

## **CHAPTER 11**

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### **Conclusion**

#### **Pathways to Policies and Praxis of Climate Justice in India**

Prakash Kashwan and Eric Chu

##### **Introduction**

Anil Agarwal and Sunita Narain published a remarkable report in 1991 in which they differentiated between ‘survival emissions’ and ‘luxury emissions’. It would not be an exaggeration to say that no other report has had a comparable impact on global debates and scholarship on climate justice. This distinction between survival and luxury emissions has been central to some of the most important pieces of scholarship and advocacy on climate justice (Shue 1993). Based on this report, common but differentiated responsibilities (CBDR) became the defining feature of the Indian government’s position in international climate negotiations (Jasanoff 1993). Despite having such a massive influence on international climate negotiations, the distinction between survival and luxury emissions is rarely referenced in domestic climate policy debates. Even as climate disasters, including cyclones, floods, and heatwaves, become more intense, there is limited public debate on climate action and policy in India (J. Das 2020). On the other hand, while there is robust scholarship on India’s climate policy and action in the international arena, engagement with questions of domestic climate justice within Indian academia is quite sparse (Fisher 2015; Chu and Michael 2019). The potential for domestic injustices was apparent even in 1991 and was duly acknowledged in the same Centre

for Science and Environment (CSE) report that made CBDR foundational to India's position in international negotiations:

Can we really equate the carbon dioxide contributions of gas guzzling automobiles in Europe and North America *or, for that matter, anywhere in the Third World* with the methane emissions of draught cattle and rice fields of subsistence farmers in West Bengal or Thailand? Do these people not have a right to live? But no effort has been made in WRI's report to separate out the 'survival emissions' of the poor, from the 'luxury emissions' of the rich. (Agarwal and Narain 1991, 3, italics added for emphasis)

For a variety of reasons that require deeper inquiry, questions of domestic climate justice fell through the intertwined cracks of international climate change politics and sectoral silos that are endemic to both academic research and grassroots social movement organization (Gupta 2014). Many argued, quite appropriately, that the policy priority should be addressing issues of employment, food security, education, and primary healthcare for the poorest people in India and other countries in the Global South. However, it is not helpful to maintain this development-climate action dichotomy. It is quite well known that the climate crisis has only made poor people's lives even more precarious, further exacerbating deeply entrenched development inequities. Yet, as an Indian climate activist wrote sometime back, 'among many left friends, mention of global warming gets a blank look' (Adve 2007, 1002–1003). The parliamentary left in India continues to be too weak to make a difference, but the same cannot be said about other national political parties or India's celebrated civil society and social movements. It is evident that these social and political actors could do more to create broad-based coalitions to support more progressive domestic climate action and climate justice (Bidwai 2012). For the most part, social science scholarship could do more to challenge the undercurrents of 'climate nationalism' that run through debates on India's stance in international climate negotiations.

Each of the mechanisms outlined above – rooted in the specificities of politics, political economy, and scholarly analyses of India's climate position – have reinforced the continued neglect of climate justice within India's borders. As India focuses on smart technologies and modernist industrial growth, the agenda of responding to climate change related risks to local jobs, schools, health services, food, and shelter has fallen by the wayside. The primary motivation for this volume was to address this justice 'gap' between the worlds of climate policy research, scholarship, and activism. However, instead of presenting an all-encompassing abstract discourse, each of the chapters in the volume seeks to unpack climate justice debates in specific policy and programmatic areas – national and state climate action plans, emission inequalities,

the transition away from fossil fuels, the anticipated transition to renewable energy, urban governance, access to drinking water, women's access to farmland and agroecology, caste injustices, and India's environmental and climate movements.

Each chapter demonstrates how broader processes as well as power, socioeconomic inequalities, and neoliberalism are entangled in the ongoing public debates, policy processes, and programme development relevant to climate action in India. Most writings on climate 'justice' mainly provide an understanding of the drivers, manifestations, and effects of injustices. However, the contributors in this edited volume go the extra mile to offer analyses that inform the pursuit of climate justice – they engage with policies, programmes, and mobilizations that contain in them the seedlings, or in some cases saplings, of climate justice. Since these analyses are based on in-depth engagements with sociopolitical contexts and institutional structures, they do not devolve into simplistic, one-size-fits-all, technocratic solutions. As the next section explains, each contribution in the preceding pages engages with a specific question, issue, or policy area, analysing the most important barriers to as well as the constituents of a just approach to climate action.

### **Key insights from the contributions in this volume**

Much of climate policy literature on India presumes that reducing greenhouse gas emissions necessarily entails trading off the country's development interests. Haimanti Bhattacharya's innovative research on the potential links between state-level emissions and economic inequalities offers a major corrective against this assumption. She shows that this relationship was negative before the onset of economic reforms – that is, lower levels of economic inequality at the state level were associated with higher levels of carbon emissions before 1991. However, in the post-economic reform era, this relationship has turned positive – states with higher levels of economic inequality also have higher levels of carbon emissions. This suggests that in the post-economic reforms era, a few states have witnessed an increasing concentration of both wealth and emissions. This finding has two somewhat contradictory implications for climate justice. On the one hand, it means that India's emissions are now more highly concentrated among those who benefit from the status quo than they were before the onset of economic reforms. On the other hand, it also means that significant emission reduction is possible by regulating the activities of the richest 10 per cent of India's population. If the cost of these regulations is borne by this population, aggressive climate action will not produce regressive social outcomes, especially if sectors with multiplier effects, such as food production and freight transport, are protected against inflationary impacts.

Vasudha Chhotray's analysis of the state-led coal sector demonstrates that 'extractive regimes' – which are amalgams of political, institutional, and discursive apparatuses – circumscribe the possibilities of justice. Chhotray argues that similar regimes will shape renewable energy developments unless they include bottom-up political engagements with grassroots actors and networks. Chhotray's arguments find further support in Karnamadakala Rahul Sharma and Parth Bhatia's analysis of India's state-controlled power sector, which they characterize as 'gigantic' in scale. They argue that the continued concentration of power among political and economic elites in the transition to renewable energy systems can be disrupted if public policies link energy system choices to social justice goals and the redistribution of political power within Indian society. They caution against pinning one's hopes for transformative change on technological choices, underlining the importance of calibrating energy infrastructures and institutions to serve broader social goals. The agenda of energy transition is closely intertwined with urban climate action, which is equally daunting. Eric Chu and Kavya Michael offer a sobering assessment of climate adaptation action in the urban context, which has been the subject of noted interventions by international donors and multilateral agencies. Yet they show that most donor-supported urban climate programmes conceptualize climate adaptation as a set of top-down technical interventions implemented via public-private mechanisms. Even when such urban climate programmes state that their goal is to address climate vulnerabilities experienced by the most marginalized, the emphasis is on procedural inclusion rather than on addressing the structural factors that shape these unequal exposures.

Arpitha Kodiveri and Rishiraj Sen's examination of India's national and state climate action plans shows that neither the central nor the state governments are alert to the multiple ways in which socioeconomic inequalities relate to India's nascent climate agenda. Their analysis of how national and state climate plans represent concerns of poverty, inequality, gender, and caste-based injustices shows that while several plans recognize gender injustices, few mention caste-related injustices and even fewer mention Dalits. The concerns of poor and marginalized groups are mostly addressed in these plans via the notion of 'co-benefits', which is the assumption that effective climate action will produce ancillary benefits in the form of pollution reduction and easy access to clean energy. However, such assumptions are untenable considering the deeply entrenched caste, class, and gender inequalities that mediate the implementation of all policies and programmes.

Vaishnavi Behl and Prakash Kashwan's contribution offers a snapshot of why both caste and gender inequalities need to be factored into the pursuit of climate justice. They use an intersectional approach to show that the mutually reinforcing

effects of gender, caste, and class inequalities determine access to drinking water and opportunities for the further development of drinking water resources in Uttarakhand and Gujarat. Their analysis identifies the specific steps that donor agencies, non-governmental organizations (NGOs), and government agencies can take to address the vulnerabilities faced by Dalits (especially Dalit women) in the midst of climate crisis. Similarly, Ashlesha Khadse and Kavita Srinivasan develop an intersectional approach to study women farmers' collectives in the states of Tamil Nadu and Kerala. They emphasize the importance of an intersectional understanding of how caste, class, age, education, and marital status affect participation in women's land collectives. Further, they offer a comparative analysis of the key differences between the policies and programmes related to women's collective land rights and promotion of agroecological farming pursued by the two state governments. Overall, they find that socioeconomic inequalities and state government policies jointly affect the success of programmes dedicated to climate resilience and agrarian justice.

The omission of caste inequalities is one of the several challenges to India's climate justice movement. Srilata Sircar tackles caste inequalities and injustice head-on by showing that caste hierarchies shape climate vulnerabilities via their effects on land, labour, and spatial relations. She uses examples from the agrarian, urban, and industrial sectors, as well as from India's nascent climate justice activism, which has been largely indifferent toward questions of caste. Building on this extensive engagement, Sircar points to future pathways for reimagining climate justice as caste justice. Prakash Kashwan's analysis of India's three most prominent environmental movements suggests that instead of conceptualizing India's climate or climate justice movement as a monolithic phenomenon, it is important to investigate how diverse, and at times competing, frames and discourses of climate justice shape climate debates in India. For example, one must ask if frequent references to 'co-benefits' as a way to tackle social inequalities in climate plan documents and policy scholarship may have crowded out deeper engagements with questions of equity and justice. This illustrates how climate policy and programmatic choices shape the pursuit of domestic climate justice, a topic that requires deeper investigations.

### **Policy and programmatic lessons**

In this volume, we have highlighted how climate change – in the context of both mitigation and adaptation or resilience-building – calls into question the basic developmental paradigms that underlie policies and plans that India has pursued. The multi-scalar nature of both the climate challenge and potential solutions calls for a coordinated approach that places social equity and justice at the centre of

various sectoral policies and programmes. At the national level, there is a need to recalibrate the climate change agenda along its human dimensions, focusing on its implications for housing, infrastructure, ecosystems, food security, health and sanitation, water, education, and economic opportunities. Instead of investing in technology-driven top-down solutions that expose local and state governments to significant debt, key elements of climate action must be developed and implemented via public investments. In addition, these investments must be directed toward building civic capacities and ecological resilience to deal with future changes and uncertainties. In light of the high demand for climate-proof infrastructure, private and non-state financial support may be a necessity in some cases. However, investment decisions should not be based on bankability alone such that they benefit shareholders at the expense of local rural and urban communities. Public-private partnerships must also be designed to deliver long-term social benefits rather than short-term and speculative returns for corporations. Such policies should prioritize inclusive design and collective monitoring of project outcomes. They must focus on empowering historically marginalized groups, including informal workers, residents of informal settlements, women, tribal communities, religious minorities, or the so-called lower castes.

One immediate point of entry for policymakers is to tackle the operational disconnect between climate mitigation and adaptation. Mitigation is often (rightly) prioritized since the global community must first tackle its dependence on fossil fuels, transition to cleaner energy sources, and mobilize collective behaviours to reduce consumption, especially among wealthy groups. However, mitigation's bias towards green technologies and technocratic 'fixes' often lends itself to more financially speculative forms of large-scale infrastructure and investment-led partnerships between private and public sectors. This is especially true in India where governments at all scales seek modern, 'high-tech', and consumption-led forms of economic growth by working in concert with private land developers, transnational corporations, and industrial conglomerates. Emerging critiques of 'smart cities,' including Ayona Datta's (2015) work in Dholera, Gujarat; Komali Yenneti and Rosie Day's study on Charanka Solar Park, Gujarat; and Diganta Das's work on Hyderabad HITECH City, highlight how a disposition towards smart technologies and renewable energy can lead to visions of development that are disconnected from the lived experiences of local communities (Datta 2015; Yenneti and Day 2015; D. Das 2015). Instead, this vision speaks to India's desire to be a competitive player in global geopolitics as well as the prioritization of upper-middle-class definitions of environmentalism and quality of life.

Climate adaptation, on the other hand, is more directly linked to poverty alleviation, vulnerability reduction, social empowerment, and community-level access to basic services, which are often deeply enmeshed within social, cultural, political, and economic structures. As a result, climate adaptation priorities tend to be marginalized given the fewer opportunities for them to generate significant financial profits. In India, adaptation priorities continue to play 'second fiddle', especially when compared to the resources, leadership capacity, and scientific expertise dedicated to mitigation efforts. Such a disconnect between mitigation and adaptation leads to the marginalization of the interests and perspectives of frontline communities and their exclusion from decision-making processes. It also confines any potential benefits derived from climate action to those who can afford to invest in or pay into mitigation efforts, while detracting from investments that would protect frontline communities against future climate impacts.

A pivot towards thinking about mitigation–adaptation synergies, equitable resilience, and social transformations is a prerequisite for placing justice at the heart of policymaking. Despite emerging critiques of resilience thinking, there continues to be a push towards pursuing climate-resilient development pathways (CRDPs), as codified in the IPCC *Special Report on Global Warming of 1.5°C* (2018). Conceptually, CRDPs involve a joint development trajectory that both reduces greenhouse gas emissions and builds adaptive capacities to counter ongoing and future climate risks. Practically, it entails social, political, and economic decision-making processes to further sustainable development (IPCC 2018). For many, such an approach seeks to transform dominant development paradigms and actively redress historically entrenched inequalities (Chu et al. 2019; Pelling 2011). It involves actions that tackle systemic and everyday risks experienced by frontline communities (Ziervogel et al. 2017). For India, this means recognizing and contesting drivers of climate injustice within policy decisions and wider discourses in both global negotiations and regional and local governments. Potential strategies include articulating climate policies that are explicitly gender-transformative or anti-discriminatory in terms of class, caste, religious, or tribal identities and pursuing reparative forms of resource and capacity redistribution in the light of historic developmental injustices.

Centring justice in climate policy also requires questioning the primacy of neoliberal financialized growth, especially the kind of jobless economic growth that India has witnessed over the past quarter of a century. Instead of sharing prosperity, such growth exacerbates socioeconomic inequalities and environmental degradation. But this is not questioned in policy debates even though they determine the nature and direction of policymaking. For example, the Government of India's decision to make the Smart Cities Mission the main plank for urban

development reflects its faith in high-technology- and high-investment-driven urban development. However, the results of such a strategy have been rather mixed. For instance, Hyderabad's development of a high-tech smart city has produced a 'fragmented metropolitan' where super-premium enclaves with world-class facilities exist as islands alongside the larger metropolitan region, which suffers from a lack of basic civic amenities (D. Das 2015, 57). Similarly, the quest to make Delhi a world-class city is motivated by visions of aesthetic transformation (Bhan 2009). This has led to the eviction and displacement of a million slum residents who were 'declared illegal because they *looked* illegal' (Ghertner 2015, 184, emphasis in the original). Similar patterns of dispossession and exclusion have been reported from smart city developments throughout India. Most noticeably, there are concerns that the modes of neoliberal governance that the smart city approach depends on could significantly undermine the role of democratically elected urban local bodies (Praharaj, Han, and Hawken 2018). This could create challenges for the broader context of policymaking and enforcement in India.

The Indian legal and policy contexts are characterized by a schizophrenic gap. While the Indian Constitution contains progressive environmental and social safeguards, their enforcement remains shockingly poor. The pursuit of neoliberal economic reforms since the early 1990s has greatly exacerbated this implementation gap. In recent years, India's Ministry of Environment, Forests and Climate Change has considerably weakened the Environmental Impact Assessment guidelines, eased the regulatory framework for industrial projects, and sped up the process for granting environmental 'clearances' to mining projects that destabilize ecological systems, increase emissions, and violate the rights of local communities. Such a lackadaisical approach to the enforcement of social and environmental protections can be attributed to a lack of mechanisms to hold the Indian state accountable. These contextual features shape the uptake of climate policies (Kashwan 2015). Accounting for these structural and contextual features of climate policy and action present formidable epistemological challenges for policy researchers, but they have an opportunity to push against conventional approaches of policy research that focus on a narrow set of questions specific to a policy regime.

The multi-scalar nature of the climate change challenge requires expanding policy research to all sectors that stand to be affected by climate impacts and emerging global agreements that note the critical need for sustainable and transformative change. For example, the Sustainable Development Goals (2015), Sendai Framework for Disaster Risk Reduction (2015), UN-Habitat III New Urban Agenda (2016), and the Paris Agreement stocktaking process in 2023 emphasize the need for inclusive and equitable approaches to mitigate or adapt to climate change and build societal



resilience. Although these global agreements lack strong enforcement mechanisms, they do articulate broad objectives for the inclusion of women, religious minorities, informal settlers, and indigenous and traditional communities within decision-making. In addition to global agreements, numerous local, regional, and civil society efforts are underway to ensure that climate policies and strategies are equitable and inclusive. In India, NGOs and social movements, such as Slum/Shack Dwellers International, Mahila Housing SEWA Trust, and Mahila Kisan Adhikaar Manch (Forum for Women Farmers' Rights), are increasingly mobilizing for climate justice in the context of housing, women's land rights, and other economic and social rights. Researchers have also documented the emergence of local, community-based efforts that focus on informal settlements, women's groups, the rural poor, Adivasis, Dalits, and other marginalized communities at the frontline of climate impacts (Kothari and Joy 2018). But the intransigence of the state and other powerful actors vested in the status quo hamper the success of these inspiring experiments.

International human rights conventions and declarations highlight the non-negotiability of fundamental rights to life, health, and subsistence, which are threatened by climate change (Caney 2010). This includes the Universal Declaration of Human Rights, adopted by the UN General Assembly in December 1948, which recognizes civil, political, economic, social, and cultural rights. Three recent UN declarations are directly relevant to questions of climate justice in India and elsewhere. First, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), adopted in September 2007, seeks to enshrine the rights that 'constitute the minimum standards for the survival, dignity and well-being of the indigenous peoples of the world'. Second, in July 2010, the United Nations General Assembly passed a resolution to recognize the human right to water and sanitation, calling upon states and international organizations to provide financial resources and assist in capacity-building and technology transfer that some countries in the Global South need for providing safe, clean, accessible, and affordable drinking water and sanitation for all. Third, and most recently, the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP), adopted by the United Nations in 2018, offers important levers for regulating projects or activities that affect ecological systems that are central to rural livelihoods (Kashwan, Kukreti, and Ranjan 2021).

None of these declarations can guarantee that states are held accountable, but they put the onus of enforcement on states and powerful market actors, which could provide additional leverage for civil society actors. One important example is the Right to Food campaign spearheaded by India's civil society networks. The campaign drew on the constitutional protection of the right to life and used the

judiciary to seek stronger enforcement of right to food provisions (Hertel 2015). But similar mobilizations have not occurred vis-à-vis the rights of internally displaced populations. In 2019 alone, India witnessed over 5 million cases of internal displacement due to natural disasters potentially linked to climate change (*Economic Times* 2020). The UN High Commissioner for Refugees (UNHCR) has asked states and, where relevant, non-state actors to prevent, respond to, and resolve internal displacement while complementing and reinforcing national response efforts. Additionally, the UNHCR report acknowledges the political complexities and challenges presented when displacement is a result of government action or inaction (UNHCR n.d.). Climate policy researchers have an opportunity to investigate how international agreements and declarations can shape domestic policymaking and enforcement – for example, by fostering transnational solidarity networks that seek to hold governments and powerful market actors accountable (Kashwan, Kukreti, and Ranjan 2021). Another important step would be to conceptually ground policy research more strongly in developments in various social science fields, which feature some remarkable research on questions of environmental and climate justice.

### **Social scientific research agenda**

The contributors to this volume highlight the various political dynamics, socioeconomic conditions, and embodied experiences underpinning the struggle for justice in a changing climate. The rich empirical findings and conceptual arguments provide critical analyses of the conditions found in India. However, in a globalized political economy, climate inequality and injustice within the country have widespread implications for the global circulation of knowledge, ideas, resources, and networks. Social scientists in sociology, anthropology, human geography, political science, development studies, urban planning, critical cultural studies, and beyond can, therefore, play an important role in pushing for radical and transformative ideas that are required in the pursuit of climate justice. In this section, we highlight three research frontiers that have the potential to strengthen India's trajectory towards transformative climate justice. These include (a) theorizing sources and drivers of climate injustice formation, (b) connecting scalar struggles for radical social change, and (c) harnessing collective imaginaries of alternative climate futures. We briefly elaborate on these frontiers by distilling the broader theoretical implications of the major findings of this volume.

A theory of climate injustice formation would allow researchers to diagnose the mechanisms through which social exclusion and marginality are created through historical processes and entrenched in contemporary Indian society.

Some policymakers and researchers present the climate change challenge in India as zero-sum, where discursive frames focus on the need to ensure competition, private property rights, economic investment potential, and general entrepreneurial behaviours in governance. In this volume, neoliberalism and the tools and instruments used to promote and entrench it have been critiqued diligently. These important diagnoses show how emerging climate mitigation and adaptation actions are deeply influenced by industrial and financialized development goals. Many social scientists also seek to better theorize the drivers of extractive and speculative sociopolitical practices. These theories offer a deeper reading of India's political-economic history and its contentious relationship with the environment. They also critically interrogate how citizenship and community structures have been shaped by their conflictual relationships with the postcolonial state apparatus. Such ideas point to a need to better understand the fundamental social and political dynamics that underpin the fight for representation, rights, and democratic decision-making in development processes.

Luckily, researchers uncovering the multiple complex ways climate injustice is formed in India can draw inspiration from extensive literatures on rural and agrarian change, political ecologies and geographies of resource extraction, socioeconomic informality, subaltern politics, and alternative and post-development discourses. All of these have a long history of identifying how the concentration of political and economic power has led to the widening of social inequality across India (Roy 2011). Climate injustice, therefore, is a product of India's many developmental inequalities. For instance, there is a need to better consider the impact of different socio-cultural identities and the resultant political and economic disadvantages – especially among historically marginalized groups – when designing and implementing climate solutions. The authors in this volume and beyond have highlighted the need to explore drivers of inequality and processes that entrench them (Michael et al. 2020; Rao et al. 2019). Further, climate injustice should be conceptualized by accounting for multiple, overlapping, and intersectional forms of inequalities among socio-cultural identities and class differences (Cannon and Chu 2021). Such approaches highlight how particular social groups are complexly marginalized and rendered invisible within the state's responses to climate change. The differences in social and political power require institutions and policies that are designed to limit the influence that powerful actors wield within the status quo (Kashwan, MacLean, and García-López 2019).

A second frontier to theorizing climate justice in India is uncovering the knowledge systems, ideas, and practices that help connect and mobilize social struggles across scales (Mehta, Adam, and Srivastava 2022). Researchers of climate

change governance have long noted its inherently scalar nature, which makes mobilizing for collective welfare across scales particularly challenging (Revi 2008). India is an example of a country where policy action is formally decentralized – albeit with a strong influence from the central government – and where climate priorities sit at the juncture of multiple sectoral domains, ranging from public infrastructure and health to energy and agriculture (Dubash et al. 2018). Insights from India also reveal how the jurisdictional boundaries of political authorities often do not correspond to the actual spatial expanse of potential mitigation or adaptation actions; as such, decision-making authority pertaining to a cross-sectoral priority like climate change may be devolved across the national, state, and local scales, with no single actor responsible for coordination. From a climate justice perspective, this can lead to gaps in leadership, legal authority, and resource transfer pathways; it can also create opportunities for errant behaviours like political elites exploiting uncertainties and maximizing individual interests on the ground. Historically disadvantaged communities bear the brunt of such forms of exploitation. Yet much of past research does not capture the multiple ways in which social and economic inequalities shape official climate policy debates.

Experiences from India not only highlight how climate priorities can be misaligned but also that the definition of the problem itself can be distorted across national, regional, and local scales, especially given how complex diagnosing the drivers of climate injustice formation can be (Joshi 2014). Struggles for radical social change in the context of climate change must, therefore, bridge the deficits in problem-framing and opportunities to mobilize across scales. Researchers (including those contributing to this volume) have already diagnosed how the central government's push for the 'right to development' in international negotiations is misaligned with the distributive implications of potential climate actions, which can place unequal burdens on historically marginalized and disadvantaged communities (Ziervogel et al. 2017). Going forward, social science research on India's climate policies must focus on identifying the knowledge systems, ideas, and practices that connect citizens to the multi-level state apparatus, focusing on bridging leadership, communication, and capability gaps that inhibit transformational change. This includes developing concrete mechanisms for political intermediation to engage citizens, civil society organizations, and social movements in ongoing policy debates, policymaking, and policy implementation efforts (Kashwan 2017). Such democratization of the policymaking process seems to be a prerequisite for more progressive policies and programmes.

Social science expertise is also crucial for uncovering embodied, cultural, and contextually situated knowledge systems to contest dominant top-down (often engineered) climate solutions, especially ones that support 'green' or 'smart'

technological innovation, private investments, and continued growth-oriented strategies. The exploitative and unjust outcomes of top-down climate solutions are well documented; so, to resist them, future research must partner with social movements. Such partnerships are necessary to better track the benefits and losses that result from policy decisions and the method and criteria for these accounting processes. Working with social movements to connect social struggles across scales may help us pivot towards more equitable and inclusive forms of climate-resilient development. Such collaborative efforts to enhance social well-being and empowerment can help redress intergenerational and compounding forms of human vulnerability driven by previously extractive forms of economic growth.

The third frontier is in harnessing and asserting collective imaginaries of alternative climate futures. Scholars of political ecology, environmental sociology, politics, and anthropology are increasingly speaking to alternative development paradigms that move beyond zero-sum thinking in climate action (Gajjar, Singh, and Deshpande 2019). Researchers working to further climate justice in India could explore more radical forms of sustainability transitions and resilience, for example, which can move the focus from financialized growth towards balancing different social and ecological needs (Gerber and Raina 2018). Emerging climate resilience efforts in India are also looking to ecosystem or nature-based solutions, such as coastal mangroves and reforestation projects, to help with carbon sequestration as well as protect communities against extreme hazards such as pluvial flooding, storm surges, and sea-level rise. Not only do nature-based solutions offer mitigation and adaptation co-benefits, but under certain conditions they can also help to empower and regenerate local communities through vocational training and job creation. But past evidence offers reasons to exercise significant caution in the large-scale implementation of nature-based solutions. Critics of resilience thinking have noted how it is only a technical fix that is susceptible to exploitative and exclusionary tendencies (Bahadur and Tanner 2014). There are well-documented cases of displacement of local communities because of land grabs triggered by carbon forestry and government agencies exploiting these programmes to reassert their control in forested areas (Fleischman et al. 2020). Policies to further climate resilience are often captured by local elite interests, which prioritize an economic system that serves the beneficiaries of the status quo, thereby leading to yet another form of greenwashing (Chu 2020). These perverse outcomes of recent sustainability and resilience-building actions in India suggest that developmental pathways should be envisioned more radically, perhaps by directly working with and empowering local communities across rural–urban and class–caste divides, to tackle the root causes of socioeconomic vulnerability and generate alternative visions of the future.

In sum, to gain a deeper understanding of India's climate justice trajectory, social scientific research must pursue advancements in diagnosing the drivers of climate injustice, including its formation and entrenchment, and the role of researchers in informing and/or mobilizing social struggles that bridge scales and offer radically different visions of developmental futures. This will entail working with policymakers, social movements, and historically disadvantaged communities to promote collective social change, redistribute capacities and resources, and redress historic development inequalities. Developing strong research partnerships is therefore critical as we need better theorization of the multiple, overlapping forms of social vulnerability and marginalization in the context of climate change.

## Conclusion

The COVID-19 pandemic has shone a spotlight on the sheer grossness of social and economic inequalities in India and their grave consequences for the integrity of public systems at large. As a *Time Magazine* article put it, 'India's vaccine nationalism – along with Prime Minister Narendra Modi's empty showboating – not only plunged India into an unexpected vaccine shortage, but also put countries banking on vaccines from India at great risk' (Roy Chowdhury 2021, para 4). Equally important, India's prowess as the software outsourcing capital of the world, several years of digital governance campaigns, including the roll-out of digital identity cards and e-governance initiatives, have proved to be of little use in battling the pandemic. Researchers have argued that 'technology driven, centralised and surveillance oriented urban regimes' popular among proponents of smart cities have tended to worsen existing inequalities in the face of this unprecedented public health crisis (Gupte et al. 2021, 1). Instead, 'frugal innovations by firms, consumers and city governments' have proved to be far more effective (Gupte et al. 2021, 1). The lesson for India's climate diplomacy and its domestic climate justice could not be clearer.

Persistent debates about international versus domestic climate justice are unhelpful. Instead, scholars, climate activists, and policymakers must investigate and address the complex ways in which international and subnational policies, programmes, and resource mobilizations intersect to influence climate vulnerabilities and the outcomes of specific types of climate policies. In this volume, we have reflected on action pathways pertinent to different sectors of the economy and society in the pursuit of domestic climate justice.

We hope that the research and scholarship agendas we have outlined in this chapter provide helpful pointers to young researchers entering the field at this crucial juncture in Indian and global history. It is important to underline that scholars must

seek to pursue publicly engaged research programmes that advance the frontiers of knowledge production while also making significant contributions to the praxis of climate justice. This would require active collaborations with community groups and social movements, whose mobilizations are indispensable for contesting larger development narratives. The aim should be to offer alternative visions of what a climate-changed future *ought* to look like and to provide more radical imaginaries of how, through tackling climate change, we can create a more just and inclusive society for current and future generations. Such efforts, although grounded in local histories, cultures, and social formations, will speak to the larger processes that reinforce societal inequality and poverty in a changing climate. Therefore, the specific insights from learning and theorizing about India might also be fertile grounds for a cosmopolitan reimagining of climate justice theories and movements globally.

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