to analyze *whether newly emerging climate governance arrangements lead to a reconfiguration of public authority* across different levels of political and administrative decision-making within nation-states, and *what the consequences are in terms of actual policy outcomes*. Our unit of analysis is the national reconfiguration of authority within the field of environmental politics and we will focus on the last 10 years of policy-making (2005-2015) in four selected countries. We first explain why we have selected the governance arrangements REDD+ (i.e. Reducing Emissions from Deforestation and Forest Degradation) and TCNs (Transnational City Networks) and why these are of academic and practical relevance. We then introduce our hypotheses, i.e. under what conditions is a reconfiguration of authority more likely to occur (for the research design, see Section 2.3; for case selection, see Section 2.4).

Why REDD+ And City Networks?

We have chosen two of the newly emerging climate governance arrangements typically located at each end of the spectrum: one that operates top-down and one that operates bottom-up. Our first example is the top-down arrangement for forest governance officially launched in 2007 (Lederer 2011; Lederer 2012b, c) and focuses on REDD+. The fundamental principle behind REDD+ is to set proper incentives for developing countries to protect their forests from deforestation and 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, both state and non-state. Our second example concerns the emergence of TCNs, representing a bottom-up governance arrangement in the area of climate change. TCNs can be defined as a non-hierarchical, horizontal and polycentric cooperation between city governments across different countries (Pattberg & Stripple 2008; Bulkeley & Betsill 2013; Bulkeley 2014). Established in the early 1990s (Campbell & Fuhr 2004), some of today's TCNs seek voluntary commitments from local authorities for reducing GHG emissions (Schreurs 2008; Bulkeley 2010). Mostly using their own resources, TCNs act as policy entrepreneurs and as agenda-setters, trying to overcome the constraints imposed by national and international administrative decision-making, partisan politics and political timetables (Acuto 2013).

Why Are REDD+ and TCNs Relevant?

We have chosen REDD+ and TCNs as they are of interest from both a scholarly and a policy perspective. Theoretically, the analysis of REDD+ and TCNs is relevant since both arrangements are located at opposite ends of the spectrum from the bottom-up to the top-down approach. We thus expect to see different impacts in terms of how these reconfigurations would look in practice. We will also ascertain whether (and to what extent) 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 have on a country's administrative capacity and whether the large investments currently underway make a significant difference on the ground. Although we do not intend to explore whether the arrangements have a quantifiable impact in terms of emissions reductions, we will analyze to what extent processes of sustained institutional change are relevant for an effective policy generation in the respective countries.

Why Do We Expect a Reconfiguration of Authority?

What are the mechanisms that can a priori be identified which could lead to the above-mentioned processes, and what are the hypotheses guiding our investigation? In other words, why should REDD+ and TCNs act as game changers that lead to a reconfiguration of public authority? Functional as well as interest and resource-based explanations that focus theoretically on individual policy-makers and bureaucrats point to these directions.

In the case of REDD+, international donor agencies (more or less coordinated) have exercised strong top-down pressure and have started to push for stronger national REDD+ coordination in partner countries. The amount of funds committed¹ as well as the many initiatives designed to set up national contact points, strengthen central accounting and monitoring systems, as well as overall capacity building – supported, for example, by the World Bank's Forest Carbon Partnership Facility (FCPF), the UN-REDD Program and bilateral development aid agencies – have clearly drawn increasing national government attention over the last decade. Formerly disinterested in forest protection and management, bureaucrats and politicians in central government are now seeking to broaden their influence and/or private gains through REDD+ (Fuhr 2010; Transparency International 2011). Moreover, and as a consequence, REDD+ mechanisms may also play a role in a gradual turnaround of previous decentralization efforts and break a well-kept scientific and political consensus, namely that local institutions and community forestry do a better job in avoiding deforestation than centrally administered projects (Phelps et al. 2010; Sandbrook et al. 2010; for an opposing view, see Wunder 2010). Consequently, we expect that the more resources are channeled via REDD+, and thus the more a country is involved with this top-down initiated governance arrangement, 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 (*hypothesis 1*).

As far as TCNs are concerned, policy processes move into a different direction and we expect bottom-up processes and transnational channels of diffusion. During the past two decades, local bureaucrats and politicians have pushed for urban climate initiatives and regulatory efforts, such as energy efficiency codes for buildings, environmental partnerships or innovations in public transport. With hundreds of mayors managing to coordinate their activities effectively and transnationally, local governments appear to have become major players in

¹ Data on REDD+ funds and activities are collected by the REDD+ partnership but are based on voluntary information provided by donors and recipients. It is difficult to come up with an overall figure since many loans have multiple purposes. A conservative estimate for the period 2007-2012 is US\$ 3 billion. (http://reddplusdatabase.org/process_reports/VRD_Progress_Report_Dec_2012_FINAL.pdf) (last checked 30th April, 2014). Reflecting bilateral and multilateral requests, future commitments are likely to be significantly higher.

international climate policy, ready to take swift action on the ground (Barber 2013). As a consequence, cities and their networks are increasingly challenging the traditional authority of nation states, largely by independently tapping into international funds and setting up new initiatives or standards. Much of the literature on TCNs, however, has given little attention to the (conducive) setting that cities or regional governments need to build effective capacity, implement targeted policies and ensure the sustainability of their reforms (exceptions are Campbell and Fuhr 2004, Romero Landao 2007; Betsill & Rabe 2009; Puppim de Oliveira 2009). Consequently, we expect that the more cities are involved in climate policy-making and the more resources that are channeled into climate change activities undertaken by cities and city networks in a bottom-up fashion, the more this will lead to a decentralization of environmental governance in recipient countries (*hypothesis 2*).

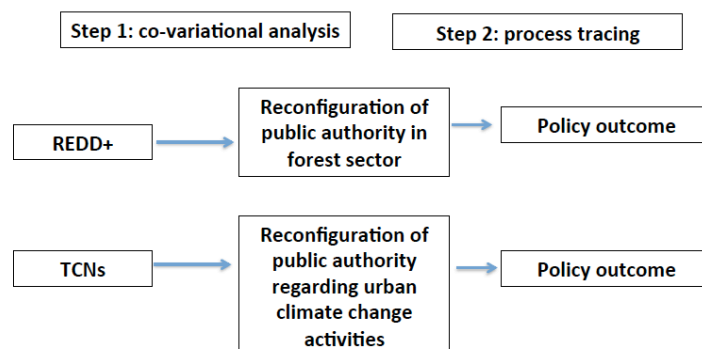
While these hypotheses are intuitively not surprising, they have neither been systematically operationalized nor empirically verified, certainly not with a systematic comparison across countries (for a first exploration, see Fuhr & Lederer 2014) or in terms of comparing bottom-up and top-down governance arrangements. Interestingly, the trend towards strengthening actors and structures at the national level reflected in hypothesis 1 may run against the trend in hypothesis 2, which reflects a strengthening at the subnational level. Hence, in cases where both REDD+ arrangements and TCNs exist, we might observe opposing forces regarding environmental policy-making (see also 2.4 on case selection). In the parts of this document that follow, we will explain how we will move forward with such research. To test whether the effects are detectable, and whether they are being induced by the two governance arrangements, is thus our main objective and we have set up our case study research design accordingly.²

2.3 Research Design

We will follow a two-step approach to analyze (i) whether REDD+ and TCNs reconfigure public authority and (ii) what the consequences are in terms of policy outcomes (see Figure 1). In the first step of our research, guided by our two hypotheses, we are interested in the effects *new* policy instruments have and whether their deployment makes a significant difference in the reconfiguration of (public) authority. We have selected a co-variational analysis that will focus on the independent variable (Blatter & Haverland 2012, chapter 2; for a critique of separating a co-variational analysis from other forms of case studies, see Rohlfing 2012, 4f; Gerring 2007). Although we are aware of the problems such an approach may entail, we will use it as a first empirical and, to a large extent, explorative step to check whether our top-down and bottom-up mechanisms have a detectable effect on authority structures (for a defense of the deterministic nature of the approach, see Blatter & Haverland 2012, 40f). In the second step, we will use process tracing approaches (George & Bennett 2004; Blatter & Haverland 2012, chapter 2) to explore the effects of the reconfiguration of authority of the two governance arrangements in terms of climate policy change at the outcome level within a given country.

² We are aware of the debate on whether case studies are suited for testing hypotheses (King et al. 1994; Odell 2004), but we claim that case studies are particularly suited for hypotheses that have not been tested before and that might need refinement in the course of research (e.g. the identification of scope conditions).

Figure 1



Step 1: Analyzing whether governance arrangements reconfigure public authority

In this step of our research, we are interested in two particular governance arrangements and whether they have a detectable effect on the reconfiguration of authority in selected countries. Our **independent variable** is defined either by the involvement of national and/ or subnational governments in internationally initiated REDD+ activities, or the involvement of at least one major city in a target country in a TCN. For REDD+, we focus on the participation in UN-REDD, the World Bank’s FCPF or the existence of a large-scale bilateral donor initiative (e.g. Norway). For TCNs, we have selected the activities of the C40 (Cities Climate Leadership Group), which includes 58 of the most important global mega-cities. We operationalize the independent variable using scores of 0-5. Differentiating between the various scores of the independent variable will eventually allow us to measure the effects we are interested in exploring (see *Tables 1* and *2* showing that only case 3 allows the mechanisms explained above to become visible. Cases in the other columns do, however, allow for a control of our hypotheses; see also section 2.4 on case selection). While we have been able to determine scores of 0 to 2 satisfactorily through previous desk studies, higher scores of the independent variable can only be obtained from field research.

Table 1: Specifications of the IV I: Involvement in REDD+

REDD+ activities	Scores	Case 1	Case 2	Case 3	...
No involvement	0	+	-	-	
Involvement in international REDD+ activity (e.g. during the climate change conferences where the rules for REDD+ are discussed)	1	-	+	+	
Activities on the ground (first readiness activities planned and implemented by the government, national discourse on REDD+ within relevant government circles and important media)	2	-	-	+	
Actual flow of funds from international level to national, provincial or local level	3	-	-	?	
Internationally financed capacity development, data gathering and building up of methodological know-how (= readiness activities)	4	-	-	?	
International results-based compensation for REDD+ activities ³	5	-	-	?	

³ So far no direct link has been established between financial flows and saved emissions except in very few certified projects in the voluntary market (see, for example, the project of the company ‘Wildlife Works’ (<http://www.coderedd.org/redd-project/wildlife-works-carbon-kasigau-corridor/#.Ugilgby26So>). It is most likely that the first results-based international compensation will come from Germany’s ‘REDD Early Movers’ program (http://www.bmz.de/de/publikationen/reihen/infobroschueren_flyer/flyer/Flyer_REDD_lang.pdf).

Table 2: Specifications of the IV II: TCN activities

TCN activities	Scores	Case 1	Case 2	Case 3	...
No involvement	0	+	-	-	
Membership of one major city in C40 ⁴	1	-	+	+	
At least one activity in the city that is officially related to C40 (according to C40 website)	2	-	-	+	
Active involvement in direct assistance of C40, peer-to-peer exchange, and the set-up of own research (core activities of C40 according to its website)	3	-	-	?	
Local climate action plan	4	-	-	?	
Implementation of local projects in one of the eight action areas of C40 (renewables, transport, ports, buildings, waste, water, energy and light)	5	-	-	?	

Our **dependent variable** is the *extent of reconfiguration of public authority* within the related two sectors of forestry and urban development. In most cases, *shifts of public authority* are assumed to take place in a way that nation-states delegate or lose their authority to non-state actors (Cutler et al. 1999; Hawkins et al. 2006; Bernstein et al. 2010). Within the context of our findings, however, nation-states do not necessarily *lose* authority once new governance arrangements emerge. Shifts in public authority do not need to be a zero-sum game, in which, for instance, an increase of capacities at the national level equals a loss at subnational levels (Agrawal et al. 2008). On the contrary, the outcome may well be a win-win scenario for both levels. Instead of losing public authority, nation-states may just *reconfigure* the environment in which they operate.

The literature on public sector decentralization provides particularly interesting insights into a *reconfiguration of public authority* and shifts in 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 revenue and expenditure authorities from central to regional and local government” (Campbell & Fuhr 2004), or, in other words, “devolving decision-making from the top” (Friberg 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.

We will measure such reconfiguration in terms of a *shift in the degree of (de)centralization* (see above hypotheses 1 and 2), and, more specifically, we will check whether there have been any discernable changes in the composition of responsibilities and competencies in climate change and environmental policy among national and subnational governments. We will analyze the years between 2005-2015 (using 2005 as the base year) and collect new data at the beginning of 2015.⁵ This will allow for inter-temporal as well as cross-sectional comparisons (Blatter & Haverland 2012, 44f). We are aware that we will not be able to trace these changes quantitatively, particularly given the short time span and the problem of some

⁴ We are aware that focusing on C40 membership only might lead to a specific bias and limits to external validity, but the only other network that includes substantial number of cities from the global South is ICLEI. ICLEI however has 1200 members and it seems that many of the smaller cities participating in the South do so only by name. We also crosschecked with experts and through Internet research whether any important Southern city has important climate activities and is not member of C40 but we did not find any.

⁵ The year 2005 is a good starting point both for REDD+ and for TCNs. In 2005, forestry (and REDD+) 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.

missing data for 2005. However, we expect to be able to ascertain the changes that our governance arrangements have induced at the different levels involved. To do this, we will use three useful measurement options which capture the division of competencies and responsibilities across different levels of government quite well (Pollit 2005; Litvack & Seddon 2007):

(i) *Administrative decentralization* (AD) seeks to redistribute authority, responsibility and financial resources for the provision of public services among different levels of government. It entails the transfer of responsibility for planning, financing and management of public functions from the central government to different subnational units. A satisfactory indicator for the level of administrative decentralization is the share of subnational expenditures in total public sector expenditures. A second complementary indicator is the share of public employees at subnational levels (Arikan 2004). Finally, we may also be able to trace the number of relevant public institutions in this policy field that have been set up at the national or subnational level. To this end, we will mostly use qualitative assessments to trace changes and allow for the possibility that both national and subnational administrations gain authority in our policy field.

(ii) *Fiscal decentralization* (FD) seeks to redistribute authority to raise revenues in favor of subnational units in order to carry out decentralized functions more independently. It can take many forms, including raising own-source revenues, intergovernmental grants and access to finance. A good indicator for the level of fiscal decentralization is the share of subnational revenues in total public sector revenues, including the financial contributions of donors (Ebel & Yilmaz 2002; Dziobek et al. 2011). Again, we will need to focus more on qualitative aspects, such as decision-making in financial matters regarding environmental and climate policy, and on whether or not joint financial mechanisms have been set up.

(iii) *Political decentralization* (PD) involves devolution of power to citizens and their elected representatives. Advocates of political decentralization assume that greater (democratic) participation in decision-making results in better policy outcomes at subnational levels. The usual indicator for measuring political decentralization is whether or not the decision-makers at the regional or local level are chosen by competitive, free and fair elections (Schneider 2003). We are more interested, however, in the newly emerging patterns of citizen and stakeholder involvement at subnational level that potentially, but do not necessarily, empower subnational governments that in turn seek to assume new authority in environmental policy.

For measuring these effects, we will use indicators on a scale graded from 1 to 5 in which a score of 1 represents almost no involvement, while a score of 5 represents a very strong involvement in terms of command over revenues, expenditures, activities, employees, etc. In our cases, both levels may benefit from our governance arrangements and “win” significantly. Yet one level may win more than the other. In order to avoid overly subjective interpretations from field research, we will develop common cut-off points for each score and make sure that we use adequate comparisons across time (2005/ 2015) and across our cases (for details see Table 3).

Table 3: Possible shifts of public authority from 2005 to 2015

	Activities ⁶	2005 national	2005 subnational	2015 national	2015 subnational
Administrative	Expenditures for forestry and climate change / urban climate change activities ⁸	1-5	1-5	1-5	1-5
	Public employees working on forestry and climate change/ urban climate change activities	1-5	1-5	1-5	1-5
	Relevant institutions in forestry and climate change/ urban climate change activities	1-5	1-5	1-5	1-5
Fiscal	Revenues from forestry and climate change/ urban climate change activities	1-5	1-5	1-5	1-5
	Revenues from donor aid for forestry and climate change/ urban climate change activities	1-5	1-5	1-5	1-5
Political	Inclusion of relevant local actors in forestry and climate change/ urban climate change activities	1-5	1-5	1-5	1-5
	Relevant initiatives (laws, regulations etc.) to improve local participation in forestry and climate change/ urban climate change activities	1-5	1-5	1-5	1-5

In order to ensure that our research results are not significantly affected by factors other than the ones identified, we need to control for a couple of key variables need to be controlled for in the selected cases. Since we are about to identify shifts in public authority via changes in the composition of national and subnational indicators, we will need to control for variables to observe the potential effects of (i) deliberate policies by governments favoring a general decentralization of the public sector (and thus control for factors such as the possibility that decentralization in the field of forestry and urban services is just an offshoot of a more general decentralization/ recentralization trend); (ii) government policies to address and reform existing decentralization policies, or to rebalance intergovernmental relations; (iii) events surrounding fiscal crises with corresponding austerity measures and a functional recentralization of public expenditure for macroeconomic stabilization; and (iv) natural disasters or other catastrophes which are likely to induce shifts in the allocation of public expenditures towards the affected regions. These will have to be kept in mind when case selection is being discussed (see below).

Step 2: Analyzing Policy Outcome

Our research design so far enables us to analyze potential shifts and a reconfiguration of public authority that differs markedly from the usual, simplified zero-sum approaches. The second step will follow up with an analysis of the consequences such reconfigurations might have in terms of policy outcomes. The latter will be operationalized using scores of 0-4, with 0 representing no effect at all, and 4 representing “revolutionary” policy changes (by 2015) (see *Tables 4 and 5* for details).

⁶ We are aware that it will sometimes be hard to distinguish these activities from the independent variable as operationalized in tables one and two. But our main point of interest is whether we can observe a shift from national to subnational (or vice versa) or a non-zero sum game in that both levels gain authority.

⁷ When we speak of activities etc. in forestry and climate change we include everything related to afforestation and reforestation (thus REDD, not REDD+), but we exclude as far as possible forest plantations and everything related to trade in timber. The problem is, however, that existing statistics on forests (e.g. those by the FAO) are more related to trade than to climate change. Thus, data will have to be gathered through expert interviews within the forestry sector and for 2005 we will have to rely on local expert’s estimates.

⁸ Urban climate change activities may include policy fields that are central to TCNs (e.g. renewables, transport, ports, buildings, waste, water, energy, light). Since we expect difficulties in gathering data for all of them, we will focus on energy (including renewables), transport and buildings as these are the three main urban emitters of GHG. This puts a certain bias on mitigation activities but there is a consensus that cities have so far been more active here (Bulkeley 2010).

Table 4: Change in forest policy outcomes 2005-2015

Forests	Scores	Case 1	Case 2	Case 3	...
No change	0				
Small changes: set-up of forest laws, policies reflecting REDD+	1				
Significant changes: set-up of institutions that mirror changes in laws, directives, etc.	2				
Major policy changes: spill-over of regulation into new policies, particularly on drivers of deforestation (most importantly change in agricultural policies)	3				
Policy "revolution": successful implementation of new policies and very high level of legitimacy among population	4				

Table 5: Change in urban climate change policy outcomes 2005-2015

Cities	Scores	Case 1	Case 2	Case 3	...
No change	0				
Small changes: set-up of laws, policies in the eight fields of TCN activities mentioned above	1				
Major changes: set-up of institutions that mirror changes in laws, directives etc.	2				
Significant changes: change in policies; spill-overs into other policy fields that are of relevance, particularly energy and transport	3				
Policy "revolution": implementation of low-carbon development on a broad scale and high acceptance within city populations; diffusion to other cities	4				

This step will require intensive field research in selected countries with a carefully designed process tracing that will help us to *describe* events on which some case-based *causal* inferences can be made. We are particularly interested in identifying the initiators and drivers of policy change, the extent to which policy change has taken place and the sequence in which it has occurred. Moreover, we seek a better understanding of the different roles of subnational, national, international and transnational actors within these processes - how they interacted with each other, which ones benefited from policy change, whose influence was critical and at what stage of policy change, and which ones were instrumental for locking in and institutionalizing policy reforms.

In our two-step approach, we will, however, need to address three interconnected concerns: (i) we will have to carefully trace whether changes in the reconfiguration of public authority were the result of changes in policy making, excluding other potential explanations; (ii) even if we can exclude other explanations, the traditional problem of endogeneity arises as it is not evident whether, for example, more centralization leads to more policy change or vice versa, and finally (iii) we will need to examine to what extent our results can be generalized.

To tackle these concerns, we will first check whether the potential policy changes observed essentially reflect endogenous change initiated by national and/or subnational governments without any international or transnational involvement. Comparing "largely similar" cases with and without any such involvement will allow us to do so. Second, since causal inference cannot be established in our co-variational analysis, we will consider process tracing in order to determine what comes first, and although we will only focus on a ten year time span, so much has happened that we are very confident we can determine whether policy outcome or change in the degree of (de)centralization came first. Third, our observed trends in forest and urban policies in terms of overall climate change policies may indeed allow for more general

claims. In cases where REDD+ is a major part of climate change policy and our research points to a more centralized decision-making process, a central government's ability to formulate national climate policies and its position in the international arena are likely to be strengthened. In contrast, once cities and TCNs essentially constitute a country's key players in its international climate policy, subnational actors and capacities are likely to be strengthened over time. This, in turn, might lead either to a more diversified or a more fragmented position of a national government's approach in the international arena. If both governance arrangements are in place, and both work with a similar intensity, the result may be a strengthening of public authority and policy-making at *all* governmental levels. To be able to analyze cases where potentially both trends are visible (centralization in the forest sector; decentralization in urban climate change activities) and to understand whether and how they interact, we have also included one such country in our case selection where this might occur.

Case Selection

In a co-variational analysis case selection is key, with the majority of control variables being as similar as possible and selection being guided by different degrees of the independent variable (Blatter & Haverland 2012, 42; King et al. 1994, 137f). Consequently, we will compare countries with REDD+/ TCN activities with countries where no such activities take place, or where only one activity is present. We have also included one country where both activities are present to initially assess whether and how the hypothesized trends (re-centralization in forestry/ decentralization in urban climate change activities) potentially have contradictory effects on the overall policy field of climate change.

Given our focus on the non-OECD world, our universe of cases comprises all developing countries where at least one of the two governance arrangements is present and thus could have an effect: (i) UN-REDD partner countries that have signed a Participation Agreement in the *Forest Carbon Partnership Facility's (FCPF) Readiness Fund* and/or have major bilateral REDD+ activities within their territory; or (ii) have local governments participating in the *C40 Cities Climate Leadership Group (C40)*. Building on tables 1 and 2 above, we differentiate between those countries that are significantly involved in either REDD+ or TCNs (see columns one and two in Table 6 below), those countries that have a significant involvement in both governance arrangements (see column three) and those where neither the one nor the other is significant although the arrangements are present (see column four). In the first row the case selected not only serves as a case for testing the influence of REDD+ activities, it also constitutes a control case for a country not involved in TCN activities (similarly, the same holds for the country in column two that is not engaged in REDD+ activities). In case three, we might be able to see both effects at the same time but playing out in different sectors (urban activities vs. forestry), and the case in the last column serves as a control case.

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 6 below) and without any major (de)centralization efforts during the last 10 years.⁹ We are aware that our countries are, of course, not "like units" but by eliminating those cases where other variables could lead to a similar result (major changes in intergovernmental relations overall, major fiscal

⁹ We are aware that decentralization may have different features in the four countries selected and that ideally we would have chosen countries from the middle row to control for the existing degree of centralization. However, in the middle row there is no country in the column "Active cities in C40, but no significant REDD+ activity". Furthermore, the two countries that are included in the "Neither significant REDD+ activity not active cities in the C40" (Mongolia and Sri Lanka) are of much less relevance than India that is our control case in the first row. Choosing countries from the first row was thus to some extent a pragmatic approach that allows as a sound comparison based on in-depth case studies. Of course including more countries would have been better, but realistically we do not have the data and other resources available to cover more than four countries.

crisis, natural catastrophes) we are left with those cases where it is highly likely we can test the mechanisms described above.

Table 6: Universe of cases¹⁰

		<i>Significant REDD+ activity, but no active cities in the C40</i>	<i>Active cities in the C40, but no significant REDD+ activity</i>	<i>Significant REDD+ activity and active cities in the C40</i>	<i>Neither significant REDD+ activity nor active cities in the C40</i>
Level of Centralization	Low	Ghana, Malaysia, Nigeria, Papua New Guinea, Tanzania	South Africa	Brazil , Mexico, Indonesia	Argentina, India , Pakistan Vanatu
	Medium	Benin, Bolivia, Central African Republic, Democratic Republic of the Congo, Guatemala, Guyana, Morocco, Nicaragua, Peru, Philippines	-	Colombia, China	Mongolia, Sri Lanka
	High	Cambodia, Cameroon, Chile, Costa Rica, Ecuador, Ethiopia, Gabon, Kenya, Lao People's Democratic Republic, Paraguay, Republic of the Congo (<i>Congo-Brazzaville</i>), Thailand, Vietnam, Zambia			Bangladesh, Bhutan, Egypt, El Salvador, Honduras Panama, Uganda Venezuela

As Table 6 indicates, we have chosen *Tanzania*, *South Africa*, *Brazil* and *India* as case studies. To control for other potential influences, we have chosen country cases with a low level of centralization and minor changes in intergovernmental relations during the last 10 years (this excludes Indonesia), without any major fiscal crises (this excludes Argentina) or natural catastrophes. The four selected countries have significant forest cover (slightly less so in South Africa) and mega-cities with potentially huge climate change impacts, which makes them relevant for research.

In the “Significant REDD+ activity, but no active Cities in the C40” column, Tanzania is the most active country. It has received funding of about US\$ 110 million during the last five years from various bilateral and multilateral donors (GEF, FCPF, UN REDD).¹¹ Although Darussalam has a population of three million and is located on the coast, which makes it particularly vulnerable to climate change, the city does not participate in the C40. In the “Active Cities in the C40, but no significant REDD+ activity” column, South Africa stands out. The city of Johannesburg hosts a C40-sponsored project, the ‘Climate Proofing of Urban Communi-

¹⁰ **Explanation:** This Table is an original compilation based on a number of sources. On REDD+ activity, we used the voluntary REDD+ database (reported data by funders), which subsumes and provides information on all REDD+ funding flows: <http://reddplusdatabase.org>, retrieved 7 December 2013. Only those countries were included that have received at least US\$ 10 million of REDD+ funds as reported by funders. On active cities in the C40, we evaluated information provided by the C40 website: <http://www.c40cities.org/c40cities>, retrieved 7 December 2013. Again only those countries were included that have active cities with at least one C40-sponsored project. For the categorization of the degree of centralization, we considered administrative, fiscal and political indicators (on administrative and fiscal indicators, see e.g. Panizza 1999; International Monetary Fund 2009; Lessmann & Markwardt 2010) (on political indicators, see e.g. Treisman 2002; Anderson 2008). These sources have been further supplemented by qualitative data on individual countries. Data on the degree of centralization exhibit numerous missing values for developing countries. The following countries host some REDD+ activity, but could for different reasons (e.g. current political crises, unstable political situation or ongoing radical changes) not be located in the defined categories: *Côte d’Ivoire*, *Liberia*, *Madagascar*, *Mozambique*, *Myanmar*, *Nepal*, *Solomon Islands*, *South Sudan*, *Sudan*, *Sri Lanka*, *Suriname* and *Tunisia*.

¹¹ All data is received from the voluntary database of the REDD+ partnership (<http://reddplusdatabase.org/>) (last checked 30th April, 2014).

ties' Project in 700 Cosmo City. Although the country has significant forest cover, donors have pledged little more than US\$ 300,000 for REDD+ activities. In the "Significant REDD+ activity and active Cities in the C40" column, Brazil is clearly the most important global player when it comes to tropical forests, although Mexico could have constituted a good case as well. In Brazil, the cities of Sao Paulo, Rio de Janeiro and Curitiba are all members of the C40. In the "Neither significant REDD+ nor active Cities in the C40" column, we have selected India as a control case. Although India has some 200 million hectares of forest cover and its government has followed a pro-conservation approach, which has (successfully) influenced international negotiations, it neither participates in UN-REDD nor in the FCPF. 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. Two of its cities participate in the C40 (Mumbai and Delhi), but neither has a project.

Work Program and Research Methods

Responsibilities

The principal investigators have extensive experience of conducting field research in more than 40 developing countries. They are aware of the potential biases in empirical research and are familiar with the range of methodological skills needed to carry out case studies in developing countries. They will carry forward this knowledge and train the research associates prior to their field trip and they will also accompany them during their first fieldwork.

Prof. Harald Fuhr (principal investigator) will be responsible for the work on TCNs. He has extensive experience in international climate change policy as well as public sector reform and subnational/ city development strategies in developing countries. Prof. Markus Lederer (principal investigator) will coordinate the research on REDD+ projects and their consequences in the target countries. He has worked extensively on carbon markets and has experience in researching carbon governance policy instruments. Research Associate 1 will carry out the case studies on REDD+ and TCNs in Brazil and South Africa. He/she will be based at the University of Potsdam. Research Associate 2 will carry out the case studies on REDD+ and TCNs in Tanzania and India. He/she will be based at the WWU Münster.

In our proposed research project, we will adopt a qualitative case study approach to address the primary research question outlined above and compare across our cases with the method of structured focused comparison (George & Bennett 2004). In particular, we will conduct an extensive literature review of scholarly and grey literature on the distributional changes of decision-making capacities within the respective countries. Furthermore, we will carry out a qualitative content analysis of official documents, such as budget plans, organograms, ministerial notes and policy briefings (Mayring 2000). And we will carry out semi-structured expert interviews with civil servants and public officials at both the national and subnational level, as well as at different levels of decision-making within the administrative bodies in each country under investigation (Bogner et al. 2009; Gläser & Laudel 2010). The statements given in these interviews will be supplemented by in-depth discussions with renowned scholars from the case study countries concerned with the role of the public sector in the environmental field. This triangulation approach (Rothbauer 2008; Berg & Lune 2014) is particularly important for our empirical research since we are aware that our research design relies very much on the scores we give to our independent and dependent variables, and any measurement errors would distort our empirical results (Blatter & Haverland 2012).

Work Schedule

The project will start with a preparatory phase in the first half of 2015. We plan to undertake a desk study to review the current state of decentralization and the implementation of TCNs and REDD+ projects in our target countries. During this phase, we will work closely together with our partners to establish contact with interview partners in relevant institutions.

During the second half of the first year and during the second year, time will increasingly be reserved for field research. We will carry out country research in two phases, an approach which has been proven successful in previous projects. In the first phase, one PI and one research associate will visit the countries and reactivate established contacts, identify interview partners and key informants, and select relevant projects. After completing a brief comparative evaluation back in Germany, the research associates will return to their respective target countries for ten weeks and continue with their fieldwork. During this time, the emphasis will be on carrying out expert interviews and acquiring material for the content analysis. The PIs will support this process with weekly Skype conferences.

The field research activities conducted by the research associates will continue way into 2016. Upon their return to Germany, every research team member will be involved in compiling a comparative analysis of our data. As this will be a lengthy process stretching into 2017, we also plan to invite a number of country, TCN and REDD+ specialists to present our results at the end of the year, possibly again at a side event of a climate change summit. The two PhD theses will enter their final phase and the postgraduates will have time to write up their work. The remaining time in 2017 will be allocated for the preparation of publications and the presentation of results at organized conferences (e.g. ISA Annual Convention 2017). We will also conduct a final results workshop at the University of Potsdam.

2.4. Data Handling

Project metric data sets will be made accessible along with all other publications.

2.5. Other Information (does not apply)

2.6. Experiments (does not apply)

2.7. Information on Scientific and Financial Involvement of International Cooperation Partners

During the last few years we have established various contacts with individual researchers as well as with donor organizations that will prove helpful for this study. In the past, we have worked closely together with the GIZ's Sector Program "Internationale Waldpolitik" (IWP) on REDD+ (contact person: Reinhard Wolf; reinhard.wolf@giz.de). In this context, we have written a desk study on the issue of centralization and REDD+ and organized two summer schools for GIZ staff on REDD+ governance over the course of which we made contact with many, most respected international REDD+ experts and practitioners. GIZ has again offered us the use of their excellent network and assistance in identifying local experts in the respective countries, notably in Brazil where GIZ is very active. We will also be able to make modest use of GIZ facilities (offices, drivers, translators). In addition, the well-connected advisory company, CLIMATE FOCUS (contact person: Charlotte Streck, c.streck@climatefocus.com), will help us to identify local partners. Regarding TCNs, we can rely on contacts at the Leibniz Institute for Regional Development (contact person: Kristine Kern, krkern@uni-potsdam.de); the World Bank's Urban Development Network (different contact persons); the Urban Age Institute (contact person: Tim Campbell, TimCampbell@UrbanAge.org) and the Development Partners Working Group on Decentralization and Local Governance (contact person: Jochen Mattern, jochen.mattern@giz.de). We also have very good contacts with various universities

and research institutions in the respective countries¹², such as the Fundação Getulio Vargas (FGV) in Brazil (contact person: Feliciano de Sá Guimarães, feliciano.guimaraes@fgv.br), the University of Cape Town (contact person: Ralph Hermann, ralph.hamann@gsb.uct.ac.za); The Energy and Resources Institute, TERI, Delhi (contact person: Amit Kumar, amit.kumar@teri.res.in) and the Indian Institute for Public Administration (contact point: C. Sheela Reddy, sheelachavva@gmail.com). All these institutions have offered us expert assistance in identifying relevant interview partners.

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¹² We do not list our international contacts in this field that are located outside of our case studies but through our conference and consulting activities we are well connected with researchers at inter alia the World Bank, ADB, IDB, CIFOR, CATIE, Universidad de Costa Rica, Oxford University, SOAS, LSE, Norwegian University of Life Sciences, Fridjhof Nansen Institute, Lund University, Stockholm Institute for the Environment, etc.

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