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Capacity building for proportionate climate policy: Lessons from India and South Africa

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Abstract

Countries must develop their capacity to credibly revise their nationally determined contributions (NDCs) proportionate to the global climate goal. This paper argues that long-lasting capacity is necessarily embedded in the institutions governing cooperation between state and non-state actors. This institutional capacity for cooperation is determined by the two interactive processes of conception and calibration, where the state plays a definitive role in mediating between competing interests. In conception, the state uses its discretionary power to set the long-term vision, whereas during calibration it exercises flexibility to accommodate concerns and capacity of other actors. We conclude that proportionality of policy response is better understood, and achieved, through the convergence of both these processes. Drawing on climate policy experiences of India and South Africa, we recommend that successful implementation and enhancement of NDCs would require a greater emphasis on capacity building for calibration in developing countries.

Keywords

Implementation, capacity building, climate ambition, India, South Africa, proportionality

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Introduction

The efficacy of the Paris Agreement hinges upon the ability of participating countries to implement and enhance their nationally determined contributions (NDCs). Disproportionality of current NDCs to deliver the goal of restricting temperature rise to 2°C is widely accepted (Höhne et al., 2020). Countries need to undertake a dynamic, long-term approach for effective NDC implementation and enhance ambition commensurate with science (IPCC, 2018). However, lack of necessary details on how countries will implement their respective NDCs introduces ambiguity and speculation about their ability to 'update and enhance' NDC ambitions.

The lack of capacity is an established challenge for implementation (IPCC, 2018). Disproportionate national capacity, particularly in the developing country context, is one of the main reasons these countries have been hesitant to take up mitigation commitments (Dubash and Morgan, 2013; Mathur and Shrivastava, 2015; Okubo and Michaelowa, 2010). While NDCs mark a departure from this historical position, unevenly institutionalized capacity (Purdon, 2015) along with the barriers created by domestic politics (Upadhyaya et al., 2018) cast doubt on their ability to effectively implement and continuously enhance their NDCs.

This paper proposes a framework to better understand the interaction between the imperatives of capacity building and the barriers posed by domestic politics as a determinant of (dis)proportionate policy response. We use the evolution of climate policy in India and South Africa[1] to illustrate the usefulness of the proposed framework.

The paper is structured as follows. We first elaborate on the proposed framework and describe the methodology adopted. We later illustrate the South African and Indian experiences, respectively, drawing on the proposed framework, and subsequently extend it to highlight insights into how capacity building should be approached, in the context of progressive revision of NDCs.

Implementation, capacity building and domestic politics

Defining an appropriate policy goal and designing a commensurate, robust implementation strategy are intertwined processes. The outcome of each of these processes may turn out to be disproportionate to the scale and severity of the problem the policy intends to address (Maor et al., 2017, Peters et al., 2017).[2] The literature attributes the degree of disproportionality of the policy goal mostly to the influence of the political actors (Peters et al., 2017). However, it is possible that different actors, driven by self-interest, perceive scale and severity of the problem, and hence proportionality of policy response, differently. Divergence in roles and agency of organizations involved in actual implementation could also lead to disproportionality in implementation. Accordingly, it is possible that the policy goal is considered proportionate, but its implementation is perceived as disproportionate, and vice versa. Nevertheless, both avenues of disproportionality in policy response are embedded in institutional capacity.

Scholars argue that institutional capacity[3] is entrenched within the political actors represented by the state and manifests itself as the state's ability to define, implement and evaluate policy (Braithwaite, 2006; Estache and Wren-Lewis, 2009). Dubash and Morgan (2013) suggest a further contrast between 'thin' and 'thick' state capacity. The former refers to a narrow, structural view of the state with a focus on institutional design, whereas the latter implies simultaneous engagement with state and non-state actors while sticking to the procedure, independence and reasoning. However, state capacity is not a static or binary construct. Over time, states can be predatory, developmental, or 'in between', that is, they can destroy, nourish or construct state capacity (Evans, 1995).

Normatively, effective implementation should 'nourish' and 'construct' capacity to implement. However, a state's capability to 'adjust or re-calibrate' policy responses (Peters et al., 2017) is also

dependent on the capacity and interests of other actors involved (Peters, 2015) in goal setting and implementation. Capacity building, therefore, should be understood as a process by which a state's engagement with other actors evolves and the degree of (dis)proportionate policy response is determined. Institutional capacity thus embodies how the power dynamics between different actors determine their influence on goal setting and implementation.

Institutional capacity and political economy

Policy implementation goes beyond the apex institutions. Besides institutional factors, the political actors also determine the nature of policy response (Maor et al., 2017; Peters et al., 2017; Winkler et al., 2007). The implementation literature underlines the need to institutionalize processes that bridge the disconnect between policy formulators – those responsible for designing policy – and policy implementers – organizations and actors responsible for a policy's on-ground delivery (Winter, 2007). The pursuit of *effective implementation* hence implies mediating between the normative ambitions of political actors – *what should happen* – and the empirical evidence, ground realities and behaviour of other actors – *what actually happens*.

Ideally, iterative adjustments in policies should result in a proportionate policy response, but governments may deliberately choose to respond disproportionally due to political–economic compulsions (Maor et al., 2017). In case of climate policy responses, disproportionality could be further accentuated by the unpredictable pace of climate change impacts – raising the possibility that by the time implementation of an adequate policy begins/ends, it turns out to be an inadequate, or even a non-responsive, policy. Continuous adjustment in climate policy framing and implementation is therefore necessary.

Estache and Wren-Lewis (2009: 732) identify four broad limitations in the effective design and functioning of institutions: regulatory capacity, commitment, accountability and fiscal efficiency. They argue that, while these limitations are of second-order importance in a developed country context, their size and nature dominate regulatory outcomes in developing countries. A country may suffer from a combination of these limitations at different governance levels. These limitations may further deepen by the variance in autonomy, agency and interest of different organizations and actors in the domestic polity. Beyond 'uneven domestic capacity', the process is further complicated by the possible 'divergent interests among different institutions' (Held et al., 2013: 21). Complexities of the political economy make it a realistic possibility that concerned political actors, for example bureaucrats, in exercising their agency, influence the functioning of institutions by varied interpretation of objectives and priorities (Peters, 2015; Winter, 2007). Discretionary powers of political actors, combined with factors such as access to information, and lack of other actors' capabilities (Mathur and Shrivastava, 2015) also act as barriers to the evolution of institutional capacity and successful policy implementation.

Capacity institutionalization through 'conception' and 'calibration'

It is our contention that lasting institutional capacity is built through a co-evolutionary interaction between the goal setting and implementation processes. We call these processes 'conception' and 'calibration'. These processes may occur in a sequential manner or with significant overlaps, depending on the specific national policy trajectories. The sequential narration of the Indian and South African experience below is only for the sake of simplicity in illustration.

Conception: We define 'conception' as a process whereby broader, directional and long-term vision, including an outline of an implementation strategy, is defined. The implementation strategy, an ancillary component of conception, usually involves a basket of policies and intended allocation

of resources, roles and responsibilities to political and economic actors. Conception is guided by a political economy inclined toward balancing dominant interests and power relations between the state and other actors, where the state's discretionary power plays an important role. This process is concerned with taking stock of multiple aspects of a policy problem (political, technical, economic, social, environmental and temporal), existing capacity (institutional, financial, technological and human), and setting out the long-term vision. The political leadership using its discretionary power, not only influences this long-term vision but also the outline of the broader policy framework, implementation strategy, and its scale. Roles and responsibilities are defined for existing organizations and actors considering immediate political–economic priorities, dominant form of state functions and its fiscal capacity, existing institutions, accountability and enforcement mechanisms, and capacity-building priorities. If the vision requires, new institutions and organizations are created and more actors are inducted in the implementation strategy. In this process, the functional capacity of the state to credibly assess the material conditions, set directional goals, and identify strategies at different scales; define regulations and appropriate enforcement mechanisms; mobilize and distribute resources; allocate roles, responsibilities and authorities; set up accountability mechanisms; identify capacity of different non-state actors and innovate mechanisms to integrate them; and so on, plays a critical role. Conception, therefore, is about the direction, administrative structure, pace, and broad path of policymaking in a specific policy context, generally at the national level. Choice and design of specific policy instruments per se are not the primary concern of the 'conception' process, even though it may deliberate upon them.

Calibration: The 'calibration' process builds on Peters et al.'s (2017) emphasis on governments' ability to 'adjust or re-calibrate' to correct for any perceived disproportionality in the policy response. While conception outlines the implementation strategy, calibration involves engaging with the agency and capacity constraints of different actors – revealing and addressing the gaps in executing the implementation strategy. It is concerned with improving participation and compliance, encouraging ownership, and ensuring that the organizational structure of public administration and relevant organizations and actors act in a calibrated manner. It involves streamlining of authorities and autonomies; managing conflicting interests and synchronizing capabilities of actors at different levels of governance; providing necessary information to relevant actors; restructuring incentives based on feedback received; and combining mandatory and voluntary roles, and adjusting short-term goals, to implement the 'conceived' long-term vision. Fine-tuning the policy basket and detailing various policy instruments e.g. taxes, subsidies, standards, etc. that constitute the implementation strategy, therefore, are the main purposes of calibration. Both the process of calibration and the outcomes of calibrated strategy's implementation yield re-adjustments in the political economy that inform the 'conception' process. The state's ability and power to convene plays an essential role in calibration.

Capacity building: The opportunities for capacity building exist during conception as well as calibration, albeit differently due to varied political–economic drivers. A fundamental shift in capacity occurs when the conception process learns from the calibration process, foresees changes in the political economy, and takes institutional measures to address gaps in the implementation strategy.[4] Building the capacity of the state to manage and modify political economy, therefore, is the main desirable outcome of conception. However, absence of clear 'conception' by political actors can lead to confusion among other organizations and actors about their roles and responsibilities. Calibration, on the other hand, is essentially about recognizing subtle changes in the political economy manifested in varying degrees of autonomy and capacity of various actors, and adjusting short-term policy goals and implementation strategies to accommodate these differences in a manner that enhances effective implementation. The essential outcome of the calibration process is establishing institutional mechanisms for mobilization and enhancement of collective capacity of different actors for realizing the long-term vision. Government's failure to 'calibrate'

Table 1. Conception and calibration characteristics.

	Conception	Calibration
Goal	Long-term direction, initial short-term goals	Revision of short-term goals
Approach of the state	State uses discretionary power to decide long- term goals, assign roles to other actors, assess immediate political–-economic challenges	State brings actors together using its convening power, while addressing regulatory needs; sState plays a persuasive role in institutionalizing capacity
Capacity/constraints	State's capacity to assess, plan, regulate, and monitor implementation; to support financially and control capacity building of other actors	Attempt to address constraints by mobilizing technical, financial, and organizational capacity of other actors
Processes (rRules and procedures, accountability mechanisms)	Top-down planning, sState's ideology, hierarchical	Consultation, iterative planning, adjustments in institutional processes, flexibility
Actors	State apparatus	State and non-state

their short-term targets from the initial 'conception' while acknowledging the political-economy and power dynamics between different actors involved in implementation can lead to resistance and false starts. Mutual learning and reinforcement between the two processes strengthens institutional capacity and enhances ambition, whereas inconsistency and divergence between the two holds back the progress.[5] Table 1 below highlights a few crucial characteristics of both the conception and calibration processes.

Methodology

We follow a case history approach to illustrate how the processes of 'conception' and 'calibration' influence institutional capacity and determine (dis)proportionality of policy response. The factual information is based on published results and corroborated by semi-structured interviews with experts experienced in climate policy formulation, implementation and evaluation in India and South Africa (see the Appendix). To categorize a state decision (or intervention) as conception or calibration, we subject the decisions to scrutiny of purpose. If a policy decision is aimed at setting a long-term vision or process in motion, establishing goals and institutionalizing roles, we consider it to be a 'conception' decision. If the purpose of the decision is to encourage, facilitate, and involve different actors and organizations to participate in the process of designing and implementing policy instruments, we consider it to be a 'calibration' decision. In discussing the two countries, instead of a comparative analysis, we focus on diverse outcomes to highlight factors influencing implementation. In that, our approach has been exploratory. Given the emphasis on the energy sector in the NDCs of India and South Africa, we particularly focus on examining their experiences and strategies concerning the promotion of renewable energy (RE) and energy efficiency (EE).

South Africa: Divergent interests and dispersed capacity

The political–economic context of South African experience has two facets. The first facet is the 'unique social, political and economic legacy of apartheid' (Baker et al., 2014: 792). The anti-apartheid movement saw the emergence of a strong labour movement representing the interests of

the marginalized, making the post-apartheid conception process extremely participatory, resulting in a policymaking apparatus sensitized to compensate for apartheid's exclusionary approach. The second facet is the high dependency on coal for meeting energy demand for powering the economy. Partly, this too is a legacy of the apartheid era which entrenched the country's energy system in domestically available coal, creating a powerful minerals-energy complex (Fine and Rustomjee, 1996) – a form of capital accumulation based on powerful vested interests in mineral extraction and processing industries.

The parastatal enterprise Eskom has a complete – although increasingly questioned – monopoly over electricity production, transmission and distribution, and historically operated with the autonomy of a private company. The complex is very influential in the calibration process, shaping strategies for implementation. For South Africa to become a low-carbon economy, it needs to shift away from vested interests within the fossil fuel lobby without exacerbating its triple socio-economic challenges of poverty, unemployment and inequality. This, arguably, has been difficult to achieve due to different interest groups playing influential roles in the conception and calibration processes. As a result, despite being proactive in developing national strategies for climate change, South Africa is currently the second least prepared country for facilitating an effective energy transition (World Economic Forum (WEF), 2019).

Conception (1994–2006–2011)

Climate policy conception in South Africa took shape in two phases. Early conception phase (1994–2006) was marked by its international image-rebuilding efforts. Post-apartheid, South Africa actively hosted major international conferences as a means to emphasize its commitment to global norms. 'The environment' was seen as a key field to recover moral ground (Death, 2011) and also attract international finance. Accordingly, besides ratifying Kyoto Protocol in 2002 and registering the first African Clean Development Mechanism project in 2005, South Africa proposed useful ideas in climate negotiations such as sustainable development policies and measures (Republic of South Africa, 2006), that served as a precursor for various development-compatible mitigation approaches for developing countries, establishing South Africa as a thought leader.

South Africa also developed many national-level conception documents, e.g. the 1995 White Paper on Energy, 2003 White Paper on Renewable Energy, 2005 Energy Efficiency Strategy, and the 2004 National Climate Change Response Strategy. The latter – the country's first climate policy – came out when climate change was not a domestic policy priority. Yet, having it in place served the goal of positioning South Africa as a responsible member of the international community (Death, 2011). Four vision documents within a decade suggest that South Africa focused significantly on goal setting in the early conception phase.

The later conception phase, (2006–2011), despite a stated focus on developing a domestic institutional framework for enabling climate policy implementation and RE promotion, continued with the visioning exercise. The energy modelling exercise – the 2006 Long Term Mitigation Scenario – informed the policy process, defined the contours of South Africa's mitigation actions and provided the basis for the country's international commitments through its Copenhagen pledges and the 2015 INDC, as well as its national climate policy and recommendation of a carbon tax. The stakeholder engagement process during this exercise was internationally acknowledged. During this phase, the South African regulatory landscape, too, underwent several conception exercises for developing and implementing climate policy interventions, such as the 2011 National Climate Change Response White Paper (henceforth, White Paper), the 2012 National Development Plan (NDP) and the 2010 Integrated Resource Plan (IRP).

These vision documents were developed in parallel – independently of each other – by different government departments, each driven by different dimensions of the South African

political economy. The White Paper represents South Africa's international outlook and willingness to contribute towards greenhouse gas (GHG) emissions reductions; the NDP, influenced by country's social challenges and the labour unions, provides a long-term view of eliminating poverty and reducing inequality; and the IRP bore the imprint of the minerals-energy complex. While the NDP provides the long-term strategy, the White Paper conceptualizes elaborate institutional arrangements for implementation, operationalizing cooperative governance and facilitating stakeholder consultation to address climate change. However, the multiplicity of policy initiatives and the inability to realize policy alignment made visible the glaring inconsistencies within and between these documents (Upadhyaya, 2016).

Multiple parallel conception efforts, independent of each other, indicate that 'it's [not] a purely capacity problem . . . in a narrow sense' (Interviewee-2) but a complex institutional capacity challenge for South Africa. The lack of a 'sense of crisis . . . [and] institutional agility' has led to a 'piecemeal and fragmented response' (Interviewee-3). The lack of institutional coherence (Rennkamp, 2019) due to the absence of a common vision (Interviewee-1) shows that, at the conception level, South Africa has not been able to envision a coherent and unifying long-term vision that can accommodate all interest groups while addressing climate change and reducing coal dependence. There are pockets of excellence in the bureaucracy, but, due to lack of political leadership, the 'political has become institutional' (Interviewee-2). The resulting lack of institutional agility 'suits the incumbent interests very well' (Interviewee-3).

Calibration (2011 onwards)

Arguably, the best calibration opportunities for South Africa to create a decarbonized political economy are present in the IRP – the national energy plan of the country. To promote RE, the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP), a competitive bidding system, was launched in August 2011. Besides envisioning a greater involvement of private entities through an innovative bidding system managed by the newly established Independent Power Producers Office – a dedicated government agency jointly set up by the Department of Energy and the National Treasury (Bischof-Niemz and Creamer, 2019) – South Africa actively sought international finance.

These efforts were initially successful in tapping into falling costs of wind and solar technologies and raised the profile of South Africa as a credible investment destination for RE. However, delays in the scheduled 2-yearly revision of the IRP, legal challenges posed to the REIPPPP by vested labour interests, and Eskom's refusal to sign new power purchase agreements in 2016 – questioning the affordability of REIPPPP – created an impasse and hampered South Africa's capacity to capitalize on the global trends of falling RE installation costs. The continued predilections of the Zuma era for coal and nuclear further hampered the rollout of REIPPPP. The process of policymaking became 'based on political decisions, rather than policy decisions' (Interviewee-2) which resulted in heavy politicization of the Energy Department. Consequently, instead of 2012–2013, the IRP could only be revised in 2019 under the new leadership. During the interim period, energy planning was shrouded by political interventions that rendered ineffective the capacity gains made by the institutional architecture of the REIPPPP. Besides, weak interdepartmental coordination persisted (Interviewee-2 and Interviewee-4).

The 2019 IRP makes provisions for RE and coal-phase-out by 2030. However, it continues to have inbuilt limits on RE in spite of acknowledging no annual build limit on RE as the least-cost option by 2030 (Department of Energy (DoE), 2019). While provisions for photovoltaic solar are irregular, compromising South Africa's position as a long-term investment destination, the coal lobby has ensured 1,500 MW of new additional capacity for coal in the next decade – this despite the dwindling appetite amongst investors for funding coal. Interestingly, Eskom's arguments about

the costliness of RE, availability of low-cost coal and impending job losses due to coal phase-out are complemented by the ideological protest by some labour unions that see RE as a new opportunity for further capitalist accumulation.

The strong position taken against RE by some labour unions resulted in visible friction between labour and some environmental organizations. The labour interests also legally challenged the idea of a transition to RE, based on concerns over job losses and implications of inequality. The calibration process has not confronted conflict between these vested interests head-on (Interviewee-3). There is also a 'lack of understanding of the issues . . . because of this lack of awareness, it also exacerbates the problem of capacity' (Interviewee-1) to resolve this conflict of interests. However, the favourable conclusion of a long-drawn consultative process (2011–2019) on the introduction of carbon tax – notwithstanding its quantum – indicates headway in managing conflicting interests, and perhaps also a nudge in the political economy.

The conflict of interests is, however, not limited to different interest groups, but also pervades various government organizations. For example, the ambitious South African Renewable Initiative, launched at the Durban Climate Conference in 2011 could not be implemented due to a failure to resolve inter-departmental conflict between the Department of Energy and the National Treasury (Upadhyaya, 2016). Similarly, while the Department of Environmental Affairs had coordinating responsibility for implementing the White Paper, other departments were more powerful (Interviewee-4) and didn't cooperate (Interviewee-2), and it was challenging to bring in senior managers, who were in a position to take decisions to participate in the Inter-Ministerial Committee meetings (Interviewee-1). As a result, South Africa could not secure international finance for implementing the goals of the White Paper (Upadhyaya et al., 2018).

EE has received less attention than RE. The Department of Energy cites limited availability of data for not accounting for EE within the revised IRP scenarios (DoE, 2019). This is surprising, as the existing tariff incentives have already spurred EE measures. Many of the new buildings have strong EE measures because they also benefitted from the National Treasury administered tax rebate programme. This programme triggered behavioural shifts amongst consumers – industries and big commercial property developers and owners, including households – to offset the higher tariffs, and augmented the market for energy-efficient appliances. Large property developers also started showing interest in signing the green building standards and measures. The revised IRP has failed to build on and accommodate these emerging interests and responses, indicating poor calibration. It is especially surprising to see insufficient incentives for the power companies to be energy efficient, which is usually more acceptable in a scenario of domestic availability of cheap coal. The increasing pressure to transition to a cleaner and more flexible energy system, along with growing uncertainty about the fate of Eskom and the return of loadshedding, paradoxically offers a favourable environment for correcting this missed opportunity of calibration.

Zooming out, it is evident that the institutional apparatus of South African climate policy is fragmented, with leading government departments taking charge in separate processes, without support from other departments (Rennkamp, 2019). The core that should hold the piecemeal and fragmented responses together is at best formative or worst missing. 'There are too many disconnects between . . . climate progressive thinking . . . and what happens . . . in our unions, in our industrial economy. There isn't a strong institutional oversight of the economy at the moment' (I-3). In terms of updating NDCs, the institutional nimbleness needed to monitor, re-calibrate and change (I-3) the course of action is missing.

Recognizing the poor calibration, South Africa is yet again re-conceptualizing energy transition as part of a broader narrative of 'just transition' for addressing social inequality. The contours of 'just transition' are currently being debated, including in the National Planning Commission-led public dialogue, to develop consensus on what the 'just transition' towards a low-carbon society

entails. Labour supports just transition to a clean energy system but remains sceptical about the ability of these measures to deliver social justice. Legal interventions have further complicated the efforts to build a strong coalition for supporting RE and could lead to policy disproportionateness.

To sum up, lack of political leadership (I-1 and I-2), resistance from both right (coal, vested interest) and left (labour), in favour of maintaining a coal-dominant energy system and coordinating function resting in a politically weak Environment Department (I-4) have complicated efforts to calibrate multiple objectives and take a strong, decisive approach for implementing climate policy and energy transition. This has created an institutional challenge to show how the decarbonization process can be used to reduce poverty and promote social inclusion – that is, realizing the just transition. The state has developed capacity for conception but the capacity for calibration is still lacking and urgently needs to be strengthened. This has resulted in the recurrence of policy disproportionality due to both multiple parallel conceptions as well as poor calibration.

India: Capacity building and the pursuit of liberalization

India's climate policy is rooted in two levels of political-economy imperatives: first, the concerns of energy security and industrialization (Mathur and Shrivastava, 2015), and second, the transition from a command and control regime to a liberalized economy with an increasing emphasis on the role of non-state actors (I-5, I-6). There is considerable consensus among the government, industry and experts that enhanced EE and increased RE utilization together constitute the way forward to energy security and sustainable industrialization, particularly in the context of a vast underserved population and dependence on imported fossil fuels (I-7). The consensus extends to recognizing the role of the government in addressing the threefold challenges of the energy transition: cost of technological options, technological capability, and maturity of markets (I-5, I-6). Over the years, India's efforts at capacity building have evolved to be institutionalized, along with increasing recognition of the role of non-state actors in the transition to a liberalized economy (I-5).

Conception (1982–2000–2008)

The dominant narrative of India's policy response to environmental challenges took shape in the aftermath of the oil crisis of 1973. Its concrete outline emerged between the 1980s and 2000, the early liberalization phase, following the establishment of the Department of Non-Conventional Energy Sources in 1982. The vision of the federal government dominated this phase, emphasizing building technological capability for EE through modernization and retrofitting of industries, and international collaborations and demonstration projects in the case of RE. Various regulatory controls and cost-reducing incentives encouraged the public as well as private sector companies to pursue this vision. For example, incentives such as tax holidays, accelerated depreciation schemes, and customs and excise duty reliefs were introduced to promote RE (Chaudhary et al., 2015).

The government conceived capacity building as creating a politically regulated coordination of agency and capacity of different actors, both domestic and international. Mostly public sector manufacturers, along with relevant government departments, collaborated with bilateral agencies. Financial support from the World Bank and the Asian Development Bank for technology transfer was also channelled through creating a public agency, the Indian Renewable Energy Development Agency (Chaudhary et al., 2015). Interestingly, while the process of liberalization began in the early 1990s, this phase remained broadly cautious and state-centric. The private sector, largely, remained hesitant and exploratory on the margins, primarily due to higher costs of technology, the non-existent market, risk-averse behaviour, and lack of capacity (I-5). For example, standards for

energy-efficient refrigerators and air conditioners, in the late 1990s, did not gather enough traction due to lack of technological capacity (Balachandra et al., 2010).

This phase saw only moderate demonstrable success, partly due to misdirected incentives. For example, the initial incentives supported windmill installation, instead of production of actual power, leading to disproportionality between installed capacity and actual production (I-5). However, lessons from this phase enhanced the capacity of the Indian state, such as the technical capacity to identify problems, explore options, manipulate markets, encourage relevant actors, learn from abroad, and, most importantly, design appropriate regulations to enable technological change. The Indian state developed a conception of 'calibration'.

The second phase of conception (2000–2008) is arguably the most crucial phase of capacity enhancement for climate policy in India. The 2001 Energy Conservation Act and the 2003 Electricity Act institutionalized the necessary coercive politico–legal power to enforce the EE and RE vision. Both these acts filled in a lacuna in the regulatory and administrative apparatus to promote low carbon development in the power sector. For example, the Energy Conservation Act provided the legal framework and institutional authority to the Bureau of Energy Efficiency (henceforth Bureau), a statutory body, enabling concrete action on EE.

Building on these institutional and organizational measures, the government eventually made its technical vision for climate policy known to other actors through the 2006 Integrated Energy Policy and the 2008 National Action Plan on Climate Change (NAPCC). The strong synergies between the two were reflected in the mission approach to EE as well as the promotion of solar energy, targeting 20GW installed solar capacity by 2022. The Prime Minister's Council on Climate Change was also set up to advise and monitor the implementation of the NAPCC. It was comprised of senior bureaucrats, industrialists, experts and civil society representatives, indicating, rather symbolically, a participatory vision for climate policy implementation in India (I-6). It also represented the continued legacy of top-down central planning, even during the transition to liberalization.

Creation of this politico–legal skeleton of institutional capacity was led by influential bureaucrat-experts (I-6) in the Ministry of Environment and the Ministry of Power with oversight from the Prime Minister's office. The institutional authorities and technical experts responsible for developing India's technical vision for climate policy were an integral part of India's climate negotiation team (I-6). Collectively representing India in climate negotiations enabled them to situate India's climate policy vision in its national as well as international political–economic context. While the NAPCC reasserted energy security and industrialization as a long-term vision, its short-term goals were articulated as per the assessment of the state's fiscal capacity to support them. During this phase, collaboration with Germany in setting up the institutional apparatus for the Clean Development Mechanism, within the Ministry of Environment, helped India build its capabilities to create and implement mechanisms involving diverse expertise and actors (I-5).

During the latter part of the conception phase, while the dominance of state continued in the creation of new institutions, various non-state actors, particularly industry and environmental NGOs, began to articulate their concerns and expectations from policy. As a result, although the state maintained political hierarchies, the private sector now had a greater role. The political–economic imperatives of the liberalized economy began to converse with state-centric political economy. The political–economic consensus on energy security, industrialization and liberalization, consistently recognized the centrality of coal, thus alleviating concerns about any serious conflict between RE and fossil fuel industries, and relevant government departments.

Calibration (2008 onwards)

Initially, implementation of climate policies was conceived of as a coordinated effort by various national institutional actors within the conventional compartments of different ministries and departments (Rajsekhar et al., 1999), mostly calibrated by the top-down political control. Post-2008, the nodal political agencies actively sought to tap into the technical and financial capabilities of the private sector and administrative reach of the sub-national governments.

The government not only brought non-state and sub-national actors into the implementation fold by simultaneously pursuing and coercing them through various mechanisms, but also adjusted, expanded and created new regulations and policy provisions to assist them. For example, the Bureau undertook extensive consultations with the private sector in designing the Perform, Achieve and Trade (PAT) mechanism. Accommodating the challenges and limitations of target actors, the Bureau made important adjustments such as revising the original list of regulated companies, changing initial flat energy saving targets to slabbed targets, creating a partial risk guarantee instrument, amongst others. Here, the state persuaded the private actors to voluntarily align with the technical vision and calibrated its institutional apparatus by accommodating concerns of the private sector.

The main driving concern for such calibration by the state was to ensure ownership and agency of the private sector in promoting technological change (I-5) and establish a regulatory and facilitative role, as part of its commitment to economic liberalization. The creation of the Energy Efficiency Services Limited (EESL) is another such example. By convening various actors, setting a realistic and achievable target through consultation, and mobilizing resources across jurisdictions through innovative demand aggregation schemes, the EESL has facilitated a transition to efficient lighting, saving some 45 billion kilowatt-hours of power (Ministry of Power (MoP), 2019).

For promoting RE, the government recognized the flaws in the policy that incentivized installation rather than generation. Such misplaced support did not encourage innovation and generation, leading to slow progress (I-5). Post-2003, however, the sector grew rapidly, with the Electricity Act clearly defining responsibilities of national and sub-national agencies, along with linking incentives with performance, such as preferential tariffs for wind power (Chaudhary et al., 2015). While this demonstration of policy flexibility strengthened accountability, it also enabled agency and participation of other actors. (I-5, I-6).

Post-2008, to ensure stable and predictable demand for RE commensurate with the targets of the Solar Mission, the federal government introduced renewable purchase obligations for sub-national distribution companies. However, due to poor enforcement, combined with the weak financial health (hence agency) of the distribution companies, compliance remains poor. Given the multi-level decision-making process within the federal Indian polity, the uptake of these voluntary standards is the sub-national governments' prerogative. This dispersion of power, coupled with a lack of capacity, also impedes implementation. When the federal government reached out to persuade the sub-national governments to take up EE or RE projects as part of NDC implementation, the officials found that the combination of federal structure of government, lack of information, and limited technical and financial capabilities led to 'reluctant, in-principle agreement' with no concrete commitment of action from the sub-national governments (I-7).

Moreover, due to fragmented data availability, a central repository for electricity statistics is lacking and this poses a serious challenge for enabling optimal implementation, since sub-national entities are not equipped to handle and process this information (I-5, I-6). In fact, success of sub-national governments in aligning with the national conception is determined by their ability to calibrate with the local non-state actors (Benecke, 2011). The federal policy to help distribution companies improve their financial status in 2016 (an example of calibration) remains constrained

due to companies' lack of technical capabilities (I-6). Similar learning was derived from the implementation of the 2007 Energy Conservation Building Code (Khosla et al., 2017).

The Indian state has demonstrated significant flexibilities in calibration. After realizing limitations of initial incentives to promote RE installation, generation-based incentives were introduced. Further, medium- to large-scale tendering was promoted which eventually brought down RE prices, where parastatal institutions such as the EESL and Solar Energy Corporation of India played an important role (I-5). The Ministry of New and Renewable Energy introduced flexibilities for cost-effectiveness, for example, the tradable Renewable Energy Certificates, in meeting renewable purchase obligations, along with a new regulatory and administrative set-up to facilitate this trading.

Further, the PAT scheme allows its participants to account their RE consumption as tradable Energy Saving Certificates – an interesting example of calibration across ministries and missions with different mandates, as the Bureau included the promotion of RE in its EE strategy. Post-2000, civil society and the popular media also promoted RE as a potential tool for mitigation (Sathaye et al., 2006), which eventually became a popular narrative amongst the policymakers. At this time, sub-national energy policies also first began to mention carbon emission reduction as one of the objectives for promoting RE. This spread of information and awareness in the 2000s led to a small, but significant, growth of concern about climate change.

In 2015, the target for solar power installation was upscaled to 100GW by 2022, but with little consultation. In 2017, a process was initiated to include medium-scale enterprises and more sectors in the PAT scheme. While many argue that the 100GW target is over-ambitious, it may also be seen as adjusting the disproportionality of the 20GW target in light of changing political economy in favour of RE. Similarly, the apparently difficult private sector participation in the PAT scheme at the initial stage seems possible and desirable now. Here, disproportionality of policy response is not only interpreted in terms of required response but also in terms of capability, feasibility and willingness to participate.

Thus far, effective calibration through building regulatory capacity, raising ambitions and accountability through autonomous institutions, and employing multi-stakeholder approaches have been the cornerstone of building India's institutional capacity. However, to realize the goals under the Paris Agreement and to further strengthen the NDCs a lot more needs to be done. As noted during the interviews, a holistic approach to policymaking is lacking and policy decisions, often oriented towards problem-solving, are myopic and lack a transformational nudge (I-5). Agency to wield power and authority are crucial for effective policy conception and calibration. For example, the lack of cross-ministry convening powers amongst key nodal agencies has been noted to be a crucial challenge in furthering policies (I-6).

Moreover, in certain cases, despite creating autonomous institutions, the nature of Indian polity, where the decision-making process is dispersed across levels, could lead to friction and thereby inaction. At times, such institutions lacked adequate institutional support at the sub-national level to promote effective implementation (I-7); for example, municipalities do not have any financial incentives or capacities to promote EE in the building sector (I-5). Strong collaborations among different actor-types need to be established to develop newer technologies to overcome barriers (Sagar et al., 2009; Schmid, 2012) and open new avenues to ratchet up climate action. Existing politico–legal hurdles, such as the local government units lacking mandate to create policies pertaining to specific aspects, reduce the implementation capacity and scope of ratcheting-up action (I-5). Overall, further calibration to improve cross-ministerial coordination, capacity harmonization across different levels of governance, synchronization between national goals and private sector planning, and streamlining data inventories will be a major challenge in further ratcheting up NDCs (I-5, I-6).

Conclusion

Countries must develop their capacity to raise and realize their ambitions proportionally to the global goal of limiting temperature rise below 2°C. In this paper, we illustrate how capacity and (dis)proportionality of policy responses are determined, and how disproportionality can be addressed through capacity building. We argue that long-lasting capacity is necessarily embedded in the institutions that govern cooperation between various actors. This institutionalization takes place over a period of time through the two interactive processes of conception and calibration, where the state plays a definitive role. While the state consults various actors in both processes, the difference lies in how it exercises its discretion. In conception, it uses its discretionary power to set long-term vision and a broad implementation strategy, whereas during calibration the state needs to be flexible and accommodating, incorporating other actors' concerns and capacity for refining implementation strategy. Convergence between the two processes results in institutionalization of engagement between the state and non-state actors, enabling better capacity coordination, thus leading to effective implementation and enhanced capacity. The experiences of India and South Africa, seen through this framework, highlight three important policy insights.

First, theoretically, the institutionalization of capacity building is directly entrenched in the political economy. Conception is driven by the dominant political–economic imperatives at the national level, whereas calibration navigates through the context-specific conflicting interests of implementing actors. For effective calibration, it is pertinent that all the actors concur with the outcome of conception. While the consensus on liberalization and complementarity between coal and renewable energy for energy security in India mediates between divergent interests, the perceived competition between renewable energy and coal in South Africa hinders meaningful calibration. With the recent exception of carbon tax, the South African state has been unable to accommodate concerns of the labour unions and Eskom in its conception of decarbonization. This is in contrast with the Indian efforts to remove barriers faced by the RE industry through institutional measures. Thus, the state, when using its discretionary power during conception, must be cognizant of broader acceptability amongst actors, and be flexible and accommodating of political–economic constraints during calibration. The institutionalization of the terms of cooperation between various implementing actors that emerges from calibration essentially tweaks political–economic imperatives, thus leading to long-lasting capacity enhancement.

Second, while the processes of conception and calibration might individually undergo revisions, they do not automatically translate into proportionate responses. Rather, we find that proportionality can only be understood, and achieved, through the convergence of both these processes. Convergence is achieved when the barriers to calibration inform the conception process, and the direction of conception guides institutionalization and flexibility during calibration. Most importantly, capacity to calibrate ensures proportionality of policy response, whereas the lack thereof can make even a proportionately conceived policy goal disproportionate during implementation. It is essential that the conception process give due attention to capacity building for calibration.

The third insight follows from the second. To ensure effective implementation and enhanced ambition of NDCs, international capacity-building efforts must focus on enhancing developing countries' capacity to calibrate. It is only through measured calibration that countries can coordinate the dispersed capacities of different actors and also address the barriers they face. This will eventually prepare the ground for credible 'progressive revision of NDCs'.

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Notes

1. While both countries are highly coal-dependent, India is the only large economy to have proposed a 2°C compliant NDC, whereas South Africa is the only country to refer to just transition in its NDC.
2. South Korea's NDC has been argued to show disproportionality in the form of under-reaction and over-ambition simultaneously (Kalinowski, 2020).
3. We use institutional capacity and state capacity interchangeably in this piece, although the former is broader than the latter.
4. Gradual, planned shifts to liberalization in many economies illustrate this phenomenon.
5. In many industrialized countries, differences in the composition of influential interest groups involved in the conceptualization and calibration processes has caused policy oscillation. For example, the emitter lobby's participation in calibration has weakened Australia's ambition, compared with environmental NGOs' influence during the conception process. However, these reversals in ambition coincide with the change in political leadership, suggesting the importance of the state exercising its discretionary power.

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Appendix. Interviewee profiles.

S. No	Professional details	Country
I-1	Government official, Department of Environmental Affairs; mitigation policy coordinator	South Africa
I-2	Private sector, investment group with prior engagement with country's mitigation process and NDC development	South Africa
I-3	Academia, economist, co-author, IPCC's special report on global warming of 1.5C	South Africa
I-4	Academia, professor with more than 15 years of experience working on mitigation and climate policy	South Africa
I-5	Expert with more than 3 decades of experience in think-tanks, private sector, and government (in leading positions)	India
I-6	Expert with more than 4 decades of experience in international financial institutions, private sector, government (in various leading positions), and in academia.	India
I-7	Senior government official, Ministry of Environment, Forest and Climate Change; coordinated with sub-national governments	India