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Seizing policy windows: Policy Influence of climate advocacy coalitions in Brazil, China, and India, 2000–2015

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ABSTRACT

What drives the development of climate policy? Brazil, China, and India have all changed their climate policies since 2000, and single-case analyses of climate policymaking have found that all three countries have had climate coalitions working to promote climate policies. To what extent have such advocacy coalitions been able to influence national policies for climate-change mitigation, and what can explain this? Employing a new approach that combines the advocacy coalition framework (ACF) with insights from comparative environmental politics and the literature on policy windows, this paper identifies why external parameters like political economy and institutional structures are crucial for explaining the climate advocacy coalitions' ability to seize policy windows and influence policy development. We find that the coalitions adjust their policy strategies to the influence-opportunity structures in each political context—resulting in confrontation in Brazil, cooperation in China, and a complementary role in India.

1. Introduction

Three major developing economies—Brazil, China, and India—have all adopted significant changes in their climate policies since 2000, radically raising their domestic mitigation ambitions. The three are defined as developing countries under the UN Framework Convention on Climate Change (UNFCCC), and have not had binding obligations to mitigate climate change under the Convention. What, then, drives climate-policy development in these countries? Recent studies have noted the scant scholarly attention from comparative politics in the political science literature on climate change (e.g. Keohane, 2015; Purdon, 2015; Steinberg and VanDeveer, 2012). They encourage using comparative methods to explain and systematize the empirical complexities of climate-policy development (Purdon, 2015; Steinberg and VanDeveer, 2012). Single-case analyses of climate policymaking in Brazil, China, and India find coalitions of policy actors working to promote climate-policy change in all three (Aamodt, 2015; Carvalho, 2010; Lele, 2012; Never, 2012; Stensdal, 2014, 2015). Contributing to the emerging field of comparative environmental politics, we analyze and compare the role of climate-advocacy coalitions in policy processes in Brazil, China, and India. Our research objective is to explore to what extent these advocacy coalitions managed to influence national climate-mitigation policies between 2000 and 2015, and what can explain their influence.

Brazil, China, and India accounted for 35% of the world's greenhouse gas (GHG) emissions in 2012 (CAIT, 2016). Although grouped together under the UNFCCC, they differ significantly in their developmental paths, resource endowments, and political systems: all important factors for GHG emission trajectories and mitigation possibilities. With the Paris Agreement's bottom–up framework, understanding domestic climate-policy development has become increasingly important, and single-case analyses have examined climate and environmental policy in Brazil (e.g. Aamodt, 2015; Hochstetler and Keck, 2007; Viola and Franchini, 2012), China (e.g. Conrad, 2012; Marks, 2010; Stensdal, 2014), and India (e.g. Dubash, 2009; Fisher, 2012; Isaksen and Stokke, 2014). Of comparative studies Harrison and Kostka (2014) compare energy-efficiency measures in China and India; Hochstetler and Kostka (2015) compare state–business relations in renewable electricity in Brazil and China; and Surana and Anadon (2015) compare financial resource mobilization for wind energy in China and India. However, few studies have compared climate-policy processes in these three countries, as this study does. Zooming in on specific aspects of climate policymaking in these three large and complex countries, our comparative analysis brings together new and existing knowledge on advocacy coalitions in climate policy processes in Brazil, China, and India, 2000–2015. Combining the well-established Advocacy Coalition Framework (ACF) with insights from comparative environmental politics, and the literature on policy windows, we identify factors that enable or constrain the influence of climate advocacy coalitions. We

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employ the ACF's main analytical concepts in a new comparative context, and provide feedback on its applicability in comparative studies of large developing countries, a research need highlighted by the ACF's own developers (Henry et al., 2014).

Our qualitative comparative analysis of primary and secondary data sources shows that climate coalitions in all three countries were influential in the initial development of comprehensive climate policies—also in Brazil, despite heavy opposition from established agribusiness and energy-sector coalitions. External subsystem parameters like political economy and institutional structures are crucial for explaining the coalitions' policy influence and the endurance of policy change. Climate coalitions appear to adjust their policy strategies to the influence-opportunity structures in each political context, resulting in confrontation in Brazil, cooperation in China, and a complementary role in India.

2. Theory and method

Comparative environmental politics seek to combine environmental policy studies with comparative politics theory and method (Purdon, 2015; Steinberg and VanDeveer, 2012). Comparative politics operates with three main strands for explaining policy change: interest-based approaches, institution-based approaches, and cognitive approaches, 'interests, institutions, and ideas'; the literature on comparative environmental politics recommends employing a combination of these in empirical studies (Harrison and Sundstrom, 2010; Purdon, 2015; Steinberg and VanDeveer, 2012). However, in analyzing policy processes in non-Western countries, it is important to recognize that the traditional theoretical assumptions dominant in political science analyses have been developed largely in North American and Western European contexts (Dodds, 2013; Khan, 2010; Purdon, 2015; Steinberg, 2012; Tickner, 2003). Steinberg (2012) argues that the conditions for policy change in many developing countries differ from what most Western policy theories assume.

Research on climate policy in Brazil, China, and India has identified complex coalitions of climate-policy actors, consisting of scientists, NGOs, politicians, bureaucrats, and businesspersons (Carvalho, 2010; Never, 2012; Stensdal, 2014). We find the ACF's focus on policy processes within policy subsystems over time (at least a decade) suitable for encompassing this variety of policy actors. Although developed for analyzing policy processes in the US pluralist tradition, the ACF, unlike many other approaches to policy analysis, does not assume a democratic political system (Henry et al., 2014; Weible et al., 2009). The framework has been modified several times and applied in various case-studies in developing countries, but has been criticized for being Western-biased in its assumptions. Henry et al. (2014) argue that combining the ACF with other theoretical approaches is a fruitful way to retain the framework's strengths while improving its ability to analyze non-Western cases. Constructing a comparative framework to account for interests, institutions, and ideas in the case-countries, we find it particularly relevant to combine key ACF concepts with insights from institutionalist and political economy traditions in comparative politics. Of course, in a comparative analysis, some details must be sacrificed in favor of clear, comparable variables with explanatory value (Henry et al., 2014), making it difficult to employ the ACF to its full depth in our study.

2.1. Analytical framework

Within the ACF, a policy subsystem "consists of actors from a variety of public and private organizations who are actively concerned with a policy problem or issue […], who regularly seek to influence public policy in that domain" (Sabatier, 1998, p. 99). The climate-policy subsystems in our case-countries are relatively new compared to other subsystems like energy and agriculture; and climate-policy change can be expected to be more difficult if it conflicts with established interests in other subsystems (Underdal, 2000). We expect the borders between subsystems in our cases to be blurrier than the ACF assumes: firstly, because climate policy transcends established borders between economic sectors (Underdal, 2000); secondly, because the endurance of climate-policy change often requires linkage to policy processes in other subsystems (Steinberg, 2012).

The ACF holds that subsystem policy actors coordinate their activities and form *advocacy coalitions* based on perceived correspondences in policy beliefs (Matti and Sandström, 2013; Orach and Schlüter, 2016; Sabatier, 1998). *Policy core beliefs* guide how actors perceive reality and policy options; *secondary beliefs* are perceptions of which policy measures and regulations are appropriate (Sabatier, 1998; Weible et al., 2009). Beliefs are formed through *interests* and ideological values (*ideas*); and formal and informal organizations often institutionalize beliefs (March and Olsen, 1998; Sabatier, 1998). Through *policy-oriented learning*, coalition members use information and knowledge to improve their understanding of the policy-area and promote their policy objectives (Sabatier and Jenkins-Smith, 1999). Actors will tend to disregard knowledge that contradicts their core beliefs (Sabatier, 1998). We expect that policy actors and coalitions use scientific knowledge to inform themselves and others, and to frame their policy pReferences

In the ACF, *external subsystem parameters* and *external subsystem events* are exogenous variables that influence policymaking and enable or constrain advocacy coalitions. Following Gupta's (2014) argument that the parameters are too broadly presented, we find it necessary to un-cap the external subsystem parameters and specify expected causal relations. We expect two main types of parameters to constitute barriers and drivers to climate policy change. First, material parameters like energy resources, GHG emissions, and climate-friendly technologies frame policy actors' political and economic reality, influencing their economic interests and ideas of how the world looks and should look: their policy beliefs and preferences (Bang et al., 2015). Second, political economy factors, particularly state–market relations and the state's political settlement (see below) are important political parameters (Hochstetler and Kostka, 2015; Khan, 2010; Purdon, 2015). We expect state–market relations, together with the material parameters, to influence who has the capacity for climate mitigation and who bears the costs and benefits of mitigation policy, again influencing coalition formation and subsystem overlaps. For analyzing the *institutional* factors for policy development, Khan introduces the concept of *political settlement* to describe how not only the formal rules of the political game, but also informal structures and political-cultural practices set "the context for institutional and other policies" (2010, p. 4) in all countries, and how clientelist relations are particularly relevant for understanding policy change in developing countries. We expect the political settlements to constitute important opportunity structures for coalition influence in our cases. However, the state is seldom a unitary actor (March and Olsen, 1998); and, in line with Gupta's (2014) findings from India, we expect the opportunity structures to vary between subsystems.

As for external subsystem events, the policy studies literature maintains that most political systems are dominated by political and institutional mechanisms that uphold the status quo. *Policy windows* are periods in subsystem development when policy change is more likely (Baumgartner et al., 2009; Kingdon, 2003; Sabatier, 1993; Thelen, 1999). Policy development is path-dependent, but if policy actors succeed in utilizing a policy window, the institutional development may switch track (Steinberg, 2012; Thelen, 1999). Actors must use the opportunity before the window closes. External events may or may not open policy windows, depending on the system's material and political parameters. The ACF highlights changes in socio-economic conditions, public opinion, or government as main external events (Sabatier, 1993). Because climate change is a global challenge that requires domestic policy change, the "two-level-game" between global governance and domestic policy processes is particularly strong regarding climate policy

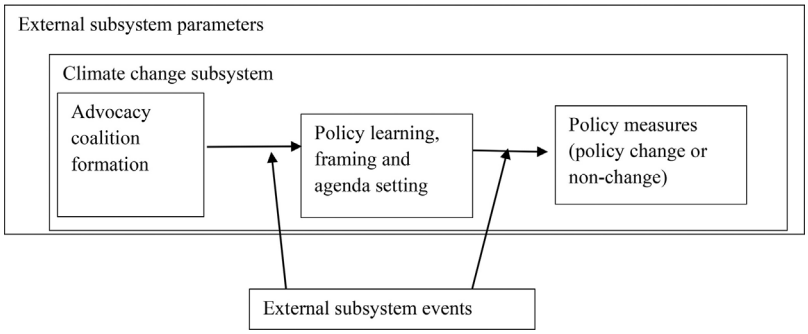

Fig. 1. Causal model.

(Bang et al., 2015; Miller, 2004; Putnam, 1988). Therefore, we expect the international climate policy negotiations to be drivers of domestic climate-policy windows in our cases. Steinberg (2012) argues that because political systems in developing countries are less stable than the policy literature assumes, policy windows open more frequently there, but that very instability makes *endurance* of policy change a challenge. Steinberg (2012) argues that the stability of the bureaucracy, the engagement of nonstate actors, the economic consequences of the policy change, and linkage of climate policy to policy processes in other subsystems all influence the endurance of policy change.

Fig. 1 shows the main causal mechanisms in the policy process and how we use the key ACF concepts to systematize our comparative case analysis. The policy process is not necessarily linear: there may be feedback loops and interlinkages among variables in the model.

2.2. Assessing coalition influence

We compare influence of advocacy coalitions based on qualitative assessments, without attempting to measure or compare influence on a quantitative scale. We assess the influence based on Stensdal's (2014) two-level operationalization. The first level is *agenda-setting:* "the degree of convergence between the basic topics of the policy and the stance advocated by coalition members" (Stensdal, 2014, p. 116). In analyzing NGO influence in international environmental negotiations, Betsill and Corell (2001) distinguish between influence (causation) and goal attainment (correlation). Although we can identify advocacy coalitions and policy windows as preconditions to policy change, that does not prove a causal link between advocacy coalition work and policy change. How policy preferences are framed when they reach the political agenda is important for which policy options are considered, so the influence of advocacy coalitions on agenda-setting depends on whether they can "convince others that their issue should be seen in a particular light" (Baumgartner, 2007, p. 485). To measure this agenda-setting influence we assess the correspondence between how the coalitions frame climate change and the framing of climate policy on the domestic political agenda, where the coalition's framing preceded the political agenda.

The second influence level is *policy-measure decisions:* "the convergence between the government's specific policy measures adopted and the coalition members' advised measures or earlier implemented actions" (Stensdal, 2014, p. 116). Our main indicator for measuring advocacy coalition influence is that information provided by the coalitions is used in policy processes and documents, including coalition members' involvement in the writing and adoption of policies. To distinguish influence from goal attainment, we use our interviewees' perceptions of various policy actors' influence on processes and outcomes, and the formal and informal positions of advocacy coalition members in writing and adopting policies (Gulbrandsen and Andresen, 2004).

2.3. Research design and methodology

We employ structured and focused comparison, analyzing and comparing the same selected variables across three cases (George and Bennett, 2005). Brazil, China, and India were selected because they are three of the developing economies with highest GHG emissions, and because of significant changes in their climate policies since 2000. Research has identified climate coalitions in all three, enabling comparison of factors important for climate coalitions to exert influence in different contexts.

Our analysis draws on primary and secondary sources like official documents, coalition-members' published material, previous research, reports, and media articles, as well as semi-structured interviews with key informants and personal in-field observations in Brazil between September 2013 and January 2014 (20 interviews), China between September 2011 and July 2016 (63 interviews), and India between October 2014 and February 2015 (14 interviews). Interviewees were NGO representatives, businesspersons, politicians, scientists, journalists, officials, and environmental entrepreneurs. Recruited using snowball sampling, they were asked prepared, open-ended questions, but could speak uninterrupted as the conversations developed. To identify advocacy coalitions, we matched own interviews and observations with policy actors' views, values, interests, and beliefs expressed in written statements, policy documents, debates, press releases, letters, speeches, and media articles. Our assessment thus depends on the policy actors' own oral and written expressions of values and views. To rectify interviewees' possible biases and strengthen our understanding of the coalitions, we also spoke with climate-policy experts not directly involved in policymaking, and conducted extensive cross-checking of interview data with information from primary and secondary written sources. Actors belonging to one coalition identified other actors and groups that they cooperate with, and actors they saw as defenders of other beliefs in the policy debate. Cooperation among coalition members was also assessed through co-signed letters, reports and statements, and from participation in meetings and events.

3. External subsystem parameters

As seen in Table 1, GHG emission levels and sources vary, China's GHG emissions being considerably higher than those of Brazil or India. Both China and India are locked into fossil-fuel-powered energy systems, and suffer severe air pollution from fossil fuels. India's emissions are expected to continue growing, whereas Brazil's probably peaked around 2005, and China's emission growth has flattened recently (GoI, 2015; IEA, 2016).

Political parameters also vary significantly. *Brazil* is a federal democratic republic; "presidentialism by coalition" describes the political settlement (Santos and Pegurier, 2011). The combination of federalism, open-list proportional representation, high turnover in political positions, strong ties between economic and political elites, and office- and rent- seeking politicians and political "parties for hire" has resulted in a highly fragmented party system, where the president must form a

Table 1
Material parameters: Brazil, China, and India.

	Brazil	China	India	World
GHG emissions 2005*	2 056.99 $MtCO_2e$	6 974.05 $MtCO_2e$	1 914.46 $MtCO_2e$	42 000.97 $MtCO_2e$
GHG emissions 2012*	1 823.15 $MtCO_2e$	10 684.29 $MtCO_2e$	2 887.08 $MtCO_2e$	47 598.55 MtCO2e
Emissions per capita 2012*	9.18 tCO2e	7.91 tCO2e	2.33 tCO2e	6.76 tCO2e
Emissions by sector 2012*	44% LULUCF	78.5% energy	70.2% energy	71.1% energy
	25.5% energy	11.8% industrial processes	21.7% agriculture	11.1% agriculture
	24.1% agriculture	7.5% agriculture	5.6% industrial processes	5.8% industrial processes
	2.9% industrial processes	1.8% waste	2% waste	5.7% LULUCF
	2.4% waste	0.4% bunker fuel	0.5% bunker fuel	3.1% waste
	1% bunker fuel			2.2% bunker fuel
Energy consumption by source 2012**	56.5% fossil fuels	88.2% fossil fuels	73.6% fossil fuels	81.3% fossil fuels
	27.7% alternative and nuclear	7.5% alternative and nuclear	23.5% alternative and nuclear	9.9% alternative and nuclear
	14.5% combustible renewables and waste	4.3% combustible renewables and waste	2.9% combustible renewables and waste	8.2% combustible renewables and waste

*Source: CAIT, 2016, emissions including LULUCF (land-use change and forestry emissions) (http://cait2.wri.org/wri/).
**Source: World Bank Indicators http://data.worldbank.org/.

coalition government to get a majority in Congress (Aamodt, 2015; Melo, 2016; Palermo, 2016; Santos and Pegurier, 2011; Viola and Franchini, 2012). Cross-party congressional caucuses are common, the largest being the rural and the evangelical caucuses. The president can veto laws and issue decrees, but the more parties in the coalition, the more bargaining the president must do, and it is not unusual for the president to veto laws or parts of laws initially proposed by him/herself. Networks between formal and informal policymakers are important; personal connections and political clout are established and function through such networks (Hochstetler and Keck, 2007). The networks between political and economic elites often involve corruption and personal favors (Kamm, 2015; Melo, 2016). Factors of stability in the political settlement are the independent judicial branch, and the selection of civil servants for permanent contracts in open competitions (Melo, 2016). However, changes in political leadership usually lead to reshuffles in the bureaucracy. Until the mid-2000s, climate policy was considered foreign policy, and was the responsibility of the Ministry of Foreign Affairs (MoFA). When well-known environmentalist Marina Silva was appointed Minister of the Environment in 2003, the Ministry of Environment (MMA) started working on climate issues (Carvalho, 2010). Brazil's economy was liberalized in the 1980s and 1990s, but the state has remained in control of much of the energy sector through Petrobras and Electrobras, and public–private partnerships are common (Hochstetler and Kostka, 2015). The forest and agricultural sectors are characterized by highly unequal land distribution; 53% of native vegetation is on privately owned land (Aamodt, 2015; Soares-Filho et al., 2014).

The *People's Republic of China* is an authoritarian unitary state. As for political settlement, members of the Chinese Communist Party (CCP) occupy key government positions, making the CCP the effective ruler. The CCP Standing Committee of the Politburo ranks higher than the executive State Council. The State's President is also the General Secretary of CCP and thus the person of highest power. Adopted policies are in general unanimously supported outwardly, but extensive negotiations horizontally among ministries and vertically within the government are usually necessary before a decision is official (Donald and Benewick, 2005; Saich, 2015). Climate change was a considered a scientific foreign-policy issue until 1998, when it was moved from the domain of China's Meteorological Administration to the influential National Development and Reform Commission (NDRC), which is also responsible for energy policies. Since then, climate change has been recognized as a developmental issue (Stensdal, 2014). The highest organizational body dealing specifically with climate change is the Leading Working Group on Climate Change, headed by the Prime Minister, with representatives from over 30 ministries and administrations working on climate-related issues. NDRC's Climate Department is secretariat to the Working Group. Bargaining also occurs within the various NDRC departments, slowing down policy change (Saich, 2015; Stensdal, 2015). After years of opening up and reforming from a planned economy to a more market-based economy in many areas, the government still firmly controls issues of major state importance like energy. State-owned enterprises (SOEs) dominate the energy sector; many of the largest energy-consuming companies are SOEs. Public opposition to policies is uncommon: companies use informal channels to express their discontent to the government. Further complicating the picture, some SOEs rank at vice-ministerial level in the hierarchy, making it difficult for lower-ranking elements in the government to instruct them. Commands from ministerial level or the State Council are harder for SOEs to oppose (Andrews-Speed, 2012; Stensdal, 2015).

India is a federal democracy with a parliament based on the Westminster model, but with a fairly clientelistic political settlement (Fisher, 2012; Khan, 2010; Tankha and Rauken, 2015). Cleavages along religious, class, caste, regional, and language lines have resulted in a fragmented party system (Kohli, 2004; Tankha and Rauken, 2015). Multiparty alliances led by the two largest parties, the Indian National Congress (INC) and the Bharatiya Janata Party (Indian People's Party, BJP), compete for the governing position (Fisher, 2012; Kohli, 2004). Because the government has parliamentary majority, and MPs voting against party decisions may be disqualified, the government usually gets desired legislation passed (Tankha and Rauken, 2015). Fragmentation also characterizes the political settlement, and environmental issues sort under the Concurrent List where the division between federal and state responsibilities is unclear (Tankha and Rauken, 2015). Factors of stability are the independent judicial branch, and the selection of civil servants for permanent contracts to the Indian Administrative Service (IAS) (Tankha and Rauken, 2015). Climate change was a foreign-policy issue managed by the Ministry of Environment and Forests (MoEF) until 2007, when Prime Minister Singh appointed the Prime Minister's Council on Climate Change, consisting of representatives from various ministries, the media, business, and NGOs (Dubash and Joseph, 2015; GoI, 2007; Isaksen and Stokke, 2014; Menon, 2014). After 2008, various sector ministries and agencies were delegated climate-policy responsibility within their domains, and MoEF has retained responsiblility for UNFCCC-related climate policies (Dubash and Joseph, 2015; Pahuja et al., 2014). Since 1991, India has gradually liberalized its economy, but the energy sector is dominated by government-owned companies (Ahn and Graczyk, 2012). Many large private companies are well-connected with the government; the Tata Group and the Confederation of Indian Industries (CII) were part of India's representation in the COPs since the start, and were also represented in the Prime Minister's Council on Climate Change.

4. Major climate-policy changes, 2000–2015

4.1. Brazil

Brazilian policies for limiting deforestation had been poorly implemented (Nolte et al., 2017), but in 2004 the government issued an action plan for reducing deforestation in the Amazon (Plano de Ação para a Prevenção e Controle do Desmatamento na Amazônia Legal, PPCDAM) (Carvalho, 2010). In 2008 came the first national action plan on climate change, and in 2009 Congress adopted a comprehensive Climate Law (Política Nacional sobre Mudança do Clima) with a mitigation target of reducing GHG emissions to 36–39% below business-as-usual (BAU) trajectories by 2020 (GoB, 2009). The Congress-adopted version of the Climate Law included several articles on mitigation of energy emissions, but the president vetoed these when signing the law (GoB, 2009). The 1965 Forest Code was revised in 2012, introducing some new regulations, but also granting amnesty for previous illegal deforestation, and weakening forest protection in some areas (Aamodt, 2015; Viola and Franchini, 2014). In September 2015 Brazil submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC, and announced an absolute mitigation target of reducing GHG emissions by 37% from 2005 levels by 2025 (GoB, 2015). Further, the INDC aims at zero illegal deforestation, and 45% renewables in the energy matrix by 2030 (GoB, 2015). Having no climate policies in 2000, Brazil adopted an economy-wide climate law in 2009, and raised its mitigation ambitions further in 2015, becoming the only developing country with an absolute mitigation target for 2025. However, from 2012 onwards forest protection has declined compared to the 2004–2009 period.

4.2. China

As perceptions of climate change changed, from a highly scientific foreign policy issue to one of national interest, China's top leaders put climate security on their agenda, and in 2007 the National Climate Change Programme made climate change a national priority (Hallding et al., 2009; Stensdal, 2015). In November 2009, weeks before the COP15 in Copenhagen, the State Council announced that China aimed to reduce its carbon intensity by 40–45% by 2020, compared to 2005 levels. This was China's first carbon emissions target (Stensdal, 2014). In 2011 the carbon-intensity target was incorporated in the national 11th five-year plan (2011–2015), with an intermediate intensity-reduction goal for 2015. This plan included the decision to gradually develop a Chinese emission-trading scheme (ETS). Seven market-pilots started in 2013–2014 (Stensdal, 2015). In the November 2014 China–US joint statement on climate, China pledged to peak its CO_2 emissions around 2030 (China Daily, 2014). The peak-year target was reaffirmed in China's INDCs in June 2015—along with reducing carbon-intensity by 60–65% by 2030 from 2005 levels, increasing the share of non-fossil fuels in primary energy consumption to about 20% by 2030, and developing a national carbon market (NDRC, 2015). China has raised its climate-policy ambitions significantly—from no climate policies in 2000, to announcing peak targets and construction of a carbon market by 2015.

4.3. India

Until 2007, the Indian government had held that India "should be largely insulated from the requirements of climate mitigation" (Dubash, 2012, p. 197). However, in 2008 the Prime Minister's Council on Climate Change launched the National Action Plan on Climate Change (NAPCC) outlining eight "missions" on adaptation, mitigation, and climate knowledge. In 2009, India pledged to reduce the GHG emission intensity of its GDP by 20–25% from 2005 levels by 2030—a clear break with earlier argumentation and a steep increase in mitigation ambitions. After 2008, climate policymaking became more fragmented (Dubash and Joseph 2015; Pahuja et al., 2014). The NAPCC missions are guidelines more than specific policies, and policy-measure responsibility is delegated to sector ministries, agencies, and sub-national units. The NAPCC mitigation-missions, the National Solar Mission and the National Mission for Enhanced Energy Efficiency, are followed up by the Ministry for New and Renewable Energy and the Ministry of Power, respectively. India has a cap-and-trade system, the PAT scheme, for enhancing energy efficiency in high-emissions industries, and national targets for increasing solar and wind energy production (GoI, 2015). India's INDC from October 2015 states a mitigation target of reducing the emissions intensity of GDP by 33–35% from 2005 levels by 2030, with increases in renewable energy and energy efficiency, and afforestation, as the main mitigation measures (GoI, 2015). In sum, since 2000 India has gone from strong resistance, to adopting domestic mitigation measures in 2008, and raising its mitigation ambitions further in 2015.

4.4. Policy comparison

All three countries went from having no domestic mitigation policies in 2000, to adopting mitigation targets between 2007 and 2009, and then further increasing their mitigation ambitions in 2015. With 2005 being as the base-year for all three, we note that Brazil's GHG emissions have declined significantly since then, whereas emissions in China and India increased. The emission trajectories contribute to explaining why Brazil has an INDC pledge to reduce emissions in *absolute* terms, whereas China promises a *peak year* and India pegs its emission reductions *relative to GDP*. Table 2 sums up the main changes, showing how the UNFCCC process has guided the timeline of climate-policy decisions in all three countries.

5. Climate advocacy coalitions and their influence

5.1. Brazil

Since the 1970s, Brazilian environmental NGOs have worked to reduce deforestation, and in the 1990s they started cooperating with climate scientists to document the deforestation–global warming relationship (Interview B5, B12). This *climate advocacy coalition* gradually grew, and when the new government of Lula da Silva from the Workers' Party (Partido dos Trabalhadores, PT) took office in 2003, the coalition included national and international environmental NGOs like Instituto Socioambiental and WWF, research NGOs like the Amazon Environmental Research Institute, climate scientists from, *inter alia*, the National Institute for Space Research, environmental bureaucrats from the MMA and its underlying agencies, green politicians, journalists and indigenous peoples' groups (Aamodt, 2015; Carvalho, 2010; Hochstetler and Keck, 2007; OC, 2016). Interviews and field observations show that coordination is both informal, through sharing information among acquaintances, and formal, as through the creation of the umbrella organization Observatório do Clima (OC) in 2002 (Interviews B3, B8; OC, 2016). The climate coalition's main core beliefs are that mitigation of environmental degradation and climate change should be prioritized in policy decisions, and that Brazil has the capacity and opportunity to make such priorities (Aamodt, 2015; Interviews B3, B5, B6, B10, B12). Expert knowledge on deforestation is the coalition's main strength, but coalition members have worked on expanding their knowledge regarding other climate-related issues, like energy and agriculture (Aamodt, 2015; Interviews B6, B12). One example of policy-oriented learning from coordination of knowledge and activities within the climate coalition is the development of the SEEG (Sistema Estimativa de Emissões de Gases de Efeito Estufa/System for estimating GHG emissions), an NGO-developed database offering a complete overview of Brazilian GHG sources and emissions (SEEG, 2015). The SEEG is much used by Brazilian media and researchers.

Table 2
Mitigation policy documents and targets: Brazil, China, and India.

	Climate policies in 2000	First comprehensive domestic mitigation policy document	Voluntary mitigation target at UNFCCC COP15, 2009	Intended Nationally Determined Contributions (INDCs) target COP21, 2015
Brazil	Weakly implemented forest policies. No climate policy/mitigation target	National Law on Climate Change (Law no. 12.187), 2009 (GoB, 2009)	Reduce emissions by 36.1–38.9% below BAU trajectories by 2020	Reduce emissions by 37% from 2005 levels by 2025, with intention to reduce by 43% by 2030
China	No climate policy/mitigation target	National Climate Change Programme, 2007 (NDRC, 2007)	Reduce carbon intensity of GDP by 40–45% by 2020, compared to 2005 levels	Peak CO_2 emissions around 2030, reduce carbon intensity by 60–65% by 2030, from 2005 levels
India	No climate policy/mitigation target	National Action Plan on Climate Change, 2008 (GoI, 2008)	Reduce emission intensity of GDP by 20–25% by 2020, compared to 2005 levels	Reduce GHG emission intensity of GDP by 33–35% from 2005 levels by 2030

5.1.1. Advocacy coalition influence

Deforestation, energy, and agriculture are Brazil's main sources of emissions (see Table 1). In 2003, deforestation was three times higher than in 2012 (SEEG, 2015), and the climate coalition was framing national climate policy in terms of the need to reduce deforestation (interview B2). The powerful agribusiness coalition, coordinated through the rural caucus in Congress, has for decades opposed policies to reduce deforestation, arguing that land and forest restrictions harm the economically important agricultural industry and Brazil's food security (Aamodt, 2015; FPA, 2016; Sauer and França, 2012). However, private agribusiness is poorly represented in the PT, and the climate coalition had a new unique policy window for placing climate on the domestic agenda from 2003 onwards. Marina Silva recruited staff with NGO and research backgrounds to MMA, enhancing the informal networking and coordination between the various actors in the coalition (Carvalho, 2010; Hochstetler and Keck, 2007). Coalition members inside and outside the government were central in MMA's work on writing and implementing the PPCDAM in 2004 (Carvalho, 2010). While deforestation declined between 2004 and 2009, Brazil experienced general economic growth, also in the agricultural sector, weakening the agribusiness coalition's economic arguments vis-à-vis the government. Reflecting the political settlement, also governmental coalition parties were reluctant to oppose governmental proposals, due to monthly unregistered payments from PT (see Melo (2016) on the *mensalão* scandal).

MoFA was originally skeptical to linking deforestation to climate change in the international negotiations, fearing that Brazil could lose sovereignty in the Amazon region (Hochstetler and Viola, 2012). To raise international awareness of deforestation and change perceptions in the MoFA, coalition members published scientific articles on deforestation in prestigious journals and organized own contributions and workshops at the COPs (interviews B3, B5, B8, B12). At COP12 in 2006, the MoFA agreed to include forests in the international GHG accounting, and the framing of mitigation as deforestation reduction was mainstreamed domestically—clear proof of the climate coalition's agenda-setting influence (Carvalho, 2010).

Functioning as external events, the international climate negotiations and Brazilian public opinion contributed to endurance in Brazilian climate policy between 2004 and 2009. All interviewees agree that the timing of the 2009 Climate Law was important. First, the REDD and REDD + programs under UNFCCC created new income opportunities, and the political elites in the Amazon region were convinced that forest protection would not necessarily be damaging for economic growth (interviews B6, B8; Kasa, 2013). Second, the upcoming COP15 received thorough media coverage, and Brazilians were in favor of domestic climate policies, especially for protecting the rainforest (Hochstetler and Viola, 2012, interview B11). Recognizing that climate was important to voters, the government needed the Climate Law to strengthen the climate image of President Lula da Silva's designated successor Dilma Rousseff (Aamodt, 2015; Hochstetler and Viola, 2012). In drafting the 2009 Climate Law, climate-coalition members in MMA maintained ongoing dialogue with coalition members in civil society, and the coalition managed to exert considerable influence (Aamodt, 2015; interviews B2, B5, B6, B20). With the passing of the Climate Law in Congress in December 2009, climate-policy measures were adopted for all emission sectors.

However, the Climate Law's energy-sector mitigation measures encountered resistance. Although companies are private or partly privatized, there are strong personal and economic ties between Brazilian energy politicians and energy and entrepreneurial companies; they cooperate in a powerful energy advocacy coalition with its stronghold in the Ministry of Mines and Energy (MME) (Aamodt, 2015; interviews B13, B19; Melo, 2016). Energy coalition members believe that Brazil does not need mitigation in the energy sector because the country has one of the world's most renewable energy matrices (interviews B15, B16). In Lula da Silva's second government (2006–2010), the office-

and rent-seeking coalition partner PMDB (Partido do Movimento Democrático Brasileiro) had more bargaining power and controlled MME. To ensure majority support in government, the president signed the Climate Law—but vetoed its energy measures, after pressure from MME (Aamodt, 2015; GoB, 2009)

The climate coalition had little policy-measure influence on the Forest Code revisions in 2012 (interviews B6, B8, B9). By then, the coalition had lost its alliance with the MMA leadership: several high officials had been replaced, and the new MMA minister supported the Forest Code revisions (Viola and Franchini, 2014). The 2011 change of government created a new policy window for the agribusiness coalition, which had considerable influence on the revision of the Forest Code, and succeeded in reframing deforestation by separating *legal* from *illegal* deforestation (Sauer and França, 2012; interviews B5, B9, B13). Since 2011, economic stagnation has led to low public attention to climate change, strengthening the agribusiness coalition's policy influence, and disrupting the endurance in the climate-policy process that started in 2003. However, climate coalition members hold that they had some influence on the adoption of an absolute mitigation target in the 2015 INDC (OC, 2016).

5.2. China

In line with the country's political settlement, the China's *climate-change coalition* emerged as the result of governmental instructions: in the late 1990s researchers were tasked with obtaining reliable information on climate change and substantiating the consequences for China. The coalition gradually took shape in the early 2000s, including domestic and international environmental NGOs, like China Climate Action Network and the Global Environment Institute, Greenpeace and WWF (Stensdal, 2014; interviews C2–5, C14–15, C21–23). Coalition members share core beliefs in their concern for the consequences of climate change for China's people, nature and economy. They consider it in China's own interest to devote greater attention to climate change, in coordination with continued economic development and poverty eradication (Stensdal, 2014; interviews C4–7, C20–23, C33–35). The coalition's climate expertise comes largely from the climate scientists and scholars in many universities and organizations who are tasked with obtaining information about potential climate-risks for China (interviews C1, C2, C5, C7–11, C15, C21). Crucial because of their proximity to decisionmakers are the scientists on the National Advisory Committee on Climate Change, which advises the Leading Working Group. Other scholars are employed at universities and at government-affiliated research institutes (Wübbeke, 2013). The coalition's informal coordination includes exchange of information, while formal cooperation includes joint publications. The 2009 joint statement in the run-up to the Copenhagen UNFCCC summit issued under the name of *Chinese Civil Society Coalition on Climate Change* is one such example (EU–China Civil Society Portal, 2009; interviews C2, C7, C32-35, C37–42, C62, C63). Chinese delegations to the UNFCCC include several researchers from the coalition (Stensdal, 2014, interviews C7, C15, C21). After the release of the 2007 National Climate Programme, NGOs were encouraged to work on climate change; the government invited more involvement, counsel and solutions from outside the bureaucracy, and the climate coalition became more active in its collaborative activities and projects (Stensdal, 2014; interviews C10, C51–52, C62). There have been no significant changes in the coalition's core beliefs, but since 2007, climate change has become more of a mainstream concept, linked to low-carbon development in particular. Interviews and observations further indicate that the climate subsystem has grown since 2007. China's economy increasingly features businesses catering to climate concerns and the low-carbon economy, such as renewable energy and electric vehicle industries. The 12th five-year plan period 2011–2015, specifies electric and new energy vehicles, energy saving and environmental protection, clean energy technology and new energies as three of seven strategic industries to be promoted (12th Five-Year Plan, 2011).

5.2.1. Advocacy coalition influence

There has been durable policy-change towards more ambitious mitigation from 2000 to 2015, and the climate coalition has had influence on the process. Its agenda-setting influence is evident in the National Climate Change Program in 2007, which summed up current scientific knowledge on climate change (Stensdal, 2014). By then, Chinese climate researchers had already been reporting to the government for more than a decade. Consistent with the political settlement, the coalition has framed climate change as an issue in conjunction with development, rather than conflicting (interviews C4-7, C20–23, C30–33). Climate change has become increasingly prominent in national policy documents: The 12th five-year plan (2011–2015) was "greener" than previous ones. The choice of the three above-mentioned strategic industries shows that the central government views addressing climate change as a development issue. This strategy was enabled by state–market relations, with the government actively supporting and controlling sectors vital to the economy.

The clearest example of the coalition's influence on policy-measure decisions with mitigation framed in developmental language is China's 2009 carbon-intensity target. It was proposed by scientists and experts in the National Advisory Committee on Climate Change as reductions that would be compatible with continued economic development (Wübbeke, 2013). The policy window for this chance to influence policy came from the UNFCCC negotiations, and that countries were expected to bring something to the Copenhagen summit negotiations. The carbon-intensity target was China's contribution.

Consistent with the political settlement, interviewees agree that collaboration and supporting the government is the *modus operandi* in China. The coalition members' policy-oriented learning has brought better understanding of the consequences of climate change, and possible policy options. Since 2000, climate knowledge and climate-related predictions have improved. The climate coalition has shown policy-oriented learning in practice through collaboration projects, for example on renewable energy involving domestic and international NGOs, Chinese universities, and local governments (Stensdal, 2014).

Of external parameters, changes in GHG emissions and socio-economic development worked in favor of the climate coalition's agenda-setting between 2000 and 2015. China's emissions increased considerably, making mitigation a more pressing issue. Socioeconomic development helped to improve the bureaucracy, which by 2015 was better prepared to manage mitigation. Furthermore, the Internet and Chinese social-media platforms have become arenas where the public can learn about news and share opinions, with a speed and convenience unknown in 2000. These factors have improved the conditions for the climate coalition's arguments, making their proposals appear timely and acceptable to decisionmakers (Stensdal, 2015).

External events have also contributed to endurance in mitigation policy. Public awareness of air pollution has risen dramatically in just a few years (Pew Research Center, 2013). The Chinese government has responded swiftly, with new pollution-reducing measures that also entail mitigation co-benefits by reducing coal consumption. Air-pollution measures were included in the national energy-saving and mitigation plans in 2014, illustrating the wider framing of climate change, linking it to air quality. Mitigation progress might well have been slower without societal demand for reduced air pollution (Stensdal, 2015; interviews C5, C23, C60). As the energy-sector is state-controlled and dominated by SOEs, the state bears much of the mitigation-burden itself.

While outright disagreement with prioritizing mitigation has not been evident from government entities, various organizations have wanted different mitigation policies and have lobbied the State Council. For example, the Ministry of Finance wanted a carbon tax, which would fall under its responsibility; the NDRC wanted a carbon market, which it would manage. The carbon market became the preferred option of

several top leaders around 2010 (Stensdal et al., 2017). The climate coalition has maintained an advantageous position for influencing policymaking. In connection with the five-year plans, climate-coalition scientists have advised the government and drafted proposals concerning climate change (Stensdal, 2015). Also in the current formation of China's carbon market, coalition members are often consulted (interviews C45–51).

5.3. India

For India's environmental NGOs, local environmental and developmental issues were the main concern for decades. However, since around 2000, they have focused on the linkage between such issues and global climate change (Lele, 2012). Many national NGOs have had close ties to Indian climate scientists, and much of the first climate science in India was published by research NGOs (Agarwal and Narain, 1991; Kandlikar and Sagar, 1999; Never, 2012). In the mid-2000s Indian researchers were active in the 4th IPCC process, and the national press paid more attention to climate issues, and researchers and NGOs argued that India needed to take climate change seriously (Jogesh and Painter, 2011). The *climate advocacy coalition* emerged from this debate, joining the traditional environmental movement with scientists from the research institute TERI, scientists from research NGOs like the Centre for Science and Environment (CSE), and later also MoEF officials (Dubash, 2012; Never, 2012; interview I12; NGO letter, 2009). The coalition's core beliefs are that more ambitious domestic climate policies are needed, but that India should concentrate on adaptation policies, and on mitigation policies that can provide co-benefits for basic developmental problems (Dubash, 2012; Lele, 2012; NGO letter, 2009; interviews I12, I14). The coalition does not support internationally binding mitigation targets for India, arguing that the developed countries have main responsibility for mitigation (Lele, 2012; Isaksen and Stokke, 2014; NGO letter, 2009; interviews I2, I12). Coordination among coalition members is mainly informal (Never, 2012). Although India is a large country, relatively few people are engaged in climate-change policies at the national level, and climate-coalition interviewees report good dialoguing with relevant climate-policy actors in various branches of government (interviews I12, I14; field observations from Delhi Sustainable Development Summit, February 2015). The 4th IPCC report in 2007, stating that climate change would have grave consequences for India, opened a domestic policy window for the climate coalition (interview I7, I8).

5.3.1. Advocacy coalition influence

Most of India's emissions come from the energy sector, where demand is increasing rapidly. National energy companies are already struggling to supply enough coal and oil, and therefore welcome new and renewable energy sources (Siddiqi, 2011). Also the largest industries see great opportunities in green technology development (interviews I5, I7). Opposition to domestic climate policy has therefore not come from economic interest groups. Reflecting the political settlement, most of the opposition has involved internal bargaining in the governmental coalition, and some parliamentary debate (Prabhu, 2012). Early in the NAPCC process in 2007, many MoEF officials and growth-focused politicians were skeptical to having domestic climate policies (Dubash, 2012). MoEF officials saw Indian mitigation as contrary to the logic of international burden-sharing, arguing that the rich countries should take responsibility for the climate problems they had caused (Isaksen and Stokke, 2014). The climate coalition worked to frame climate policies as co-benefits of other policy goals (interviews I4, I12). Since economic growth and development are the main policy goals of India's main political parties, linking climate policy with development goals was a successful strategy for the coalition. The dominant NGO in the climate coalition is the CSE, which was also included in the Prime Minister's Council on Climate Change in 2007 (Lele 2012; Menon, 2014). As also TERI scientists with formal and informal connections to the MoEF represented the climate coalition in the Council (Menon, 2014; Never, 2012), the coalition had direct access to influence NAPCC policy measures. However, reflecting the clientelistic political structure, smaller NGOs in the coalition criticized the NAPCC process for being inadequately inclusive of civil society, and insufficiently ambitious and holistic in its domestic climate-policy missions (NGO letter, 2009).

When the NAPCC was finalized in 2008, with the co-benefits focus predominant in the policy measures proposed, the MoEF officials came around to the climate coalition's arguments and agreed to domestic policy measures, as long as these were not communicated as targets in the international negotiations. Through policy-oriented learning, the IPCC report made policymakers more aware of the threat of climate-change impacts to India's development, and the co-benefits approach became mainstreamed among politicians and policymakers, also the then-opposition parties. By 2014 there was no significant opposition to climate policies (interviews I1–3, I9, I11, I12). The co-benefits approach ensured endurance in the climate-policy process: the BJP government, elected in 2014, sees climate-change mitigation as part of its growth strategy, especially regarding the development of new renewable energy and technologies (interview I5).

Because the BJP traditionally represent and cater to businesses and Hindu nationalists (Kohli, 2004), the new government has been reluctant to involving pluralistic civil society in policymaking, and environmental NGOs are no longer represented in the Prime Minister's Council (Menon, 2014). Reflecting the political settlement, the fragmentation of the climate-policy process has also affected the climate coalition's possibilities for influence after 2008. Many of the coalition's NGOs are involved in development and implementation of adaptation measures at regional and local levels (interviews I12, I14), but the implementation process has been slow, often with low priority in many states (Pahuja et al., 2014), and many state governments are unclear as to their own mitigation and adaptation responsibilities (Tankha and Rauken, 2015; interviews I8, I13). Of the eight NAPCC missions, the mitigation missions are the best implemented, and officials in the ministries responsible have been active in developing mitigation measures with co-benefits for energy security, energy access, and energy efficiency (interviews I1, I7, I9). Indian businesses have responded positively, competing to develop energy-efficient appliances and vehicles (interviews I1, I7). The endurance of the climate policy process in each of the NAPCC missions hinges on the capacity and commitment of bureaucrats and politicians in the various governing bodies and levels, reflecting India's fragmented political settlement.

5.4. Comparative analysis: extent of and conditions for influence

5.4.1. External parameters affecting core beliefs

Although Brazil, China, and India all have climate advocacy coalitions, the foundations for the core beliefs of these coalitions vary, reflecting differences in material and political parameters. The Chinese coalition's beliefs relate more specifically to climate science, and are less connected to a previous environmental agenda than in Brazil and India; and the Indian climate coalition is more concerned with adaptation than mitigation. We also find variation in how coordinated the advocacy coalitions are. Although interviews and observations indicate that the Indian coalition is more loosely coordinated than its counterparts in Brazil and China, core beliefs have been strong and guiding among its members. India's NGO community is less unified on climate issues than its Brazilian and Chinese equivalents: for instance, international NGOs are not part of the climate coalition in India. In all three countries, pollution and climate-change impacts seem set to play an increasingly important role in the years to come. In China and India, air pollution is growing as an issue of public concern, as are water-security challenges in India and Brazil.

5.4.2. Conditions for agenda-setting influence

Although the exact mechanisms for political interaction differ

(Chinese politicians are not accountable to voters in elections as are Brazilian and Indian politicians), we agree with Bang et al. (2015) and Keohane (2015) that the provision of climate-change mitigation as a public good, and the impacts of climate change, pose similar challenges to people and government in all countries. Our findings indicate that the often-assumed dichotomy between democratic and non-democratic regimes is *not* a defining variable for explaining how climate-policy actors coordinate their activities and influence policymaking in Brazil, China, and India; however, the conditions for agenda-setting influence also vary considerably among the three countries.

To a greater extent than in China and India, the agenda-setting of climate policy in Brazil has encountered significant political opposition. This can be explained largely by the differences in state–market relations in the emissions-intensive sectors in the three countries. In Brazil, an agribusiness coalition with economic interests and ideological values that conflict with increased forest protection dominated politics and policy implementation through office-seeking political parties in Congress before 2003. The 2003 change of government broke this close relationship between economic and political elites, creating a climate-policy window. In China and India, the energy sectors are dominated by government-owned companies, so the main costs of mitigation will eventually fall on national and state-level governments. This political economy factor can explain why climate coalitions in these two countries encountered scant opposition from business interests. For the Chinese and Indian climate coalitions, disagreement took the form of internal governmental bargaining. In India, this opposition was a norm-based resistance to accepting domestic climate policies while the rich countries had still not complied with obligations under UNFCCC. In China there have been few signs of outwards opposition to mitigation, but evidence shows bargaining and lobbying within the government for specific mitigation measures (Stensdal et al., 2017).

5.4.3. Policy-measure influence

The climate coalitions in all three countries had clear influence on policy-measure decisions when the first domestic climate policies were adopted between 2007 and 2009, with coalition members represented in key decisionmaking bodies. Material and political parameters influenced how the coalitions gained these positions of influence. Because the agribusiness and energy coalitions had dominated the Congress and the government, Brazil's climate coalition had to wait until the PT 2003 election victory to gain governmental positions to enable substantial changes in climate policy. The coalition used the new policy window to present solid scientific evidence framing deforestation reduction as climate-change mitigation, at a time when the national economy was growing. In India, climate-coalition members knew that information on India's climate-impact vulnerability would be presented in the 2007 IPCC report, and they used this information to convince reluctant governmental officials that climate policies with developmental co-benefits were in India's own interest. In China, the government sought domestic advice from climate experts when attention to climate change started growing internationally. These climate experts then formed a coalition that proposed increases in China' climate-mitigation efforts, carefully balancing between the scientific need to mitigate and the political priority of development and growth.

In all three countries, the coalitions' framing of climate change in relation to other policy concerns has influenced the climate policies adopted—also in Brazil and India, where the main framings are still deforestation and co-benefits, respectively, although the climate coalitions there have less policy influence than previously. In Brazil, however, the new division between legal and illegal deforestation is a setback in terms of mitigation ambition, reflecting the climate coalition's loss of influence on policy-measure decisions.

5.4.4. Endurance of policy change

Reflecting the differences in political settlements, the climate-policy process in China has been more gradual than in Brazil and India. There is less room for contention in Chinese politics, and an important condition for the climate coalition's agenda-setting influence is to continue its strategy of government cooperation. The Chinese political settlement is quite stable compared to its Brazilian and Indian counterparts. Key policies in China are seldom adopted without thorough discussion within the government, and this thorough anchoring of policies can explain why the *endurance* of the climate-policy change is higher in China than in Brazil and India. The advisory role of the Chinese climate coalition is institutionalized through the focus on continuity in policy processes. The guiding principle of "scientific outlook on development," incorporated into the Constitution in 2008, legitimizes the climate coalition's expert counsel in policymaking (Hallding et al., 2009). Brazil and India have fragmented political systems, but in India the climate coalition's core beliefs were relatively quickly mainstreamed to all the main political parties, and the lack of endurance in some of India's climate-policy missions is due more to institutional fragmentation and unclear division of responsibility among governance levels than to political disagreements. The Indian climate coalition's framing of climate policy as co-benefits is reflected in mitigation-policy measures, although the climate coalition members have concentrated mainly on adaptation measures. In Brazil, lack of endurance is caused mainly by changes in the governmental coalition, where political interests that believe traditional economic growth is more important than climate-change mitigation re-gained control from 2010 onwards, diminishing the agenda-setting influence of the climate coalition significantly.

5.4.5. International external events

International climate-policy processes were direct causal factors of the domestic climate policy windows in India and China: in India it was mainly the IPCC process; in China, the UNFCCC process. In Brazil deforestation represents a traditional domestic political cleavage, and the climate coalition worked hard to link it to Brazil's role in the UNFCCC process. Linkage to the international level was important for raising attention to climate-change issues in the Brazilian media and public opinion, contributing to policy endurance. In all three countries, many climate-policy actors are involved at domestic and international policy levels; and interviewees agreed that the UNFCCC process has been important for opening domestic climate-policy windows. In all three countries, climate-coalition members inside and outside government participate as delegates or observers at UNFCCC summits, and these negotiations also serve as learning processes for coalition members.

6. Conclusions

This study of climate-advocacy coalitions in the three major economies Brazil, China, and India between 2000 and 2015 has shown that climate coalitions influenced policy development in all three, but with several differences. Using an ACF-based analysis comparatively we find that external subsystem parameters like political economy and institutional structures are crucial for explaining the coalitions' policy influence and the endurance of policy change. The external parameters define the 'rules of the game' in which the coalitions operate. Reflecting the political settlements in each country, the climate coalitions in Brazil and India grew out of existing environmental movements, whereas China's climate coalition was formed after the government requested scientists to study climate change.

The UNFCCC process, together with governmental change in Brazil, and the IPCC process in India, created climate policy windows in all three countries, and the climate coalitions managed to use these windows to frame climate policy in relation to other core policy concerns, achieving climate-policy change between 2007 and 2010. Differences in state–market relations influenced the endurance of this change. In Brazil, strong advocacy coalitions stand to lose economically from mitigation, making climate-policy endurance difficult. In China and India, governments bear most costs of mitigation, so any opposition is mainly government-internal. These findings indicate that when mitigation is

successfully framed as a co-solution to other prioritized policy concerns, policy change endurance is more likely if the benefits can go under the same budget as the mitigation costs.

Concerning differences in political settlements and climate-coalition influence, the Brazilian climate coalition has lost its stronghold in the Ministry of Environment, limiting its opportunities for influencing policy measures, but the coalition has maintained its strong advocacy work from outside the government. In China, the climate-policy window in 2007 enabled a mainstreaming of climate concerns in policymaking, but coalition members have kept their policy proposals in line with official economic and development goals. In India, the climate-policy process is fragmented. Although mitigation-policy change has endured, governmental officials and industries have focus on mitigation-policy measures; the climate coalition has concentrated on adaptation measures, where governance is weaker. These findings are in line with Gupta's (2014) findings in India, and indicate that coalitions adjust their strategies according to existing political opportunity structures—resulting in a confrontational strategy in Brazil, a cooperative strategy in China, and a complementary strategy in India.

Jones and Jenkins-Smith (2009) argue that the ACF should move beyond the subsystem level to a more macro-level policy topography of trans-subsystems dynamics. Our study supports that argument. The climate subsystems studied here intersect with other subsystems, with actors and coalitions operating in more than one subsystem simultaneously. In line with the seminal works of Keohane and Milner (1996) and Putnam (1988), we add to the insights of Jones and Jenkins-Smith (2009), seeing the link between the domestic subsystem and the international policy level as an important factor in analyzing the formation and influence of advocacy coalitions in domestic climate policymaking. Domestic and international climate policies are in constant interaction, and discussions and decisions at the international level can be crucial for opening domestic policy windows where advocacy coalitions can influence climate policymaking. Future studies of climate policy should incorporate the international climate-policy level when applying the Advocacy Coalition Framework. With international negotiations underway on many environmental issues, including biological diversity, integrating the international level into ACF studies appears worth exploring for other policy issues as well.

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Appendix A. List of Interviews

Interviewees' names are used only in cases where interviewees have consented to the use.

Brazil

B1. Brazilian diplomat, Brasilia, October 15, 2013.

B2. Fernanda Carvalho, Former Advisor, MMA and The Nature Conservancy (TNC), Brasilia, October 18, 2013.

B3. Climate scientist and former MMA advisor, Rio de Janeiro, October 23, 2013.

B4. Climate scientist, Rio de Janeiro, October 25, 2013.

B5. Paulo Moutinho, Executive Director, Amazon Environmental Research Institute (IPAM), Brasilia, November 20, 2013.

B6. Adriana Ramos, Vice Executive Secretary, Instituto Socioambiental (ISA), Brasilia, November 21, 2013.

B7. Climate scientist, Brasilia, November 25, 2013.

B8. Former MMA Advisor, Brasilia, November 26, 2013.

B9. Alfredo Sirkis, Congressman for the Brazilian Socialist Party (PSB) and Chairman of the Joint Climate Change Commission of the Brazilian Congress. Brasilia, November 27, 2013.

B10. Carlos Nobre, Climate scientist and National Secretary, Ministry of Science, Technology and Innovation (MCTI), Brasilia, November 28, 2013.

B11. Everton Lucero, Director of the Division of Climate, Ozone and Chemical Security, MoFA, Brasilia, December 2, 2013.

B12. Carlos Rittl, Excecutive Secretary, Observatório do Clima, Brasilia, December 3, 2013.

B13. Carlos Tomé, Legal advisor in the Brazilian Senate, Brasilia, December 4, 2013.

B14. Foreign diplomat, Brasilia, December 4, 2013.

B15. Brazilian diplomat, Brasilia, December 5, 2013.

B16. Brazilian senior official, Brasilia, December 6, 2013.

B17. Jacqueline Mariano, ANP regulation specialist, Rio de Janeiro, December 9, 2013.

B18. Three advisors in an International Petroleum Company, Rio de Janeiro, December 10, 2013 (group interview).

B19. Energy sector CEO, Rio de Janeiro, December 11, 2013.

B20. Tasso Azevedo, Social Environmental Entrepreneur and former Advisor, MMA, Rio de Janeiro, January 28, 2014 (telephone interview).

China

C1. NGO employee, Beijing, September 20, 2011.
C2. Scholar, Beijing, September 21, 2011.
C3. Government official, Beijing, September 21, 2011.
C4. Scholar, Beijing, September 22, 2011.
C5. Academic, Beijing, September 22, 2011.
C6. Journalist, September 23, 2011.
C7. Scholar, Beijing, March 22, 2012.
C8. NGO employee, Beijing, March 23, 2012.
C9. NGO employee, Beijing, March 23, 2012.
C10. International donor employee Beijing, March 25, 2012.
C11. NGO employee, Beijing, March 27, 2012.
C12. Business representative, Beijing, October 15, 2013.
C13. Scholar, Beijing, October 16, 2013.
C14. Think-tank employee, Shanghai, October 22, 2013.
C15. Academic, Shanghai, October 23, 2013.
C16. Think-tank employee, Shanghai, October 29, 2013.
C17. Think-tank employee, Shanghai, October 29, 2013.
C18. NGO employee, Beijing, April 28, 2014.
C19. Journalist, Beijing, April 29, 2014.
C20. Scholar, Beijing, April 29, 2014.
C21. NGO employee, Beijing, April 30, 2014.
C22. Academic, Beijing, March 30, 2015.
C23. Academic, Beijing, April 1, 2015.
C24. Journalist, Beijing, April 1, 2015.
C25. Expert, Beijing, April 2, 2015.
C26. Policy-maker, Beijing, April 2, 2015.
C27. Consultant, Beijing, April 3, 2015.
C28. Consultant, Beijing, April 3, 2015.
C29. Academic, Beijing, April 7, 2015.
C30. Consultant, Beijing, April 8, 2015.
C31. Policy-maker, Beijing, April 8, 2015.
C32. International donor employee, Beijing, April 9, 2015.

C33. NGO employee, Beijing, July 9, 2015.
C34. NGO employee, Beijing, July 10, 2015.
C35. NGO employee, Beijing, July 10, 2015.
C36. International donor employee, Shanghai, August 27, 2015.
C37. Scholar, Shanghai, September 18, 2015.
C38. NGO employee, Shanghai, September 18, 2015.
C39. Expert, Shanghai, September 21, 2015.
C40. Expert, Shanghai, September 22, 2015.
C41. Business representative, Shanghai, October 15, 2015.
C42. Expert, Shanghai, October 19, 2015.
C43. Consultant, Shanghai, October 20, 2015.
C44. Consultant, Shanghai, October 20, 2015.
C45. Consultant, Beijing, October 27, 2015.
C46. Expert, Beijing, October 28, 2015.
C47. Academic, Beijing, October 29, 2015.
C48. Academic, Beijing, October 29, 2015.
C49. Consultant, Beijing, October 30, 2015.
C50. Academic, Beijing, October 30, 2015.
C51. International donor employee, Beijing, October 30, 2015.
C52. Business representative, Shanghai, November 2, 2015.
C53. Expert, Shanghai, June 13, 2016.
C54. Expert, Shanghai, June 13, 2016.
C55. Expert, Shanghai, June 21, 2016.
C56. Scholar, Shanghai, June 22, 2016.
C57. Government employee, Shanghai, June 22, 2016.
C58. Scholar, Shanghai, June 23, 2016
C59. Expert, Shanghai, June 27, 2016.
C60. Expert, Shanghai, June 27, 2016.
C61. Business representative, Suzhou, June 30, 2015.
C62. Scholar, Shanghai, June 30, 2016.
C63. NGO employee, Shanghai, July 3, 2016.

India

I1. Foreign diplomat, New Delhi, October 7, 2014.
I2. Former member of India's UNFCCC delegation, New Delhi, October 7, 2014.
I3. Advisor in international developmental aid organization, New Delhi, October 8, 2014.
I4. Climate scientist, New Delhi, October 9, 2014.
I5. BJP Spokesperson, New Delhi, October 9, 2014.
I6. Official in the Technology Department Board, New Delhi, October 10, 2014.
I7. Business sector representative, New Delhi, October 10, 2014.
I8. Official in the Department of Science and Technology, New Delhi, October 13, 2014.
I9. Senior official in the Ministry of New and Renewable Energy, New Delhi, October 13, 2014.
I10. Climate scientist and former MoEF employee, New Delhi, October 14, 2014.
I11. Journalist, New Delhi, October 15, 2014.
I12. Two advisors in Indian NGO, New Delhi, October 16, 2014.
I13. Climate scientist, New Delhi, October 16, 2014.
I14. Leader in Indian NGO, New Delhi, October 16, 2014.

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