

Climate Initiatives at the Subnational Level of the Indian States and their Interplay with Federal Policies

Kirsten Jörgensen

Environmental Policy Research Centre
Freie Universität Berlin
kirstenj@zedat.fu-berlin.de

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Introduction

This paper builds on the observation that subnational level state initiatives have, as has been witnessed in countries such as the USA and Canada, become important driving forces behind climate policies. They contribute to multi-level climate policy in different ways. A large number of US states have set up a variety of climate policies. They have tried to overcome the deadlock at the federal level and compensate for a lack of ambition and leadership in the framing of climate mitigation policies. Driven by similar motives, U.S. states and Canadian provinces have agreed on transboundary commitments for climate mitigation. In so doing, the subnational level makes a kind of advanced investment in climate policies which, according to its expectations, will sooner or later become imposed from above. What is most interesting is that climate policies emerging from bottom-up are heterogeneous and tailored according to the socio-economic conditions and other factors on the ground. Thus, seen through a different lens, subnational climate initiatives can also be regarded as laboratories for experimentation, testing approaches to the cross-cutting challenges of climate mitigation policies.

The assumption of the paper presented here is that the subnational state level in federal systems can be regarded, under certain circumstances, as a driver of multi-level climate policy. It adopts the idea that the subnational state level in India might also dispose of the potential and independent political forces for its own climate protection initiatives – as is the case in the USA and Canada.

The goal of the paper is to explore the role of the Indian Union states within the context of the national climate policy and to find out whether state action moves beyond the mere implementation of federal policies.

The presentation deals firstly with the institutional set up for climate policy in India's federal system, exploring the distribution of tasks and the role the Indian states play in climate policy-making against the background of emerging climate policy and climate politics in India. Secondly, it touches upon a few selected areas of states action, namely the promotion of renewable energy and climate action planning. In addition, it will classify them based on the question of whether they provide for more than mere implementation of federal impositions.

The presentation will then take the lens of comparative climate politics. It will reflect upon research findings regarding the role of subnational climate protection initiatives in multi-level climate governance in Germany and the USA. The relatedness of subnational state initiatives to federal policies and the driving forces behind them will be discussed against the background of international comparative research about subnational policy-making. Lastly, research questions for future research on India will be put forward for discussion.

1. Emerging climate policy and politics in India

India is increasingly becoming an important actor in the processes of global climate governance. Despite its low per capita emission, it is the world's fourth largest economy and fifth largest greenhouse gas (GHG) emitter, accounting for about 5% of global emissions (PEW Center on Global Climate Change 2008). At the same time, India, which is divided into 28 subnational states and 7 union territories, belongs to the group of the most vulnerable countries in the world with regards to climate change (Yohe et al. 2006, Malone/ Brenkert 2008). Challenged in a variety of ways, India is expected to experience widespread damage as a result of climate change (NIC 2009, IPCC 2007). India vulnerability to climate change is demonstrated by: a) the threatening melting of the Himalayan glaciers, b) the increasing scarcity of water as well as c) the changing monsoon patterns and their impact on agriculture and thereby affecting the livelihoods of a major part of the population (IPPC 2007). Hence, climate change is an urgent and visible problem, one that is currently causing heavy social and economic pressures and, concomitantly, calls for climate change adaptation policies. The benefits of taking early action against climate change may outweigh these costs.

In international negotiations, India has repeatedly resisted binding mitigation targets. At an official level, it is often argued that such targets would interfere with the priorities and needs of the country, namely economic growth and poverty mitigation. As a developing country with low per capita emissions, India demands the right to catch-up economically and resists greenhouse gas mitigation obligations that could interfere with this goal. This official governmental stance is shared by a broad domestic advocacy-coalition that has been called the "growth-first stonewallers" (for this debate see Dubash 2009). However other voices from civil society and the scientific community call for an active climate protection policy and involvement in internationally binding targets to cope with climate change (Rai, Victor 2009, Dubash 2009).

Despite the domestic debate and perceived ambiguity in regard to these issues, climate policy in India began unfolding in 2008, as the country has taken significant steps to mitigate greenhouse gas emissions. Since 2008, India has a National Action Plan on Climate Change in place. This plan states national objectives, "national missions", principles, and it outlines both existing as well as future policies and programs, ones that address climate mitigation and adaptation (Government of India 2008). Worth mentioning is that Indian climate policy includes a range of sector-based mitigation policies (Mehra 2008). For quite some time India has a variety of institutions and programs in place promoting a sustainable energy mix and increased energy conservation (Mehra 2008, Dubash 2009, Pew 2008). These policies are related in part to the historic development of Indian renewable energy and energy conservation policies dating back to the 1970s. A number of policies dedicated to climate mitigation by reducing or avoiding GHG emissions have been in existence for quite some time. These, however, were driven not by climate concerns, but rather by energy security concerns (PEW 2008, Dubash 2009).

It can be noted that Indian mitigation policies are in place presently, but – as in many of the older industrialized countries – are pursued with less impetus and are subordinated to policies that promote economic growth and development.

1.1 Climate politics

Given the economic and social circumstances in India, it has proven difficult to take collective action there. Climate mitigation policies are more likely to be abandoned from the political agenda in favour of growth-oriented policies as they apply to the economic, industrial and transportation sectors, as well as others. Still, mitigation policies with beneficial consequences for the global climate, though without immediate positive effects as far as the Indian economy and livelihoods are concerned, are presumed to constitute a threat to economic growth.

From a different angle, it is vital to understand not only the impeding conditions mentioned above. It is also important to consider driving forces and supportive conditions behind climate politics in India and the role different state levels, markets and civil society play in this. As regards the supportive conditions and driving forces, a variety of political and economic factors are deemed influential. Amongst these are the existing governmental institutions and organisations which promote climate mitigation specifically or as a positive side effect of their policies.

A good example of that would be India's well established renewable energy policy. The transition of the energy sector towards a more renewable-based system has been pursued for nearly five decades (Anumakonda 2007) with regulatory frameworks and market based instruments. "The incentives provided by the Government of India and different state governments helped India to rise to the 4th position globally next only to Germany, Spain and USA." (Anumakonda 2007: 540) This policy is implemented by the Ministry of Non-conventional Energy Sources, which was introduced in 1992 and is considered today a unique institutional innovation. In fact, renewable energy policies are the ones with the greatest socio-economic potential, including the development of infrastructures in rural areas and employment. They can be regarded as a central element of climate policy in India. Of particular importance therein is the growing market for renewable energy producers in India (Dena 2007) - an important driving force behind mitigation policies.

As regards supportive conditions, mention should be made of India's robust civil society with its wide variety of grass roots, think tanks, research and environmental organisations (Williams/ Mawdsley 2006, Chokkar 2006, 5; Jasanoff 1993). Formerly, civil society organizations were not very supportive of climate mitigation as they primarily focussed on poverty eradication, health issues, the protection of livelihoods and the urban environment. Climate mitigation and national greenhouse gas reduction goals were contested, as they were in contradiction with India's human development goals and perceptions of international equity and burden sharing. Recently, civil society organizations are becoming increasingly involved in climate policies including mitigation.

Just as they do in environmental policy, the sciences are playing an important role herein as well (Sathaye/Shukla/Ravindranath 2006); this is particularly evident when considering the Indian Network for Climate Change Assessment (INCCA), which was announced in Oct 2009.¹

Until now literature about the role of the subnational state level in India's climate politics has been missing. The goal of this article is to shed light on their role in federal climate policy-making, their political and economic potentials for taking action as well as on possible drivers of states initiatives. For a more detailed understanding of the division of tasks in India's federal system and the scope for independent state initiatives, the institutional set up for climate policy in India's federal system will be scrutinized in the following section.

1.2 The institutional set up: Centre-states relations

¹ http://moef.nic.in/downloads/public-information/Impetus_Science_press.pdf last accessed 09.03.2011

Not surprisingly, a clear-cut legislative responsibility for climate protection in India is lacking. The reason for this, as in other countries, is that the constitutional distribution of legislative powers and administrative responsibilities between the Union Government and the states was obviously established long before the emergence of this problem. In such cases with respect to India, the rule is applied that the centre has the residual power to legislate on any subject not covered in constitution (Saez 2002).

Furthermore, legislative responsibilities for climate policy derive from different legal sources. Primarily climate change is a global concern and, by nature, an international affair, thus subject to international agreements. Due to the international scope of the problem, as well as the constitutional competency of the Union Government for international agreements and treaties, the main responsibility for climate change agreements lies with the Union Government. As is the case in other areas of international affairs, the national legislator is fairly powerful – a noteworthy aspect as regards climate policy, for the legislator may make “any law for the whole or any part of the territory of India for implementing any treaty, agreement or convention with any other country” this even applies to decisions made at any international conferences.”²

Gupta 2001 highlights the fact that the Indian constitution provides the federal government (centre) with strong legislative powers and executive rights which have been used largely for environmental legislation: “In fact, two major environmental statutes in India, namely, the Air (Prevention and Control of Pollution) Act of 1981 and the Environment (Protection) Act of 1986, have been enacted under this very provision by citing the United Nations Conference on the Human Environment at Stockholm in 1972. It is interesting to note that a conference held in 1972 was used to justify statutes 9 and 14 years later, respectively! (...) both acts give the centre far reaching powers in environmental matters.” (p.: 4) The latter assessment also applies to climate law, which is closely connected with air pollution control.

Not surprisingly, the major arenas for climate politics, and the formulation of an overall national strategy in India is located at the federal level - no different from other countries in the world. Involved in climate policy are the Prime Minister, a number of federal ministries, the Union parliament, the business sector, civil society actors as well as research institutes. Important climate policy actors are, moreover, the Planning Commission and the Financial Commission. They play an important role in India’s centralized policy-making, including the central long-term planning performed by the Planning Commission and, in connection to this, the centralised public revenues (Saez 2002).

Despite the obvious dominance of the centre, the Indian states might still be regarded as more significant climate policy players; they are equipped with a higher degree of self-rule, as it appears at first glance. Their role results from the wide-ranging legislative powers which have been afforded to them. These powers relate to issue areas relevant to climate policy – indeed, cross-cutting ones -, such as water, land use and agriculture. The states generally exhibit vital importance in the implementation of all policies. They might use these legislative powers despite the fact that “anything on the State List is fair game as far as the centre is concerned” (Gupta 2001: 4) The Indian Constitution lists three groups of legislative issue areas and distinguishes them according to legislative powers.³ The Union list comprises 97 subjects over which the national legislator has exclusive powers. To mention just a few issue areas relevant to climate policy, amongst them are trade representation, United Nations Organisation, agreements and conventions with foreign countries, atomic power, mineral and oil resources and control of industries. The State List comprises 66 issue areas where the state governments have exclusive jurisdiction including public health and sanitation, agriculture, land improvement and water. Energy falls under concurrent legislation involving both levels of government and, as will be shown later, the states are setting up independent incentive systems in the energy sector.

² See Gupta 2001, and Art. 253 of the Indian Constitution
<http://indiacode.nic.in/coiweb/fullact1.asp?tfnm=00%20511> last accessed 4.2.2011

³ [Part XI of the Constitution](#) "Relations Between the Union and the States", Article 246 Internet

As for the implementation - comparable with Germany - without the states's implementation efforts, little progress could be achieved in the prioritized areas of the Indian National Climate Action Plan. In Germany without the Bundesländer's implementation efforts, little progress could have been achieved in the prioritized areas of the German sustainability strategy, such as energy, climate, environmentally-friendly mobility, healthy production and nutrition, innovation, reducing land use and conserving open spaces. This also applies to the implementation of European policies related to climate policy.

Summing up the brief institutional analysis, it can be said that, despite the Centre's strong legislative powers and executive rights, the subnational state level disposes of a number of important legislative powers relevant to climate policy. The following section shall shed light on the question of how the subnational state level makes use of its rights.

1.3 The role of the Indian states

In general India is well known for its heavily centralized federal system with the Union Government normally taking the lead (Gupta 2001). This is certainly the case in climate policy as in a number of other policy areas. The National Climate Action Plan approaches climate change with a strategy that includes eight "National Missions", amongst them the promotion of solar energy, enhanced energy efficiency, sustainable habitat and sustainable agriculture. It also sets the political priorities: protecting the poor and vulnerable through sustainable development; the achievement of national growth objectives; division of efficient and cost effective strategies; the deployment of appropriate technology for adaptation and mitigation of GHG and the engineering of new and innovative forms of market, regulatory and voluntary mechanisms (GOI 2008). Accordingly, two important institutions, the Planning Commission and the Financial Commission, set up implementation plans and financial transfer schemes involving all levels of government. Their output involves guidelines and prescriptions for states action. At a conference of state ministers held on August 19, 2009, Prime Minister Manmohan Singh requested that the states devise state-level climate action plans. These were to have been consistent with the strategies identified in the National Action Plan on Climate Change 2008 and were to have included investments in new clean technologies.⁴

As for the question whether the Indian states are expected to make inroads into ambitious subnational climate initiatives, a number of Indian experts from think tanks, science, government and the Financial Commission questioned in spring 2010 said independently that for the most parts the majority of states are inactive. The question of subnational state activism appeared "before the curve" as one expert from the Energy and Resources Institute put it. However the interview partners also predicted that the states will become active as they will be driven by India's commitment to GHG emission reductions as stated in 2010. Reduction goals will provide for a turning point in respect to state action, for they cannot be implemented without state action. State action regarding energy efficiency, promotion of renewables and monitoring clean air policies is indispensable. Because climate change is a cross-cutting issue, it requires policy change in many sectors such as energy supply and conservation, industrial production and agriculture, as well as transportation. Some of these, though, are subjected to the states as per the Indian constitution which places the responsibility for agriculture, industry and water management in the hands of the states.⁵

The assumption of the paper presented here is that state action in climate politics might be more than mere implementation of top-down policies and might involve individual bottom-up state policies as well. Viewed from a different angle, climate policy would in fact not be the first example of independent states initiatives. Driven by economic globalization, state

⁴ DNA, Dec 2 2009. http://www.dnaindia.com/india/report_centre-asks-states-to-prepare-action-plans-on-climate-change_1319203

⁵ According to the Constitution of India, Seventh Schedule "State List" <http://lawmin.nic.in/coi/coiason29july08.pdf> last accessed December 11th 2009

governments are increasingly involved in policies that attract foreign investment. For other reasons as well, the role of the Indian states and the dynamics of federal politics are changing (Saez 2002, Singh 2007). A political driver for divergence between state level governments and the Union government is party politics. The decline of the Congress party, which was formerly capable of providing top-down policy integration to the Indian states, has been accompanied by an altering of the political party landscape since the 1970s (Wagner 2007). Nowadays state performances vary across policy areas such as poverty reduction, agricultural policies etc. A widening economic disparity between the Indian states can be observed; they differ largely with regard to social-economic and cultural parameters.

A look at renewable energy policies, ones closely related to climate protection, reveals that the state's performance varies with respect to energy policy. As opposed to sheer implementation of federal policies, renewable energy policies in a number of Indian states are additionally addressed and feature state policy profiles which include targets and policy instruments (Anumakonda 2007, DENA 2007, Drossart et al. 2008). These go beyond the central government level policies and "follow their own policies" (Rao, Kishore 2009: 984). Ten out of the twenty-eight states of India (Tamil Nadu, Karnataka, Andhra Pradesh, Gujarat, Rajasthan, Maharashtra, Madhya Pradesh, West Bengal, Kerala, Orissa) "are implementing major wind energy programmes." (Rao, Kishore 2009: 984). Policy measures of the states include preferential tariffs, wheeling and banking charges, as well as third party sales. Other state specific issues analysed by Rao and Kishore in 2009 include grid quality, availability of land for installations and distance from the generation point to feed-in point. Four Indian states out of the ten - Gujarat, Tamil Nadu, Maharashtra and Andhra Pradesh - account for 60% of the total potential and have 90% of the total installed wind generation capacity (Rao, Kishore 2009: 984). Rao and Kishore found that the rates of diffusion of wind power technologies and achievements have been different for different states and can be explained through "a general correlation between diffusion parameters and policy parameters." (Rao, Kishore 2009: 987) Thus the Indian states are obviously becoming a driver for the diversification of the energy sector.

There are other indications of climate policy capacity building in the Indian states. States like Himachal Pradesh are beginning to discuss low carbon paths involving public and private actors therein. It is in the process of establishing a low carbon strategy. Gujarat institutionalized a governmental climate protection department in 2009 in order to attract more renewable energy generation projects to the state.

In the heavily centralized federal system of India, climate policies emerge at the state level for a couple of reasons – firstly, because of the expectations that are placed on the states by the federal government, the Planning Commission and the financial transfers from the Financial Commission. Secondly, as the examples mentioned above indicate, a number of Indian states are becoming "independently" active as well. Regarded for the most part as mere executors of federal policies, the Indian states are now becoming involved in the diversification of the energy sector, for example, setting up individual programs for the promotion of renewable energies. In the following, the findings about the subnational states of India shall be considered against the background of international comparative subnational climate and environmental policy research. What did comparative subnational policy research reveal about the function of the subnational state level in climate and environmental policy? What is the role of subnational state policies in multi-level climate policy? The assumption of the paper presented here is, that under certain circumstances, the subnational state level in federal systems can be regarded as a driver of multi-level climate policy. It adopts the idea that, as in the case of the USA and Canada, the subnational state level in India might dispose of the potential and independent political forces for own climate protection initiatives as well.

2. Comparative subnational state level climate policy research

With respect to its causes and impacts, climate change is a highly complex problem involving a large number of collective action problems (Stern 2008). It requires new governance concepts which are able to cope with the analytic and normative uncertainty (Biermann 2007) and involve different levels of government (Gupta 2007). This applies to policy initiation as much as it does to implementation. Each level, from global to local, is by itself of limited value. Objectives identified by the scientific community and developed top down on the international level need to be implemented through strategies, processes and institutions operating both at and between different government levels (Gupta 2007, Rabe 2008). According to their authority, capacity, information and knowledge base, these should be permitted to contribute to coherent problem-solving.

In federal systems, as a matter of course, the subnational state level is important in terms of the implementation of national policies. Beyond the notion of mere execution of federal regulation, it might also be regarded as both an initiator and innovator.

International comparative research regarding subnational environmental and climate policy initiatives is expanding (Rabe 2004, Kern 2006, Kern/Bulkeley 2006, Gupta 2007, Gupta et al. 2007, Rabe et al. 2006, Lutsey/Sperling 2007, Schreurs 2007, Jörgensen 2008/ 2002.). This research strand is interested in the understanding of subnational innovation potentials and drivers for policy change. Subnational state climate policy initiatives have been taken in a number of federal countries such as the USA, Canada and Germany and, respectively, the supra-national entity of the European Union.

A number of research strands including federalism literature, policy diffusion and convergence research, comparative politics, international relations and Europeanization research have found indication of the relevance of subnational actors in environmental, energy and climate policies in this context. The benefits and impacts of decentralized initiatives and action are diverse.

According to environmental federalism research “Benefits of more decentralized action include (1) allowing more experimentation by more policy-makers, (2) local tailoring of specific action to fit more aptly the environmental preferences of constituents of various states and locales, (3) testing the political response of innovative regulatory and policy actions, and (4) gaining the benefit of local expertise and experience in enforcing programs and policies” (Lutsey/Sperling 2007: 674 referring to Buzbee 2005, Adler 2005).

2.1 Initiation

As exemplified by several states within the U.S., it may indeed happen that, in the absence of central government leadership, the subnational level significantly compensates for lacking national policies (Rabe 2004). U.S. states – for instance, California, to name just one compelling example – have contributed to problem solving by instituting separate climate policies during times of national gridlock. They have functioned as promoters of both societal and business initiatives, and have tailored policy frameworks for subnational climate policies (Rabe 2004, Rabe et al. 2006, Lutsey/Sperling 2007).

2.2 Experimentation

Beginning with decentralized action oftentimes allows for more experimentation, including subnational development and testing of best practice; it also can allow for an adequate tailoring of objectives and instruments to fit more aptly the needs and feasibility of the polluters. In Germany the Bundesländer promoted the integration of environmental objectives in non-environmental sectors such as transportation and land-use (Jörgensen 2005). In the U.S., for example, the subnational state level did in fact set up its own regulatory frameworks and funding mechanism for energy efficiency and renewable energy (Rabe 2004, Lutsey/Sperling 2007). In addition, a number of U.S. states began to inventory their emissions, create climate action plans and formulate their own GHG-reduction goals and standards. Based on their predictions of future federal regulation, they have developed their

own strategic approaches to climate protection in the absence of national regulation (Rabe/Roman/Dobelis 2006 44).

The U.S. states have generated “competitive strategies that may truly serve as laboratories, if not democracy, then at least of climate change regulation.” (Rabe/Roman/Dobelis 2006: 44) Amongst others, a benefit of the bottom-up development of mitigation strategies has resulted in the individual states exploring and identifying their own particular assets as well as maximizing their political and economic advantages. Agricultural states preferred carbon sequestration strategies, and the promotion of renewable energy generation has been chosen by states with great potential for this (Rabe/Roman/Dobelis 2006: 44). In Germany’s multi-level system of climate policy and governance for sustainable development, the subnational level can act as a catalyst (Jørgensen forthcoming). The Bundesländer can apply a variety of non-hierarchical forms of governance, in particular co-operation with target groups in business and society. In Baden-Württemberg, Berlin, Schleswig-Holstein and a number of other Bundesländer, win-win constellations have been found through energy conservation in the building and housing sector and through the promotion of renewable energy. A best practice example is Baden-Württemberg’s Renewable Heat Law, a regulatory initiative of the Environmental Minister of Baden-Württemberg. The law received support from regional enterprises since it created a market and since housing policies promoting energy efficiency have financial gains for the middle class (MUBW BW Klimaschutzkonzept 2010, 14-15).

Recently the government of Baden-Württemberg has been aspiring to unleash the technical, economic and scientific capacities of the Bundesland through a competitive strategy and make the Bundesland “Europe’s Environmental Innovation Laboratory” (Government Declaration Mappus). Other Bundesländer such as Berlin want to follow this example and are considering “Green Deal” policies. Again, it is much easier for Länder with the necessary technical, economic and scientific capacities at their disposal to put win-win constellations into practice.

2.4 Diffusion and convergence

Research has shown that heterogeneous state policies converged over time. For example, in 2007 Lutsey and Sperling noticed in their comparative research of policy measures implemented in the U.S. states a “consistent set of actions being undertaken by the state governments” (675).

Beyond the decentralized development and implementation of policy tools, the subnational level also encourages and inspires action on policy levels above. It is expected that policies developed in the U.S. states will provide templates for national initiatives (Rabe 2004, Lutsey/Sperling 2007). “If and when climate change mitigation is enacted at the federal level, it is likely that such regulation will take maximum advantage of these mitigation assets, because the states that own these assets will have explored their potential in advance of the legislation and will push for an embrative inclusion of these different mitigation strategies.” (Rabe/Roman/Dobelis 2006: 44).

According to a comparative study of convergence and divergence in the relationships between the European Union and the United States, subnational actors have been found to be influential in environmental policy convergence mitigating cultural and political differences between the USA and the EU. According to Schreurs et al., the subnational level serves as a pathway toward national and supra-national politics providing a channel for norm diffusion and learning (Schreurs et al. 2009: 13). This might not be an anomaly, for a growing number of subnational and civil society actors are involved in transatlantic environmental and energy relations (Schreurs et al. 2009: 13).

On the whole, subnational state policies have been found to be important in climate and the closely related areas that comprise environmental policy. Subnational state levels can serve as laboratories of experimentation and accelerate policy change through policy-learning.

Furthermore, we can witness examples of diffusion of policy innovations horizontally across states and vertically toward the federal level (Aulisi/ Larsen/ Pershing/ Posner 2007). Lastly, they can impact policy making on higher policy levels. The subnational state level provides an important interface between the federal and the local level. It administers a variety of functions, executing federal regulation, exercising state competencies spelled out in the Indian constitution and devising state policies.

Understanding these dynamics and taking them into account when designing and implementing strategic approaches to climate mitigation can be a powerful tool and help to spur innovation.

3. Summing up: Climate mitigation in India – Researching the innovation potentials of the Indian states

For a country of India's vast size, as well as diverse economic and political dynamics, it appears plausible that policy change is not to be driven solely by the Union government. Contrary to conventional thinking, it does make sense to consider the subnational level of the Indian states influential and subsequently study it as a policy-maker and driver in multi-level climate policy. The example of the wind energy programs of a number of states indicates this. It refers to the comparative advantages of the states, for example in the area of wind power, which drive subnational renewable energy policies and thus create win-win constellations. This is related, furthermore, to energy security concerns.

There might be interesting constellations on the level of the Indian states abet to climate policies which can be driven by problem-pressures due to negative impacts of climate change. Likewise, economic benefits of climate policies might spark interest in policies promoting renewable energy, particularly domestic as well as foreign investment in renewable energies. Thus, it could occur that on the level of single Indian states policy-makers and stakeholders become involved not only in the agenda-setting for climate change, but for the design of related sector policies. Again, the adoption of respective policies and their implementation could, if they turn out successfully, perhaps accelerate advanced effects. There might be spill-over effects such as a lesson-drawing from state to state and even the adopting of respective policies in other Indian states. As well, there might be spill-over effects to the central government level, which in turn may adopt the basic ideas or instruments of the state policies.

The objective of future research could be to explore the notion of an increasingly important role of the subnational state level in the initiation, experimentation and implementation of climate policy against the backdrop of the Indian federalism.

One relevant question to which contributions are needed is related to the future perspectives of Indian multi-level climate policies – that is, the chances (and likelihood) that effective climate mitigation policies may emerge. Such research could move along the analytic categories which have distilled in the context of comparative subnational climate research and have been described above which are: Initiation, experimentation, diffusion and convergence.

Because climate governance relies on the functioning of effective multi-level governance, the dynamics of federal policy-making, the appraisal of intergovernmental relations and the exploration of modes of policy coordination and involvement of civil society and business actors therein, will be of particular interest.

Exploring climate policy in India's federal system, and in particular the role of the subnational Indian states therein, will be an interesting and valuable contribution to comparative multi-level climate governance research. It can shed light on a number of important issue areas, including the specifics of federalist climate governance in a fast emerging market economy.

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