

Energy and Climate Change

A Just Transition for Indian Labour

Ashim Roy, Benny Kuruvilla, and Ankit Bhardwaj

The 2015 Paris Agreement gives momentum to the global response to climate change. The stated goal to keep global temperature rise to well below 2°C from pre-industrial levels by this century places onus on both developed and developing countries to embark on a low-carbon developmental pathway. The Government of India's (GoI) Intended Nationally Determined Contribution (INDC) to the Paris Agreement indicates that it too has this ambition (GoI 2015). While the country posed ambitious targets to decarbonize its economy (Mathur, Chapter 13), the submission also carried the subtitle, 'Working towards Climate Justice', and insisted that further decarbonization can be achieved with the help of transfer of technology from developed countries and low-cost international finance from sources such as the Green Climate Fund (GCF). This reflects India's long-standing diplomatic position on addressing global inequality while addressing climate change. The Paris Agreement's preamble also notes that parties to the agreement are '[t]aking into account the

imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities' (United Nations Framework Convention on Climate Change [UNFCCC] 2016: 2), placing questions of justice squarely amidst national deliberations. Climate justice then, whether in global or national terms, seems well and truly mainstream. Less acknowledged, at least explicitly, is that changes in terms of justice will also require radical transformation of our social relations (Morgan 2016).

Climate change and our response to it will bring immense changes to the economy and society. Will these changes reinforce existing unequal structures, or reform and revolutionize them? The burden of change may well fall upon the poorest and the most vulnerable. Also, workers will be central to building this new low-carbon world, but will likely not receive all its benefits (Li 2009). A just transition is then one that is created in consideration of those burdened with the transition. This is why large international federations of labour unions, such as the International Trade Union Confederation (ITUC), have actively lobbied for the inclusion of just transition clauses into the language of the Copenhagen, Cancun, and Paris agreements (Rätzzel et al. 2010; Sweeney and Treat 2018). These unions are calling to be involved in the sweeping and radical 'industrial transformation' required and demanding a just transition, 'including through investment in new green jobs, skills, income protection and other necessary measures implemented everywhere, with adequate funding for the poorest and most vulnerable of nations' (ITUC 2014: 2). These ideas were also reflected in a platform by a global initiative of trade unions called Trade Unions for Energy Democracy (TUED), which placed on the agenda resisting private control of energy and reclaiming public, democratic control (Sweeney 2012: 31). Central to these positions then is reorienting the energy system from market to social concerns by asserting democratic control.

Informed by the Indian government's diplomatic call for global climate justice and on international trade unions' positions on 'just transitions', this chapter lays out the questions, opportunities, and barriers for a just transition in India. It will first develop what 'just transition' means in India's own material and political context, focusing globally on India's 'right' to development and domestically on

worker roles in a privatizing energy sector and the impact of climate change on worker conditions. It will then outline how trade unions are putting worker and social concerns central in their proposals for a just transition in India.

Terrain for a Just Transition in India

The concept of a just transition draws lineage from scholarship on 'environmental justice' and 'climate justice' (Agyeman et al. 2016; Mohai, Pellow, and Roberts 2009; Parks and Roberts 2010; Temper et al. 2018) which, acknowledging the importance of reducing emissions, has contextualized climate change within global inequality and uneven development. Globally, workers often have borne the brunt of current arrangements of production, which are dependent on control of labour and cheapening of work, care, and energy (Malm 2016; Patel and Moore 2018). In response, global unions have been pushing for a 'just transitions' perspective in global climate frameworks and have focused on achieving democratic control over energy systems, support for vulnerable nations and groups, and the creation of new green and low-carbon economies and forms of production through an active leadership role by unions (Burke and Stephens 2017; Räthzel and Uzzell 2011, 2012; Räthzel, Uzzell, and Elliott 2010; Stevis and Felli 2015; Sweeney 2012).

Alongside global unions, national unions have begun to strategize for a just transition in their country's material and political terrain, seeking to understand how climate change is impacting workers and reorienting the economy (Räthzel and Uzzell 2011; Snell and Fairbrother 2011). In the developing world, unions have formulated positions sensitive to their country's development needs. South Africa's largest union, the National Union of Metal Workers of South Africa (NUMSA), has advanced deliberations on renewables and energy efficiency, and also been active in struggles to keep electricity affordable and in public control (Satgar 2015). This focus on development needs is relevant to India as many still do not have access to basic social services, exacerbating vulnerability to climate impacts. A just transition in India will then have to be based upon the need for development and growing climate vulnerability of workers, and also the particular material and political

arrangements of India's energy sector, the primary site of a transition to a low-carbon economy.

First, because of India's low levels of development, few in India have the economic or material basis, and necessary access to social infrastructure such as health care coverage to be adequately sheltered from climate impacts. Despite the recent announcement from the National Democratic Alliance (NDA) government on 100 per cent electrification across rural India, and the country producing surplus electricity, quality of access to households, and other critical social infrastructure such as health centres is still limited (Dholakia 2018; Jain et al. 2015). As a result, alongside imperatives to reduce emissions, India has a 'right to develop', making accessible modern energy and social infrastructure to help in the adaptation of climate change (Mathews, Barria, and Roy 2016). This need, along with India's lower historical emissions compared to other large emitters, forms the basis of India's claim to the global carbon budget (Kanitkar and Jayaraman, Chapter 6 in this volume). As a result, a just transition for India is not one solely aimed at decarbonization, but also the extension of modern energy and services to those that lack it.

Second, with or without social safety nets, India and its workers will be particularly prone to climate change. Climate change is projected to decrease productivity and increase absenteeism due to heat stress (Somanathan et al. 2017). Workers in heat-exposed environments and locked into pervasive informal agreements, such as migrant brick-kiln workers, are particularly precarious (Lundgren-Kownacki et al. 2018; Sett and Sahu 2014). Increased exposure to unhealthy work environments, along with lower productivity, will change bargaining grounds. It will also increase burdens of health costs on households and carers (Pandey et al. 2018; Tran et al. 2013) and dependence on social amenities and infrastructure.

A just transition in India will be a balancing act between quickly providing modern services to those most burdened while also transitioning towards a lower-carbon economy. While this balance is relevant across industries, it will primarily play out in how India's energy sector will change in light of climate change. The role of labour organizations will be significant. Labour struggles have historically leveraged their control over energy systems to demand changes in the larger economy. For example, in the United Kingdom (UK),

miners, dock workers, and railwaymen frequently organized to cripple the country's energy system (Mitchell 2011). More recently, energy systems have been restructured, privatized, and reorganized by those in power, in response to such labour struggles and demands (Mitchell 2011). Energy has been the 'material terrain' upon which labour struggles have played out (Malm 2016). The particularities of India's energy institutions and trends will determine the programme of India's just transition, which will involve the prudent usage of coal for development while peaking its usage sooner and transition to renewables faster. Three aspects stand out: historic public ownership that faces pressures of privatization; a history of resistance from unions and social movements, especially against mega-projects; and coal's entanglement with the livelihoods of the poorest regions of the country.

First, India's energy system, especially the coal sector and electricity distribution companies, has historically been under public state ownership. However, post liberalization of the economy, several attempts have been made for privatization of the entire supply chain: from mining to energy production to distribution. There has been consistent resistance by workers in the power sector to further liberalization. These include opposition to commercial coal mining, the proposed 2014 amendments to the national Electricity Act that allow for further division of the electricity industry, and increasing contractualization of workers and the depletion of funds to state electricity boards. The privatization of electricity distribution in states such as Odisha has failed, with the private companies unable to reduce losses, address corruption, and improve efficiency and services (Purkayastha 2016). The entire energy distribution in the state of Odisha has already reverted back to state ownership (Mohanty 2015). The 2003 Electricity Act also allowed private players in generation and has led to over 40 per cent generation of power from the private sector; however, this has a flip side. Public and private banks are now saddled with a large amount of bad loans with numerous failed projects and faulty power purchase agreements (PPAs) have burdened state electricity boards with expensive power from private players (Parliamentary Standing Committee on Energy 2018). There have also been several cases of corruption in allocating coal blocks (Nileena 2018). The uptake of renewables,

though welcome, has also been capital intensive and led by private sources of finance.

Second, India's history of energy is also one of resistance from social movements, especially of groups displaced by mega coal, nuclear, and hydro energy projects. This is mostly led by local communities who are concerned about the loss of land, livelihoods, inadequate compensation from state authorities, and health and environmental impacts of living in the vicinity of polluting projects (Bhumi Adhikar Andolan 2016). Renewables too are land intensive. As large solar parks and wind farms get sanctioned, resistance is mounting against land acquisition for renewable energy as well.

Last, coal dominates India's energy landscape. Important to any talk of transition are India's coal-producing areas in the eastern states of Chhattisgarh, Jharkhand, Odisha, Madhya Pradesh, and Telangana, where entire economies, societies, and livelihoods are oriented around coal. While rich in minerals, these states are also India's poorest and least resourced by social infrastructure (Bhushan 2008). They are also home to large concentrations of historically discriminated Adivasi populations. The impact of transitions away from coal will be centred on these areas.

An Indian just transition will have to be located upon India's 'right to develop', the need to peak coal usage soon and transition to renewables, increased worker and social vulnerability to climate impacts, privatization of the energy sector, history of resistance to displacement, and the livelihoods of those in underdeveloped parts of the country. How are unions navigating this terrain?

Trade Union Responses: The Case of the New Trade Union Initiative

Among the trade unions grappling with the idea of 'just transitions' in India is the New Trade Union Initiative (NTUI, a non-party, independent labour initiative founded in 2006. The NTUI's engagement with just energy transition is based on ensuring India's right to develop, where industrialization is still required as part of a process of expansion of economic activity, and to create social infrastructure such as schools, hospitals, and public transport for broader welfare. For India, a just transition will not only require economic growth and

increased emissions, but also ‘linking the dialogue on emissions with a social justice and development perspective and not to see them as mutually exclusive’ (Mathews, Barria, and Roy 2016: 2). The transition will likely centre on the country’s energy sector. India’s dependence on coal will shape the pathways to develop, and also condition how the country transitions quicker to more low-carbon sources. In the near future, India is projected to see an increase in both coal and renewables (Dubash et al. 2018). As a result, the NTUI’s perspective on India’s transition straddles both the coal sector and the renewable energy sector (Mathews, Barria, and Roy 2016: 12). Questions of distribution also arise.

An Energy Strategy for Social Use

India’s coal sector is currently central to its economy. It is also densely unionized and is a largely public sector owned and managed industry structure. This presents an opportunity to reorient the sector towards broader worker and social welfare as it faces an eventual phase-out. However, pervasive informalization of labour through contract work and the rise in private sector involvement undercut this potential. The focus of a just transition from coal should be to ensure that the energy produced is directed towards social use and adheres to the highest environmental standards, irrespective of impacts on profits. This is not possible if the transition to newer, more efficient super-critical coal plants is led by the private sector and financed by private sources, as investors locked into their fossil-fuel investment will have an interest in running plants at full capacity in order to provide economic returns, rather than using the energy produced for social use or solely as a back-up for a renewable energy-led system. Therefore, resistance to the privatization trend in the sector is central to ensure that new investments in coal are dedicated towards public interests and decarbonization. For this, appropriate institutional arrangements should be developed. Imperatives to mitigate greenhouse gas emissions also call for an earlier peak in coal usage, which publically accountable institutions will be best suited to plan for.

The renewable sector (solar and wind) presents a slightly different story, though with a similar programme of response. The

deployment of renewables in India is dominated by private-sector-led mega-projects, propped up by public finance and various tax incentives from the government. Here, a largely contract workforce functions in an environment openly hostile to worker's rights and unionization. There are also indications from other countries that renewables are less labour intensive (Hughes 2017). If private led, workers and social concerns are likely to be sidelined in a low-carbon world's energy sector. To ensure that renewables are deployed for developmental ends, the NTUI's position is to bring renewable energies within a public-sector undertaking (PSU) framework. Renewables will then be part of a broader strategy of industrial development that is not only regulated but also directed by the state, reflecting international trends and recent scholarship making the case for public ownership of renewables to ensure its benefits are distributed socially (Mazzucato 2018; Satgar 2015; Scoones 2016).

The strategic transition towards renewables also calls for a simultaneous approach to training workers to manufacture, install, operate, and dispose of renewable energy and low-carbon technology. This will require a well-coordinated worker training programme, aimed strategically towards building a lower carbon economy. The existence of a renewable energy PSU would make this process much more manageable, in terms of skills identification, methodology, and absorption after retraining. As a result of the existing density and organization of unions in the coal industry (estimated at close to 90 per cent in state-run coal mines), trade unions are uniquely placed to help foster this transition and retraining for renewables, if not other more labour-intensive, low-carbon sectors. The promotion of a union-friendly environment in the emerging low-carbon sectors is thus of paramount importance if a renewable energy transition is also to be a jobs-based transition. A push for public ownership can also help formalize jobs and promote a union-friendly environment. While this is a distant vision in the current market-oriented sector, based on informal labour, the retraining and redeployment of existing unionized coal and thermal workforce for a low-carbon industry can be a strategic first step.

The NTUI proposal is not only about state ownership, management, and labour policy, but also includes a framework for

peoples' direct oversight, where decentralized energy collectives at the local level ensure accountability, for instance, on cost and efficiency. Under this vision, production would be decentralized at appropriate levels to reach a model of production and consumption administrated at the municipality or district level (Mathews, Barria, and Roy 2016: 18–19). This mechanism would ensure that energy systems are oriented towards local social needs. Similar models can restructure the distribution of electricity. For example, to address the continuing challenge of energy access in rural areas, the Kerala Shastra Sahitya Parishad (KSSP) has proposed a three-tiered two-way grid system that would better serve the democratization of energy access. The intent is to operate a local grid, connected to a state grid, itself connected to a national grid, through which households can both produce and draw electricity. Such a grid would be in public hands at each level, forming a system of cooperatives from below at the panchayat level. The KSSP also proposes a South–South technology-sharing mechanism through which India can learn from experiences such as China's rural grids and the Philippines rural energy cooperatives. This focus on ownership of means of production and distribution of energy resonates with TUED's core slogan of the need to reclaim energy systems. In both cases (PSU and energy collectives), the proposition is for trade unions to play a leadership role in formulating and managing these new frameworks in conjunction with other social groups.

The collective focus on coal, renewables, financing, skills development, and democratic management of energy points to the broader strategic importance of an industrial policy and not just a simple regulation of energy markets and institutions. The NTUI's proposals form a framework to shape and guide the industrialization process for developmental and employment ends (Mathews, Barria, and Roy 2016). The public sector and cooperatives are essential institutions that, if developed appropriately, can 'become instruments for exercising political choice in the public interest' (Mathews, Barria, and Roy 2016: 18–19). This framework will also have to be made in awareness of the immense social and economic importance of coal and energy for India's most underdeveloped and under-serviced.

Ensuring Social Welfare in Transition

The roll-out of mega infrastructure in India has frequently been met with wide-scale, sustained, and successful social resistance (Bhumi Adhikar Andolan 2016; Chakravorty 2013). The energy transition for mitigating climate change will bring about changes on how we use land and where infrastructure is located. An additional concern is the rehabilitation of coal areas as coal's dominance eventually reduces with the transition to lower carbon sources. The NTUI sees this as an opportunity to recombine the struggles for land and livelihoods and those of labour. The local economies of coal-bearing areas were destroyed with the entry of coal exploration. On the ashes of what existed, communities recreated economies, this time directly or indirectly dependent on the coal industry. As the transition away from coal dependence reduces the demand for sources of coal currently used, the fragile coal-dependent economies bear the risk of destruction again, leaving behind ghost towns and a degraded environment. State intervention is required to rehabilitate these areas (Mathews, Barria, and Roy 2016). This might be the most ambitious of the components of a just energy transition, as it requires a thorough identification of the impacted areas, involvement from all levels of government, and enough financing to develop alternative livelihood plans. Further, as indicated by the experience of other unions working in coal-dense areas, it also involves linking labour concerns with others in the region equally caught in the web of coal, such as farmers, Adivasis, women, and residents prone to pollution (Krishnan 2017; Narayan 2017). Unions can play a strong role in fostering these rehabilitation transitions, but will also have to formulate a strategy for new energy areas. If targets are to be met, then mega-projects in solar and wind-rich states, such as Rajasthan, Gujarat, Tamil Nadu, Maharashtra, Karnataka, and Madhya Pradesh, can potentially cause the same upheaval that coal exploration did. Solidarity and struggle with the displaced on these fronts will likely be equally important, especially if the renewables sector remains averse to unions.

Experience in India and elsewhere indicates that social welfare in the transition will be dictated by more than simply the outcomes of energy projects. Climate change impacts both the working and social lives of workers, compelling unions to 'down the invisible wall

that exists between workers as workers in workplaces and workers as citizens outside their workplaces' (Räthzel and Uzzell 2011: 1221). This call for unions to engage as social movements is also reiterated in an Indian context, prompting unions to think of workers' lives out of the workplace and to position themselves as a '24 hour union' rather than an 'eight hour' one (Krishnan 2017).

The case of coping with climate change impacts at the workplace provides an illustration. While workers might demand better working conditions, health coverage, and more breaks due to this, scholars note that these demands can also provide imperative to factory owners to automate processes, therefore undercutting labour bargaining power (Somanathan et al. 2017). The 'eight hour' frame here might not be enough. A '24 hour' one will find that most of the recovery and burden of health costs will eventually fall on the households, and mostly women within them (Pandey et al. 2018; Tran et al. 2013). Social services and infrastructure, sensitive to gender, can help prop households coping with the adverse impacts of climate change.

A 'just transition' approach then requires a wider framing than public ownership and orientation of energy infrastructure, to one that encompasses most social infrastructure. Like with energy, the public ownership of essential services is back on the agenda of policymakers across the world. Researchers have documented that since 2000, there are over 835 examples of public services reverting back to public ownership in what is being called 're-municipalization' (Kishimoto, Petitjean, and Steinfort 2017). This draws from a tradition of municipal socialism and seeks to protect vital elements of social infrastructure such as housing, water, and sanitation from speculative private finance and instead, under public and cooperative ownership, orients them for social ends (Becker, Beveridge, and Naumann 2015; Cumbers 2016; Madden and Marcuse 2016). Climate change's wide reach prompts trade unions to be more ambitious.

This chapter serves as a brief introduction to ideas for a just transition to climate change in India. We posit that a just transition will involve public and democratic control over energy and social infrastructure to ensure that development needs are met, and that the shift away

from coal to renewables is not at the expense of workers and the most vulnerable. In the energy sector, this means contesting further privatization, in coal and renewables production and distribution, through a framework of public and cooperative ownership and management. This is especially pressing in the case of renewables, which is dominated by private finance and averse to unionization. Trade unions need to forcefully reassert the importance of public ownership over all energy sources. Further, there is a need to strategize the retraining of workers as part of this broader industrial strategy. Due to the existing union density in coal-rich areas, trade unions can play an active role in formulating a just transition that integrates worker and social concerns.

For this vision to be realized, the existing approach to investment in new technology will need to change and unions will need to argue for public financing. Sources for this are available. For example, revenues from the coal cess levied by the GoI, around Rs 850,000 million from 2010–11 to 2017–18, and tax breaks for private finance can be channelled into public-owned renewables and to retraining workers (Parliamentary Standing Committee on Energy 2019). If India is to reclaim industrial strategy on energy, the requirement is to privilege domestic manufacturing that will create millions of jobs, into which the government can deploy some of the workers from the coal sector who will at some point lose their jobs. It is evident that the private sector will continue to have a role in the energy sector, but it should be a secondary, subservient, and highly regulated role, with the public sector playing the pre-eminent role in an essential service such as energy.

While not addressed in this chapter, this industrial strategy has relevance to other sectors essential to a low-carbon transition, such as the automobile and cement sectors, and also semi-formal sectors, such as transport, waste management, health care, and social care. We hope these linkages are developed going forward. What we do indicate is the need to focus on workers' welfare outside of the workplace. Climate change is likely to impact workers' health and without adequate social infrastructure, the burden will likely fall on households. Further, as we intend to transition away from coal, the livelihoods of those currently dependant on this fuel will have to be supported. Along with retraining and rehabilitating these

spaces, a more radical suggestion, drawing from global trends, is to 're-municipalize' social services and infrastructure to ensure a social safety net for the impacts of climate change.

It thus becomes important to forge an alliance not only between groups in the energy sector—such as those resisting displacement and environmental damage of large projects, including solar and wind parks, and workers in coal plants resisting privatization and demanding better rights—but also movements fighting for social rights and infrastructure. India's climate transition should not only be aimed at the challenges of emissions reductions but also radical and just change towards decent work and social concerns. There is not only a world to save, but a world to win.

References

- Agyeman, Julian, David Schlosberg, Luke Craven, and Caitlin Matthews. 2016. 'Trends and Directions in Environmental Justice: From Inequity to Everyday Life, Community, and Just Sustainabilities', *Annual Review of Environment and Resources*, 41(1): 321–40. Available at <https://doi.org/10.1146/annurev-enviro-110615-090052>; accessed on 9 June 2019.
- Becker, Sören, Ross Beveridge, and Matthias Naumann. 2015. 'Remunicipalization in German Cities: Contesting Neo-Liberalism and Reimagining Urban Governance?', *Space and Polity*, 19(1): 76–90. Available at <https://doi.org/10.1080/13562576.2014.991119>; accessed on 9 June 2019.
- Bhumi Adhikar Andolan. 2016. 'National Resolution', Ahmedabad, Gujarat: Bhumi Adhikar Andolan.
- Bhushan, Chandra. 2008. 'Rich Lands, Poor People: The Socio-Environmental Challenges of Mining in India', *Indian Economic Review*, 5(September): 44–53.
- Burke, Matthew J. and Jennie C. Stephens. 2017. 'Energy Democracy: Goals and Policy Instruments for Sociotechnical Transitions', *Energy Research & Social Science, Policy Mixes for Energy Transitions*, 33(Supplement C): 35–48. Available at <https://doi.org/10.1016/j.erss.2017.09.024>; accessed on 9 June 2019.
- Chakravorty, Sanjoy. 2013. *The Price of Land: Acquisition, Conflict, Consequence*. New Delhi, India: Oxford University Press.
- Cumbers, Andrew. 2016. 'Remunicipalization, the Low-Carbon Transition, and Energy Democracy', in The Worldwatch Institute (ed.), *State of*

- the World: Can a City Be Sustainable?*, pp. 275–89. Washington, DC: Island Press/Center for Resource Economics. Available at https://doi.org/10.5822/978-1-61091-756-8_23; accessed on 9 June 2019.
- Dholakia, Hem H. 2018. 'Solar Powered Healthcare in Developing Countries', *Nature Energy*, 3(9): 705–7. Available at <https://doi.org/10.1038/s41560-018-0205-1>; accessed on 9 June 2019.
- Dubash, Navroz K., Radhika Khosla, Narasimha D. Rao, and Ankit Bhardwaj. 2018. 'India's Energy and Emissions Future: An Interpretive Analysis of Model Scenarios', *Environmental Research Letters*, 13(7): 074018. Available at <https://doi.org/10.1088/1748-9326/aacc74>; accessed on 9 June 2019.
- Government of India (GoI). 2015. 'India's Intended Nationally Determined Contribution: Working towards Climate Justice'. Communicated to UNFCCC Secretariat. New Delhi, India: Government of India. Available at <http://www4.unfccc.int/submissions/INDC/Published%20Documents/India/1/INDIA%20INDC%20TO%20UNFCCC.pdf>; accessed on 10 June 2019.
- Hughes, David McDermott. 2017. 'A Jobless Utopia?', *Boston Review*, 15 May. Available at <http://bostonreview.net/class-inequality/david-mcdermott-hughes-jobless-utopia>; accessed on 9 June 2019.
- International Trade Union Confederation (ITUC). 2014. *Unions4Climate Action: Climate Change Is a Trade Union Issue*. Paris, France: ITUC.
- Jain, Abhishek, Sudatta Ray, Karthik Ganesan, Michael Aklin, Cheng Chao-Yo, and Johannes Urpelainen. 2015. *Access to Clean Cooking Energy and Electricity Survey of States*. New Delhi: Council on Energy, Environment and Water.
- Kishimoto, Satoko, Olivier Petitjean, and Lavinia Steinfors. 2017. *Reclaiming Public Services: How Cities and Citizens Are Turning Back Privatisation*. Amsterdam: Transnational Institute.
- Krishnan, Radhika. 2017. 'The Industrial Project and Organised Labour', *Economic & Political Weekly*, 52(31): 62–70.
- Li, Minqi. 2009. 'Capitalism, Climate Change and the Transition to Sustainability: Alternative Scenarios for the US, China and the World', *Development and Change*, 40(6): 1039–61. Available at <https://doi.org/10.1111/j.1467-7660.2009.01611.x>; accessed on 9 June 2019.
- Lundgren-Kownacki, Karin, Siri M. Kjellberg, Pernille Gooch, Marwa Dabaieh, Latha Anandh, and Vidhya Venugopal. 2018. 'Climate Change-Induced Heat Risks for Migrant Populations Working at Brick Kilns in India: A Transdisciplinary Approach', *International Journal of Biometeorology*, 62(3): 347–58. Available at <https://doi.org/10.1007/s00484-017-1476-0>; accessed on 9 June 2019.

- Madden, David and Peter Marcuse. 2016. *In Defense of Housing: The Politics of Crisis*. London and New York: Verso.
- Malm, Andreas. 2016. *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*. London and New York: Verso.
- Mathews, Rohan D., Susana Barria, and Ashim Roy. 2016. 'Up from Development: A Framework for Energy Transition in India,' Trade Unions for Energy Democracy. Available at <http://unionsforenergydemocracy.org/resources/tued-publications/tued-working-paper-8-up-from-development/>; accessed on 9 June 2019.
- Mazzucato, Mariana. 2018. *The Entrepreneurial State: Debunking Public vs. Private Sector Myths*. UK: Penguin.
- Mitchell, Timothy. 2011. *Carbon Democracy: Political Power in the Age of Oil*. London and New York: Verso.
- Mohai, Paul, David Pellow, and J. Timmons Roberts. 2009. 'Environmental Justice', *Annual Review of Environment and Resources*, 34(1): 405–30. Available at <https://doi.org/10.1146/annurev-environ-082508-094348>; accessed on 9 June 2019.
- Mohanty, Debabrata. 2015. 'Orissa Govt Cancels Licence of 3 Reliance Infra Power Discoms', *The Indian Express* (blog), 5 March. Available at <http://indianexpress.com/article/india/india-others/setback-for-reliance-infrastructure-orissa-power-regulator-cancels-distribution-licence-of-anil-ambanis-company/>; accessed on 9 June 2019.
- Morgan, Jennifer. 2016. 'The Inevitable Transformation—Why Swift Action Is Needed to Stay Below 1.5', *Huffington Post* (blog), 3 November. Available at https://www.huffingtonpost.com/jennifer-l-morgan/the-inevitable-transforma_b_12785940.html; accessed on 9 June 2019.
- Narayan, Shweta. 2017. *Poisoned: Report on the Environmental Sampling around the Coal Mines, Thermal Power Plants and Ash Ponds in Tamnar & Gharghoda Blocks of Raigarh, Chhattisgarh*. Cuddalore, India: Community Environmental Monitoring and Dalit Adivasi Mazdoor Sangathan.
- Nileena, M.S. 2018. 'Coalgate 2.0', *The Caravan*, 1 March. Available at <https://caravanmagazine.in/reportage/coalgate-2-0>; accessed on 9 June 2019.
- Pandey, Rajiv, Juha M. Alatalo, Kavita Thapliyal, Sharmila Chauhan, Kelli M. Archie, Ajay K. Gupta, Shashidhar Kumar Jha, and Manoj Kumar. 2018. 'Climate Change Vulnerability in Urban Slum Communities: Investigating Household Adaptation and Decision-Making Capacity in the Indian Himalaya', *Ecological Indicators*, 90(July): 379–91. Available at <https://doi.org/10.1016/j.ecolind.2018.03.031>; accessed on 9 June 2019.

- Parks, Bradley C. and J. Timmons Roberts. 2010. 'Climate Change, Social Theory and Justice', *Theory, Culture & Society*, 27(2–3): 134–66. Available at <https://doi.org/10.1177/0263276409359018>; accessed on 9 June 2019.
- Parliamentary Standing Committee on Energy. 2018. *37th Report: Stressed/ Non-Performing Assets in Electricity Sector*. New Delhi: Lok Sabha Secretariat.
- . 2019. 'Forty Second Report: Stressed/Non-Performing Assets in Gas Based Power Plants'. New Delhi: Lok Sabha Secretariat.
- Patel, Raj and Jason W. Moore. 2018. *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet*. London, UK: Verso Books.
- Purkayastha, Prabir. 2016. 'The Crisis of the Power Sector Reforms—Part II', *NewsClick*, 3 December. Available at <http://www.newsclick.in/crisis-power-sector-reforms-part-ii>; accessed on 9 June 2019.
- Räthzel, Nora and David Uzzell. 2011. 'Trade Unions and Climate Change: The Jobs versus Environment Dilemma', *Global Environmental Change*, 21(4): 1215–23. Available at <https://doi.org/10.1016/j.gloenvcha.2011.07.010>; accessed on 9 June 2019.
- (eds). 2012. *Trade Unions in the Green Economy: Working for the Environment*, 1st edition. New York, NY: Routledge.
- Räthzel, Nora, David Uzzell, and Dave Elliott. 2010. 'Can Trade Unions Become Environmental Innovators?', *Soundings*, 46(Winter): 76–87. Available at <https://doi.org/10.3898/136266210793790891>; accessed on 9 June 2019.
- Satgar, Vishwas. 2015. 'A Trade Union Approach to Climate Justice: The Campaign Strategy of the National Union of Metalworkers of South Africa', *Global Labour Journal*, 6(3). Available at <https://doi.org/10.15173/glj.v6i3.2325>; accessed on 9 June 2019.
- Scoones, Ian. 2016. 'The Politics of Sustainability and Development', *Annual Review of Environment and Resources*, 41(1): 293–319. Available at <https://doi.org/10.1146/annurev-environ-110615-090039>; accessed on 9 June 2019.
- Sett, Moumita and Subhashis Sahu. 2014. 'Effects of Occupational Heat Exposure on Female Brick Workers in West Bengal, India', *Global Health Action*, 7(1): 21923. <https://doi.org/10.3402/gha.v7.21923>; accessed on 9 June 2019.
- Snell, Darryn and Peter Fairbrother. 2011. 'Toward a Theory of Union Environmental Politics: Unions and Climate Action in Australia', *Labor Studies Journal*, 36(1): 83–103. Available at <https://doi.org/10.1177/0160449X10392526>; accessed on 9 June 2019.

- Somanathan, E., R. Somanathan, A. Sudarshan, and M. Tewari. 2017. 'The Impact of Temperature on Productivity and Labor Supply: Evidence from Indian Manufacturing', Working Paper, EPIC-India. Available at <https://epic.uchicago.in/publication/impact-temperature-productivity-labor-supply-evidence-indian-manufacturing/>; accessed on 9 June 2019.
- Stavis, Dimitris and Romain Felli. 2015. 'Global Labour Unions and Just Transition to a Green Economy', *International Environmental Agreements: Politics, Law and Economics*, 15(1): 29–43. Available at <https://doi.org/10.1007/s10784-014-9266-1>; accessed on 9 June 2019.
- Sweeney, Sean. 2012. 'Resist, Reclaim, Restructure: Unions and the Struggle for Energy Democracy', Discussion document prepared for global union roundtable, 'Energy Emergency: Developing Trade Union Strategies for a Global Transition', 10–12 October.
- Sweeney, Sean and John Treat. 2018. *Trade Unions and Just Transition*. New York City, USA: Trade Unions for Energy Democracy.
- Temper, Leah, Mariana Walter, Iokiñe Rodriguez, Ashish Kothari, and Ethemcan Turhan. 2018. 'A Perspective on Radical Transformations to Sustainability: Resistances, Movements and Alternatives', *Sustainability Science*, 13(3): 747–64. Available at <https://doi.org/10.1007/s11625-018-0543-8>; accessed on 9 June 2019.
- Tran, Kathy, Gulrez Azhar, Rajesh Nair, Kim Knowlton, Anjali Jaiswal, Perry Sheffield, Dileep Mavalankar, et al. 2013. 'A Cross-Sectional, Randomized Cluster Sample Survey of Household Vulnerability to Extreme Heat among Slum Dwellers in Ahmedabad, India', *International Journal of Environmental Research and Public Health*, 10(6): 2515–43. Available at <https://doi.org/10.3390/ijerph10062515>; accessed on 9 June 2019.
- United Nations Framework Convention on Climate Change (UNFCCC). 2016. 'Adoption of the Paris Agreement Decision', 1/CP.21, FCCC/CP/2015/10/Add 1, p. 2, Annex: Paris Agreement.