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Regional Power Shifts and Climate Knowledge Systems in (Global) Climate Governance

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Abstract

In the International System, there has been a power shift towards regional powers that is supported by recent developments in climate governance. I argue that some of the regional powers are also climate powers which benefit from an issue-specific power shift. The behaviour and strategies of regional powers concerning climate change are central for global climate governance. To analyze their strategies, a multi-level approach is required that captures the link between domestic climate governance and climate foreign policy. I develop such a concept of climate knowledge systems. It is based on Emanuel Adler's theory of cognitive evolution and communities of practice. A pragmatist philosophy that allows for mixed methods research is most suitable for analyzing the proposed connection between knowledge, practices and change. It also presents the key to an extended regional powers framework, leaving behind the somewhat artificial boundaries of International Relations in climate governance.

A. Introduction

The 4th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) and the Bali conference in 2007 have once again brought climate change to the attention of policymakers. Two years later – and despite the financial crisis – climate change is still high on the agenda. Some authors argue that the next economic crisis is looming unless the transition to low carbon-energy systems is undertaken now.[1] For a true green new deal that effectively addresses climate change, regional powers such as China, India or South Africa have to firmly support it as well. Regional powers' current and prospective share of global greenhouse gas (GHG) emissions is considerable. Simultaneously, some of them will be among those worst hit from the impacts of climate change. The role of

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1 O. Edenhofer & N. Stern, Towards a Global Green Recovery. Recommendations for immediate G20 Action. Report submitted to the G20 London Summit (April 2009) available at http://www.pik-potsdam.de/members/edenh/publications-1/global-green-recovery_pik_lse (last visited 18 February 2010).

regional powers both in their respective regions and the International System underline their importance for solving global crises. In the international climate negotiations leading up to the Copenhagen Conference in December 2009, a shift in power relations is discernible.

In this article, I focus on three points. First, I elaborate on the content and implications of the power shift taking place. Second, I argue that existing analytical frameworks need to be extended to take into account multi-level influences in climate governance, particularly concerning knowledge and norms. The analytical separation of global and domestic climate governance is obsolete – and therefore, to a certain extent, the boundaries between International Relations and Comparative Politics. Third, I contend that new ideas, attitudes and practices begin to evolve in reaction to climate change. Building on this, I develop a theoretical concept suited to regional powers and the multi-level character of climate governance. It is based on Emanuel Adler's theory of cognitive evolution and communities of practice, but refines his ideas to a concept of climate knowledge systems.

The article is divided into two parts. In the first part, I give some essential definitions: regional powers, power and leadership. I discuss the power shift in global climate governance and its possible implications for the international system. In the second part, I explain the multi-level quality of climate governance with respect to the role of knowledge and norms, particularly concerning regional powers' strategies. I develop my concept of climate knowledge systems and show how it connects to the analytical framework of regional powers. Finally, I demonstrate the advantages of taking a pragmatist stance that focuses more on practices.

B. Regional Powers and Regional Power Shifts in the International Climate Negotiations

I. Definition and Concept of Regional Powers

The terminology for the group of states that possess growing economic and political weight varies in the literature. There is neither a consensus as to which states constitute regional powers, nor a common set of analytical criteria. I do not intend to enter the debate about the advantages or disadvantages of each of the underlying concepts. That is not the purpose of this article. I employ the definition and understanding of regional powers used by the German Institute of Global and Area Studies (GIGA). It is one of the more complex concepts available that still gives sufficient room to include issue-specific dynamics. Moreover, it provides a starting point for

an extension beyond the analytic arena of International Relations, which is essential for the analysis of climate governance.

Generally, regional powers possess a certain economic stability, a relative military power and a regional power base.[2] Based on this, Daniel Flemes identifies four basic defining criteria: Regional powers have to (1) be part of a geographically delimited region, (2) be ready to assume leadership, (3) possess material and ideational capabilities for regional power projection, and (4) be highly influential in regional affairs.[3] Four more criteria serve to classify regional powers: (a) economic, political and cultural interconnectedness of the regional power within its region, (b) the provision of collective goods for the region, (c) the existence of an ideational leadership project, and (d) the acceptance of the leadership by potential followers.[4] The countries that meet these criteria and can therefore be defined as regional powers are Brazil, China, India, South Africa and Russia, although Russia differs from the others because of its lack of ideational capabilities.[5]

The definition of regional powers is closely related to the terms 'power' and 'leadership'.[6] The GIGA approach understands leadership as a process rather than a static qualification. Following Michael Barnett and Raymond Duvall, power is seen as both resource- and process-based. This appears to be the most suitable definition of power for the analysis of regional powers, because it allows for differentiated analyses. Thus, power has four dimensions[7]: compulsory power, institutional power, structural power and productive power. Compulsory power entails the direct control over others via material or symbolic resources. Institutional power refers to indirect control through rules, processes and institutions. Structural power

2 See D. Nolte, 'Macht und Machthierarchien in den internationalen Beziehungen: Ein Analysekonzept für die Forschung über regionale Führungsmächte', *GIGA Working Paper* N°29 (October 2006) 31, available at http://www.giga-hamburg.de/dl/download.php?d=/content/publikationen/pdf/wp29_nolte.pdf (last visited 18 February 2010); D. Nabers, '(Neue) Regionale Führungsmächte – Zur problematischen Konzeptualisierung eines innovativen Forschungsprogramms', *Politische Vierteljahresschrift* (forthcoming).

3 D. Flemes & D. Lemke, 'Findings and Perspectives of Regional Power Research', in D. Flemes (ed.), *Regional Leadership in the Global System: Ideas, Interests and Strategies of Regional Powers* (forthcoming 2009).

4 *Id*., 643.

5 *Id*., 644.

6 Note that both these are contested terms in International Relations literature.

7 M. Barnett & R. Duvall, *Power in Global Governance* (2005), 12.

concerns the structures and constitutive relations (e.g. inter- and transnational) that define actors' self-understanding, social capacities and interests. Finally, productive power, also termed discursive or ideological power, is "the constitution of all social subjects with various social powers through systems of knowledge and discursive practices of broad and general scope".[8] Nolte adds the differentiation between direct and indirect applications of power as well as three states of activity: active, passive or reactive power.[9]

The original GIGA concept of 2006 was criticized for its overemphasis on materialist factors as well as the insufficient integration of socialisation effects and the possibility of policy linkage strategies.[10] This criticism has been met by the recent conceptual developments outlined here. The advantage of understanding and analysing regional powers in the way presented is the inherent multilevel approach that looks at different actor relations, interests and issues on global and regional levels from various analytical angles. Regional powers' strategies may differ depending on the issue, so that some present a stronger regional power or power projection than others. To understand these choices and dynamics, I argue that the domestic, local and transnational levels of governance need to be more explicitly integrated with respect to both state and non-state initiatives.

While there is some danger to the complexity of the GIGA concept, it should serve as an overall framework inside which more specific approaches can be developed. These may lead to different results. Yet as long as the connection to the framework is made explicit, those results could actually be closer to actual practices – which is what all political scientists, even the most radical interpretivists, try to explain. The theoretical approach outlined in the second section of this paper shows one possible way of doing this. First, however, I explain the kind of power shift that has taken place in the climate governance field, in which regional powers are involved, and what implications this might have for the development of the overall International System.

8 *Id*., 20.

9 Nolte, *supra* note 2, 16.

10 For a differentiated critique, see J. Husar et al., Neue Führungsmächte als Partner deutscher Außenpolitik, SWP Studie (December 2008), 12-15, available at http://www.swp-berlin.org/common/get_document.php?asset_id=5610 (last checked 18 February 2010).

II. Power Shifts in Global Climate Governance

The change in the International System toward a multi-polar world has been extensively discussed for two decades. Various contributions have analysed and projected changes in the power distributions towards regional powers, especially concerning China and India. I argue that these power shifts are supported by the recent developments in climate governance, qualifying some of the regional powers as climate powers. A shift in power implies (a) a change in actor relations on a general level in the International System, (b) a change in at least one of the dimensions of power mentioned above, and/or (c) a certain gain in leverage beyond the concrete issue or governance field (issue linkages).

The power shift in climate governance is linked to the new urgency of dealing with climate change. Despite the fact that climate change is not new to the international agenda, extended scientific knowledge about the speed of climate change today draws a specific, quickly closing policy window. Implicitly, the new scientific findings invoke an air of crisis. This could present the sort of trigger that generates a change in attitudes and ideas – a "cognitive punch"[11] that induces processes of cognitive evolution (see section C).

The increase in power in climate governance does not concern all regional powers as per the GIGA definition, but primarily the heavyweights – China and India, as well as Brazil and South Africa. Russia maintains a low profile in international climate negotiations; parts of its climate strategy appear even to contradict other of its interests.[12] Also, large parts of Russia are expected to benefit rather than suffer from the impacts of climate change, setting it apart from the other four regional powers. Therefore, so far Russia has not benefited from the power shift in the climate field and cannot be termed a (potential) climate power.

The power shift in global climate governance can be ascribed to three main points: (1) the regional powers' country profile with respect to both emissions of greenhouse gases and the expected impacts of climate change (mitigation and adaptation[13]), (2) their role assumed in the international

11 E. Adler, *Communitarian International Relations. The Epistemic Foundations of International Relations* (2005), 75.

12 See A. Korppo *et al*., Towards a new climate regime?, FIIA Report (2009), 83, available at http://www.upi-fiia.fi/en/publication/72/ (last visited 18 February 2010).

13 "Mitigation" refers to an anthropogenic intervention to reduce the anthropogenic forcing of the climate system; it includes strategies to reduce greenhouse gas sources

climate negotiations, and (3) climate governance activities, both by state and non-state actors.

1. Country Profiles

In terms of their climate country profiles, China, India, Brazil and South Africa all belong to the top 20 of the global GHG emitting countries.[14] In 2009, China surpassed the United States and now emits the most GHG per year in cumulative terms.[15] Projections for India, for instance, range from 4 billion tons to 7.3 billion tons of GHG emitted in 2030.[16] These figures underline that it is imperative to include the regional powers in a new climate deal. Due to its large amount of rain forest, Brazil has a special role for both mitigation and adaptation. The forests function as a carbon sink, explaining why the instrument Reducing Emissions from Deforestation and forest Degradation (REDD) is central to the negotiations. REDD is also linked to adaptation because of the livelihoods that depend on the forests as a source of income. The IPCC 4th Assessment report and the UNDP Adaptation Country Profiles project severe impacts of climate change in several sectors and issue areas for all four regional powers, for example disaster risk, water or food supply.

Given their level of economic and human development, regional powers are in a better initial position than other developing countries to face climate change impacts. They can help to foster adaptation in their region. Despite the fact that some of the science has been known for a decade, the actual scope of the climate change problem as well as more concrete data on emissions and adaptation needs have only become available in the past 2-3 years. This strengthens the basic power position of the four regional powers, particularly in the dimensions of institutional and structural power. With

and emissions and enhancing greenhouse gas sinks. "Adaptation" can be defined as adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC, Appendix I: Glossary, 869, 878, available at http://www.ipcc.ch/pdf/glossary/ar4-wg2.pdf (last visited 18 February 2010)).

14 Netherlands Environmental Agency, Which are the top-20 CO2 or GHG emitting countries?, available at http://www.pbl.nl/en/dossiers/Climatechange/FAQs/index.html?vraag=10&title=Which%20are%20the%20top-20%20CO2%20or%20GHG%20emitting%20countries%3F#10 (last visited 18 February 2010).

15 *Id.*

16 See Climate Modelling Forum: India's GHG Emissions Profile: Results of Five Climate Modelling Studies (September 2009), 6, available at http://envfor.nic.in/divisions/ccd/GHG_report.pdf (last visited 18 February 2010).

respect to the international negotiations leading up to the Copenhagen conference, they are simply too important for governing and protecting the global commons 'climate'.

2. Role of the Regional Powers in the International Climate Negotiations

The high degree of difficulty in reaching agreement on any of the four big negotiating blocks – mitigation, adaptation, technology transfer and finance – is a clear sign of the power shift. If a coalition of states were able to dominate the negotiations and use its power to push for a specific solution, there would be fewer controversies than there currently are.[17] The four regional powers function as issue leaders of the G77, especially China. Additionally, South Africa acts as a speaker for the Africa group. All four regional powers try to keep a united position around three major principles: (1) the polluter pays principle – emphasising the historical responsibility of industrialised countries for GHG emissions and therefore their responsibility to take the lead, (2) the principle of common but differentiated responsibility as laid down in Article 3 of the UNFCCC – strengthening the argument that industrialised countries need to financially support developing countries' adaptation to the impact of climate change, and (3) a right to (economic) development – often interpreted as a certain right to emissions.

The negotiations in the past few years have been characterised by the deadlock between the two biggest emitters, China and the United States. Both governments blamed the other for the stalemate; each refused to act as long as the other country did not do so first. Yet with the change of administration in the US, the pressure on the Chinese government has increased. The declaration of the G8+5 at the Major Economies Forum (MEF) in July 2009 can be attributed to the new dynamics in the international climate negotiations. Even the Indian Prime Minister Singh agreed to the 2°C goal, i.e. that the global average temperature should not increase more than 2°C compared to pre-industrial levels. The MEF declaration indicates that political high-level events are necessary to boost the negotiations leading up to Copenhagen. The final extent of what we

[17] Note that at the time of writing (September 2009) the negotiating text for the Copenhagen conference still included around 7000 brackets, indicating disagreement on the passage.

have termed the "Obama effect" on the regional powers elsewhere[18] could not be determined before the outcome of Copenhagen, but its capacity seemed to have diminished. Now let us turn to each of the four countries individually.

The Chinese delegation counts as progressive in the international negotiations. Despite its refusal of binding emission targets, the government accepts its leadership position. In September 2009, the Chinese President stated the country would cut its emissions per GDP "by a notable margin by 2020".[19] Yet China was not always a progressive force in climate governance. When the new IPCC report was published at the beginning of 2007, China tried to downplay its relevance in order to decrease its own responsibility.[20] Today, domestic climate governance efforts are comparatively ambitious; clear efforts are being undertaken to prepare for the change to a low-carbon economy. The active pursuit of its issue leadership position has increased China's institutional power. Using Nolte's terminology, China has shifted from a rather reactive power position to an active power position. The first mover advantage could benefit China.

The second heavyweight, India, has assumed a reactive, blocking position since climate change first hit the international agenda in the early 1990s. The government continues to point to India's low per-capita emissions. Only in September 2009, as a reaction to China, did environment minister Jairam Ramesh state that India needs to take on more aggressive, voluntary mitigation measures, learning from China.[21] Since the 1970s, socio-economic development and protection of the environment are understood as contradictory. Due to its relevance for the economy, technology transfer is the only issue area in which India tries to constructively help achieve a solution. Outside international negotiations, India has signed several bilateral agreements on technology cooperation, for

18 B. Never & D. Eucker, Der „Obama Effekt" auf die Klimapolitik der neuen regionalen Führungsmächte, *GIGA Focus Global* Nr. 8 (2009), available at http://www.giga-hamburg.de/dl/download.php?d=/content/publikationen/pdf/gf_global_0908.pdf (last visited 18 February 2010).

19 'Climate change: India can learn lessons from China, says Jairam Ramesh', *The Times of India*, 23 September 2009, available at http://timesofindia.indiatimes.com/news/india/Climate-Change-India-can-learn-lessons-from-China-says-Jairam-Ramesh/articleshow/5045898.cms (last visited 18 February 2010).

20 'Acht Jahre, um die Katastrophe abzuwenden', *Süddeutsche Zeitung* 4 May 2007, available at http://www.sueddeutsche.de/wissen/629/324495/text/?page=2 (last visited 24 February 2010).

21 See The Times of India, *supra* note 19.

example with the US. Given its important function for overall climate governance, India benefits from a direct power shift even though its power currently manifests itself in a blocking attitude.

In the negotiations leading to the Kyoto Protocol, Brazil was very active and progressive. Its delegation still counts as rather progressive, but has lost some influence in the past years. Activities centre primarily on REDD, where the Brazilian voice exerts considerable power. If the principle of common but differentiated responsibility were respected, Brazil would consider accepting mandatory emission reduction targets.[22] This demeanour is similar to South Africa's position. In general, South Africa does not oppose emission reduction commitments anymore. The South African delegation had shifted to an active, progressive position under the now former environmental minister Marthinus Van Schalkwyk. In 2005, despite a domestic move towards a proactive position, the government still felt bound by the reactive position of all other developing countries – so the South African position remained reactionary as well.[23] The change implies a gain in institutional power and potential leverage beyond the climate issue. As a speaker of the Africa group, South Africa advocates actively for financial support of adaptation for all developing countries. The EU seems to recognize South Africa's potential, calling on the government to take a progressive lead function within the group of regional powers. The power South Africa exerts in the international climate negotiations can therefore be termed active and direct.

3. Activities by State and Non-state Climate Governance Actors

Finally, the activities both by state and non-state actors in Brazil, China, India and South Africa strengthen the respective governments' position in global governance questions. Increasing domestic activities show the countries' willingness to assume their share of responsibility. The deadlock between China and the United States softens. For instance,

22 According to Joao Paulo Capobianco, Brazil's deputy Environmental Minister, see M. Osava, 'Climate Change – Brazil: Once and Future Environmental Leader?', *IPS News*, 21 May 2007, available at http://ipsnews.net/news.asp? idnews=37827 (last visited 18 February 2010).

23 I. C. Koch *et al.*, 'Institutional dynamics and climate change adaptation in South Africa', 12 *Mitigation and Adaptation Strategies for Global Change* (2007) 8, 1323, 1337.

Chinese provinces have been active in climate governance since 2007. Given the size of the country and the difficulties of integrating developmental and environmental concerns, the Chinese national climate policy counts as comparably progressive.[24] In South Africa, a long-term mitigation strategy that envisions emissions peaking by 2020/2025, plateauing for a few years, and then declining, was approved by Cabinet in 2008. A roadmap with concrete steps for both adaptation and mitigation was discussed and agreed on at a National Climate Summit with stakeholders in March 2009.

The projects conducted under the Clean Development Mechanism (CDM) are part of the Kyoto Protocol. They are public-private partnerships or fully private projects, with the first project registered in 2004. China currently has the biggest share of roughly 35% of the 1815 projects currently registered at the UNFCCC[25], India comes second with 25% and Brazil hosts 9% of all CDM projects. This underlines their economic attractiveness and importance as trading partners for the developed countries. Even though it is not clear yet what form the future emission trading system will take, it can be assumed that the structural power gain in this area will not be lost again. In addition, both Brazil and India posses some structural power in terms of competitive advantages in the renewable energy sector. Brazil is the world's biggest producer of biofuels. In terms of installed wind power plants, India is ranked fifth globally. The Indian company Suzlon is one of the world's leading wind turbine manufacturers. Moreover, the potential for innovations in green technology is deemed particularly high in China and India.

Overall, China, India, Brazil and South Africa exert some qualities of climate powers and have a high potential to fully assume their role. A definite classification is subject to in-depth, multi-level empirical studies.

III. Implications for the International System

Given the impacts of climate change on key sectors such as the economy, and its simultaneous catalyzing effects on many already existing problems, the developments in power relations in climate governance are crucial for the International System. Spill-over effects on other issue areas

[24] See Korppo *et al.*, *supra* note 12.

[25] See UNFCCC, Registered project activities by host party, available at http://cdm.unfccc.int/Statistics/Registration/NumOfRegisteredProjByHostPartiesPieChart.html (last visited 18 February 2010).

appear possible. I contend that climate governance has the potential to become – if it is not already – one of the most important governance fields of this century. It cannot be put into the low politics box the way environmental policy issues normally are. The challenge it presents to two of the state's core functions – welfare and security – is likely to transform the management of climate change into a domestic performance test for governments. In the international system, assuming a leadership function in climate governance is likely to strengthen both regional leadership and global recognition. China could benefit from a demonstration of global leadership ambitions via climate governance, confirming its ability to address global problems. Therefore, its power position in relation to the US is reinforced. If India changed its current negotiation position somewhat to lobby for a specific type of emission trading, it could become the winner in a new climate deal. Due to its low per-capita emissions and already attractive location for CDM projects, India could significantly strengthen its economic attractiveness – and therefore its power position.

The direct leap from low levels of development to a low-carbon society could improve the economic situation for all regional powers through the creation of green jobs, markets and attraction of investors seeking innovative but affordable technology. A distinct competitive advantage in green technology seems possible because all companies worldwide are, or start out at, nearly the same level in this area now.[26] Since the beginning of the G8+5 summits in 2005, it has become evident that the voice of the five Outreach countries must be heard in global questions. The G8 summits in Heiligendamm and L'Aquila (and the MEF meeting) exemplify that this matters for dealing with climate change. Here, climate governance could induce a sustainable change in the G8+5 meetings, reorganizing the group into a true G11. In this sense, the G11 would be grouped according to their economic weight and explicitly in terms of their political importance for global challenges. This would be a further step towards a multi-polar world in which the regional powers occupy a central position.

[26] According to Duan Chengwu (analyst of IHS Global Insight Auto), this situation combined with the firm backing of its most dominant power source, the communist government, creates a great business opportunity for China; see H. Iveson, 'China builds a green dream machine', *The Guardian online*, 26 February 2009, available at http://www.guardian.co.uk/technology/2009/feb/26/green-technology-motoring (last visited 18 February 2010).

C. Communities of Practice and Climate Knowledge Systems

I. The Role of Knowledge, Norms and Practice for Solving Global Crises

Knowledge and norms play an important role for climate governance. There is reason to believe that actors in the climate regime choose options that conform to a dominant knowledge system or discourse.[27] A lack of understanding of climate change, and knowledge about technological options to adapt and mitigate, count as inhibiting factors to climate governance in different areas of the world. Evidence of this exists for the Swedish forest sector[28] and local climate governance in Durban, South Africa.[29] Knowledge relates to socialisation processes. The social construction of climate change has been discussed differently by three branches of research: epistemic communities, norm and discourse-oriented scholars. Yet it is not entirely clear yet what role knowledge plays in inducing change in climate governance mechanisms. The connection between science, knowledge and policy is still not sufficiently conceptualized[30] – especially for the non-OECD world, to which the regional powers all belong.

Epistemic communities, e.g. the IPCC, are transnational scientific networks that help overcome policymakers' uncertainty by providing policy-relevant knowledge. It is widely acknowledged that scientific knowledge matters for shaping climate governance processes and outcomes. Therefore, it also exerts a certain power. Discourse-oriented scholars criticise the epistemic community research for its dichotomous view of interests and knowledge versus power. They do not treat ideas or knowledge

27 H. Breitmeier *et al.*, 'The International Regimes Database: Architecture, Key Findings, and Implications for the Study of Environmental Regimes', *Politische Vierteljahresschrift Sonderheft 39 Politik und Umwelt* (2007), 41, 55.

28 K. Blennow & J. Persson, 'Climate Change: Motivations for Taking Motivations to Adapt', *Global 19 Environmental Change* (2009) 1, 100.

29 D. Roberts, 'Thinking Globally, Acting Locally; Institutionalizing Climate Change at the Local Level in Durban, South Africa', 20 *Environment & Urbanization* (2008) 2, 521.

30 See M. Lahsen, 'Trust Through Participation? Problems of Knowledge in Climate Decision Making', in M. E. Pettenger (ed.), *The Social Construction of Climate Change: Power, Knowledge, Norms, Discourses* (2007), 173.

as given, but argue that effective governance requires the constant translation between global and local knowledge-power formations.[31] Norm research indicates an increasing transnationalization in climate governance. For instance, transnational advocacy networks play an important role in diffusing climate protection norms in China.[32] Other transnational initiatives include community and city cooperation, business partnerships that lobby for climate protection (e.g. 3-C Combat Climate Change) and multilateral cooperations beyond the UNFCC regime. The technology cooperation Asia-Pacific Partnership on Clean Development and Climate is a well-known example for such a multilateral network. In all these initiatives and therefore across country boundaries – and governance levels – ideas, knowledge and practices are exchanged. Acknowledging the norm-building function of these transnational networks has impacts on global governance and the global order: first steps towards the development of a world civil society may be taken.[33]

But how does this body of research relate to regional powers' behaviour and strategies in climate governance? What role do norms, ideas and knowledge play for advancing climate governance? Two points are relevant. The first concerns the multi-level quality of climate governance; the second relates to change and practices in climate governance.

First, since climate governance simultaneously takes place top-down, bottom-up and across levels, climate governance is indeed multi-level governance.[34] The linkages between the domestic and international sphere as well as different actor groups are acknowledged in the literature. Due to these different types of activities on different levels, the climate governance architecture is increasingly fragmented. The production of knowledge, ideas and norms as well as their diffusion takes place across levels. In Brazil, there is a considerable lack of trust between national scientists and

31 See S. Jasanoff & M. Martello, Earthly Politics: Local and Global in Environmental Politics (2004).

32 M. Schröder, 'The Construction of China's Climate Politics: Transnational NGOs and the Spiral Model of International Relations', 21 *Cambridge Review of International Affairs* (2008) 4, 505.

33 C. Jakobeit *et al.*, Zivilisierung der Weltordnung. Vom Nutzen transnationaler Normbildungsnetzwerke, *GIGA Focus Global* Nr. 11 (October 2009), available at http://www.giga-hamburg.de/dl/download.php?d=/content/publikationen/pdf/gf_global_0911.pdf (last visited 18 February 2010).

34 This has been underlined by various authors, see e.g. A. Brunnengräber, *Multi-Level Governance: Klima-, Umwelt- und Sozialpolitik in einer interdependenten Welt* (2007).

policymakers.[35] Policymakers additionally perceive the IPCC to be dominated by the North and deduce a political disadvantage from this. Science in this view becomes "situated knowledge and a potential vector for hegemonic power".[36] The Indian government, in contrast, relies a lot more on national scientific advisory institutions than on IPCC reports.[37] Hence, analyzing the behaviour of regional powers in global climate governance and their possible ideational projects remains incomplete without taking knowledge, ideas and norm into account in a more comprehensive way. Those actors who craft and exert the regional powers' foreign policy do not act in a vacuum or in isolation from the developments in their countries – nor do they act apart from the activities of transnational actors groups. Socialisation effects do not recognise or stop at governance levels. All global climate governance is local, and all local or domestic climate governance is global.

Second, constructivist research has established that knowledge, ideas, attitudes and norms have some influence on how actors behave and what they actually do. They inform practices at least to some extent, and practices inform change.[38] Under what conditions and to what extent knowledge, ideas and norms shape regional powers' climate governance, and how change is induced through practices, is not yet sufficiently clear. My theoretical approach outlined below presents a step towards this. Furthermore, because the solutions for dealing with climate change in terms of concrete adaptation steps or techniques and mitigation technologies are currently under development in many different parts of the world, the exchange of knowledge and best practices is essential. Technology transfer therefore presents a highly contested issue. The exchange of local adaptation practices are supported by various initiatives, ranging from regional workshops to internet platforms. Regional powers could play an important role here because of their higher level of development, availability of resources and leadership role in other issue areas. If and to what extent some of the regional powers already consciously or unconsciously pursue these strategies through state and non-state governance actors has not been

35 See Lahsen, *supra* note 30, 182-187.

36 *Id*., 186.

37 See F. Biermann, 'Institutions for Scientific Advice: Global Environmental Assessments and Their Influence in Developing Countries', 8 *Global Governance* (2002) 2, 195.

38 See E. Adler & V. Pouliot, *The Practice Turn in International Relations*, Manuscript (2009).

sufficiently investigated. Given the importance of climate governance for the economy, for instance, these links between knowledge and climate governance may prove to enhance or diminish ideological leadership and projections of "region"-ness.

II. Emanuel Adler's Theory of Cognitive Evolution and Communities of Practice

The theory of cognitive evolution and communities of practice builds an appropriate starting point for an analysis of change in climate governance. It has been developed by Emanuel Adler as a process-based communitarian approach to explain change in international relations. While international relations is the major field for analysing regional powers, in climate governance, as stated, processes on other levels need to be integrated to fully understand regional powers' strategies. Adler himself proposes its application to the environmental field on international, transnational and national levels.[39] In the following, I outline the essentials of his theory.

The theory concentrates on collective learning and knowledge evolution. Communities of practice are informal, dynamic social structures that cut across levels of society and may transcend countries' boundaries as well. They consist of like-minded people who learn from each other and share practices that embody the knowledge the community develops, shares and maintains.[40] In contrast to social networks, members also develop an identity and have a "sense of joint enterprise".[41] This way, the members are connected without ever necessarily meeting each other: they are bound by exchanging knowledge, ideas and practices. Communities of practice can take different forms such as security communities, epistemic communities or trans-boundary advocacy networks – because they "encompass the social space where structure and agency overlap, and where knowledge power and community intersect"[42] the concept can serve as an umbrella concept.

39 E. Adler, 'The Spread of Security Communities: Communities of Practice, Self-Restraint and NATO's Post- Cold War Transformation', 14 *European Journal of International Relations* (2008) 2, 223.

40 See E. Wenger *et al.*, *Cultivating Communities of Practice: a Guide to Managing Knowledge* (1998).

41 Adler, Communitarian International Relations, *supra* note 11, 15.

42 Adler, Security Communities, *supra* note 39, 199.

Cognitive evolution is Adler's term for a collective learning process. It explains

> "how communities of practice establish themselves, how their background knowledge diffuses and becomes institutionalized, how their members' expectations and dispositions become preferentially selected, and how social structure spreads. Cognitive-evolution theory helps reveal why certain ideas become practices and how practices evolve."[43]

In his understanding, knowledge is more than the individual information held by a person, but also the "intersubjective, background or context of expectations, dispositions, and language that gives meaning to material reality".[44] He differentiates between four dimensions of knowledge: scientific, technological, ideological and normative, and connects these to institutional and productive power.[45] Processes of cognitive evolution change these background dispositions or the intersubjective, collective social structures that Adler also calls "epistemes".[46] An episteme is "the sum of collective understanding and discourse about *material capabilities, knowledge* [..], *legitimacy* […] and *fairness* […]".[47] Cognitive evolution and therefore a change of epistemes through the activities of communities of practice means institutionalising new conceptual categories that people draw on. This process follows the stages of creation, selection, diffusion and institutionalisation.[48] Events that take the form of or are perceived as a crisis may jump-start processes of cognitive evolution.

The notion of epistemes has a certain degree of fuzziness to it; in terms of the research process the problem of measurement immediately comes to mind. Therefore, I do not employ this complex conceptualization, but focus on knowledge. In his more recent texts, Adler advocates for a practice turn which means that he shifts practices as a conceptual term to the centre of his theory. Practices, understood as socially meaningful routine

43 Adler, Security Communities, *supra* note 39, 202.
44 Adler, Communitarian International Relations, *supra* note 11, 4.
45 E. Adler & S. Bernstein, 'Knowledge in Power: the Epistemic Construction of Global Governance', in M. N. Barnett & R. Duvall (eds), *Power in Global Governance* (2005), 300.
46 See Adler, *supra* note 11.
47 Adler & Bernstein, *supra* note 45, 300, italics in the original.
48 Adler 2005, *supra* note 11, 75.

practices or that what people actually do, present the core that sits between structure and agency.[49] Practices therefore have the potential to connect the different "isms" present in international relations.[50] Hence, Adler tries to synthesize constructivist and rationalist approaches. He still builds on constructivism, but moves somewhat closer to pragmatism. In his own words: "my approach offers a pragmatist reading of rationality that takes strategic construction into account".[51] In the next section, I explain how a concept of knowledge systems that sets out from Adler's theory can provide the necessary extension for the analysis of regional powers in climate governance. I also indicate the advantages of a pragmatist philosophy for the analysis of climate governance. Hence, I advance the theory of communities of practice and cognitive evolution towards pragmatism, both philosophically and methodologically.

III. Climate Knowledge Systems

The previous sections have shown that there is reason to believe in a connection between knowledge and climate governance mechanisms. Climate governance can be defined as "all the purposeful mechanisms and measures aimed at steering social systems toward preventing, mitigating, or adapting to the risks posed by climate change".[52] This definition becomes less general when climate governance mechanisms are understood as purposeful practices that are actually performed to achieve mitigation or adaptation: clear efforts towards implementation are required, even if effectiveness cannot be measured. Knowledge, more specifically knowledge systems, could present one of the key factors shaping the climate governance strategies that evolve in China, Brazil, India and South Africa. I hypothesise that the existence and characteristics of climate knowledge systems are a necessary but not sufficient condition for the emergence of climate governance. In an empirical test, climate knowledge systems would be the independent variable and climate governance mechanisms the dependent variable. If evidence for this is found, a subsequent hypothesis concerning regional powers' foreign policy could be: The characteristics of

49 See Adler & Poulito, *supra* note 38.
50 *Id*.
51 Adler, *supra* note 39, Security Communities, 222.
52 S. C. Jagers & J. Stripple, 'Climate Governance beyond the State', 9 *Global Governance* (2003) 3, 388.

climate knowledge systems decisively impact regional powers' behaviour in global climate governance.

I draw on Adler's definition of knowledge with the four dimensions scientific, technological, ideological and normative knowledge. Applied to climate governance, scientific knowledge refers to the consensual understanding of climate change[53]: models and projections, impacts and explanations climatologists provide about climate change. Technological knowledge includes the available tools and options for adaptive and mitigating measures. Here, a relation to innovation or research and development exists. Ideological knowledge refers to a set of beliefs about the relation between humans and nature or economic development v. the environment – a basic "green" or "non-green" attitude. Normative knowledge then means the assessment of climate change-related issues as good or bad, e.g. that reducing GHG emissions is good and should be promoted.

Climate knowledge systems are an advancement of the theory of communities of practice and cognitive evolution. I define climate knowledge systems as such:

> (1) Individual and intersubjective knowledge (normative, ideological, scientific, technological) that influences actors' behaviour and is shaped by
> (2) Different communities of practice which split into
> (a) the source or producers of knowledge, i.e. epistemic communities, national scientific advisory institutions, and businesses (the latter to a certain extent, primarily in technology)
> (b) different carriers: in the climate field these are central business actors (national and transnational), state representatives at different levels of government, and environmental civil society organizations – so possibly a lot of the governance actors themselves
> (3) Category a) influences primarily through productive power, as defined above, and category b) through institutional power – in the case of business actors these may overlap.

[53] While the outcomes of specific models or projections may be somewhat contested between climatologists, the overall existence and dynamics of climate change are not contested anymore.

(4) A (dominant) climate change discourse that is knowledge-related is part of the knowledge system. It helps selection and diffusion of new conceptual categories.
(5) There are no strict boundaries of the knowledge system as different communities of practice influence processes of selection and diffusion. In the ideal process, wide-spread new conceptual categories and practices come about so that the climate knowledge system has a certain dynamic character.

Bridges to studies that could focus more explicitly on discourses or climate norms form a part of my concept. The definition of knowledge I employ has a normative component to it. In the theory of cognitive evolution, ideas, attitudes, knowledge and discourse are not isolated from each other. However, to keep the concept of climate knowledge systems manageable, discourses need to be treated as existent and somewhat independent. In an empirical application, I would only look at how the knowledge component feeds into the climate discourse in the form of a discursive snapshot or alternatively by a content analysis. The question is what effects the discourse has on climate governance and on actors' decision-making, rather than tracing its development in detail – this would be a good starting part for an additional discourse-analytical study. The state of development of regional powers, i.e. as developing countries even though advanced, requires the integration of economic incentives or the economic strategy in any empirical study treating climate governance. Moreover, it is possible that other building blocks impact climate governance. This has to be empirically tested.

By allowing for economic incentives (or hindrances, if the necessary financial resources do not exist) and possibly other influencing factors as a second independent variable, I take a pragmatic position that truly starts from the research question. I do not negate any explanation *a priori* for ontological or epistemological reasons. Finding an explanation or interpretation to cope with a specific problem takes precedence over abstract analytic principles. In terms of epistemology and ontology, pragmatism means that meta-theoretical debates such as the question of structure and agency are somewhat avoided. There are different strands of pragmatism in political science, and none of them support an "anything goes" approach. I understand pragmatism in the form of analytical eclecticism, as proposed by Peter Katzenstein and Rudra Sil. For them, it means expanding the range of available concepts, assumptions, methods and empirical data. The aim is not to build a genuine synthetic, unified theory. Instead, analytical eclecticism

focussed "on a given problem and assumes the continued existence of, and growing engagement between, competing research traditions".[54]

In terms of methodology, pragmatism allows for multiple methods of both the qualitative and quantitative kind. Mixed methods approaches are often undertaken for the purpose of significance enhancement. This is relevant for analysing complex, hard-to-measure problems. Therefore, many mixed methods researchers defend pragmatism as their philosophical stance. Indeed, what I propose for testing my concept of climate knowledge systems as well as for enhancing the analytical framework for regional powers is an explicit mixed methods approach. Looking at complex multi-level influences as in climate governance and discerning their relevance for the foreign policy standing of regional powers becomes easier to handle if the research question can be investigated with all (promising) data collection methods. Moreover, if practices come more into focus, the problems of too few cases and designation of variables may be attenuated somewhat. Concrete practices in specific issue areas could become cases with communities of practice presenting the hinge between governance levels or domestic and international policy/governance strategies. Additionally, concentrating on practices and communities of practice (e.g. in the concept of knowledge systems) enables the extension of a regional powers framework beyond the state. Communities of practice in a specific governance field function either as dependent or independent variables, depending on the focus of the prospective study. The reintegration of (empirical) results into the overall network of regional powers could take place via an encompassing explanation of change that looks for explanatory factors beyond international relations.

D. Conclusion

The power shift towards the regional powers, China, India, South Africa and Brazil, has a decisive impact on global climate governance. Their reactions and strategies in the face of climate change are central to the quality and effectiveness of the global response. I have argued that these four countries are (potential) climate powers – a final classification depends on in-depth empirical studies on the climate governance activities taking place, both domestically and concerning their respective regions. To

[54] P. Katzenstein & R. Sil, 'Eclectic Theorizing in the Study and Practice of International Relations', in C. Reus-Smit & D. Snidal (eds), *Oxford Handbook of International Relations* (2008), 118.

undertake these empirical studies the analytical framework for regional powers as used by GIGA needs to be extended. It has to account for the multi-level dynamics in climate governance. The concept of climate knowledge systems and communities of practice presents a point of departure for this. The production and diffusion of knowledge takes place across governance levels. It is closely connected to ideas, norms and attitudes that together account for socialisation processes of governance actors and inform practices. Climate knowledge systems and communities of practice could play an important role in inducing change – a change that may start crosscutting national, local or transnational levels before it impacts the climate foreign policy of the regional power as such. Thus, communities of practice may fulfil the function of an interlink or hinge.

A stronger focus on practices and pragmatism that avoids the paradigm wars and connects research schools to some extent appears viable. Methodologically, pragmatism if understood as analytical eclecticism opens up ways of understanding complex phenomena such as climate governance without *a priori* ruling out the explanatory power of some factors due to abstract philosophical reasons. This is essential for the development of an encompassing, dynamic framework for the analysis of regional powers beyond international relations. For the analysis of regional powers' behaviour in (global) climate governance, taking practices into account in a more pragmatic way could help to solve the methodological problems of identifying variables and cases to compare. Empirical work will show the strengths and weaknesses of the theoretical approach presented here.