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Koyla Kahini

The Political Ecology of Coal in India

PhD Thesis

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Science and Technology

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Koyla Kahini in bengali, my mother tongue, means The Story of Coal.

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Cover design and photo by Saagnik Paul. Cover photo taken at Gevra open cast coal mine, Korba Coalfield, Chhattisgarh in March 2017.

This thesis is dedicated to the memories of

Late Monorama Debi, my great grandmother whose stories I grew up hearing,

Late Indubala Debi, my great grandmother who used to call me 'ma',

Late Ramkinkar Roy, my paternal grandfather, who would take the toddler me with him to give english classes to students from the village after a hard day's work, every time I was visiting,

Late Balaram Goswami, my maternal grandfather, who got me a stethoscope because I wanted to play as a real doctor,

And Late Anima Roy, who wished atleast one of her grandchildren were a doctor,

You should have been more specific with your wishes, Thamma.

সবাইকে আমার অন্তরের সশ্রদ্ধ প্রণাম সহ

Abstract

This thesis contributes to examining how and why coal continues to dominate global energy mix despite old and new socio-ecological concerns and how and why is it contested, using environment and climate justice narratives. Although coal continues to reign in the global energy mix, the patterns of global coal trade are shifting. India is primed to play a leading role in the near future as coal production, consumption and trade encompasses new geographies in the Global South. At the same time, India is also leading the transition towards renewables globally. I first explore this paradox by looking at social metabolic patterns and political ecological factors and argue that the energy transition is in-fact towards more coal despite a renewables-led rhetoric. I then explore how this is being facilitated with the creation of a new coastal geography, in parallel to the older coal geographies. This is followed by an exploration of how this rise in coal is being contested, and how are the protests being shaped in regions with marginalized populations with pre-existing inequalities. I argue for the need of decolonial environmental justice scholarship to unpack how the multiple forms of violence interact and perpetuate environmental injustices by what I term procedural violence. Finally, I examine the multiple ways in which coal protests from across the world which employ a climate justice narrative are connected. I explore 61 cases of resistance and draw three broad types of classifications about the connections. I argue for the need of decolonial climate justice movements which adheres to local concerns and doesn't push for a global top-down narrative, by providing two examples from India where such approach does more harm than good to a movement. The thesis is based on a mixed-methods approach, focusing on transdisciplinary, co-produced research, and mobilizes concepts from the three interconnected disciplines of political ecology, environmental justice and ecological economics.

Keywords: blockadia, climate justice, coal, decoloniality, energy transition, India

Preface

Before *Koyla Kahini: The Political Ecology of coal in India*, there was *Unburnable Coal*. The initial proposal of this thesis was to account how environmental justice movements help in reducing carbon dioxide emissions and by how much. Since then, and in the last four years, the thesis has been reshaping and reimagined through my academic journey- through multiple discussions with activist and academics in both Europe and India, and the final product in front of us traces the story of coal looking at three interconnected axes- energy transition, ecological distribution conflicts and climate justice movements.

I could probably say my relation to coal started from the day I was born. I grew up in a small town called Bokaro Steel City, less than 40 kms away from the coal capital of India-Dhanbad. My father worked in blast furnace as a mechanical engineer the Bokaro Steel Plant, and every day returned from the plant covered in coal dust. Seeing blocks of coal being carried on cycles, on bullock carts, on open trucks and train wagons was everyday sight.

However, when something is as close as coal was to me, you often do not understand its significance. It took me many years to realize the Steel Plant where my father worked was built by displacing thousands of indigenous people during the early years of Indian Independence in the Nehruvian development model. Indigenous people who till today continue to protest for land rights, unfair compensation and lies of employment.

At the same time, my academic journey in the last four years can't exactly be captured by the content of these pages. I can't quantitatively express how much of the last four years of my time went into the thesis, and so I will enumerate some of the other things which shaped both me as an academic, and in tangible and intangible ways shaped the contents of this thesis. I have spent a lot of time in two collectives, Research&Degrowth, and the Indian Society for Ecological Economics. In the former, I had spent time organizing summer schools and reading groups, attending general assemblies and trying to change the working dynamics and pushing for a more care driving and decolonial understanding of degrowth, which has largely shaped the researcher I am and wish to become, and the latter has kept me grounded despite being so far away from my country.

My engagement with critical political ecology scholarship developed after the Keynote lecture given by Paige West in the 2018 POLLEN (Political Ecology Network) Conference which was prepared in collaboration with John Aini. It calls for a stop of dispossessing people over knowledge production, rethinking genealogies of knowledges produced and allowing wider circulation of

political ecology scholarship to reach places and people who might benefit from it. As a result, I have tried my best to be as collaborative and inclusive as possible, ensuring that I do not misrepresent the realities on ground, and co-producing research with activists and researchers from different parts of the world. In line with this, I have also written and spoken in regional languages and local newspapers about the findings of my research, for broader public dissemination.

Environmental problems are wicked problems, and I don't believe anyone can provide a full picture. The picture we see are based on our realities and positionalities. One shouldn't also claim for such, while doing critical transformative research. In this thesis, I am trying to show a part of the picture of the contemporary coal complex and its engagements with environmental and climate justice movements, with a focus on India. I wish, with this thesis and my future research trajectory to continue co-producing knowledge situated in lived experiences and realities and contributing towards socio-ecological justice and equity.

Acknowledgement

This thesis would not have been possible without the support, guidance and care of many, many people. I am certain I will miss out quite a few important names as I look back and trace my PhD journey. Nonetheless, I wish to take the next couple of pages to appreciate all the encouragement and love which made this dissertation possible, and (for the most part) enjoyable.

The first order of gratitude goes to the two people who took me from the darkness of mainstream economics to the light that is the Barcelona School of Political Ecology and Ecological Economics. Julien-François Gerber and Nandan Nawn introduced me to ecological economics, political ecology and the Environmental Justice Atlas (EJAtlas). Without them, I would probably have never arrived to ICTA. Since then, they have been a constant source of guidance and support, including reading and commenting on parts of this thesis.

My second order of gratitude goes to my three supervisors Joan Martínez-Alier, Giorgos Kallis and Federico Demaria. I could fill many pages describing everything I have learnt from them, and how they have been a constant source of support, motivation and intellectual growth during the last four years. I will restrain myself and only share a couple of anecdotes. Due to the challenging bureaucracy when I realized I couldn't make it to Barcelona for the start of the semester in October 2016, I was worried that I might not be able to enroll for the PhD after all. During that time, Joan assured me that the scholarship will start after I arrive to Barcelona, no matter the delay; Federico wrote dozens of emails to the administration at UAB and the Spanish embassy in India which allowed for me to arrive 3 months later, and not 6-7 which would have been the case otherwise; Giorgos recorded each of the classes of Political Ecology which I had wanted to audit, and sent it to me so that I could follow them and submit my weekly assignments from India. Since then, and till today, they have always come through in times of crises (of which there have been quite a few, I must admit), while giving me enough space to develop my own research trajectory. And I know this will continue in the future. For this, I shall remain eternally grateful.

My third order of gratitude is for the dynamic team of the EJAtlas project. The multiple discussions, seminars, and informal conversations with each of the members individually and collectively have been instrumental in understanding and engaging with the theories and concepts of environmental justice, political ecology and ecological economics, along with expanding my knowledge of the injustices occurring in different parts of the world. I am also grateful to the European Research Council Grant (ERC) Advanced Grant ENVJUSTICE (No. 695446) which made this thesis financially possible. I am so thankful to Cristina Durán Díez, Marta Viana Díaz

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I have received many, many words of wisdom and advice throughout the thesis. I will share one of those as the final anecdote reflecting my deep gratitude to Joan Martinez-Alier here. It was an email he sent to me on October 28, 2017. This was after I had sent updates from my fieldwork in India, just after returning from an impressionable visit to the underground Chasnalla colliery in

Jharkhand, where in 1975 one of the world's worst mining disasters occurred killing atleast 375 coal miners. Joan wrote-

If you feel like writing (even non quite academic writing), do so, it is your country and you are learning to understand it very deeply (e.g. 300 m underground), do not sacrifice your feelings and your writing to academic prose and quantitative results, this can come later when you are back here. Do not write to impress the firangi, but for your own people and your best friends, and also to make people elsewhere in Asia and the world what is happening in the parts of India you are now getting to know. Make the theory follows the facts and the feelings.

This thesis has been a conscious effort to follow these words.

I hope you enjoy it.

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Introduction

A long time ago, there lived a poet, philosopher, novelist, songwriter and playwright, who revolutionized our understanding of education, nationalism, well-being, justice and equality.

A longer time ago still, his grandfather was another maverick in the fields of business and commerce. Touted as one of the pioneers of Indian industrialism, he set up the Bengal Coal Company and purchased the first mine in Raniganj, present day West Bengal in 1832.

The grandson was the first Nobel laureate of India, Rabindranath Tagore, and his grandfather was Dwarakanath Tagore. This thesis, however, is about neither of them.

This thesis is about the story of coal.

Introduction

Coal is Dead! Long live King Coal!

The scientific evidence on the current climate crisis is not new. In 1896, Svante Arrhenius, the Swedish Nobel Laureate, hypothesized that carbon dioxide emissions from burning of fossil fuels and other human-led combustion activities are large enough to cause global warming. Yet, little was done for many decades despite the early warnings. In the last four decades, with the formation of the Intergovernmental Panel on Climate Change (IPCC) in 1982, the Earth Summit in Rio de Janeiro in 1992, the Kyoto Protocol in 1997 and the Paris Agreement in 2015, certain agreements have been reached for addressing climate change. Despite this, the Keeling curve, which measures the concentration of carbon dioxide over time continues to rise (Keeling *et al.*, 1995) . As seen from Fig 1, it rose from 317 ppm in 1960 to 360 ppm in 1992 to 416 ppm in 2021 (as per the last reading taken on 18 February 2021).

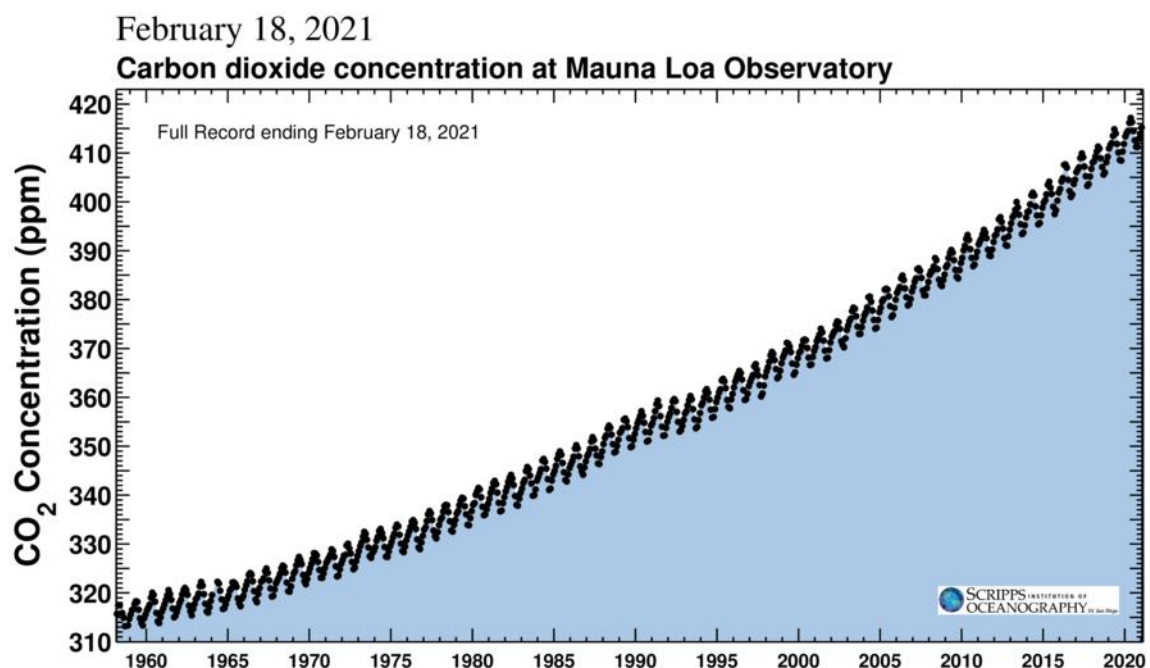


Fig. 1. The Keeling Curve, Source: <https://scripps.ucsd.edu/programs/keelingcurve/>

As the fossil fuel most contributing to carbon dioxide emissions, the end of coal to address the climate crisis would seem like an obvious climate policy. Leaton et al. (2013) in the study *Unburnable Carbon 2013: Wanted Capital and Stranded Assets* estimated that if all the world's fossil fuel reserves

were to be burnt, the carbon dioxide emitted would be more than 2.5 times greater than the allowed budget for a likely increase of 2°C of global temperature. Further estimates show that 88 per cent of current coal reserves (and 52 per cent of gas reserves and 35 per cent of oil reserves) must remain unburned between 2010 and 2050 to prevent global temperature rise above 2°C (McGlade and Ekins, 2015). In September 2016, a study published by Oil Change International, in collaboration with 14 other grassroots and activists' organizations reported that the potential carbon emissions from the existing mines and fields at the current rate of mining would result in a temperature rise beyond 2°C (Muttitt, 2016). The strict recommendation was, thus, to stop permitting any new coal (as well as other fossil fuels) extraction and denying construction of coal transportation infrastructure globally.

Yet, despite a common sense around ending coal to mitigate the climate crisis, the hold of coal over the global economy is far from over. The coal industry continues to operate successfully as a result of political and economic power, with close and complex ties to many states and companies. Studies on the political economy of energy policy examine the multiple reasons why coal continues to dominate, and argue that the energy transition, is in fact, an energy-addition (York and Bell 2019). These energy policies result from a complex interplay of multiple actors, ranging from influential businesses and ministries, to civil society networks, to national and international thinktanks, to environmental justice organizations (Jakob et al 2020).

India is a leading player and will continue to play a primary role in the near future in this global coal economy. In 2017, it was the second largest producer and importer of coal (IEA, 2018a). Coal accounted for 72% of India's electricity generation and was the source of 65% of carbon dioxide emissions (Central Electricity Authority 2018). The International Energy Agency (IEA 2018) estimates continued average annual growth of 4% in India's energy demand primarily led by coal for power generation. On 16 May 2020, the Finance Minister Nirmala Sitharaman announced a Rs. 50,000 crore¹ (US\$ 6.5 billion approx) investment in the coal sector as a part of the economic stimulus measures to make India economically self-reliant amidst the global health pandemic. On 19 May 2020, the Union Minister of Coal and Mines, Pralhad Joshi announced that coal will continue to be a national asset, but rather is in the path of achieving 1 billion tonnes of coal production by 2023-24, since there are enough coal blocks in the country which can produce for a minimum of 50-60 years.

¹ Rs. refers to the Indian monetary currency, Rupees. Crore is commonly used in the Indian numbering system, following throughout the Indian subcontinent. 1 crore is equivalent to 10 million.

Yet, despite this, international reports predict that India will show the path for a global clean energy transition determined by the government policies due to its ambitious renewables targets, and that the country on the cusp of a solar-powered revolution (IEA 2021). In the first section of the thesis, I argue otherwise. Focusing on the coal sector, I claim that the energy transition in India is currently towards more coal. This is facilitated by an emerging coal geography in coastal regions of the country, which runs in parallel to the old geography in central and eastern India.

In this context, it also becomes crucial to understand the strategies of mobilization and protests. How is the transition towards more coal in India being contested? How are these protests against coal connected, if at all, both in India and globally? In the second section of the thesis, I provide insights into some of those questions by looking at Indian coal conflicts from a combined political ecology, environmental justice and ecological economics perspective (Bryant and Bailey 1997; Schlosberg 2009; Ziai 2019; Martinez-Alier 2002). I discuss the social, political, ecological and economic drivers that trigger coal projects and how and why injustices are perpetuated as a result of this. This perspective allows for analysis of multi-scalar mechanism, processes and practices that end in injustices.

Finally, the relevance of discussions on the climate crisis with regards to coal conflicts is undeniable yet not adequately addressed in the literature (Edwards 2019). How are movements against coal projects invoking a climate justice narrative connected globally? Why and how can decolonial climate justice movements be shaped? The third section of the thesis deals with these two questions. By analysing 61 cases of coal conflicts from 30 countries, divided into three levels of intensities of climate justice narrative, I theorize three ways with distinct features in which such movements are connected- viz North-North Connections, South-South Commonalities and North-South Solidarities. This is followed by providing empirical evidence from India on why and how can decolonial climate justice be achieved for project-based struggles against coal.

Hence, the overarching question that the thesis answers is **Why and how does coal reign despite old and new concerns for environment, community rights and climate change, and why and how is it contested through environmental justice and climate justice movements across space?**

In the rest of the introduction, I first provide a brief introduction to the story of coal and its multiple contestations in India. This is followed by the theoretical framework and methodology of the thesis which draws from political ecology, ecological economics and environmental justice, and is transdisciplinary and follows a methodology of action-orientated knowledge. I then

proceed to explain the overarching research question and the sub-questions of each section of the thesis, and finally conclude with the structure of the thesis.

The coal complex and its contestations in India: A brief overview

The story of coal in India is old and complex. The first coal mine in 1774 started in Raniganj in the present-day Bengal (Prasad, 1986). After a few slow decades, a boost in the late 1800s as a result of the introduction of steam locomotives in 1853, making it one of the three prominent industries of modern India (Lahiri-Dutt, 2014). This was followed by development of the Indian coal industry after independence in 1947 through a series of legislations aimed at promoting and easing the path for more coal extraction (Bhattacharjee 2017). Some of the landmark legislations include the Coal Bearing Areas Acquisition and Development Act, 1957, the Coal Mines Regulation, 1957 and the Coal Mines (Conservation and Development) Act, 1974 and Rules 1975, the nationalization of coal in the 1970s. Finally, the CoalGate scam in 2014, and the recent opening up of coal mining for commercial private mining in 2020 has continued to keep the debates on coal vital in any socio-economic and political discussions around India's future trajectories (Lahiri-Dutt, Krishnan and Ahmad, 2012; Lahiri-Dutt, 2014). ([Raajmanik 2016](#))

Coal in India represents more than 'just' a fossil fuel. It is a key to the country's sovereignty as a nation-state, crucial for an energy-secure future (Lahiri-Dutt, 2014). Coal has wider social, cultural, and political connotations which link it to economic development, nationalism, and nation-building, allowing coal extraction to symbolize a moral endeavor (Lahiri-Dutt, 2016). However, even as approximately 240 million people and 18% of the total population are still without access to electricity and many more people only have intermittent access, India became an exporter of electricity in 2017, with neighbouring Nepal, Bangladesh, and Myanmar as the most important destinations (Press Information Bureau, 2017).

Coal is a heavily contested resource, the subject of protests and conflicts across India: because coal combustion causes global heating and local pollution detrimental to human health, because the working conditions in coal mines are terrible, and because land and water and thereby livelihoods are appropriated for the expansion of the coal complex (Oskarsson and Bedi 2018; Kohli and Menon 2016; Ghosh 2016). Coal extraction and combustion play a pivotal role in the climate crisis and stopping these processes is crucial for socio-ecologically just sustainability transformations (Edwards 2019). Conflicts over coal are part of a broader environmental justice movement in India, claiming autonomy and socio-ecological well-being in the face of the country's growth trajectory (Roy and Martinez-Alier 2019; Randeria 2004).

Not surprisingly, much has been written about coal in India, more so in the recent years. There has been a growing interest to understand the history of coal, its position in the continuous transformation of the postcolonial energy economy, and its contestation in India (Shutzer 2020). The indigenous communities in India, known as *adivasis*, have been and continue to be disproportionately impacted by coal extraction, transportation and combustion. As a result, there have been multiple autonomous political movements organized by the *adivasi* communities of coal bearing regions against their ‘internal colonialism’ (Sundar 2009, Shah 2011, Xaxa 2019, Shutzer 2020).

Especially as coal mining becomes more heavily contested, access to and control over information are pivotal in the expansion of the extractive frontier, allowing for “dispossession by confusion” (Oskarsson, 2013). Land for coal mining in central India, for example, is commonly secured through a series of ‘micro’ land grabs which appear not to be significant individually and hardly register as land grabbing but do, in sum, allow for the large-scale territorial transformations that the coal complex requires (Oskarsson, Lahiri-Dutt and Wennström, 2019). The full extent of environmental justice movements against coal in India may be underestimated if the explicit opposition is not to coal extraction but to the violation of the local population’s rights to resources.

The Indian struggles within and against the coal complex are reflected in other countries, such as Bangladesh (Kotikalapudi, 2016), Colombia and Turkey (Cardoso and Turhan, 2018), Poland (Kuchler and Bridge, 2018), and more recently in Mexico (Agren, 2021), and can be expected wherever coal is on its paradoxical rise despite the climate crisis (Tyfield, 2014). The Indian context can, however, be distinguished from conflicts in countries such as South Africa, Indonesia and Colombia, in which coal mining is a (neo-)extractive endeavour, that is, resource extraction for the sake of export, subject to protest and conflict and widely studied for Latin America, in particular (Burchardt and Dietz, 2014; Svampa, 2019). In fact, India’s coal is not for export. India has been supporting its expanding electricity generation not only with coal from domestic sources and renewables, especially hydropower, but also increasingly with imported coal, linking the country’s production and consumption to the conflicted coal complex elsewhere (Rosewarne, 2016; Misra and Mookerjee, 2017).

The new politics of coal under climate crisis

The narratives on coal in the Indian context have been significant in debates over natural resource economics, political ecology, political economy and development studies in general (Adhikari and Chhotray 2020, Levien 2018, Sundar 2009, Shah 2011). However, in recent years, a pronounced

transition in both the level of discourse and political mobilization has begun to disclose itself. I argue that the changing environmental justice discourses with more critical and decolonial approaches (Pellow 2016; Rodríguez and Inturias 2018) and a growing articulation around climate change impacts have started to significantly alter the politics around coal conflicts. There is a discernable move away from earlier political economy frameworks — which focused on land grabs, exploited labour, unfair compensation, structural and direct violence (Aareparampil 1996, Roy 2001, Oskarsson, Lahiri-Dutt, and Wennström 2019) — to more pronounced concerns for planetary boundaries, and global sustainability, acknowledging multiple worldviews (Scoones et al. 2020; Fazey et al. 2018; Wyborn et al. 2019). This is where my research makes a novel contribution by examining and contributing to these discursive shifts as well as continuities in the political ecology of coal. The following figure exemplifies these discursive shifts.



Fig. 2. This photo of youth climate justice groups protesting for farmers' rights with slogans such as 'Fund farmers, not coal'. Source-<https://www.thenewsminute.com/article/fridays-future-was-govt-radar-long-disha-ravis-arrest-inside-view-143502>

Coal geography, much like any other complex natural resource geography, is in a continuous process of transformation. It relies on a set of interlinked logics of economy, territory, and subject formation (Bridge 2011, Huber 2015) that brings together a rich 'energyscape' (Cardoso and Turhan 2018) of new relations as different sites become connected in the production, transportation, generation and transmission of energy. These relations not only shape energy and socio-environmental outcomes but are crucial to producing economies and forms of politics whose impact spans generations (Mitchell 2011). Recent discussions on energy policy use the concept of 'embodied energy injustices' to politicize and connect local conflicts within global energy politics (Healy et al 2019). By providing evidences of the socio-ecological injustices cause in the open-pit coal mines of La Guajira, Colombia and the coal-fired power plant in Salem in northeastern USA, where the coal is supplied to, the concept of embodied energy justice describes the entire range of transboundary socio-environmental injustices 'by exploring fossil-fuel supply chains and their interconnected *chains of energy injustice*' (Healy, Stephens, and Malin 2019, p. 220). These concepts are a part of the broader discussion on the need for plurality of disciplines, voices and approaches being aware of embedded power relations while researching energy transitions and energy justice for socially relevant energy research (Sorman, Turhan and Rosas-Casals, 2020).

These discussions, as I show, are becoming a part of the recent strategies and mobilizations against coal in India, with networks and alliances being created not just between the different coal conflicts in the country, but also crossing national boundaries to oppose the Indian coal complex.

The main objectives of my research can be explained as follows: first, I trace the political economy of coal in contemporary India. I examine how the old geography of coal is sustained and a new geography of coal is created through an assemblage of social, political, and economic factors that constitute the coal complex. Second, I analyze the contestations of the coal complex by examining the environmental justice movements against coal, with a special focus on the eastern Indian state of Jharkhand, which has the largest reserves of coal in the country. I demonstrate the nuances of the claims against coal, which are enmeshed with older claims for forest and land rights, livelihoods, pollution and cultural values (Lahiri-Dutt, 2014; Kohli and Menon, 2016; Oskarsson and Bedi, 2018) and newer claims for global sustainability and planetary boundaries.

I provide theoretical insights for decolonial environmental justice scholarship for India, drawing from Latin American environmental justice scholarship (Schlosberg and Carruthers 2010, Rodríguez and Inturias 2018), and taking into account the intersecting injustices that are perpetuated due to preexisting power inequalities and local power dynamics in India. To do so, I theoretically engage with recent debates within the environmental justice literature, more specifically what is being termed as radical environmental justice, to add insights into two research gaps identified, namely- a broader examination of the underlying causes of injustices, and a decolonial conception, drawing insights from situated knowledges (Svarstad and Benjaminsen 2020, Lawhon 2013, Temper 2019, Pellow 2016).

Theoretical Framework: Political Ecology, Ecological Economics, and Environmental Justice

As a compilation of six independently readable chapters, specific theoretical frameworks and methods for each chapter are explained in detail in each chapter. The thesis, however, shares a common conceptual framework, which is briefly described in this section. The combined perspective of political ecology (PE), ecological economics (EE), and environmental justice (EJ) allows to grasp the multiple factors at play while trying to examine why and how coal continues to play a dominant role in the energy mix despite old and new concerns and how and why do environmental and climate justice movements challenge this.

Political Ecology and Ecological Economics

Political Ecology is the study of the relationships between political, economic and social factors with environmental issues and changes (Robbins 2004). In other words, PE is at the confluence between ecologically rooted social science and the principles of political economy. PE understands every ecological issue as a political one. Politics has to do with the distribution of power and resources within a given group, community and society; within and across generations. The academic community of PE offers a wide range of studies integrating ecological social sciences with political economy (Peet and Watts 2004) in topics such as degradation and marginalization, environmental conflict, conservation and control, environmental identities and social movements (Robbins 2004). It allows to connect the role of multi-scalar processes at play as well as the power structures and inequalities which lead to coal to continue reigning in India's energy mix despite local mobilizations and the global climate crisis. It provides the analytical tools to examine the role of multiple actors and their power relations, highlighting the connections between economic

interests of socio-economically powerful actors and the degradation of land and livelihoods faced by local communities due to coal.

Ecological Economics ensures an understanding of the material and biophysical aspects of an economy still heavily dependent on coal. It also shows the need for multiple valuation languages while dealing with issues of sustainability, and how in the context of coal in India, one valuation language gets precedent over the others, leading to protests. More broadly, the field of EE analyses the relationship between the environment and the economy in the broadest terms, with the primary goal of understanding 'sustainable wellbeing of both humans and the rest of nature' (Costanza 2020). It was conceived three decades ago as a pluralistic 'metaparadigm' allowing for integration and synthesis of theories, frameworks and perspectives from across disciplines on sustainability (Costanza 2020). EE recognizes that there is not one right approach, but rather the need for a diverse understanding and integrated solutions for achieving the ultimate aim of sustainable planetary wellbeing. The three main sub-aims of the field are assessing sustainable scale, fair distribution and efficient allocation.

Joan Martinez-Alier wrote more than 25 years ago, 'The branches of ecological economics (or human ecology) that focus on 'ecological distribution' conflicts can likewise be referred to as political ecology. Several arguments can be adduced against economic commensurability (following a lead from Otto Neurath in the debate of the 1920s on economic calculus in a socialist economy). The issue cannot be resolved by bringing externalities into surrogate markets (there cannot be 'ecologically correct prices', though there might be 'ecologically *corrected* prices'), but only by social activism against depletion of resources and environmental pollution' (Martinez-Alier, 1995, p.70-71).

Since then, scholars have argued for bringing the two fields together in different ways (Martinez-Alier et al., 2010), either as situating ecological economics within the larger political ecology literature or for nuanced understanding of ecological distribution conflicts involving mining, biomass or waste disposal conflicts (Demaria, 2010; Gerber et al., 2009; Kronenberg, 2013). PE, together with EE, advocates the acceptance of different valuation languages to understand such conflicts and the need to take them into account through genuine participatory processes in natural resource management and environmental problem solving (Adger et al. 2001; Martinez-Alier et al. 2010).

New Directions in Environmental Justice

There is a broad consensus that the origins of environmental justice literature can be traced to the mobilizations against toxic landfills in predominantly communities of color in Warren County, North Carolina, USA in 1982 ((McGurty, 2000; Schlosberg and Collins, 2014; Agyeman *et al.*, 2016). These protests brought together civil rights concerns with those of environmental racism in the 1980s (Bullard, 1993; Pulido, 1996). Another landmark event which has shaped the discipline was the First National People of Colour Environmental Leadership Summit in 1991. During this summit held in Washington DC in October 1991, people of colour from across the country gathered and issued 17 principles of environmental justice which focused on different aspects of socio-ecological justice and equity, for both human and non-human life and the earth (Menton *et al.*, 2020).

However, movements for socio-ecological justice and equity have been around for much longer. The Chipko Movement, which is also considered by many scholars as the first definitive environmental justice movement in India, started in 1973 (Guha, 1989). These movements by marginalized communities and indigenous groups fighting for land and livelihood, asserting cultural values and traditional practices and against contamination and dispossession are also known as environmentalism of the poor (Martinez-Alier, 2002; Anguelovski and Martínez Alier, 2014).

Such movements are a part of a broader struggle as can be seen by multiple examples from across the world. For example, ongoing movements against industrial tree plantations in different parts of the Global South share similarities with the Bengal peasant revolt of 1859-63 against indigo plantations by British colonizers (Roy, 2019). Multiple other environmental justice mobilizations are evolutions of place-based visions of cultural, social and ecological justice and plurality, such as in the case of the adivasi movement against a large hydroelectric project in Koel-Karo in eastern India, invoking the collective memory of Birsa Munda, who 200 years ago led the Santhal rebellion against British colonizers (Escobar, Rocheleau and Kothari, 2002). Or more recently, the indigenous leader from Philippines, Macli-ing who was assassinated in 1980 and is an integral part of the collective memory of socio-environmental movements against large hydel projects in the country (Delina, 2020).

Yet these stories are often sidelined. New directions in environmental justice with a critical and decolonial turn aims to counteract that (Rodríguez and Inturias 2018). EJ explains the underlying local conditions under which the different types of injustices are carried out, and a decolonial EJ allows to contextualize it in historically rooted injustices which goes much beyond an ecological

distribution conflict. It allows to understand the multiple ways in which local communities resist and negotiate for their rights, including the violences they encounter in the process. A decolonial environmental justice framework also provides tools to understand the global climate justice movement, both the advantages and the contradictions.

Scholarship on environmental justice has fortunately expanded from its initial U.S. roots and emphasis on the spatial and racially-related distribution of toxics, to increasingly recognize multiple spatialities and dimensions of environmental justice (Walker 2009; Holifield, Porter, and Walker 2009). The literature has also expanded geographically and thematically to examine a range of issues and justice claims within trans-national and intergenerational perspectives (Chatterton, Featherstone, and Routledge 2013; Schlosberg 2009).

This includes Scholsberg (2009) rightly claiming that justice requires not just an understanding of unjust distribution and a lack of recognition, but, importantly, the way the two are tied together in social, cultural, and political processes. He says that claims for justice should be integrated into a comprehensive political project, and the environmental justice movement can represent such a project. In recent years, Fraser (2009) engages with the value of representation as a basic tenet for social justice, along with redistribution and recognition.

A critical environmental justice scholarship has been proposed by David Pellow (2016) with four main pillars. The first pillar consists of recognizing the different ways in which multiple forms of inequality and oppression intersect-in both the human and the non-human world. The second pillar focuses on the multiple scales at which environmental injustices manifest. It calls for diverse methodological and theoretical approaches to develop a broader understanding of complex temporal and spatial reasons and finding more grounded resolutions of environmental justice struggles. The third pillar considers the present social order as a hindrance to socio-environmental justice due to the historical and embedded social inequality it represents. It proposes to deepen direct democratic processes without depending on state institutions. Finally, the fourth pillar introduces the concept of *indispensability* as all communities and species are connected and dependent on each other. It challenges ideologies of dominance and suppression of excluded and marginalized people and places. Not surprisingly, critical environmental justice scholarship draws from different fields including political ecology (Pellow 2017).

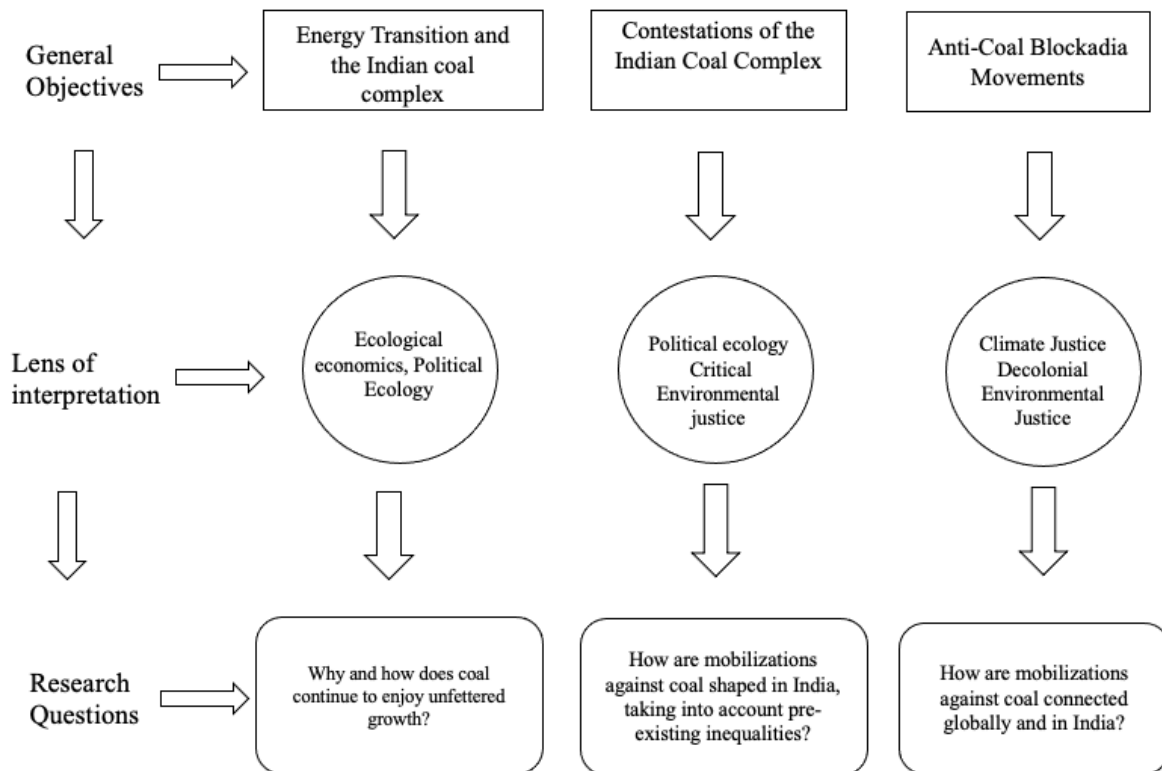


Fig. 1. Conceptual Framework of the thesis

In this thesis, from this combined approach, using coal as the commodity/resource of conflict, which at the same time is the dirtiest fossil fuel, I try to understand how and why the energy transition is moving towards coal in India, why must a decolonial turn be employed while looking at coal conflicts in the global south, specifically in the understanding of violence and injustices and how are mobilizations invoking climate justice against coal connected, as well as how could a decolonial climate justice movement be envisioned.

Methodology

This thesis employs a mix-methods approach to understand the different aspects of the coal story with regards to energy transitions, climate change and socio-environmental conflicts. Each chapter in the thesis consists of a dedicated section to explain the methods used to arrive to the results. Overall, the entry point to the thesis was an extensive study of literature, covering coal projects in different parts of India, both historical and contemporary, including academic publications and grey literature such as newspaper articles, Right to Information reports, legal documents, and activists' reports.

To examine environmental justice movements in India in general and against coal in particular, I relied extensively on the Environmental Justice Atlas (EJAtlas). The EJAtlas is the largest inventory of environmental justice movements globally. It was created by a collaborative process between activists and academics, using a theoretical framework rooted in activist knowledge (Temper, Del Bene and Martinez-Alier, 2015; Scheidel *et al.*, 2018, 2020). India has the highest number of environmental justice movements recorded in the EJAtlas (Roy, 2019). In the last four years, I have reviewed, updated and added new cases of environmental justice movements in India with a focus on coal conflicts across the supply chain. I have also closely followed news coverage of coal-related projects in India and analysed reports, articles and statements produced by civil society and activist groups. I carried out six months of fieldwork between 2017 and 2019 and conducted interviews with different stakeholders in multiple locations in India where there were active or old environmental justice movements against coal. The interviews were semi-structured with the broad themes explained in Appendix 1.

More broadly, the thesis employs a methodology of action-oriented knowledge production. The need to include action-oriented methods which are pluralistic and integrated has been increasingly felt in recent years while working on issues of sustainability (Popa, Guillermin and Dedeurwaerdere, 2015; Fazey *et al.*, 2018; Scoones *et al.*, 2020; Turnhout *et al.*, 2020; Caniglia *et al.*, 2021). Research on issues of sustainability requires collaborative and transdisciplinary methodologies due to the interconnectedness of economic, environmental, socio-cultural, political and normative aspects of justice and equity (Caniglia *et al.* 2021; Turnhout *et al.* 2020). This can be done through a diverse set of methods such as participatory research, feminist epistemologies and transdisciplinary research, with a heavy emphasis on processes of knowledge co-production (Brandt *et al.*, 2013; Wyborn *et al.*, 2019; Turnhout *et al.*, 2020). Action-oriented research dismisses the idea that knowledge is primarily created by researchers and subsequently disseminated into society (Fazey *et al.*, 2018; Caniglia *et al.*, 2021), and rather believes that 'knowledge should emerge from entangled processes of action, learning and capacity building through co-production and transdisciplinary involvement of multiple societal actors' (Brandt *et al.*, 2013; Wyborn *et al.*, 2019; Caniglia *et al.*, 2021). The EJAtlas which is the backbone of this thesis was created using such a collaborative process of co-production of knowledge between activists and academics (Temper, Del Bene, and Martinez-Alier 2015; Martinez-Alier *et al.* 2016). Along with that, in different chapters, participatory and transdisciplinary methods were also involved, such as in Chapter 4 which was co-created with an activist working on land rights and indigenous issues in Jharkhand for more than 15 years, and Chapter 5 which was a result of collaborative work between activists and researchers working on climate justice from different parts of the world.

The thesis is based on the underlying principle that research contributing towards justice and sustainability must discard the assumption that researchers 'should be separate from the processes of change that they investigate' (Scoones *et al.*, 2020; Caniglia *et al.*, 2021). More specifically in the case of research on coal amidst the climate crisis, this thesis aims to answer to the call for 'a critical need for normatively engaged and reflective work on coal' (Edwards 2019: p.12). I consider myself a scholar-activist, and I am active in raising awareness and providing support to the multiple environmental and climate justice struggles currently occurring in India. I provide a detailed account of all my engagements with movements and initiatives in India focused on environmental justice and coal in the appendices. At the same time, in the last four years, while living in Barcelona, I have also engaged with climate justice movements and activists in Europe, which informs the third section of the thesis. I have participated in two Klima Camps in Germany as well as climate justice marches in Barcelona, along with conducting informal interviews with multiple climate justice activists in the last four years. These discussions have enriched the thesis by providing key insights on the similarities and differences in climate justice mobilization and environmental justice activism in India and Europe, and more broadly pronounced the North-South differences, and the need for a decolonial understanding instead of applying concepts from the North without contextualizing it in the socio-political and cultural settings in the global South (Williams and Mawdsley, 2006; Lele, 2020).

Conducting fieldwork in India, particularly Jharkhand, a state in eastern India with the largest coal reserves and presence of extremist groups came with emotional challenges. Research in such contested and violent political environments brings many ethical dilemmas and limitation, shaped by positionalities and personal choices (Ghosh, 2018). Comparing it with the experience of participating in the Klima Camp in Germany and methods of direct-action against lignite mining in the Rhineland region piqued my interest to explore the nuances of protests in different geographical settings². As such, I do not claim neutrality or objectivity in this thesis.

² I was also inspired by discussions with colleagues of the EnvJustice project working on Central and Southern America and China and their understanding of the multiple dimensions of violence, as reflected in the work of Navas, Mingorria, and Aguilar-González (2018) and Liu (2019).

Structure of the thesis

The overall aim of this dissertation is two-fold. First, to demonstrate how India is moving towards more coal-based development, despite the political talks of a coal phase out, and is being contested by multiple socio-environmental conflicts across the country. I show how the narrative of economic growth and development is falsely employed to justify the continued increase in coal production and consumption (simultaneously with renewable forms of energy) by providing empirical evidence. Second, I examine the movements that counter the expansion of coal, providing theoretical and empirical insights for a nuanced understanding of the multiple axes of injustices by using critical and decolonial environmental justice and climate justice frameworks.

The thesis is divided into three sections with two chapters in each section, along with this introduction and a concluding chapter.

In the first section, I argue that the current energy transition in India, despite a renewables-led rhetoric, is not moving away from coal. By combining socio-metabolic and political ecological analysis of the Indian coal economy, I show and question how the success of coal is a result of a false narrative of coal-based development in India. Moreover, I show that coal continues to reign because of an intricate web of interests of multiple stakeholders wielding power and allowing for coal to flourish throughout its supply chain. A global coal complex has been described as an ‘international assemblage of economic, infrastructural and technical aspects which together make the political economy of coal and determines its extraction, transportation and eventual combustion’ (Brown and Spiegel, 2019), influenced by the concept of oil complex (Watts, 2005). In this section, with two chapters, I argue that the ‘Indian coal complex’ sustains the old coal geography in eastern and central India, and creates a new one in coastal regions, through an intricate web of social, political and economic factors. Coal triumphs despite the rhetoric of an “energy transition” away from fossil fuels and towards renewables.

In chapter 1, I show how the coal complex functions on a national scale, and analyze the social, political and economic factors that allow for the continued production of coal in India, despite the environmental conflicts and human rights violations associated with it. To fully understand this coal complex, I look at the energy and climate policies, the conflicts that coal mining generates, and alternative approaches to development, which has been termed as the ‘political ecology of social metabolism’ (Scheidel et al. 2018). In this chapter, I raise doubts on the coal-led development paradigm which is the main claim for the continued expansion of coal mining in the

country, showing how neither the promise of employment nor rural electrification is proportional to the extraction of coal. Instead, there is continued conflicts against coal in each of the multiple economies of coal (Lahiri-Dutt 2016) that exists in the country.

In the second chapter, I examine the creation of a new coal geography in predominantly coastal regions of India, controlled by private actors who operate the ports and power plants and rely on imported coal. This new geography runs in parallel yet in a distinct form from the 'old' coal geography running in the central and eastern part of the country which provides the bulk of the coal supply. I examine the political-economic realignments that have enabled this new coal geography and how it is configured at the national level. I study how does this new coal geography result in changes in the subnational regions, socially, politically and environmentally, to be integrated in the new coal geography. I reflect on the enormous political and financial investments needed to sustain the coal complex through the new coastal coal geography, and how it is being contested through local and national manifestations of conflicts.

In the second section, I argue for the need of decolonial environmental justice scholarship for India, focusing on how the notion of procedural environmental injustice as understood in the literature does not showcase the multiple ways direct and structural violence is perpetuated to create procedural injustices. I use the term 'procedural violence' to explain the environmental injustices carried out in a coal mining village in eastern India (Chapter 4). I situate this under broader examination of the role of violence in environmental justice movements in the country (Chapter 3).

In the third section, I focus on how newer concerns of climate change affect environmental justice movements against coal. I base the chapter on a comparative analysis of over sixty anti-coal Blockadia movements from across the world, by scrutinizing points of convergences and divergences between movements from the global north and south. I argue that although these cases are connected by a clear call against climate injustices, there are also a lot of local claims which take precedence and are more dominant reasons for mobilization. I divide the claims for climate justice into three categories based on their intensities and conclude that climate justice movements as they currently are, cannot be considered to be connected, following a single narrative, but rather must be understood with a more context-specific viewpoint (Chapter 5). In this context, I propose three types of connections among these movements, viz. North-North Connections, South-South Commonalities and North-South Solidarities which have their unique characteristics.

In the final chapter I argue about the counter-productivity of claiming all cases of contestations of coal as climate justice, using a critical and decolonial framework. Using two examples of coal mobilizations in India, I provide empirical evidence of how without adhering to local claims, a universalization of coal-related protests as climate justice protests weakens the movement. I conclude with the need of a decolonial climate justice, especially in the Indian and broadly in the global south context. I explain what I understand by decolonial climate justice movement by providing evidence from a recent coalition of youth climate justice groups from India and Australia to ensure that local concerns are at the forefront of any climate justice discussion, and local voices are acknowledged in the struggle for planetary well-being.

This is followed by the conclusion in which I argue how this thesis engages and advances the fields of political ecology, ecological economics and environmental justice, both individually and taken together as a part of transdisciplinary action-oriented research towards issues of sustainability and justice. I also highlight some of the future research ideas which have stemmed from this thesis and could be explored further to advance the scholarship on the political ecology of coal in a climate changing world.

Section I- Coal and Energy Transition

Bono went to Dhanbad to dig for coal. A contractor called him. I'm taking some Mundas to Ranchi district to quarry coal. Let me write your name also as Munda, like them. Let me write your address as Station Duranda. Come on, come on. Raise a lot of cash at the coal quarry.

Bono cut coal and returned with cold cash. The cash turned his head. Tell me why it shouldn't. What Nagesia in Seora village has seen real cash? Cold cash?

And what Nagesia has come back with news of the underworld? You see the world above ground, below is the underworld. Bono would say, 'O my god. I saw the sky dark. I saw the darkness of hell in the coal mine. Double darkness. How far down we went, it was like the underworld. "

-What did you see?

-What was there to see? I saw darkness.

Section I- Coal and Energy Transition

Chapter 1: Talk renewables, walk coal: The paradox of India's energy transition³

Abstract

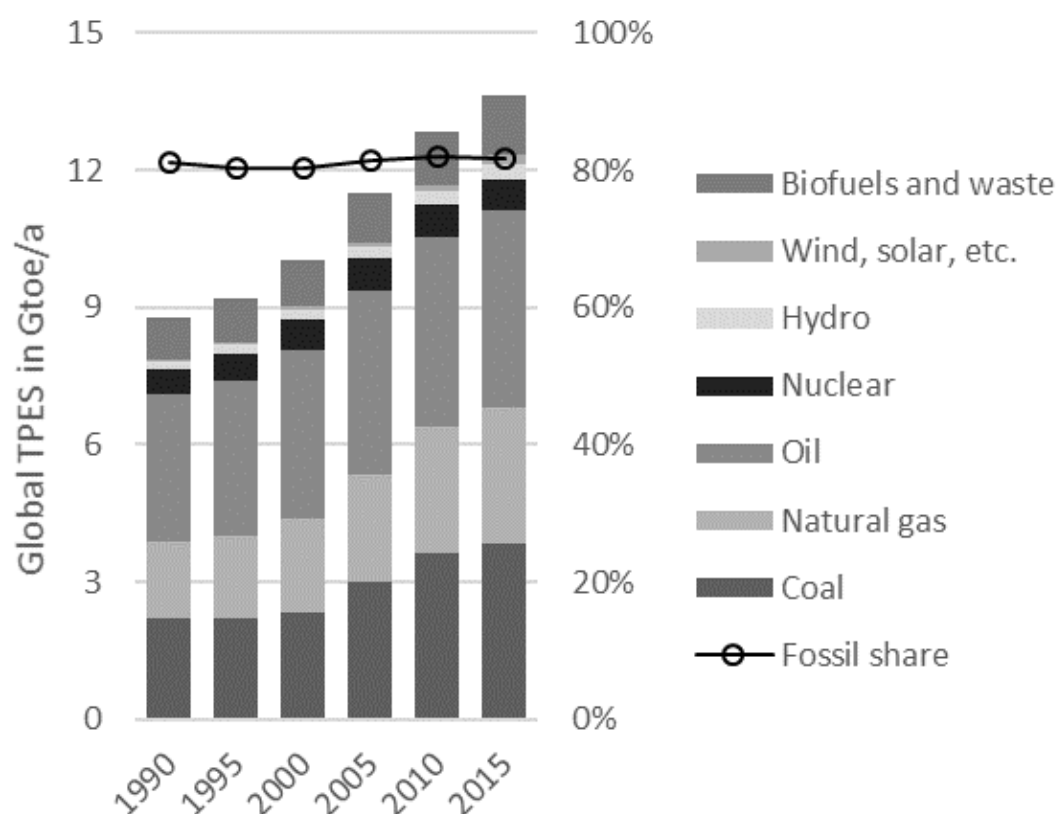
Coal is on the rise in India: despite the devastating impacts of the climate crisis, the awareness for land and forest rights, and political talk of a coal phase-out. In this article, we demonstrate that despite the renewables-led rhetoric, India is in the midst of a transition to (not away from) greater use of coal in its fossil energy system and in the electricity system in particular. We investigate this paradox by combining socio-metabolic and political-ecological analysis of the Indian coal complex. Our framework integrates material and energy flow data as characterizing the Indian fossil energy transition, indicators on the development and structure of the coal industry, and studies of ecological distribution conflicts around coal. The dominant claim to expansive use of coal and the competing counterclaims are indicative of underlying power relations which can also be witnessed in other countries. In India, they extend into the conflicted development of renewable energy including hydropower, in which the land dispossession, exclusion, and injustices associated with the expansion of the coal complex are reproduced. We conclude that the current energy transition – in which coal continues to play a dominant role – is neither sustainable nor just.

Keywords: environmental justice, just transitions, energy transition, fossil energy, political ecology

³ This chapter is a modified version of the published paper Roy, Brototi, and Anke Schaffartzik. "Talk renewables, walk coal: The paradox of India's energy transition." *Ecological Economics* 180 (2021): 106871 and can be accessed at doi.org/10.1016/j.ecolecon.2020.106871

Introduction: The paradox and the logic of extracting coal in times of climate crisis

The need for significant absolute reductions in coal combustion to limit global heating⁴ below 2 degrees Celsius is well-established in the literature (Fankhauser and Jotzo 2018; Spencer et al. 2018). According to McGlade and Ekins (2015, p.187), to meet this target, “over 80 per cent of current coal reserves should remain unused from 2010 to 2050”. Any transition *to* a renewable energy system must also involve a transition *away from* fossil fuels. Such a transition is not, however, occurring; instead, total primary energy supply (TPES) from fossil energy carriers has continued to increase, contributing over 80% annually to growing global TPES. Between 1990 and 2015, growth in renewables (hydro, wind, solar, biofuels, and waste: +0.7 Gigatons of oil equivalent, Gtoe) has occurred but has been outstripped by growth in fossils (coal, natural gas, and oil: +4 Gtoe) (Figure 1). In 2015, China was by far the world’s largest coal producer, followed by the United States of America, and India. Globally, much of growth in renewables is in biofuels and waste: here, traditional uses of firewood in countries currently expanding their fossil energy systems is an important component (Schaffartzik and Fischer-Kowalski 2018). To speak of a transition to renewables at such a time is both premature and potentially misleading (York and Bell 2019; Edwards 2019). It seems that renewables are contributing to rather than challenging the fossil energy system (York and Bell 2019).



⁴ The more commonly-used term “global warming” fails to convey the gravity of the change in average surface temperatures (Karl and Trenberth 2003); we therefore use “global heating”.

Figure 1: Global total primary energy supply (TPES) by sources in Gigatons (1 Gt = 10^9 tons) of oil equivalent per year (Gtoe/a), 1990-2015. The share of fossil energy carriers (coal, natural gas, and oil) in TPES is indicated on the secondary y-axis. Source of data: (IEA 2019)

Growth in coal's contribution to TPES was more than twice that of all renewable energy sources combined. In the Global South especially, emerging coal geographies are expected to play a decisive role in the future of the energy mix (Cardoso and Turhan 2018a). Claims that coal is on its "terminal decline" appear exaggerated and premature (Edenhofer et al. 2018a), especially in the face of geographies of coal "moving east" (Liu and Geman 2017), with future global coal trade expected to be dominated by India, Australia, Indonesia and Russia.

With the fossil energy system and the use of coal in it expanding rather than contracting amidst the climate crisis, "there is a critical need for normatively engaged and reflective work on coal in the context of climate change" Edwards (2012, p-12), and, with this article, we aim to make a contribution toward this need. We focus on the development and the role of the coal complex (more on this below) in India. The International Energy Agency (IEA 2018a) estimates continued average annual growth of 4% in India's energy demand, primarily met by electricity generated by coal combustion. In 2017, India was the world's second largest producer, consumer and importer of coal, the most carbon-intensive and the dirtiest of the fossil fuels (IEA 2018b). Coal accounted for 72% of India's electricity generation and was the source of 65% of its carbon dioxide emissions (Central Electricity Authority 2018). As recently as May and June 2020, in an attempt to address from the financial impact of the Covid-19 crisis, a Rs. 50,000 crore (US\$ 6.5 billion approx.) investment was announced for the coal sector, putting India on the path to extracting one billion tonnes of coal annually by 2023-24 (Bomnalli 2020). Auctions for coal mining concessions to private companies were also launched for 41 coal blocks in the country, including in regions of rich biodiversity (Ellis-Petersen 2020), with further plans to auction 55 concessions for new coal mines and expanding at least 193 current mines in the next five years (Aggarwal 2020). This poses serious threats in the shape of the climate crisis and the future of global coal, as well as to local socio-ecological wellbeing.

In the face of the climate crisis and the other risks and adversities associated with coal, and despite manifest political intention to expand renewables, coal extraction and use continue to grow, adding to the lock-in for the foreseeable future (Jakob et al. 2020). How can this be? While we cannot fully and unequivocally answer this question, our combined socio-metabolic and political-ecological analysis of Indian coal extraction, distribution and use does provide some insight on the reasons for the paradoxical success of coal. Such analyses are prerequisites to identifying potential points of intervention into and possibly even leverage over currently unsustainable development, not just in India, but also globally.

Despite political initiative and action to boost renewables, fossil fuels, and coal in particular, appear to enjoy unfettered growth in India: The share of fossil energy carriers in TPES increased from 37% in 1975 to 70% in 2015 and the Exajoules (1 EJ = 10^{18} Joules) added from coal surpassed that of oil and natural gas together,

with coal consistently contributing more than 50% to overall fossil TPES (Figure 2). By 2015, 10% of global TPES from coal was generated in India and reliance on coal is not expected to decline anytime soon (Seetharaman 2019). It is the promise of industrialization and economic growth – as one particular interpretation of what constitutes ‘development’ (Escobar 1995; Esteva and Escobar 2017) that is offered as justification for the continued adherence to coal (Parasuraman 2016; Padel and Das 2010; Ghosh 2016).

Decreasing production costs for solar electricity reflect the fierce competition and low profit margins accepted by actors in this sphere, leading to questions as to the long-term viability of current bidding prices (Shidore and Busby 2019; Ghoshal 2017). As recently as 2015, production costs for solar electricity were still higher than for its coal-fired counterpart: In 2015, solar photovoltaic electricity was auctioned at an average price of approximately 80 US dollars per Megawatt hour (USD/MWh) (IEA 2020b, 113), compared to approximately 50 USD/MWh for electricity from non-renewable sources (Shidore and Busby 2019). Since 2017, the average price for solar has fallen to approximately 75% of that for coal-based electricity, leading observers to remark on India’s strong alliance with coal despite the existence of seemingly cheaper energy alternatives (Hemalatha 2020). Projected price developments may provide support for this relationship: According to the International Energy Agency, levelized costs of electricity (LCOE) of new solar PV are projected to be lower than those of coal-fired power plants by 2025. Solar PV’s value-adjusted LCOE (VALCOE), however, is expected to reach 59.8 USD/MWh by 2025 and 65.4 USD/MWh by 2040, compared to a VALCOE of 54.3 USD/MWh in 2025 and 48.6 USD/MWh by 2040 for coal-fired power plants (Wanner 2019).

These prices, however, fail to reflect the ‘true costs’ of coal, beyond market prices and related to its socio-ecological effects, with recent studies stressing the need to move away from a coal-based development paradigm (Kalkuhl et al. 2019).

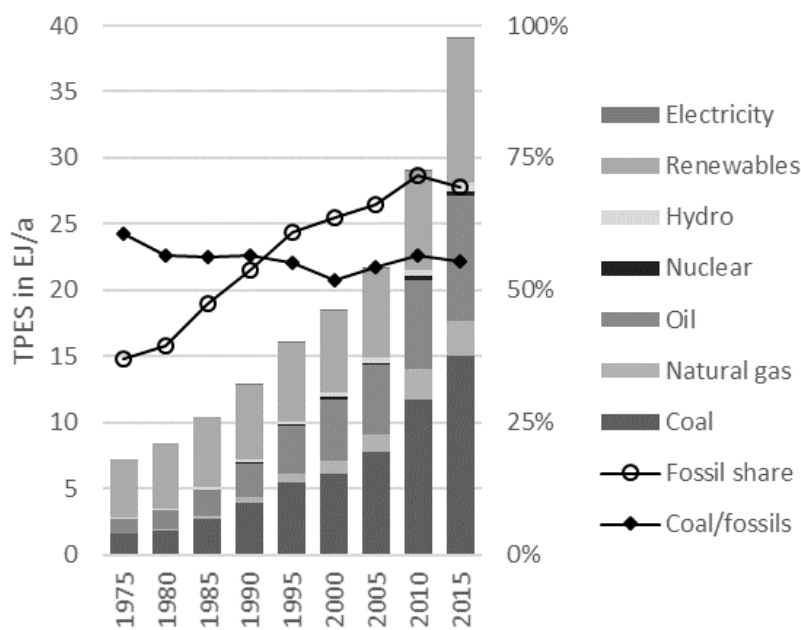


Figure 2: India's total primary energy supply (TPES) by sources in Exajoules (1 EJ = 10^{18} Joules) per year (EJ/a), 1975-2015. The share of fossil energy carriers (coal, natural gas, and oil) in TPES and the share of coal in fossil energy carriers are indicated on the secondary y-axis. Source of data: UNEP (2019)

Part of what is at stake here is clearly not only coal as an energy carrier but an entire coal *complex*, an intricate web of multiple stakeholders wielding power and allowing for certain sector(s) to flourish. Brown and Spiegel (2019, p. 153-4) have described the contemporary coal complex as “a global assemblage of finance, infrastructure, and expertise that together constitutes the political economy of coal and determines the speed and scale of its extraction, transportation, and eventual combustion”. Recent work on South Asian energy history has examined the Indian coal complex from the colonial period to the present (Shutzer 2020). Conceptually, the coal complex is akin to the ‘polluter-industrial complex’ of research centres, non-profit institutions, committees and political actions that hinder stricter environmental regulations, through a variety of methods including lobbying (Faber 2008) and to the ‘oil complex’ (Watts 2005) as the interplay of social, political and economic factors that allow for continued production of oil, despite the environmental conflicts and human rights violations associated with it.

Not just in India, but globally, the expansion of coal mining and coal combustion (cf. Figures 1 & 2) in the context of the climate crisis seems contradictory and anachronistic (Goodman, Marshall, and Pearse 2016). The demands for extensive emissions reductions on the one hand and for economic growth and capital accumulation on the other appear irreconcilable. The tension is manifest in energy policy and the (lacking) transformation of energy supply systems (Goodman 2016; Tyfield 2014; Blühdorn 2007). India's National Action Plan on Climate Change does not directly target supply and use of coal in order to achieve emission reductions, focusing instead on the expansion of renewables, improved efficiency, and the creation of sinks and on adaptive measures (Government of India 2008). In fact, the narrative commonly provided by representatives of the Indian government is that continued extraction of coal and expansion of the electricity system are necessary in order to meet the ‘needs’ of the population, especially those of India's poor, making coal “a compulsion” rather than “an option” (Milagros 2015). Coal is needed, the argument goes, for development – the expansion of industries and services for economic growth and employment, improved access to electricity and to clean cooking fuel for those considered to be “energy poor” (Jaeger and Michaelowa 2016). However, the largest and fastest-growing consumer of Indian electricity is industry: approximately 40% compared to less than 25% for households (with vast inequalities within household consumption) (Ranganadham 2018).

Power relations are an intricate part the Indian coal complex and ecological distribution conflicts (Martinez-Alier 2002) over coal form the centerpiece of our analysis. In these conflicts, the dominant claim to expansive use of coal and competing counterclaims are indicative of the underlying power relations. These power relations extend well into the current conflicted development of renewable energy in India in which

the land dispossession, exclusion, and injustices associated with the expansion of the coal complex are also reproduced (Lakhanpal 2019; Yenneti, Day, and Golubchikov 2016). We frame our study with the material and energy flows that biophysically characterize the Indian energy system and the socio-economic variables that unveil its political-economic structure. We demonstrate that despite the renewables-led rhetoric, India is in fact in the process of deepening its transition *to* fossil energy carriers, including coal, rather than moving away this energy form. This puts India well within observable global trends (Schaffartzik and Fischer-Kowalski 2018). From extraction to transportation and combustion, we find coal to be a contested resource and a commodity that does not address India's interlinked socio-ecological challenges of poverty (both economic and energetic) and unemployment, environmental degradation, and the climate crisis.

In the next section we describe the challenges of India's sustainability issues and the multiple worlds of coal. This is followed by a section describing the frameworks used in the paper, viz social metabolism and the metabolic transition, ecological distribution conflicts and political ecology. Section 4 explains the methodology used in the paper to arrive to the results in section 5. The following section discusses the findings to show that India is moving towards, and not away from coal, despite conflicts and associated environmental justice movements, and section 7 concludes that this energy transition is neither sustainable nor just.

India's contested coal complex

As leaders of the G77 in international climate policy negotiations, Indian government representatives have repeatedly insisted that emission reduction targets (and, by extension, emission reduction *measures*) necessary because of the past and current high emissions of the world's wealthy countries must not interfere with the possibilities for development of the poorer countries (Goodman 2016). Nonetheless, during the 2015 UN Climate Change Conference in Paris (COP21), the Indian government pledged to generate about 40% of electricity from non-fossil sources, both renewable and nuclear, by 2030 (Government of India 2015a). According to the current National Electricity Plan (Central Electricity Authority 2018), by 2027 rising electricity demand is to be met with 275 Gigawatts (GW) of total renewable electricity generation capacity, and 464 GW of coal based capacity, which is in addition to the already existing 478GW of coal based capacity at different stages of construction and likely to be materialized by 2022. The National Electricity Plan also echoes decisions, made between 2015 and 2016 in particular, to abort the construction of coal-fired power plants (Central Electricity Authority 2018; Edenhofer et al. 2018b). In 2017 alone, India added three times as much power generation through renewables as through thermal power plants (Central Electricity Authority 2018).

Global heating puts large parts of the Indian population at risk, especially people in low-lying, densely populated coastal regions and islands (Kumar and Tholkappian 2006), in cities and at industrial sites, already contaminated by particulate air pollution (Khosla and Bhardwaj 2019; Revi 2008; Guttikunda and Goel 2013). Agriculture, on which the country heavily relies, is expected to experience devastating impacts

(Kumar and Parikh 2001; O'Brien et al. 2004; Rama Rao et al. 2016; Zaveri et al. 2016; Taraz 2018). Based on their income, 70-80% of India's population can be classified as poor, living in households with less than Rs 5000 monthly income or subsisting on less than 3 USD per day. This vast majority also accounts for CO₂ emissions below the national average (Ananthapadmanabhan, K. Srinivas, and Vinuta Gopal 2007; Hubacek et al. 2017) while they are disproportionately affected by the climate crisis (Bidwai 2012). A study on the Indian metropolis of Bangalore indicates that higher income tends to be associated with higher domestic energy consumption and hence greenhouse gas emissions (Ramachandra et al. 2017). Simultaneously, the country's expanding electricity system is depleting its reserves of fossil energy carriers. For coal, these are, at 6.6 % of total global reserves, large in absolute terms (Shafiee and Topal 2009), but dwindle compared to the population (17.7% of the global total). Despite sizeable reserves, coal is not an energy source that can sustain India's energy system into the future. The practical implications of this unsustainability will be felt if and when the fossil energy system, most notably the electricity system, extends its coverage, especially in rural areas (Palit and Bandyopadhyay 2017).

Beyond its part in the climate crisis, the coal complex in India has significant health impacts – mainly through local air pollution – including premature mortality, ranging from 80,000 to 115,000 premature deaths per year in the local population living around coal-fired power plants (Guttikunda and Jawahar 2014). Coal-mine workers and communities around coal mines face many adverse diseases, prominent among them is pneumoconiosis (commonly known as black lung disease) due to inhalation of coal dust as well as diseases due to polluted drinking water (Sahu, Patra, and Kolluru 2018; Mishra 2015). Next to the slow violence of pollution, mining accidents are a persistent hazard (Maiti, Khanzode, and Ray 2009) with usually fatal consequences. From 2001 to 2014, more than 7000 accidents were reported across all coal mining companies in India (Tripathy and Ala 2018). In the three years between 2015 and 2017, more than 200 coal miners lost their lives in such accidents (Singh 2019). In 2017, the death rate per 1000 persons employed was 0.2, and the death rate per million tonnes of coal was 0.1 (Tripathy and Ala 2018). The rise of the coal complex is associated with land dispossession for construction and expansion of coal mines and thermal power plants across the country, with the associated loss of livelihood resources for the local population (Lahiri-Dutt, Krishnan, and Ahmad 2012).

Land dispossession, on which the expansion of coal mining often relies, is heavily protested at other extractive frontiers as well (D'Costa and Chakraborty 2017). Many environmental justice movements in India arise from conflicts over land acquisition (Chakraborty 2013), related to extractive as well as to renewable energy projects (Avila 2018; Lakhanpal 2019) and to wider regimes of dispossession (Oskarsson and Nielsen 2017), placing them within the global environmental justice movement (Martinez-Alier et al. 2016a). As the coal complex continues to expand - between 1994 and 2014, coal extraction doubled from approximately 250 to 500 million tons per year (Government of India 2015b) while coal's contribution to TPES increased from approximately one third to just under half (IEA 2019) – its infringement on land and livelihoods deepens.

As large and as internally heterogenic as the Indian economy is, it comes as no surprise that the coal complex is no homogeneous monolith, either. In dynamic spatio-temporal configurations, multiple economies of coal co-exist and have co-existed in India. Four broad types of economies can be distinguished according to the meaning attached to and realized through coal extraction (Lahiri-Dutt 2016):

- 1) *national coal* represented by state-owned Coal India Limited (CIL) and its subsidiaries,
- 2) *neoliberal coal* mined in privately owned and/or operated mines, usually linked to thermal power plants and contracted by CIL,
- 3) *institutionalized informal coal*⁵ produced in states of northeastern India, such as Meghalaya and Assam, in small-scale mines without legal recognition, and
- 4) the generally illegalized extraction of *subsistence coal* throughout the country.

From large-scale, high-tech to small-scale, no-tech, the materiality of coal extraction varies vastly between these economies, as do labour requirements and monetary value realized. Next to the conflicts between those in favour of and those opposed to coal extraction, conflicts arise between the differing interests of these (and possibly additional other) types of coal economies.

Conceptual framework, methods, and material

Studying the contested Indian coal complex clearly requires considering it in socio-metabolic as well as political-economic dimensions: How much coal is being extracted? How is extraction organized? Who are the actors upholding or contesting the functioning of the complex? We have based our study on a conceptual framework informed by social and political ecology. Fieldwork and interviews, data work and analysis contribute to our empirical insights.

The social and political ecology of coal

In order to fully study the coal complex and the social and the ecological implications of its trajectory, we must consider it in both biophysical and socio-cultural terms. The coal complex consists of land, of people, of water and air, of coal, of mines, of roads and rails, of power plants, of transmission lines and electricity. It also spans institutions and organizations, movements and alliances, values and beliefs.

In adopting a social-ecological perspective on the coal complex, we understand coal mining as occurring at the intersect of society's biophysical and socio-cultural spheres of causation (Fisher-Kowalski and Erb 2016). Within this social-ecological conceptualization, coal mining forms part of society's overall metabolism, of the processes of material and energy appropriation, transformation, and disposal required

⁵ Kuntala Lahiri-Dutt calls this *statecraft* coal.

for socio-cultural and biophysical reproduction (Fischer-Kowalski and Haberl 2015). In contrast biotic resources (crops, fruits, vegetables, for instance) which are an indispensable part of human nutrition and hence of the metabolism of the societies they form, coal – especially in the amounts it is currently extracted and combusted – has a function only in the metabolism of a society in which coal is used for heat (and the generation of thermal power). As industrializing societies accumulate material stocks for electricity use (e.g., lighting, appliances), distribution (grid, storage), and, of course, generation (power plants), they direct not only material and energy resources to the construction of these stocks but are also very likely to continue directing them to their future use. The lock-in into the fossil energy system is not only a question of financial investments and their amortization but also of societal material stocks (Krausmann et al. 2017). In this sense, the energy transition from a biomass-based to a fossil-fuel system occurs gradually and requires vast material resource investments; this is a process that began much earlier in some of the European countries (Great Britain, the Netherlands) than in other parts of the world (Fischer-Kowalski et al. 2018) where it is currently still ongoing (Schaffartzik and Fischer-Kowalski 2018). Socio-ecological transitions become evident as changes in society’s average metabolic profile, coinciding with social, economic, and ecological shifts as new production, consumption, and trade networks emerge (Fischer-Kowalski and Haberl 2007). As far as simplified, data-driven manifestations of such a transition are concerned, the process of industrialization following the Western blueprint tends to involve both a significant rise in per capita resource use with most of the growth occurring in abiotic materials such as construction minerals and fossil energy carriers (Schaffartzik et al. 2014). Between 1970 and 2015, India’s metabolic rate increased by a factor of 2.5, and the share of biomass therein dropped from 74% to 42% (UNEP 2019). Despite the expansion of renewable energy, the underlying inertia continues to stem from the transition to a fossil energy system (Schaffartzik and Fischer-Kowalski 2017; 2018).

The changing social metabolism requires the reconfiguration of society-nature relations, often against the will of the directly affected population (Scheidel and Schaffartzik 2019), giving rise to ecological distribution conflicts that overlap with social conflicts related to class, caste, gender and ethnic identities (Martinez-Alier et al. 2016a) and are studied in political ecology as environmental injustices (Martinez-Alier 2002). Political ecology understands environmental issues as political, and analyses the relationships between the political, social, and economic factors responsible for socio-ecological distribution conflicts (Robbins 2004). In adopting a political ecology perspective, power relations have to be considered across levels of scale to elucidate coal’s continued dominance in India’s energy mix amidst the global climate crisis and despite local mobilizations contesting the (expansion of the) coal complex. Political ecology provides the analytical tools to examine the roles of multiple actors and their power relations, highlighting the connections between vested (economic) interests and the degradation of land and destruction of livelihoods.

Integrating the social-ecological and political-ecological perspectives allows us to consider conflicts with the coal complex as conflicts over the “(re)configuration of metabolisms” with biophysical and social aspects (Demaria and Schindler 2016, 295). Specifically, we integrate insights on energy and climate policy,

ecological distribution conflicts and land rights, and alternative approaches to development. This can be considered the ‘political ecology of social metabolism’ (Scheidel et al. 2018).

Materials and methods

To assess and analyze the coal complex in India from a socio-metabolic and a political ecology perspective, a mix of methods and tools have been implemented in this paper. The initial desk research on movements against coal in India was carried out based on the Environmental Justice Atlas (EJAtlas). The EJAtlas is a tool for collaborative research on environmental justice movements with a theoretical framing rooted in activist knowledge (Temper, Del Bene, and Martinez-Alier 2015; Martinez-Alier et al. 2016b). As of July 2020, the EJAtlas covers 3216 cases worldwide, with the highest number of cases from India (336). Out of these, 72 are coal related. Academic articles as well as grey literature such as newspaper articles, recorded interviews, court documents and reports, were consulted as necessary to update or modify understanding of the cases. Many of the environmental justice movements in India are long-drawn, with substantial intervals between multiple court decisions as well as final outcomes, hence the need to continuously update our understanding of them (Roy 2019). After reviewing secondary literature and/or speaking with local actors, new cases of environmental justice movements emerging in India were added to the atlas, mostly focused on coal, such as the Goa Against Coal movement against expansion of Mormugao port for increased coal imports (EJAtlas 2017) and the conflict on rat hole coal mining in Meghalaya (EJAtlas 2018a).

Brototi Roy then conducted fieldwork in multiple locations in India for a total of six months between 2017 and 2019. Table 1 provides an overview of how many interviews were carried out in which context. The interviewees were people from the communities affected by the coal projects, district administration officials, as well as activists and journalists who have been associated with the movements.

State	District	Name of Conflict	Type	No. of Interviews
Jharkhand	Latehar	Forest rights claims	Coal mine	8
Jharkhand	Godda	Land disputes	Thermal power plant	12
Andhra Pradesh	Srikakulam	Sompeta wetlands	Thermal power plant	9
Goa	South Goa	Mormugao port	Coal transport	11
			Total	40

Table 1: Overview of interviews carried out at each site of coal-related conflict during fieldwork

While most interviews lasted from forty-five minutes to an hour, some were also two to three hours long, requiring flexibility in terms of preparation and planning. In the semi-structured interviews, Roy did not offer a definition of the conflict at hand, leaving it up to the interviewees to identify causes, triggers, opponents, and aims. The main structured themes then revolved around the history of the conflict, the methods and motivations for resistances, the outcomes of the protests, the present situation and the perceived future plan of action. Except for the case of Sompeta in Andhra Pradesh, where translation was

required from Telugu, all the other interviews were carried out in Hindi or English. In each of the places, Roy had an initial point of contact, who was either a member of the community, or had worked in the region for many years and was trusted by the locals. The movements in Godda and South Goa are currently active, whereas in Latehar and Srikakulam, the mobilization was at its peak from 2009 to 2013.

Interviews were supplemented by site visits and attendance at activists' meetings, gatherings and conferences, such as a meeting on forest rights in Ranchi, the state capital of Jharkhand, a national gathering of activists fighting against coal mining and thermal power plants in Dhanbad, the 'coal capital' of India, and academic workshops on land and tribal rights in New Delhi, where Roy participated as a direct observer. These contexts offered the chance for informal conversations with activists, policy makers and academics involved in the sphere of environmental justice, social movements, tribal rights and climate activism.

In May and June 2020, following the announcement of an investment of Rs. 50,000 crores (US\$ 6.5 billion approx.) in the coal sector of India and introduction of commercial coal mining auction for 41 coal blocks, 8 additional interviews were carried out virtually with climate justice activists to understand how this would shape the grassroots mobilization on ground, in the midst of a global pandemic. These interviews were also semi-structured and lasted between forty-five minutes and one hour.

These interviews and informal conversations over the last three years were triangulated with government reports, academic articles, grey literature and court documents to examine the multiple ways in which coal is contested, from a political ecology and environmental justice perspective.

Coal mining is simultaneously a social process, part of a wider political-economic configuration, and a socio-metabolic process. Next to the political ecology lens, we therefore also considered the Indian coal complex through the lens of social ecology, considering its role in the social metabolism, that is in the material and energy inputs, transformations, and outputs required to reproduce society (Fisher-Kowalski and Erb 2016). We considered the role of coal in India's overall material and energy metabolism, using data on extraction, imports, and exports and the resulting supply and consumption indicators (UNEP 2019; IEA 2019). Information on access to electricity was extracted from the World Development Indicators (World Bank 2019) and interpreted in the knowledge that these figures may represent an overestimation of access.

India does not have a centralized system of collection and reporting of energy data which makes it difficult to assess the current status and future national scenario in terms of the different energy mixes (IEA 2020a). As a result, we had to rely on international databases (UNEP, IEA) to some extent but wherever information was directly available from Indian statistical sources, we gave preference to this data. This especially pertains to Government of India coal statistics (Government of India 2015b).

Results

The rise in Indian coal extraction and use

India is expanding and solidifying its centralized fossil energy system, of which the electricity system is an important component. By 2015, coal contributed 39% to India's total primary energy supply (TPES), compared to 23% in 1970. Including petroleum and natural gas, 70% of India's TPES stemmed from fossil sources, compared to 37% in 1970 (Figure 3). The rise of renewables – hydro, wind, solar, biomass combustion and gasification – does not lead to slower growth and certainly not to reductions in fossil energy supply. The use of coal in TPES is growing more strongly in India than anywhere else in the world: Between 2010 and 2015, India's average annual growth rate was 6.2%, while China's was 2.2%, the USA's -5.7%, and the world average was 1.1%. Yet, India's per capita energy consumption is only a fraction of that of the wealthy, mature industrialized countries: 10% of that of Japan and less than 5% of that of the USA (all data discussed in this paragraph is from (UNEP 2019)).

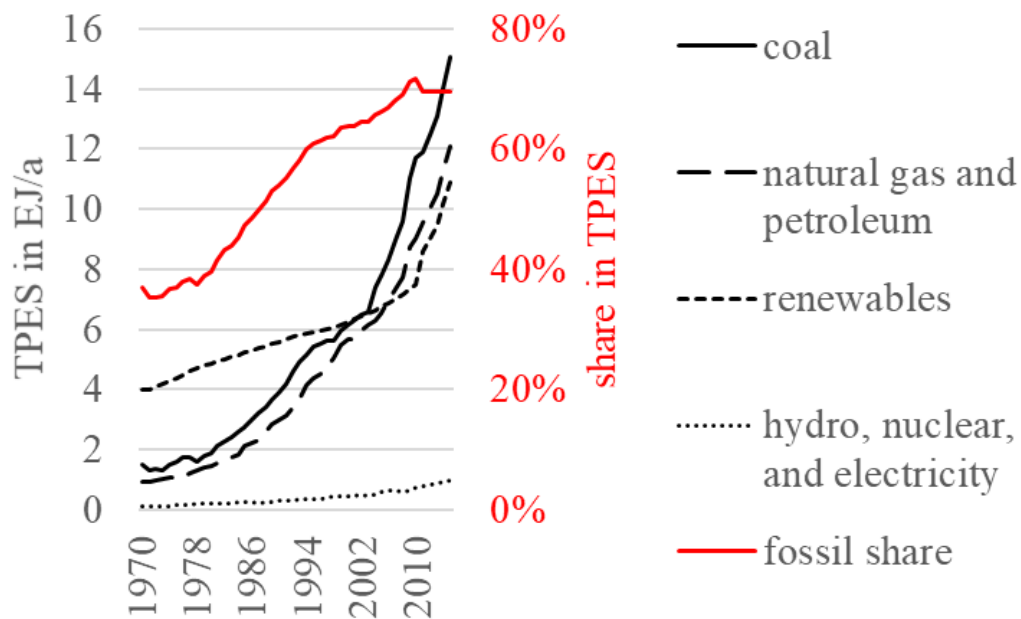


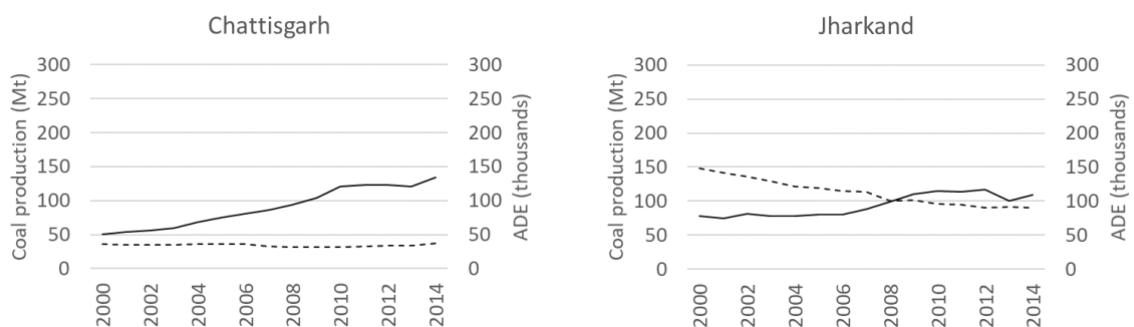
Figure 3: Between 1970 and 2015, India's total primary energy supply grew from 6.5 Exajoules (10^{18} Joules) per year (EJ/a) to 39.1 EJ/a. Although renewables grew consistently and especially strongly from 2010 onwards, this growth was outstripped by the accelerated supply of coal, natural gas, and petroleum. 70% of TPES stemmed from fossil sources by 2015. Source of data: (UNEP 2019)

India primarily extracts (and imports) coal for electricity generation. Approximately $\frac{3}{4}$ of India's electricity is coal-based with the remaining $\frac{1}{4}$ stemming almost exclusively from renewables and nuclear (IEA 2019). Imports have become important in meeting India's coal demand: For hard coal, the most commonly extracted and used type of coal in India, imports in 2015 corresponded to 20% of domestic production. Imports stem from other Asian countries: India receives the second largest share (after China) of

Indonesia’s coal exports, for example. India is also the main importer of steam coal – also primarily used to generate electricity – from the USA (IEA 2018a). As India accelerates its transition to a fossil energy system, it requires extractive expansion domestically and abroad. India’s dependence on coal imports and Indian investments in coal extraction in other countries link its energy consumption to conflicts in, for example, Australia (Rosewarne 2016) and Bangladesh (Misra and Mookerjea 2017), and in the recent past even in the Russian Arctic (Peter 2019).

Unlike the patterns identified in Latin American economies of resource (neo-)extractivism, the expansion of coal extraction in India is not driven by exports (Burchardt and Dietz 2014). This is framed politically as an argument in support of expanding coal extraction: In the shape of economic growth and employment (not just in coal mining but also in related industries) and industrialization with the associated access to electricity and other services, coal extraction is supposedly for the common good of the Indian people (Bidwai, 2012).

In direct terms, the Indian coal industry is not an important source of employment for the working population, over 50% of which are employed in agriculture, 25% in services, 11% in manufacturing, and 10% in construction (NSSO 2014). Less than 1% of employment is in mining and electricity, gas, and water supply combined (S. Chowdhury 2011). Coal mines are sources of employment during their initial establishment and provide less employment once the mine is ‘up and running’ – employment in resource extraction in general tends to be temporary and/or seasonal (Schaffartzik and Fischer-Kowalski 2018). Of course, all other industries, including the service sectors, depend on electricity, generated mainly through coal combustion. A large share of the economic value added by the country’s government-run Indian Railways is obtained in the transport of coal. However, neither Indian Railways nor Coal India Limited have created additional employment in step with the growth of their revenues. The coal complex replicates the “virtually jobless” growth that has characterized India’s economy in the late 20th and early 21st century (Dasgupta and Singh 2005). As coal output increased, average employment in coal mining either stagnated or even declined. This can be observed for the Indian average as well as for the three main coal-mining states (Chhattisgarh, Orissa, and Jharkhand, Figure 4). Labor productivity, i.e., the coal produced per average person employed daily, tends to be higher in those states with large, open-pit coal mines, more conducive to mechanization than in those states and areas where coal is mined manually. Both types of mining are subject to different conflicts as we will demonstrate in Section 4.2.



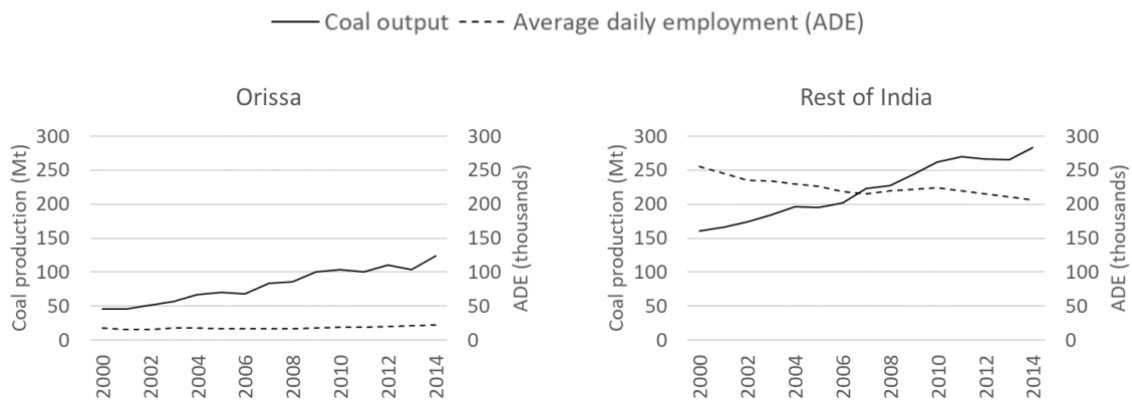


Figure 4: In all of India and in the major coal states, average daily employment (ADE) in coal mining (in 1000 people) decreases or stagnates as coal output (in Megatons (10^6 tons) per year (Mt/a)) increases. Source of data: Government of India (2015b)

Overall access to electricity, in urban as well as rural areas, improved during the period of rising coal extraction and use: While just over 40% of the Indian population had access to electricity in 1990, this rate more than doubled to 85% by 2017 (World Bank 2018). This average, however, is the result of almost complete access to electricity for the urban population (so long as the very important informal settlements in urban areas are not considered) and lower access in the rural areas. The gains in terms of electricity access are not proportional to the extracted coal: Between 1990 and 2010, access to electricity tended to improve by about 3% per year (World Bank 2018), irrespective of whether 2 million tons less coal than in the previous year were extracted (as was the case in 1998) or 35 million additional tons (2008). At the very least, this seems to indicate that access to electricity is not functionally hinged on expanding coal extraction.

Conflicts about coal

The conflicts erupting over coal indicate that significant parts of the population are not in agreement with extractive expansion as the development pathway. The underlying power relations that have been (and continue to be) sustained by coal became nationally very visible by what is popularly known as the CoalGate scandal. On September 24, 2014, the Supreme Court of India, the apex court of the country, ordered the deallocation of 214 of the 218 coal blocks allocated between 1993 and 2010. This was based on a court ruling that the allotments of coal blocks made by the government were illegal and arbitrary. Amidst discussions on corruption and crony capitalism, CoalGate became one of the major political scandals of recent years, causing an uproar about the illegal and corrupt ways of the Indian coal complex (Sarma 2013).

However, despite generating national awareness, the realities on the ground didn't change much. There were instead more worries and uncertainty over lost land and rehabilitation processes (Chakravartty 2015). Mining auctions also re-started soon after, and as of June 2020, privatized and commercial mining are being boosted, generating renewed protests.

A multitude of old and new struggles directly and indirectly related to coal have emerged of which we discuss only a few that are exemplary of the central contestations in many more conflicts. High levels of violence, including the deaths of protestors, are a frightening and common feature and a cross-cutting issue in protests over coal mining. Those who are confronted by the brutality of police and private security companies are oftentimes tribals (also known as *adivasis*) who are also at the forefront of many other ecological distribution conflicts (Shrivastava and Kothari 2012). The competing claims to extractive expansion include indigenous (tribal) or other local rights to land, sacredness, and protection from pollution and risks to health. The resulting disagreement with the current or looming configuration of coal extraction may be expressed in written communication and consultations, through demonstrations, or through blockades of mining or production sites or of transport routes for coal.

In understanding why, in times of such conflicts and the climate impacts of coal combustion, the coal complex continues to expand, the diversity of the Indian coal economies is not casual but causal. We follow Lahiri-Dutt (2016) in generally distinguishing national coal, neoliberal coal, institutionalized informal (statecraft) coal, and subsistence coal and investigate the conflicts to which each of these economies gives rise.

National coal - The state's claim to land

Jharkhand in India's east contains one-third of the country's coal reserves and is the largest coal-producing state. The state also has a large indigenous population who have historically been marginalized and oppressed (Munda and Bosu Mullick 2003; Shah 2011; Dungdung 2017). The indigenous communities displaced by coal mines experience livelihood insecurity and poor living and working conditions despite provisions for compensation and for employment in the mines operated by Coal India Limited (Meher 2009; Doshi 2016).

As a result, there are numerous conflicts against coal, many lasting for decades. One such conflict, ongoing since 2004 and located in the district of Hazaribagh, is against a coal mining project which is a joint venture between Coal India Limited and the National Thermal Power Corporation (NTPC), the largest power utility company in the country. Coal is to be mined from the Punkhri-Barwadih coal block of the North Karanpura coal field which has a confirmed deposit of 1400 million tons of coal. If realized, not only would forest and agricultural land be destroyed, but also the prehistoric megaliths discovered in the region (Imam 2003). Local villagers, many of them tribal, organized to protest the land appropriation for the sake of mining (Meher 2009). Since 2004, the *Karanpura Bachao Sangarsh Samiti* (Committee for the Struggle to Save Karanpura) had been protecting farmland against NTPC's coal mining ambitions, organizing a number of marches and demonstrations (fieldnotes, October 2017). Amidst protest, and with heavy security, mining had commenced on May 17, 2016 in the Punkhri-Barwadih coal block.

Soon afterwards, opposition politicians began to back the villagers in their struggle for rights to land and livelihood. This was because, out of the 8,745 families that NTPC had urged to sell their land, only

2,614 had accepted the compensation offered. Others protested the unjust level of compensation and the illegal methods of land appropriation (M. Chowdhury 2016). On August 14, 2016, approximately 200 villagers prevented NTPC contractors from building a resettlement colony. The police responded to this with tear gas and 22 rounds of bullets, injuring six people who were arrested when they reached a civil hospital in Hazaribagh for treatment. On September 15, some thousand villagers began a sit-in near a mining site in Chiru Barwadih village. On October 1, five of them were killed and at least 40 others injured, when in the early morning hours, police fired 60 rounds of bullets at these villagers (M. Chowdhury 2016). The fate of the villagers, the jungle, and the heritage of the Karanpura Valley remains undecided still as forced acquisition continues despite the protests (Iqbal 2016; Pal 2019).

Neoliberal coal – Threats to local livelihoods for coal production

India's south eastern state of Andhra Pradesh highlights the illegalities and violence associated with the coal complex, where both local livelihoods and ecologically sensitive regions are ignored in the construction of thermal power plants. In and around Andhra's coastal district of Srikakulam, at least seven thermal power plants were proposed in the early 2000s on fertile wetlands, which were allegedly falsely denoted as wasteland for obtaining environmental clearances (Dasgupta and Tata 2010). Kakarapalli (EJAtlas 2018b) and Sompeta (EJAtlas 2019), two of the proposed sites in Srikakulam district, were the epi-centers of protests against the power plants. These protests continued despite the deaths of activists at the hands of the police. The proposed sites for Kakarapalli promoted by East Coast Energy Private Limited and for Sompeta by Nagarjuna Construction Company, were on expanses of wetlands where construction would destroy the livelihoods of the farmers and fisherfolks (Sarma 2011; 2010). As a result, both regions saw different forms of mobilization to stop these coal projects, including relay hunger strikes (fieldnotes, February 2017).

Under the banner of Paryavaran Parirakshana Sangham (Committee for the Preservation of Environment), 3000 people gathered in Sompeta on July 14, 2010 to protest the destruction of their land, water, and air that the proposed power plant would cause. In the brutal repression of their protest, three of them were killed when police opened fire on the protestors. In Kakarapalli, protests were similarly directed against the locally proposed power plant on February 28, 2011 when two people were killed by police fire. In both instances, many more protestors were injured. Due to these protests and the associated violence which made national news, the Union Ministry of Environment and Forests set up a committee which confirmed the existence of wetlands and the dire socio-ecological consequences of setting up thermal power plants in the regions (Narayanan 2015).

In Sompeta, it took several years for the state government to concede to the protestors' demands and assure the site be used only for "eco-friendly" projects such as agri-business which the locals are still struggling against to conserve the unique wetland on which their sustenance depends (Rajeev 2015). In Kakarapalli, it was only in August 2017 that some indication was provided that the project would not proceed – reportedly due to financial issues and changed government policy (Venkata Rao 2017). However, according to the May

2019 report of the Ministry of Power on thermal power projects in India, the plant is still under construction, despite slow progress due to financial problems (CEA 2019). According to local sources, the plant was partially set up and then abandoned, but not before destroying roughly a thousand acres of wetland (Adve Forthcoming).

Institutionalized informal coal - Legal grey areas created by statecraft

Coal mining in the north-eastern state of Meghalaya is quite different from the rest of the country (EJAtlas 2018a). Under the Indian constitution, Meghalaya has special status as a Sixth Schedule state which gives indigenous communities the rights to the natural resources (unlike the rest of the country, where these resources are owned by the state governments). This implies that whoever owns the land also owns the coal. However, according to the Mines and Minerals Development and Regulation Act, coal is a major mineral that cannot be mined by individuals. The legal grey area in which coal is nonetheless mined in Meghalaya is the result of rights granted in the process of statecraft nation-building.

The most common form in which coal is mined on the individually held lands of Meghalaya is rat-hole mining: manual coal extraction in which workers reach the coal seam by digging and crawling through small tunnels, approximately 1 meter in diameter. On April 17, 2014, the National Green Tribunal (NGT) banned rat-hole mining in Meghalaya as well as transport of coal previously extracted in this manner, stock-piled at mining sites in the East Jaintia Hills, West Khasi Hills and South Garo Hills regions of the state. The ban followed a petition filed in the neighboring state of Assam, where acidic discharge from the mines in the Jaintia Hills had polluted the Kopili river basin. The petition further cited illegal and unscientific (rat-hole) mining methods leading to hazardous working conditions for the miners (NGT 2014).

The ban on rat-hole mining triggered fundamental debates on livelihoods and indigenous rights (McDuierra and Kikon 2016). The practice of rat-hole mining enabled people to make a living from coal with very low capital requirements. This was argued to allow people to meet their livelihood needs and to be within the rights of the indigenous population within the Sixth Schedule areas to use their land and the resources it harbors. On these grounds, a lifting of the ban was requested. At the same time, many activists claimed that rat-hole mining only benefitted a few powerful people, including politicians, while the tribals had been displaced in large numbers and for decades. This raised the issue of what kind of development rat-hole mining allowed for and what conceivable alternatives there were.

The presence of a coal mafia (and the violence it exercises) is an open secret in Meghalaya (Saikia 2019). On November 8, 2018, activists Agnes Kharshüing and Anita Sangma were assaulted, reportedly by the coal mafia's henchmen, for documenting the extent of illegal coal mining in the East Jaintia Hills (Roy and Martinez-Alier 2019). A few years prior, in 2015, P J Marbaniang, a sub-inspector of police, was found dead under suspicious circumstances after he had seized 32 trucks that had been used in violation of the NGT ban on transport of coal (Press Trust of India 2015). The mafia consists of people with social, economic

and political power who stand to gain much from continued coal extraction. As a result, there have been multiple petitions made to lift the ban, and in July 2019, the Supreme Court revoked it (Mazumdar 2019).

Subsistence Coal - *Koyla Satyagraha* livelihoods and entrepreneurs

In many parts of central and eastern India, there exists a subsistence coal economy of people who, in most cases, are former farmers who have been displaced by larger mines (fieldnotes, October 2017). Within the affected communities, small-scale coal mining is a claim to subsistence which has been formalized in a movement called *Koyla (Coal) Satyagraha*⁶. By extracting coal manually, the miners and their communities exercise non-violent protest against the current patterns of coal extraction while simultaneously claiming as theirs the resources that their land harbors (Chandrasekhar 2015). 'If the government wants the coal beneath our land, we will give it to them, but we won't part with our fertile land.' The first such *Satyagraha* started in 2011 in Gare village, in Raigarh, Chhattisgarh and since then has spread in other parts of the state as well as to Jharkhand (Amnesty International India 2015).

Discussion: More power relations than electric power

Despite strong opposition to the expanding coal complex; despite the local environmental destruction through mines, and air pollution associated with mining, transport, and combustion; despite the disastrous effects that the climate crisis has on India; despite the political commitment to renewable energy and environmental protection, "King Coal" continues to reign in India.

In just two decades, between 1994 and 2014, India's annual coal extraction doubled from 250 to 500 million tons and fossil fuels use continues to grow rapidly. That the Indian government so strongly adheres to the coal project is indicative of the multiple socio-economic functions of coal beyond energy provision (Lecavalier and Harrington 2017).

The most visible justification for the expansion in times of conflict and climate crisis is that coal supposedly allows for development, that is, for industrialization following the Western (and more recently Chinese (Tyfield 2014)) blueprint, with coal (and the harnessing of energy it represents) attracting investment and enabling much-needed better access to energy, especially in the shape of electricity; and with mines and power plants and trickle-down effects into the economy generating the employment the country desperately needs; in sum, with coal improving the income and the lives of all Indians. This was, for example, the justification provided for the auction of 41 coal blocks for private companies to mine in June 2020 (Ellis-Petersen 2020)

⁶ The term *Satyagraha*, translated from Hindi to mean 'holding onto truth' was a form of passive political resistance used by M.K. Gandhi first in South Africa and then during the freedom struggle in India in the first half of the twentieth century, and has been replicated in many social and political struggles in the country since then.

Whether or not such goals – lofty and basal – are truly what motivates decision-makers stands to question. Either way, the reasoning or the narrative alone does not drive the observable change. Based on our analysis of the Indian coal complex, we propose that what gives rise to the unimpeded expansion of coal, in the face of local opposition and of the climate crisis, is the constricted socio-metabolic corridor coupled with the diversity of coal economies coexisting in the seemingly monolithic coal complex.

An extraction imperative in the socio-metabolic corridor

The continued expansion of coal extraction in India and the rising levels of imports, fueling a fossil electricity system, fall into the ongoing build-up and cementation of a heavily centralized material- and emission-intensive fossil energy system (Schaffartzik and Fischer-Kowalski 2018). This system constricts the socio-metabolic corridor, that is, the present and future space within which society's biophysical reproduction must take place. The changes to the local and global environment caused by societal resource use range from irreversible forms of deforestation, soil erosion, damages to human health, and loss of agricultural land, to the climate crisis with its far-reaching effects on natural ecosystems and society-nature relations. Any and all future biophysical societal reproduction will have to occur within the confines of these changes. At the same time, the claims to land and other resources made in the name of industrialization and expansion of the fossil energy system preclude other forms of land and resource use. Coal extracted and burnt now will not be available in the future. To make land occupied now by coal mines or power plants viable again for other uses – agriculture, human settlement, and environmental protection – will take a substantial material and energetic effort and/or a very long time. As the expansion of the coal complex progresses, the metabolic corridor becomes gradually narrower. Within the smaller operating space, competing human activities are even more likely to come into conflict with another.

Worryingly, it is conceivable that the closing of the metabolic corridor will cease to be gradual and instead occur in an exponential manner. The reason for this change of pace is that the expansion of the coal complex prescribes the increasing use of coal. Within the capitalist economic system, mines and powerplants have expected active lifetimes that do not have to do with the useful services they deliver to society but with their return on investment. People who – in the course of extractive expansion – are dispossessed of their livelihood resources are forced to undergo a metabolic transition of their own (Scheidel and Schaffartzik 2019), thereby becoming dependent on the corresponding energy and material availability and access. They are coerced into engaging in wage labor to secure a market-based subsistence, changing their consumption patterns accordingly. The dependence on wages often gives workers no other choice but to put up with hazardous working conditions, with high risks of accidents.

Economic diversity and cumulative expansion

Behind the seemingly monolithic growth of India's coal complex are different, partially competing processes of expansion. Following Lahiri-Dutt (2016), we have referred to these as economies of coal (Sections 2 and 4.2) which differ in socio-metabolic and political-ecological terms. The coexistence, the

differences but also the overlapping of these economies cumulatively enable the expansion of the coal complex. Indian coal can simultaneously be conceived of as a state-building and -upholding resource, an opportunity for capitalist growth, a regional development chance (for entrepreneurs and politicians), and the main source of household reproduction. Within Lahiri-Dutt's category of national coal, there is a market-based form of subsistence coal (or, it has been successfully established) in which people are or feel they are dependent on the coal complex for income and thus for their livelihood. This circumstance can easily lead people to develop a certain attachment to this resource and its use (or to their right to profit from the expansion of the coal complex). Conflicts over coal show that where coal is extracted by state-held companies, law enforcement is at their beck and call, even to turn against the Indian population at large. Considering that – even though it is state-held – Coal India Limited is not an operation for the common good but a business required to make profit, this highlights the role of law enforcement in de facto protecting capitalist production imperatives (Chandra 2018). That the same law enforcement organs would then conceivably protect the interests of private companies (and neoliberal coal) is not much of a stretch and has already been demonstrated in practice.

Conclusions: Are the coal phase-out and renewable energy ingredients of transformation?

Given the problems attached to coal expansion in India, which we have demonstrated, the announced coal phase out (Central Electricity Authority 2018) is – in theory – an important countermeasure. A true coal phase-out, however, would have to involve two things that are absent from the current plan of the Indian government:

1) the decision to leave the “coal in the hole” and to halt extraction even while it is still considered ‘economically viable’; Instead, the continued expansion of the coal complex makes it seem as though the coal phase-out will not be a concerted effort but rather the result of exhausted coal reserves in some areas and financially unviable ‘stranded assets’ in others. India's tryst with coal is far from over, although it may possibly be slowing down (Vishwanathan, Garg, and Tiwari 2018) and might never reach Chinese dimensions. This is directly related to the unrealized second requirement of the coal phase-out:

2) a tremendous joint endeavor of people, government, and business to transform the energy system; not only from one based on fossil fuels and nuclear energy to one based on renewables but also from a heavily capitalized, centralized system to locally controllable decentralized energy provisioning.

Neither the lip service of the Indian government to renewable energy nor the actual investments and installed capacities break the mold of the fossil system, which is neither sustainable nor just. In fact, many renewable energy projects have raised similar problems as the coal complex expansion, including the dispossession of the local population from their livelihood resources and the sustained lack of access to electricity, even the vicinity of new projects. One example is the 113 MW Andhra Lake wind power project, promoted by the multi-national Enercon, on the outskirts of Bhimashankar Wildlife Sanctuary in the Western Ghats of Maharashtra. Here, the villagers who live next to the project site don't have access to

electricity while the project threatens their livelihoods and the rich biodiversity of the region (Lakhanpal 2019). This pattern is followed in different parts of the global south, where land is always a contested commodity (Avila 2018). It is studied globally as ‘extractivism of renewables’ in which renewables such as hydropower often replicate similar patterns of violence as have been observed in the extraction of fossil and metal minerals (Del Bene, Scheidel, and Temper 2018).

From a global, somewhat abstract perspective, the expansion of the Indian coal complex is troubling because of the present and expected contribution to the climate crisis. From a more concrete solidarity with those locally protesting this expansion, the threat to human livelihoods and human lives is devastating. The violence that is inherent to the observed conflicts over coal erupts not only over the rights to extraction or to electricity that are at stake but over the fundamental power relations and rights (all too often “rights” claimed without a legal basis) to resources. In this light, why actors go to such extremes to enforce one way of production becomes simultaneously more understandable and more deplorable; the conflicts aren’t even about getting a service to the people who may need it. What is so violently enforced in all these cases is also the dominance of the interests of powerful actors over the local population.

This dominance, as the article shows, based on underlying power relations, is replicated in the different subnational economies of coal in India, in particular, and across different countries and commodities more generally. It must be further investigated to understand why coal continues to reign, across different scales, despite global concerns of climate crisis and local concerns of adverse impacts on health and environment.

Chapter 2: India's new coal geography: Transitioning to more fossil energy?⁷

Abstract

The advance of renewable energy around the world has kindled hopes that coal-based energy is on the way out. Recent data, however, make it clear that growing coal consumption in India coupled with its continued use in China keeps coal-based energy at 40 percent of the world's heat and power generation. To address the consolidation of coal-based power in India, this article analyses an energy transition *to*, rather than *away from*, carbon-intensive energy over the past two decades. We term this transition *India's new coal geography*; the new coal geography comprises new ports and thermal power plants run by private-sector actors along the coastline and fuelled by imported coal. This geography runs parallel to, yet is distinct from, India's 'old' coal geography, which was based on domestic public-sector coal mining and thermal power generation. We understand the development of coastal thermal power as an outcome of long-term electrical energy shortages and significant public controversy within the old coal geography. By analysing the making of the new coal geography at a national level, and scrutinizing its localised manifestation and impact through a case study of Goa state, we outline the significant infrastructural investment and policy work of a dispersed network of public- and private-sector actors that slowly enabled this new coal energy avatar. We argue that the enormous effort to establish India's new coal geography further entrenches the country's reliance on coal. The result is that for India, energy security is a choice between domestic and imported coal.

⁷ This chapter is a modified version of the published paper Oskarsson, Patrik, Kenneth Bo Nielsen, Kuntala Lahiri-Dutt, and Brototi Roy. "India's new coal geography: Coastal transformations, imported fuel and state-business collaboration in the transition to more fossil fuel energy." *Energy Research & Social Science* 73 (2021): 101903 and can be accessed at <https://doi.org/10.1016/j.erss.2020.101903>

Introduction

While Europe and North America are transitioning away from coal, its reign over power generation is not over yet. Among the main countries that consume coal, India remains a key player: Not only is domestic coal extraction and use still expanding – the country is also emerging as a key agent in the global coal trade as the second biggest importer (Dubash et al. 2018; IEA 2019). India's increasing use of coal, coupled with China's unrelenting coal consumption, means that coal contributes 40 percent of the world's total power and heat generation; a share in global energy production which has remained the same for the past 40 years in spite of growing attempts at decarbonisation (IEA 2020). The catastrophic implications of burning coal for power generation at this rate are well documented and can on its own destabilise the climate change target of staying below the two degree centigrade rise in temperature (Edwards 2019; Warner and Jones 2019).

India is expected to become the main international coal importer in the future as Chinese reliance on imported coal reduces (IEA 2020), with Indonesia and Australia the main coal exporting countries (Cardoso and Turhan 2018). India imports higher purity coking coal for steel-making, primarily from Australia, since long. The import of thermal coal for power production is, however, entirely new. Before 2002, thermal coal did not even exist as a category in official trade statistics.⁸ In the fiscal year 2007-2008, India imported 10 million tons of thermal coal. This rose to 45 million tons in 2011-2012⁹. The latest available figure from 2018-2019 shows imports of 150 million tons (Central Electricity Authority 2018)¹⁰, and for the fiscal year 2019-2020 the projection is 200 million tons (Press Trust of India 2019). Using 2007-2008 as a baseline, this amounts to an increase in recorded imports of 1,400 percent in just over a decade.

In response to India's dramatically increasing coal imports, we analyse the production of what we term India's new coal geography; an entirely new geography of thermal power infrastructure based on international supplies of coal that has so far not been mapped and analysed systematically. The new coal geography is predominantly coastal and controlled by private actors who operate ports and power plants that rely on imported coal. And, it runs parallel to, the domestic public sector mining and power generation of the 'old' coal geography. To map and analyse this new coal geography, we ask: What are the political-economic and technical-infrastructure realignments that have enabled coal-based power generation in this new coal geography? How is this geography

⁸ See the Export-Import database of GoI's Ministry of Commerce, <https://commerce-app.gov.in/eidb/>.

⁹ Available statistics use financial rather than calendar year.

¹⁰ Domestic coal mining meanwhile recorded an output of 730 million tons for 2018-19 (Ministry of Coal, n.d.).

configured at the national level and, how do subnational regions change infrastructurally, politically and environmentally when they are integrated into the new coal geography? By addressing these questions that incorporate both the making of the new coal geography at a national level, and its localised manifestations and impact in specific contexts, we argue that India's rise as a global player in coal trade, coupled with the emergence of a new coal geography at home, represents an energy transition to (more) coal-based energy. This energy transition will add to India's already substantial reliance on coal energy for years to come, with significant negative consequences for global climate change. This finding is in line with recent research on energy transitions that show the remarkable endurance of fossil fuels like coal in spite of available, lower cost renewable options both globally (Edenhofer et al. 2018; York and Bell 2019) and in India (Mohan and Topp 2018; Sareen 2018).

The article is structured as follows. We start our analysis of the making of India's new coal geography by providing theoretical entry points into energy transitions and the making of resource geographies. This is followed by a discussion of our methods. We then proceed to map and analyse the new *national* coal geography, followed by its *localised* manifestations and impact through a case study of Goa state that is rapidly emerging as a new coal hub. In the next analytical section we bring our findings from the national and the state level together. Finally, in the conclusion, we reflect on how the enormous scale of financial and political investments that has enabled India's new coal geography is likely to block the country's transition away from coal.

An energy transition to (more) coal-based energy

The large literature on energy transitions has to date mainly focused on how to design, implement, govern and operate new, low-carbon power production facilities, based on the assumption that old forms of energy will disappear once renewable options become available (Grubler et al. 2018). One cause for great optimism has been the increasing availability of cost-competitive forms of renewable energy around the world giving impetus to the massive decarbonisation efforts that are urgently needed. One factor that underpins the optimism in much of the energy transitions literature is the understanding of energy transitions as the process of a new fuel acquiring a large or dominant *share* of overall use (Sovacool 2016). Following this definition, historical examples of energy transitions include transitions from wood to coal and from coal to oil. However, if we focus not on the *share*, but rather on the total *amount* of energy used, a quite different picture emerges where no actual energy transition has ever taken place in modern times as the amount of coal, wood and oil that are currently used globally are all at historic highs (Roy and Schaffartzik 2021). New energy forms, including more recent renewable ones are in this perspective energy additions

rather than transitions (York and Bell 2019). This is since older forms of energy may reduce their overall share of energy use but remain important, or even continue to increase, in terms of amount. The global energy system in an energy additions perspective remains locked into high coal energy use for the foreseeable future dismissing reports of a 'terminal decline' and requiring fundamental re-evaluation of the so-called end of coal (Edenhofer et al. 2018; Jakob et al. 2020).

As some parts of the world reduce their use of coal, primarily Europe and North America, it becomes pertinent to understand how and why India is not only expanding domestic coal production and use, but also adding an entirely new energy geography based on imported coal (Chandra 2018; IEA 2020). Understanding the specific national and international networks which continue to support high carbon energy are vitally important in order to seek actual energy transitions away from the use of fossil fuels rather than merely adding renewable energy on top of existing fuels, as has been the case at a global level to date. To understand the emergence of new coal energy, we draw inspiration from recent work on resource geographies within Human Geography, and specifically assemblage thinking which enables us to see the interlinking of different networks of humans and materials (McFarlane 2011; Bakker and Bridge 2006). Putting in place a complex resource geography like coal energy is in this perspective always 'a process of making, of continuous transformation, and of becoming, rather than as something final or static' (Kadzak and Oskarsson 2020): 240). Resource geographies rely on a set of interlinked logics of economy, territory and subject formation (Bridge 2011; Huber 2015) that bring together a rich "energyscape" (Cardoso and Turhan 2018) of new relations as different sites become connected in the production, transport, generation and transmission of energy. Such relations not only shape energy and socio-environmental outcomes; they also crucially produce economies and forms of politics whose impact may span generations (Mitchell 2013). If we understand resources and energy 'as interconnected networks tying together sites and scales' (Haarstad and Wanvik 2017): 434), we see how the shaping of a new (coal) resource geography depends on much more than merely infrastructural solutions. The contestations and fragmentations of energy geographies can be understood by looking at material infrastructures as well as socio-cultural aspects and the political structures which shape them (Haarstad and Wanvik 2017). New resource geographies – in our case, India's new coal geography – thus emerge as one spatial aspect of 'a global assemblage of finance, infrastructure, and expertise that together constitutes the political economy of coal' (Brown and Spiegel 2019): 153–154). Rather than seeing energy production as singular and fully functional systems with a controlled and centralised design, this conceptualisation draws our

attention to distributed experimentation by many different actors in pursuit of partial and compartmentalised energy solutions.

In this article, we analyse one crucial aspect of the present energyscape of coal, namely how the assemblage of the network of relations across Indian national and state government together with domestic and international private sector entities in power generation, logistics, and transmission enable India's new coal geography. Coal is perhaps the resource that more than any other material commodity has shaped India as a nation, including its political economy and ecology (Lahiri-Dutt 2014). Coal transforms landscapes and rearranges social relations around the coalfields, along transport routes, and in India's megacities where much of the electrical energy is consumed. Coal is also fundamental to India's national and global relations by influencing industrial growth, the balance of trade, and national energy security concerns. Crucially, the availability of coal in large quantities close to the surface across central-eastern India, the long history of extraction with significant technical and infrastructural provisions, and the many-faceted and multi-tentacled bureaucratic superstructure that surrounds it, gives unprecedented preferential status to this fossil fuel – in spite of the many factors that support a transition to low-carbon energy. The creation over the past two decades of a new coal geography in India marks a significant departure from the well-established trajectory of domestic energy security rooted in coal-based resource nationalism, what Elizabeth Chatterjee (2020) calls India's model of fossil developmentalism.

A prerequisite for understanding how this new coal geography has been assembled is to disentangle the existing system of domestic coal in India. Lahiri-Dutt (2016) uses the concept 'coal worlds' to show that the Indian coal industry was never a singular, homogenous industry. She identifies four separate coal worlds and name these statecraft coal, neoliberal coal, non-legal coal and illegal coal. These coal worlds are defined by different economies with distinct production logics, and labour and supply arrangements. The first two worlds constitute the official sector with large-scale power production in the public sector for electrical energy (statecraft coal), and in the private sector to generate power for industries like cement and steel (neoliberal coal). The two other worlds constitute the informal sector, with different community uses of coal in small-scale operations that are either illegal, or which defy straightforward distinctions between legal and illegal (hence termed non-legal by Lahiri-Dutt). Against this backdrop, the new coastal coal geography emerges as a fifth coal world in India since about the year 2005. It operates within the formal large-scale system of

coal energy, and yet with distinct production logics and supply arrangements to the other two formal coal worlds, in addition to the specific spatial dynamic of coastal infrastructure.¹¹

The backbone of Indian energy security was always Lahiri-Dutt's statecraft coal: domestically produced coal that relied on a set of interlinked public sector enterprises. In this 'old' (and still-expanding) coal geography, state-owned Coal India extracts coal in the central and eastern parts of the country. This coal is then transported by the Indian Railways by heavy-duty links to the main cities of the North, West and South, with the National Thermal Power Corporation – or one of the many state electricity boards around the country – as final customers. All this is done for electricity generation primarily for the “urban-industrial nexus” (Lahiri-Dutt 2014).¹² India's coal energy sector has since Independence managed to put in place a relatively robust model for coal extraction and transport, and electricity generation and transmission. The sector has been able to produce and transport ever larger amounts of coal, particularly from the 1980s onward, to new and expanding metropolitan power plants, even as it has faced stiff resistance and pressure from a vast number of groups and actors around the country (Lahiri-Dutt 2014; Dubash, Kale, and Bharvirkar 2018). Yet in spite of its vast scale and substantial policy support, neither coal production nor thermal power generation have ever kept pace with electricity demand (Dubash, Kale, and Bharvirkar 2018; Chatterjee 2012). India's old coal geography has continued to struggle to serve all consumers, to remain financially viable, and to adhere to environmental and social legislation (Dubash, Kale, and Bharvirkar 2018). Reforms to increase coal-based power generation have included opening up to private sector coal mining and power generation for use in for example steel and cement production in 1993 (Lahiri-Dutt 2014). Significant weaknesses have, however, remained and these culminated in the early 2000s, when the already distressed old coal geography entered into a prolonged state of crisis as the large gap between demand and supply escalated dramatically. As other forms of electricity production failed to contribute, India's inability to supply electricity in line with developmental targets, and with the aspirations of key pressure groups, became evident (Dubash, Kale, and Bharvirkar 2018; Chatterjee 2012). A discourse of “a national energy crisis” subsequently took hold and set in motion policies and programs seeking to expand energy production outside of the traditional central-eastern coal heartland.

¹¹ Since our analysis focuses on the spatial and political-economic aspects, we prefer the use of coal geography to Lahiri-Dutt's coal world.

¹² We here outline only the main characteristics of the old geography for comparative purposes (see Lahiri-Dutt 2014 for further details).

Another side to the ‘energy crisis’ is the profile of Indian coal and thermal power companies as among the lowest cost producers in the world. A large part of this low-cost profile – the ability to produce cheap coal-based electricity – is because of the sector’s inability or unwillingness to deal appropriately with a range of social and environmental consequences, including compensation and resettlement of project affected populations, environmental mitigation, and proper mining closure and post-mining rehabilitation when operations stop (Lahiri-Dutt 2014; Oskarsson, Lahiri-Dutt, and Wennström 2019; Ghosh 2016). The reorientation of coal-based energy production to new territories, that is, the coastal regions, promises improved stability against some of the challenges that plagued the old geography, such as ‘disruptive’ public protests and litigation related to mines and thermal power plants. In addition, the coastal states along India’s western and south-eastern coastline generally display a more predictable pro-business orientation, are better governed, and are less prone to political instability and unpredictable populist policies that have often characterised the central and eastern coal belt. However, the move away from the forests and agricultural fields into new territories have generated new political conflicts due to new forms of land expropriation and dispossession (Menon et al 2015, Levien 2018). And operating along the coastline comes with new challenges, including administrative approvals to use often ecologically sensitive stretches of land as well as environmental and other clearances and permissions (Lahiri-Dutt 2014, Chatterjee 2020). While coastal land might be seen as ‘available’ since ownership – like in the coal-bearing inland – is vested with the state as common property, or is seen as waste land, much coastal land is in fact occupied by informal land users resulting in new conflicts and resistance movements.¹³ Coastal coal infrastructure, like elsewhere in the country, thus requires high-level political support to secure land and administrative approvals for developers.

India’s new coal geography signifies dramatic rearrangements of coastal land use, the rise of new private players in the sector, significant infrastructural transformations, realigned domestic energy security concerns, and modified international relations – even as it extends and solidifies the use of coal energy at a time when renewable alternatives are not only needed but also increasingly affordable. Understanding the making and manifestation of this new coal geography thus offer important insights into the future of coal, not just in India, but globally. Before we turn to a more detailed mapping and analysis of the making and manifestation of India’s new coal geography, we introduce our research methods.

¹³ Such processes are well known in the global and Indian land grabbing literature where so called vacant lands have been identified for new investments.

Research Design and Methods

In this exploratory case study we outline and seek to understand the emergence of a new, national coal-based energy system separate from the dominant system of thermal power production in India. Following Bridge and Gailing we understand energy transitions as ‘the production of novel combinations of energy systems and social relations across space’ (Bridge and Gailing 2020: 1038). We define India’s new coal geography as coal energy infrastructure established in coastal India with mainly private sector involvement, predominantly using imported coal,¹⁴ and supported by the Government of India (GoI) in the fields of energy policy, infrastructure, and land governance. Such coastal energy infrastructure was absent across India before the year 2005 barring a few megacities like Mumbai or Chennai.

Our political economy understanding of energy transitions enables us to look beyond socio-technical solutions to embrace political challenges which shape outcomes (Bridge and Gailing 2020; Sorman, Turhan, and Rosas-Casals 2020). Significant controversy has followed the development of India’s new coal geography with differences of opinion within the national government and wide-spread resistance to specific projects among various civil society actors and groups. The picture which emerges from our analysis by necessity plays out unevenly across the nation (Goodman and Marshall 2018). To analytically integrate the ‘big picture’ of the new coal geography in its entirety, with the ‘smaller picture’ of its manifestation in, and impact on, particular localities and environments in Goa state, we apply a multi-level perspective. This allows us to outline national energy development while providing deeper insights into one relevant local context. This is particularly relevant in India’s federally organised governance system where the state governments exercise authority over several domains that impact directly on energy transitions, including land governance. We use the Goa case study as an ‘exploratory’ rather than a typical case to analyse emerging sub-national rearrangements of existing and new energy infrastructures that enable the new coal geography to materialise.

For the big picture, we combine publicly available government documents and news reports with satellite images. We analysed the thermal power projects which were approved up to 18 November 2019 in all the coastal districts of India, according to information available on the website of the Ministry of Environment, Forest and Climate Change. We found 84 cases in total that we classified as coastal, and examined their environmental clearance approvals along with other administrative documents to identify their stages of operation (under construction, delayed, operating or cancelled), the composition and percentage of coal in supplies (domestic/imported), and the

¹⁴ Available environmental approval documents show that many coastal power projects propose to use a mix of domestic and imported coal in spite of their different chemical compositions.

project promoters (private/public). We also used the largest inventory of global environmental justice movements, the Atlas of Environmental Justice (www.ejatl.org), in combination with local news reports to analyse active protests against these coastal power plants (Temper, Del Bene, and Martinez-Alier 2015).

To examine actual implementation on the ground and create the map in Figure 1 below we visually inspect satellite images. This does not require advanced GIS analysis. As (Oskarsson, Lahiri-Dutt and Wennström: 9) point out, ‘anyone with an internet connection can browse Google Earth images to see the “black holes” at the heart of India’s energy security’ since mining, transport and electricity generation activities based on coal colour the infrastructure and its immediate surroundings pitch black. Unfortunately, a lack of data prevents us from fully untangling the international coal supply network that feeds into India’s new coal geography. We know, however, that some supplies come from Indian-owned mines in for example Australia, Indonesia and Mozambique (Oskarsson and Lahiri-Dutt 2018), while other supplies are purchased on the global market from independent producers, or even occasionally on the domestic market if coal is available at a lower rate.

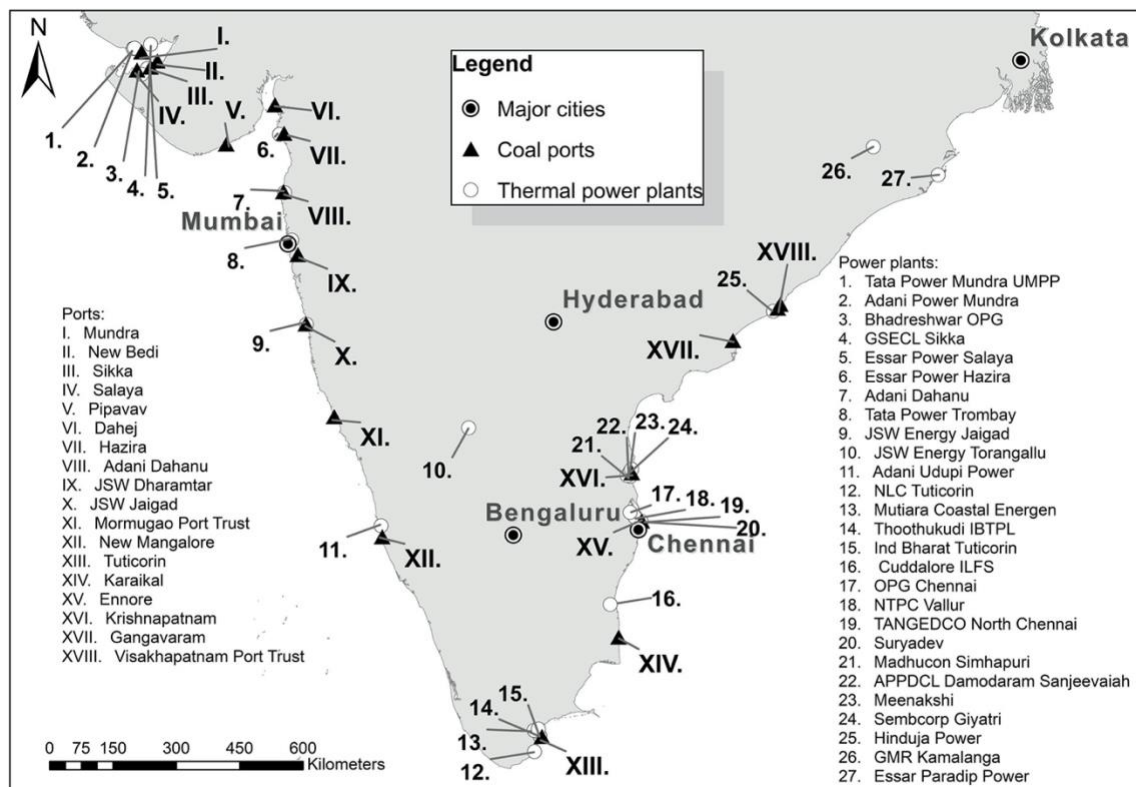


Fig. 1. Coastal Power plants and coal ports

Our analysis of the Goa case is based on a combination of qualitative field research in the ethnographic tradition, coupled with a desk study of relevant documents. The second author has

worked on environmental challenges in Goa over several years, while the fourth author conducted fieldwork for two months in 2017 focusing explicitly on coal protests in multiple locations in India including Goa. She interviewed and had informal conversations with social and environmental activists, journalists, fishing communities affected by coal projects, and concerned citizens affected by coal dust in Goa. She conducted 11 semi-structured interviews with the main themes revolving around the history of the coal conflict, the methods and motivations for resistances, the outcomes of the protests, the present situation and the perceived future plan of action to prevent turning the state into a coal hub. While most interviews lasted from forty-five minutes to an hour, some were also two to three hours long, requiring flexibility in terms of preparation and planning.

We have also analysed key policy documents pertaining to coal-related infrastructure projects in Goa, and have closely monitored the news coverage of coal-related developments in the state over the past four years. We have also analysed reports and other public statements produced by civil society and activist groups.

The emergence of India's new coal geography

The preconditions for India's new coal geography lie in the liberalisation of the economy from the 1980s onward which slowly opened the coal energy sector to private sector actors ([Lahiri-Dutt 2014](#)). An early key reform in the sector happened in the year 2000 when the private sector was allowed to mine coal for own industrial production purposes in for example cement and steel-making units. And since 2018 the entire sector has been opened up for private companies, including international ones. Other significant policy reforms that have paved the way for the new coal geography include the possibility to import coal and power generation technologies required to expand energy production. In combination, these reforms and rearrangements represent dramatic change for an industry long stuck in old ways of producing energy ([Lahiri-Dutt 2014](#); [Dubash, Kale, and Bharvirkar 2018](#)).

As shown above, it was in response to an intensifying energy crisis that extensive policy experimentation in the domain of energy began around 1995. This process would unfold over several decades and involved frequent adjustments between various branches of the GoI, led by its Ministry of Power. The focus was initially on domestic coal-based power expansion, but widened over the years to include private sector thermal power from 2006 (Menon et al 2015). Key to the development of India's new coal geography was the Ultra Mega Power Production (UMPP) policy, introduced in 2005, to support large power plants of at least 4,000 MW using high efficiency Super Critical Technology. By establishing a set of very large power plants the GoI hoped to generate a further 100,000 MW by the year 2012. Nine projects were originally proposed,

with four located next to coal mines and five in coastal locations. One key reason for selecting coastal locations – other than the use of imported coal – was the possibility to use seawater for cooling, thus solving the problem of scarcity of freshwater that hampered plants on the fringes of Indian cities.

While most coal projects proposed since the early 2000s were based on the use of domestic coal, UMPP projects encouraged the use of imported coal of a higher quality than what is available in India, particularly in terms of sulphur content (Ministry of Power 2004, 2007). Over the years, more proposals were made. Fifteen received approval, with approximately half of these intending to use imported coal (Ministry of Power 2007). However, to date only two UMPPs have become operational: the coastal Mundra power plant in Gujarat, and the Sasan power plant next to a coal mine in the central Indian state Madhya Pradesh. Reasons for the failure of UMPP projects to start operations are similar to those that have affected other large power plants across the country: public protests over land acquisition; delayed or denied environmental approvals; and a lack of affordable coal supplies (Ministry of Power 2004). In spite of its limited appeal, the UMPP policy did manage to open up a new approach to producing power in coastal locations, something that had not been attempted before.

While overcoming the energy crisis has been a top, long-term national goal, significant resistance to foreign energy dependency remains within key government ministries. The import of oil and natural gas weighs heavily on India's balance of trade, and branches of the GoI have therefore not looked favourably at adding coal to the list of imported fuels. Successive high-level Ministers have continued to reiterate their intention to end all import of coal, and recently the Minister of Coal stated that all coal import would end in the fiscal year 2023-24 and India would be self-reliant in its coal needs (Ellis-Petersen 2020). Yet in spite of such statements, the amount of imported coal continues to rise. This is in no small part due to *other* branches of the GoI offering support for coal imports, including reduced taxes.¹⁵ But exactly where all this coal is used is unclear as data remains incomplete. The Central Electricity Authority of the Ministry of Power states that for the fiscal year 2018-19, 61 million of a total of 150 million tons of imported coal was used in power production (Central Electricity Authority 2018). Of this, 40 million tons was used for coastal coal producers designed to use imported coal, while a further 21 million tons was imported for power plants intended to use domestic coal. The imported coal in the latter category is termed 'blended

¹⁵ While analysing why different Indian ministries entertain widely different attitudes towards coal is beyond the scope of this article, we note that such obvious contradictions are not uncommon for India,.

coal' and is used to augment uncertain and more polluting supplies from domestic sources.¹⁶ All in all, many coastal as well as interior power plants continue to struggle with the quantity, quality and price of coal.

In GoI environmental approval documents, thermal power plant proponents are typically only required to broadly indicate the source of the coal they plan to use, even though the composition of the coal has a direct bearing on pollution control measures as well as financial viability. For example, the approval for Adani Power Ltd.'s Mundra thermal power plant merely states that international coal will be used. At times requirements are included to specify the country of origin, such as Indonesian coal for the Ennore Creek thermal power plant. Coastal power plants may also indicate a range from 100 percent imported coal to as little as 30 percent. Adding to the regulatory uncertainty is the flexibility that producers have to use more domestic coal when this becomes available, as the GoI has allowed already operating power plants to shift part of the coal to lower cost Indian coal (Central Electricity Authority 2018). Available statistics indicate, however, that the opposite also occurs as power plants designed to run on domestic coal use imported coal. Given this flexibility to switch between sources of supply, we may expect further coal supply changes as operators align with domestic and international coal market fluctuations, changing regulatory norms and the overall trajectory of the Indian power sector.

Indonesia is the world's largest exporter of thermal power coal and has been the main source for India's coastal power plants (IEA 2019). Domestic and international coal market purchases make up the remainder of imported coal to India, although details about the quantities and qualities remain scarce. Direct ownership of coal assets abroad by Indian firms include Indonesian mines, where Tata Power is the co-owner of the PT Kaltim Prima Coal mine since 2007 , while GMR is a co-owner of PT Golden Energy Mines since 2011 (Oskarsson and Lahiri-Dutt 2018). A number of Indian companies have attempted to establish Australian coal mines. The largest and most controversial among these is the Adani Group's proposed Carmichael mine and GVK's Alpha Project (Talukdar 2016). The cost of transporting coal is always a major concern for low-cost operations like those in India, but transportation costs become even more important for imported coal since transport across oceans is often two to three times as high as the cost of transporting domestic coal. Data from the Indian Ports Association show that 58 million tons of coal was handled across public sector ports during the six months from April to November 2019. However, these statistics do not disaggregate handling, and some of the coal that is moved along the Indian coastline is domestic coal. The Adani Group, which owns a number of thermal power plants, also

¹⁶ Among the 54 public and private thermal power plants listed in 2020 as using blended coal, many are located far from the coast in northern states like Punjab or Chandigarh. These power plants have in many cases been forced to import low ash coal to comply with air quality regulations.

handles about a third of all Indian coal import via its ports (Press Trust of India 2019). The company operates five ports around India with the flexibility to switch to domestic coal if this becomes preferable to international coal. In a newspaper interview, one Adani executive stated: ‘[...] that’s the advantage we have. Having ports on both sides of the peninsula, you can catch coal for instance at Dhamra and ship it to Goa, Vizag [Visakhapatnam], Mundhra or Dahej’ (Kurian 2018). The power plants of India’s new coal geography will depend on shipments of coal for decades to come, and an operator such as the Adani Group is well positioned to ensure a flexible supply of it via its ports, from a variety of international and domestic sources. Flexibility in coal supply and port infrastructure are in this manner two additional key enablers of the new coal geography.

GoI data shows that 77 coastal power plants with widely variable power generation sizes were approved from 2005 to 2014, mainly by private sector proponents, but also by public sector ones. The projects were environmentally approved which means that specific sites had been identified, and that detailed Environmental Impact Assessment reports had been finalised and extensively vetted in both public hearings and by environmental experts. In contrast, after 2014 only 7 projects have been approved, possibly because imported coal has become more expensive. Had all 84 environmentally approved coastal power plants been operational, they would have added significantly to India’s currently 281 operational thermal power plants. However, as of early 2020, “only” 27 of these 84 power plants (with an installed capacity of 36,600 MW) are operational while a further 3 are under construction. This indicates the difficult and contested path from formal approval to actual operations (see Table 1). In addition, the operational power plants often have less installed capacity than in the approval document, but the range is very wide, from a mere 60 MW to 4,620 MW.

Table 1. Coastal thermal power plants in India.

Total proposed	84
Cancelled or delayed	54
Operating	27
Under construction	3

Source: Own analysis based on the Environmental Clearance database of Ministry of Environment, Forest and Climate Change, Government of India.

Some of the new energy producers are among India's largest business groups, including Adani, Reliance and Tata. The Adani Group has, in addition to building ports, been active in thermal power by building its own coastal power plants and buying already existing ones. At the same time, the company has invested in a new power plant away from the coast, running on domestic coal. Other power producers include companies with generic names like Coastal Energen Pvt Ltd and Thermal Powertech Ltd.¹⁷ Little is known about these companies and their operational and financial strengths. Data also shows five public sector power plants using imported coal, though only as a supplement to the main supply of domestic coal.

As seen in figure 1 above, we find thermal power clusters across a few states: in Gujarat (seven power plants), Andhra Pradesh (six) and Tamil Nadu (seven). These are industrialised or higher income states and have higher energy demand. Within the states with coastal power, most of the power plants form coal clusters in the immediate vicinity of a coal port. A few larger companies have also been able to build dedicated ports to import coal to meet their own needs. Moving the coal a short distance overland from ports to power plants appears the preferred choice for operators, rather than locating the power plant on cheaper land further away from the port. But the picture is somewhat muddled as we also witness the opposite phenomenon where power plants that are located in or close to the main coal mining regions import coal, while power plants located further away from Indian coalfields still use domestic coal. The possibility to secure domestic coal supply contracts in many cases appear to trump the logistical considerations of coal transport.

In sum, India's new coal geography consists of coastal power plants spread across the country and driven by many different investors, from well-known Indian business groups, to state power producers, and relatively unknown private entities. The fact that these plants have great operational flexibility indicates the considerable political support they enjoy: where public authorities could have strictly enforced approval conditions pertaining to plant size, fuel use, or environmental regulations, they have in practice preferred that power plants are established, become and remain operational. While we thus note that overall the private sector appears preferred when establishing new port and power plant facilities, the entire sector struggle in actual operations characterised by

¹⁷ M/S. Coastal Energen Pvt Ltd. runs a 1,050 MW power plant in Thoothukudi District, Tamil Nadu, M/S. Thermal Powertech Corporation India Limited has a 1,980 MW unit in Nellore District, Andhra Pradesh. M/s Ind-Barath Power (Madras) Ltd. operates a 660 MW power plant in Thoothukudi District, Tamil Nadu. M/s Torrent Energy Ltd operates a 950 MW unit in Bharuch District in Gujarat.

dramatic declines in private shareholder value and recurring government bailouts of public power plants.

While this section has mapped and analysed the big picture of India's new coal geography, we now turn to the analysis of how this geography is established in specific sub-national locations. We do so through a case study of Goa, a state that is emerging as a new hub for imported coal. The purpose of moving the analysis to a lower level of scale is to draw attention to (1) the extensive and oftentimes environmentally destructive transformations in infrastructure, land use, and physical environments that occur as particular regions are integrated into India's new coal geography; and (2) the uneven and regionally varied nature of the national geography. In using Goa as our case study, we acknowledge that it is not a representative case – indeed, it is India's smallest state, and one of its wealthiest. At the same time, the integration of Goa into the new coal geography as it currently unfolds is characterised by two transitions that render Goa a useful 'exploratory case' (Yin 2014): The transition of the region from marginal to central in the coal trade as existing iron ore export infrastructure was repurposed for coal import; and the slow but steady transition in coal import from coking to thermal coal.

Goa: Reassembling infrastructure for India's new coal geography

Although Goa is now emerging as a new coal hub, it was iron ore mining that for long played an important role in the state's economy, and much of the state's infrastructure was configured around mining. Mines in their own right claim much land, but the mining infrastructure additionally incorporated road transport networks and riverine spaces since much of the ore was transported by barge from the mining areas to the Mormugao Port, managed by the Mormugao Port Trust (MPT) port for export. In fact, the MPT derived most of its revenue from iron ore exports. When mining activities stopped, the associated infrastructure no longer underpinned the movement of raw materials, goods, and services, and thus no longer played a role in the generation of capitalist value. Mining sites were unproductive, barges and trucks sat idle, roads and rivers saw less traffic, and activities and revenue at MPT fell dramatically. The ban on mining was thus a central component in a conjuncture in which multiple factors coalesced to create enabling conditions for the emergence of a new coal geography: the loss of jobs and income caused by the collapse of mining; a dormant infrastructure; a revenue crisis at MPT; a new national Indian government with grand visions for new infrastructure projects; and private industrial actors requiring coal. From this conjuncture emerged attempts to rework the state's existing infrastructure to a new coal geography.

At Mormugao port, central actors (both public and private) moved relatively quickly to reposition it as a multi-commodity port with an important coal component. In 2015, the port had two dedicated coal terminals, both operated by private operators: one by a subsidiary to the private sector steel group Jindal South West (JSW), JSW Port Ltd.; the other by the private sector conglomerate Adani Group's Adani Mormugao Port Terminal Private Ltd. While coal had started arriving in minor quantities at MPT already in the 1990s (Gokhale 2017), total coal imports stood at only 2.7 million tons in 2001. In 2011-12, it had risen to nearly 7 million tons, and in 2015-16 to nearly 12 million tons per year – an increase of more than 70 percent in four years. In contrast to the new national coal geography where thermal coal is crucial, coking coal still dominates at Mormugao port, and comprised 82 percent of total coal imports in 2011-12 and 67 percent in 2015-16. But a transition is clearly under way as growth in the import of thermal coal has outpaced coking coal during this period: thermal coal import more than tripled while coking coal imports grew by 37 percent.

The integration of Goa into India's new coal geography aligns with the big national infrastructure programs of the GoI, namely Bharatmala and Sagarmala. The former is a road and highways project, while the latter seeks to 'unlock' the potential of India's waterways and coastline to promote 'port-led prosperity'. Under Sagarmala, a new master plan for Mormugao port was finalised in 2016 in which coal imports played a key role. To turn the port into a coal hub, the plan envisioned several new infrastructure projects at the port. One was the capacity expansion of the existing coal berths run by private actors to double import (Gokhale 2018). The second was the expansion of the approach channel to enable much larger vessels carrying more cargo to dock. The third was the development of three additional berths to be used for coal import by Vedanta Limited, one of the largest extractive industry companies in the world (Jamwal 2017). The ambitious master plan operates with an 'optimistic scenario' in which up to 50 million tons of coal would arrive per year in 2035. To reach these targets the master plan identifies 17 coal-backed power plants and more than 20 steel plants 'in the pipeline in the hinterland' (AECOM India Pvt Ltd 2016): 291) as potential clients and envisions a much greater role for imported thermal coal in the future.

The coal geography that MPT's 'hub' connects to is truly global. As described by *The Indian Express* (Nair 2017), a coal shipment for a steel factory in Karnataka began its journey in South Africa's Richards Bay – one of the largest coal export facilities in the world – where it was loaded onto a vessel sailing under a Bahamas flag, by the Singapore based importer Adani Global Private. After it arrived in Goa's Mormugao port, it was transported by road to its final destination in Koppal, Karnataka. Currently, the destination for most of the imported coal is the expanding, coking coal

dependent steel factories in Karnataka across the state border (Gokhale 2018). The Karnataka steel industry includes key actors at the MPT such as JSW Steel, another subsidiary of JSW. Its Bellary unit is the largest steel plant in the region, requiring more than 15 million tons of coking coal per year (Gokhale 2017). While this demand is largely met by ports located on India's East coast, JSW's terminal at MPT supplies one third of the coking coal (Gokhale 2017; 2018). The closer proximity to the Mormugao port cuts down costs for JSW and is the main driver of the company's desire to expand its import via Goa. The Adani Group, another key actor involved in the reconfiguration of Mormugao port, mainly imports coal for its clients in the steel industry in Karnataka. But, Adani is also India's largest private thermal power producer with an installed capacity of 12,450 MW, most of which is coal based. This includes a 1,200 MW capacity thermal power plant in Udupi in coastal Karnataka, which uses 100 percent imported coal as fuel, and is proposed for a significant expansion to 2,800 MW.

While the first part of Goa's infrastructural rearrangement thus centred on the expansion of an existing public port to enable private operators to import more coal, the second part centred on enabling the movement of imported coal from Mormugao port to destinations in Karnataka. This involved widening and/or linking existing roads, doubling existing railway capacity, and setting up power transmission lines to provide power generated outside the state to flow into Goa. Existing road, rail *and* riverine infrastructure is thus being reassembled to suit the needs of coal, with new infrastructure being added as well. These ambitious plans for a new road-river-rail corridor between Goa and Karnataka all entailed construction in the ecologically sensitive Western Ghats mountain range, one of the world's 'hottest biodiversity hotspots' and home to two wildlife sanctuaries. In addition to widening existing roads to enable more trucks to pass, an entirely new highway on viaducts running through pristine parts of one wildlife sanctuary is planned (Gokhale 2017; Jamwal 2017). The new power transmissions lines similarly run through the wildlife sanctuary for several kilometres, while the laying of a second railway track through the Western Ghats takes place on the steepest gradient anywhere on the Indian Railway System (D'Mello 2017). According to official figures, more than 34,000 tonnes of coal is transported by this rail route every day, most of it by JSW (Nair 2017a; 2017b). Existing riverine infrastructure is also being integrated into the new coal geography. Six rivers have been nationalised under the National Waterways Act, 2016, in order to facilitate their rapid 'development' with, among other things, new jetties (D'Mello 2018) that are ostensibly designed to stagger coal silos from MPT towards the east (Nair 2017). In combination, the road and rail projects will mean that 80,000 trees need to be cut and more than 200 hectares of protected and reserve forests in the Western Ghats diverted (D'Mello 2017), and

it is estimated that the integration of Goa into the new coal geography will in this way affect a very large number of Goan villages (Vohra 2020).

Many of these deeply inter-related coal projects only make economic and infrastructural sense when seen as a singular intervention. Officially they have, however been split into small and isolated projects. This obscures the bigger infrastructural transformation underfoot, artificially minimises the ‘official’ environmental impact of the new coal geography and makes it difficult for those affected by localised coal-related developments to organise politically across sites and scales. Yet from an environmental justice perspective, the negative impacts have been evident in Goa, and resistance has been considerable. Goan activists and civil society groups have documented how repeated violations of coal handling at Mormugao port, for example uncovered coal storage cause coal dust to travel for miles, ‘blackening lungs, pushing up incidents of respiratory disorder...threatening fragile forests, paddy fields, countless streams and rivers’ (Nair 2017). Cases of bronchitis, sinusitis and pulmonary disorders have reportedly increased manifold, and the layers of coal dust that settle on fields and plants may damage photosynthesis, affecting crop yields and biodiversity (Nair 2017). Inadequately covered rail wagons spill coal along their journey through the state and release fugitive dust emission (Nair 2017). The increased movement of trains and trucks with heavy loads also threaten old heritage buildings, and the channel dredging and capacity expansion at MPT coupled with riverine coal transport threatens to destroy the livelihoods of local fishing communities (Jamwal 2017; Gokhale 2017). Coal has also been documented washing up on beaches, both in large chunks and as fine dust.

The vibrancy of Goan civil society (Sampat 2015) has ensured considerable popular opposition to the integration of Goa into India’s new coal geography. Close to one third of Goa’s villages have passed resolutions opposing the movement of coal through their areas (D’Mello 2017), and different social movements have organised to stop coal-related infrastructural developments. This includes the Old Cross Fishing Canoe Owners Co-op Society that is connected to the National Fishworkers Forum, as well as Goa Against Coal, and Our River, Our Rights. The environmental appeals court the National Green Tribunal has been petitioned, cases have been filed in state-level courts, and the popular protests against coal led to the mandatory public hearing on environmental impacts for the MPT harbour expansion and road construction being extended to a full eight days, making it probably the longest ever public hearing in India. And, in the summer of 2020, protests against laying double tracks for railway transportation of coal erupted in many villages. Various state institutions have also interfered in the process. The Goa State Pollution Control Board has ordered reduced coal handling at Mormugao port, or temporarily withdrawn the consent to operate, following breaches in pollution levels or excess coal handling. The Goa Coastal Zone

Management Authority has expressed concerns about the consequences of dredging the approach channel; and the High Court has admitted Public Interest Litigation against coal, even if it has refused interim stays on coal handling. The integration of Goa into India's new coal geography has thus been highly controversial, and the negative environmental and social consequences evident (EJAtlas 2017). But the import and transport of coal continues with strong political support.

The emergence of Goa as a coal hub within India's new coal geography is illustrative of the uneven and varied manifestation of this geography, as also of the ways in which it appropriates, reassembles and adds to existing infrastructure and political-economic structures to suit the needs of imported coal, often with environmentally destructive effects. For instance, rather than using a newly established port on "easy to acquire" coastal lands, existing public sector ports were used in Goa. Both in Goa and in several other states, private companies operating within public sector ports are in fact the key movers of coal. In this regard, Mormugao port resembles Visakhapatnam port in Andhra Pradesh, Chennai port in Tamil Nadu and New Mangalore port in Karnataka, where official ownership is with the public sector, but where privately operated 'berths' within these ports do the actual heavy lifting. The infrastructure put in place by the national Indian government over many decades is thus put to use in the new coal geography by private sector investors who are able to swiftly adjust to new opportunities for importing coal, or moving domestic coal from one coast to the other. While the overall extent of this form of 'hidden privatisation' – where formal ownership remains public while operations are carried out by private companies – is not known, it is striking that parts of India's old coal geography have similarly been stealthily privatised, with many of Coal India's officially public sector mines in central India now outsourced to private operators (Lahiri-Dutt 2016).

Our Goa case is also illustrative of some of the contingencies and conjunctural specificities (e.g. the collapse of mining and the revenue crisis at MPPT) that enable and shape the uneven integration of a region into India's new coal geography. In this sense, more regionally focussed empirical research is needed to understand the specificities for other regions and states. Unlike for example Goa, Andhra Pradesh and Tamil Nadu, the state of Gujarat follows a very different pattern insofar as its coastal coal infrastructure does not consist of a focused geographical agglomeration next to a major port. Instead, many power plants in Gujarat simply have their own ports. In contrast, although Goa has a major public port by national standards, its State Electricity Department does not have its own power generating facilities, but depends entirely on allocations made by the central government, with roughly 80 percent of the coming from coal-based power plants outside

the state. Specific state-level political economies are thus important in shaping how a region is integrated into (or left out of) the national coal geography.

Lastly, the Goa case has illustrated the considerable political support for India's new coal geography. The arrival of coal in Goa has been very unpopular among a broad section of citizens, and opposition has been significant. Goa arguably has India's most vibrant, most active, and most resourceful civil society. Class and rural-urban differences are less pronounced in Goa than elsewhere in India, and there is a long history of social movements from below centred on the preservation of land, forests and livelihoods that continue to inspire environmental activism in the present (Sampat 2015). Yet, while the anti-coal campaigns in Goa might have succeeded in slowing down the transitions underfoot, they have not been able to stop coal in its tracks.¹⁸ This does not bode well for other states where the political support for coastal coal is equally robust, but civil society is weaker.

As we argued earlier, then, Goa may not be a 'typical' case of how sub-national regions are integrated into India's new coal geography. While further research may indicate differently, there may in fact *not be* a typical sub-national case. Other states with significant coastal power – primarily Gujarat, Andhra Pradesh and Tamil Nadu – all present different combinations of features that have enabled the new coal geography. In contrast, states with coastal locations and industrialised economies like Maharashtra, Karnataka and West Bengal which could have been integrated into the new coal geography have not extensively supported coastal coal power plants. Untangling the drivers of the uneven manifestation of India's new coal geography is thus a complicated affair that requires in-depth studies at the intermediate and local levels.

Conclusion: A new Indian coal geography reinforces fossil fuel dependence

The development of a hitherto unmapped new Indian coal geography located along the Indian coastline, dependent on imported coal and reliant primarily on the private section, presents the emergence of a new resource landscape. This new energyscape is disconnected from the 'old' coal geography that was centered on extraction in the coal-bearing central-eastern heartlands, heavy duty railway transport and power production on the *peri*-urban fringes of mega cities. India's new

¹⁸ This ability to ignore or fend off anti-coal protests is derived from the intimate nature of the state-business alliance in Goa where the distinction between political and economic elites is blurred. Many political and bureaucratic careers in Goa are built on successful business ventures – in the real estate sector, or in more or less direct involvement in the mining industry. It is well documented that some of Goa's most important political families function as focal points for large networks that span across the government, the bureaucracy and industry, whose shared interests they both articulate and respond to.

coal geography reinforces fossil fuel dependence, and, as such, represents a transition to additional coal-based energy in spite of the rise of lower cost renewable energy solutions.

While the prolonged Indian energy crisis from the 1990s onward paved the way for the establishment of a new coal geography, there was no clearly articulated government master plan driving its emergence, and no coherent centralised policy approach that made it happen. What we have seen is rather a prolonged period of gradual and distributed experimentation and flexible adjustment by private and public sector companies, but also across national and state governments, at a conjuncture of energy crisis that created enabling conditions for the emergence of a new coal geography operating alongside the old one. The new coal geography is thus not simply the outcome of unleashed market forces as much as private sector investors were taking the lead: private coal depended on state divestment and reduced government control over energy and coal, but it also crucially piggy-backed on India's political and bureaucratic structures for support, clearances, and permits. Indeed, existing public infrastructure and extensive government support were (and continue to be) essential for making the new coal geography financially, politically and logistically possible. India's new coal geography thus relies on deregulation, while at the same time looking for support from the same political and bureaucratic structures during initial establishment and continued coal operations.

While coal thus continues to be India's favourite fuel for electrical energy, the reasons for this are not simply straight-forward path-dependence. The flexible and responsive public-private collaboration in the domain of coal that we have analysed in this article has managed to put in place coal transport and thermal power generation capacity (via old and new coal geographies) on such a scale that it has largely succeeded in overcoming India's persistent electrical energy supply crisis.¹⁹ Coal thus continues to enjoy policy support, in spite of occasional statements to the contrary, and despite the multiple socio-environmental injustices it produces (Roy and Schaffartzik 2021). And, very large public investments have already been sunk into the material and infrastructural systems that sustain the new coal geography, suggesting that it will not be easily abandoned. At the same time, it is very clear that a large part of India's thermal power sector is far from profitable. Operations are rather characterised by low plant load factors, renegotiated price purchasing agreements, lower cost coal supplies, reduced environmental control, and hollowed out shareholder prices on the Bombay stock market. The state-business collaboration able to build and operate coastal coal infrastructure is in these manners a highly uneven one without clear

¹⁹ Other persistent problems such as the equitable distribution of electricity to all citizens including the poorest, and the inability to deal with the negative environmental and social consequences of energy production remain largely unaddressed at a national level.

winners. And yet the infrastructure continues to find enough support to remain operational while coal imports rise steadily.²⁰

And as we move to the state-level we are able to note how in addition to the prolonged work of experimentation and adjustment between many actors, the consolidation of coal also depended on considerable on-the-ground work to retrofit existing, and adding new, infrastructure. In other words, even as India continues to rely on coal which is the most conventional form of energy known in the country, it has taken an enormous amount of effort to establish the new coal geography. These efforts include large monetary investments by private and public sector actors in new and retrofitted infrastructure capable of handling millions of tons of coal. But they also include the proactive support of political and bureaucratic structures across consecutive national governments, and the different sub-national legislative bodies which are part of India's system of federal governance. With the spectre of energy crisis still in recent memory, it appears like Indian policymakers prefer to continue the support for the new coal geography even when renewable energy is available at a lower cost.

The well-entrenched and expanding infrastructure and policy support which underpins the new coal geography – and hence coal energy in India more generally – at a moment in history where climate change is evident and India's domestic renewable energy sector is fast expanding, raises particularly complicated and uncomfortable questions about the country's possibilities to transition to low carbon energy in the future: Is India's new coal geography sufficiently robust to fend off the twin challenges of climate change and cheap renewables in the short to medium term? Based on the analysis in this article, the answer would seem to be a tentative yes. In relation to the increasing use of imported coal, it is noteworthy that India's first domestic commercial coal mine auction took place on 18 June 2020 under the slogan "Unleashing Coal". With this auction the government aims to attract new private investors to 41 domestic coal mines – many of them in biodiversity rich forest areas – and make the country self-reliant in coal (Ellis-Petersen 2020). Rather than a transition away from coal, the main energy policy question in India today thus concerns the relative share of domestic to imported coal within the dominant coal-based energy system.

²⁰ We also note that a large part of the imported coal can not be traced in our analysis of formal thermal power plants. Further research may be able to uncover additional coal geographies centred on the import of coal for various industrial purposes.

Section II. Coal and Environmental Justice



Artwork by Abishanka Saha

Section II- Coal and Environmental Justice

Chapter 3: Environmental Justice Movements in India: An analysis of the multiple manifestations of violence.²¹

Abstract

With each passing year, defending land and water, livelihoods and cultures appears to become more violent. Against the alarming number of murders of environmental activists or environmental defenders, which is the easiest way to recognize violence, this chapter aims to analyse other obvious and hidden ways in which violence is manifested. Using a multidimensional approach and referring to case studies from the EJAtlas and other sources, it looks at the multiple manifestations of violence. It concludes that a south-south collaboration in academic-activist coproduced research on environmental justice movements would shed light on realities which often escape mainstream ecological economics and political ecology.

²¹ This chapter is a modified version of the published article Roy, Brototi, and Joan Martinez-Alier. "Environmental justice movements in India: an analysis of the multiple manifestations of violence." *Ecology, Economy and Society—the INSEE Journal* 2, no. 1 (2019): 77-92.

Introduction

On 8 November 2018, anti-coal activist Agnes Kharshiing and Anita Sangma were assaulted with stones and sticks, allegedly by coal mafia, under broad daylight when their car was blocked by a mob of 30-40 people²². They were returning to Shillong after a meeting with police officials in the coal town of Lad Rymbai in the East Jaintia Hills region of Meghalaya (Saikia 2019).

This incident is, in no way, an isolated case. According to Global Witness (2019), India has the highest number of murdered land and environmental defenders in South Asia, and the second highest after the Philippines in Asia. Every year, the act of defending nature and natural resources, which are often homes of the defenders, is increasingly becoming more violent (Scheidel et al. 2020). In the EJAtlas the proportion of environmental conflict cases in India where environmental defenders (one or more) have been killed is about 12 per cent, roughly similar to the proportion in the world in general, larger than in Europe, lower than in Latin America.

Although murder or physical harm is the most common manifestation of violence, it is not the only way in which defenders of land, water, livelihoods and cultures are persecuted. Death is, of course, an extreme form of violence; these conflicts leave in their wake very many wounded people, and even those who escape physical harm, they bear the cost of manifold loss. Such violence manifests structurally, culturally, ecologically; it can be swift, and it can be slow (Galtung 1969; Nixon 2011; Zalik 2004). There are many studies that have analysed the interplay between environmental conflicts, violence and power relations (Omeje 2013; Peluso and Watts 2001). There are also some recent attempts beyond the case-study approach that analyse different forms of violence in specific commodities, such as hydroelectric conflicts around the world (Del Bene, Scheidel, and Temper 2018). Navas et al. (2018) provide a multidimensional approach to understanding violence by looking at ecological distribution conflicts from Central America. This article aims to apply this framework in the Indian context to highlight the perverse ways in which violence manifests itself in environmental justice movements in the country.

The article is structured as follows: The next section provides the theoretical framework and methodology of this article. Section 3 provides a brief history of environmental justice movement in India and analyses intensity of conflicts from the EJAtlas database. This is followed by a discussion of only a few cases to understand the different manifestations of violence, based on our experiences in different environmental conflicts and finally, the concluding section draws

²² EJAtlas. 2018a. "Ban of rat hole mining across Meghalaya, India." In *Atlas of Environmental Justice*. <https://ejatlas.org/conflict/ban-of-rat-hole-mining-in-jaintia-hills-meghalaya>

comparisons from other parts of the global South to promote the need for more south-south collaboration in academic-activist co-produced research on environmental justice movements.

Theoretical framework and methodology

Ecological distribution conflicts (Martinez-Alier, 1995, Martinez-Alier, 2002) can be studied as struggles for environmental costs and benefits emerging due to inequalities in power and income and are embedded in the broader context of race, class and gender inequalities (Robbins, 2004). The Environmental Justice Atlas (EJAtlas), which was launched in March 2014, is a tool to document and catalogue ecological distribution conflicts around the world. The theoretical framework, rooted in activist knowledge and the bottom-up methodology of creation of the data collection form of the EJAtlas, is explained by Temper et al. (2015, 2018). We use data from the EJAtlas, complemented by our personal knowledge of some of the environmental justice movements through either fieldwork or secondary literature review, to discuss violence in each of the cases. Our definition of violence is based on the work by Navas et al. (2018) who suggests a multidimensional understanding of violence, classifying it into five categories and matching it with variables from the EJAtlas; the categories are direct violence, structural violence, cultural violence, slow violence and ecological violence. The value of such research lies in analytical instead of statistical generalization (Zografos and Martínez-Alier 2009). This research aims to add new perspectives to better understand not only what constitutes as violence in environmental justice movements, but also comparing them across different geographies in the global South.

Environmental Justice Movement in India

A Brief History

The environmental justice movement in India has a long history. The Chipko Andolan of 1973 is considered by many to be the first environmental justice movement of the country, although concerns for environmental protection can be traced back to protests against the commercialization of forests in the early twentieth century under the British rule (Guha 1989). Such early grassroots resistances with ecological undertones like the Bengal peasant revolt of 1859-63 against Indigo plantations are considered to have resemblances to the present day protests against industrial tree plantations in the global South (Akula 1995; Gerber 2011). Gandhi's freedom movement also rang with concerns for the ecosystem and its people (Guha 1995). A lot of protests against large infrastructure, mining and forest conflicts in different parts of postcolonial India continue to invoke collective memories of past colonial struggles and leaders of the freedom

movement, such as Birsa Munda (Escobar, Rocheleau, and Kothari 2002). In this sense, the current environmental justice movements in India are a continuity of a longer, marred with violence, struggle against socio-ecological injustices.

After independence, there was a heavy boost to large infrastructure for nation building such as multi-purpose dam projects and steel plants. Although this impetus on rapid industrialization couldn't bring the desired economic growth, it unwittingly ushered in a wave of environmental justice movements in the country, such as the Narmada Bachao Andolan or the Appiko movement or the Silent Valley protest. The protests over the Bhopal accident of 1984 continue even today. Since 1991, after the liberalization of the Indian economy, 283 cases of ecological conflicts have been reported in the EJAtlas as of 24 December 2018. These cases account for more than one-tenth of all the environmental justice movements documented worldwide in the EJAtlas. Although this article draws from the EJAtlas, we are aware of other outstanding repositories of documented environmental conflicts and movements in India such as the Green Files, India Environmental Portal and Land Conflicts Watch (Bisht and Gerber 2017).

In the last 45 years, the hows and whys of environmental justice struggles in India are reshaped in many ways. Yet, the basic premise of non-violent direct action, which follows from the Gandhian principle of Satyagraha, remains for many movements. It takes unique forms depending on the context, be it the Koyla Satyagraha²³ (Roy and Schaffartzik 2021) against coal mining in adivasi areas of central India or Zameen Samadhi Satyagraha²⁴ against land acquisition in Rajasthan. These mostly peaceful manifestations are sometimes met with direct violence, as evidenced by the number of cases with high intensity of conflicts, discussed in the next sub-section. In section 3.3. we then turn towards other ways in which violence is exerted.

Intensity of Conflicts²⁵

In the EJAtlas database, each case can be categorized as a conflict with unknown, latent, low, medium or high intensity. Latent conflicts are those that are still brewing and have no visible organization. The low-intensity cases have some local organization while the medium ones have more visible mobilizations such as street protests, rallies etc. The high-intensity cases include more

²³ EJAtlas. 2016. "Coal mining conflict in Hazaribagh with NTPC in Jharkhand, India." In *Atlas of Environmental Justice*. <https://ejatlas.org/conflict/illegal-land-acquisition-for-coal-mining-and-violent-protest-in-hazaribagh-jharkhand>

²⁴ EJAtlas. 2017a. "Zameen Samadhi Satyagraha against land acquisition in Neendar village, Jaipur, Rajasthan, India." In *Atlas of Environmental Justice*. <https://ejatlas.org/conflict/zameen-samadhi-satyagraha-by-villagers-against-land-acquisition-for-infrastructure-of-neendar-village-jaipur-rajasthan>

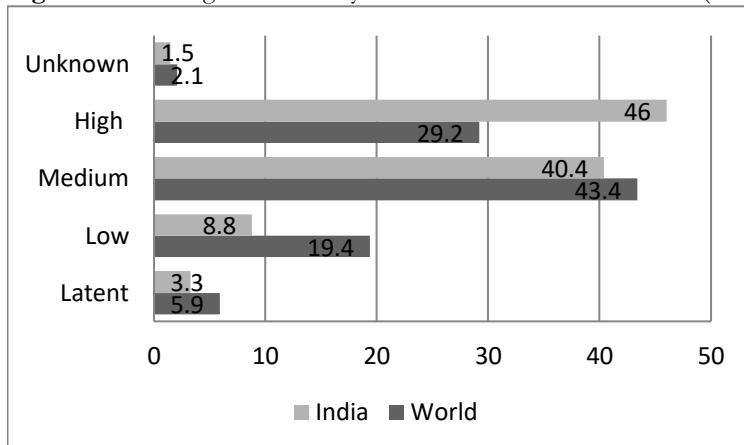
²⁵ This part of the article has been abstracted from (Roy 2019).

widespread mass mobilization, often including violence. Unknown intensity cases are the ones without sufficient information.

In India, more than 85% of the cases are either high (46%) or medium (40.4%) intensity cases. The low and latent intensity cases together constitute 12.1% with 1.5% of the cases remaining unknown in terms of their intensities²⁶. A total number of 125 high-intensity cases have four categories: water management (28), fossil fuels and climate change (26), industrial and utilities conflicts (20) and mineral ores and building extraction (18), together constituting about three-fourth (92) of all the high-intensity cases. There are 24 cases of low mobilizations, which entail some local organization, and 110 cases of medium-intensity conflicts which entail visible mobilizations through demonstrations, sit-ins etc. This is different from the global picture, which has cases of medium intensity as the most frequently occurring one (43.3%). Figure 1 illustrates the percentages of intensity of conflicts for world and India.

High-intensity cases in India are the most frequent and they often have either the occurrence or the anticipation of large-scale displacement of people either for water management, which often involves the destruction of huge areas of forest land, or for opencast coal mining.

Figure 1: Percentages of Intensity of Conflict for World and India (in the EJAtlas)



Source: Roy 2018

Analysis: Manifestations of Violence

We now turn towards in-depth analysis of a few cases from the EJAtlas, covering different categories and geographies within India to understand the multiple ways in which violence in manifested.

²⁶ These figures are based on the cases registered in the EJAtlas till April, 2018.

Direct Violence

The case of direct violence is perhaps the easiest to pinpoint. It refers to threats of bodily damage, physical intimidation and harm, and death as the most extreme case of direct violence. The category of high-intensity conflicts, which covers close to half the conflicts listed from India, points to all of this. However, as remarked above, the number of conflicts leading to deaths are only about 12%. In many of these conflicts, there are multiple simultaneous deaths, since the defenders are often killed during confrontations at protest marches or rallies.

One such case is that of the Kashipur bauxite mining conflict²⁷. After the economic liberalization of 1991, much thrust was provided for the ‘development’ of the ‘backward states’, which comprised large forest covers with high concentration of minerals underneath and tribal populations inhabiting those forests. In this context, in March 1993, the new National Mineral Policy was announced opening the mining sector to private investments.

In the same year, the Utkal Aluminium Industrial Limited (UAIL) was formed as a consortium, originally as a joint venture between ALCAN, Canada; Hindalco of Birla Group, India; Tata, India and Norsk Hydro, Norway with the motive to mine bauxite from the Baphlimali Hills of Kashipur Block in Rayagada district in Odisha and construct an alumina refinery, also in Rayagada to refine it for exports. The open-cast mine was scheduled to produce bauxite. The project, however, was resisted since its very inception by the local indigenous people residing in the area, which although led to massive delays in the operationalization, was unable to stop the project in the end. Commonly known as the Kashipur anti-bauxite movement, it has a long and violent story, and is one of the historic environmental justice movements of Odisha. Kashipur Block in the Rayagada district has 412 revenue villages and 109 hamlets governed by 20 Gram Panchayats (GPs) with a total area of 1,505.90 sq. km and a population of 1, 21,044 (as per the 2001 census), out of which 61% belong to Scheduled Tribes and 20% to Scheduled Castes (Padel and Das 2010).

The reason why the people resisted the project right from the beginning was their lack of confidence in the promises of employment, basic amenities and infrastructure and development, as NALCO had made similar promises in the early 1980s in the neighbouring regions for the creation of the biggest bauxite mine and refinery of the country. Opposition to the Kashipur bauxite mine was spearheaded by the Prakrutik Sampad Surakshya Parishad (PSSP) movement and several Adivasi-Dalit movement organizations in South Odisha in addition to various national and

²⁷ EJAtlas. 2017b. “Kashipur anti-bauxite mining movement.” In *Atlas of Environmental Justice*. <https://ejatlas.org/conflict/human-rights-and-environmental-violation-for-bauxite-mining-in-the-baphlimali-hills-of-kashipur-rayagada-district-odisha>

transnational solidarity groups, including actions against Norsk Hydro and the movement called ALCAN't of Montreal. PSSP had more than 1000 members, many of them tribal, many of them women.

These non-violent forms of protest systematically met with violent repercussions from the state — be it the police force, or the goons employed by the mining companies. The most memorable one is the police firing on adivasis on 16 December 2000 in Maikanch village of Kashipur block, killing three protestors (grassroots environmental defenders, as they would be called today), permanently disabling 6 and seriously injuring 30. The people had put up a barricade on the road at Maikanch as part of their resistance against the alumina project. The day before the massacre, this barricade had prevented a delegation of political leaders from fraudulently representing the people in a 'multi-stakeholder dialogue' organized by the company at Nuagaon village. UAIL and CARE International (a corporate-funded NGO) had allegedly formed this "all-party committee" by handpicking representatives of various pro-project electioneering parties. The people forced these pro-project leaders to return to Rayagada, the district headquarters. The people alleged that the firing was a consequence of this action (Das 2001; Sarangi, Pradhan, and Mohanty 2005).

Structural and Cultural Violence

The different types of violence very often complement each other. In many cases, however, due to the presence of direct violence, it is hard to understand the extent of structural or cultural violence exerted on the marginalized. The case of Kalinganagar²⁸ shows how direct violence, resulting in multiple deaths, together with structural violence, achieved the continuation of the project.

Kalinganagar is located under Sukinda and Danagadi blocks of Jajpur district of Odisha. The place is located about 30-40 km from the district headquarters and about 100 kms from the state capital, Bhubaneswar. Government planned to convert the area into a 13,000-acre industrial centre. Factories located in the area would produce about 25 million tonnes of steel a year. Along with the steel factories, there would be an airport, a hospital, schools and new houses supplied with water and electricity. The Government of Odisha signed more than 40 MoUs with various private companies to set up the steel plants in the State. The Industrial Infrastructure Development Corporation of Orissa (IDCO) was responsible for developing the facilities for the proposed industrial complex. IDCO started acquiring land in the year 1992-94. Although IDCO had

²⁸ EJAtlas. 2014. "Tata Steel Plant Kalinganagar, Orissa India." In *Atlas of Environmental Justice*. <https://ejatlas.org/conflict/tata-steel-plant-kalinganagar-orissa-india>

acquired the land in the early 90s, only a portion of it had been actually transferred to different industries and the remaining land was still in actual possession of people, who were cultivating it as before.

The IDCO allegedly purchased land from people at a minimal rate while it sold the same land to the corporate beneficiary at much higher prices. Also, the compensation for land was given to only those who had patta on the land (legal document of ownership). This left a section of people uncompensated, as they had no patta over the land they possessed. Another section of people, who cultivated land as sharecroppers, didn't receive any compensation. After acquiring land from people, IDCO sold the land to different industries at a much higher price.

The name Kalinganagar became famous when on January 2, 2006, the State police opened fire on a protest by local Adivasi against the takeover and seizure of their land by a Tata Steel plant. As many as 16 people were killed, four more died in the hospital, besides a police constable was also killed in the clash. Despite this, Tata's projects for steel making in Kalinganagar went ahead, portraying a concoction of direct and structural violence (Pandey 2008).

Slow Violence

The concept of slow violence, popularized by Rob Nixon (2011), can be understood as delayed destruction of nature and bodies. The Centre for Science and Environment has been using the concept of 'slow murder' to explain the health effects of air pollution in Delhi, or the effect of using endosulfan in cashew plantations in Kerala (Narain 2017).

It is important to know that just because a conflict encounters slow violence, doesn't mean that it foregoes direct or cultural ones. The case of the Sterlite copper smelting unit in Tuticorin²⁹, Tamil Nadu, spanning more than two decades can be taken as an example of this.

The Sterlite copper smelter plant had begun operations in 1996. Protests against the plant began almost immediately, with hundreds of fishermen blockading the port with their boats, in order to prevent the ships carrying copper ore from unloading in March and October of 1996. However, this did not stop the plant from operating. In July 1997, 165 women in a neighbouring factory—Ramesh Flowers, fainted as a result of a toxic gas leak from the plant. Some of these women later had miscarriages. Since then—over a period of more than two decades—villagers and local

²⁹ EJAtlas. 2018b. "Sterlite Copper Smelter Unit, Tamil Nadu, India." In *Atlas of Environmental Justice*. <https://ejatlas.org/conflict/sterlite-copper-smelter-unit-india>

residents have been protesting against noxious sulphur dioxide leaks and bad effluent management. Since 1996, several complaints have been made to no avail.

In March 2013, the 'Anti-Sterlite People's Committee' started protesting following a gas leak incident on March 23, 2013, when many people from neighbourhood areas fell sick. It is common knowledge that the toxic sulphur dioxide gas is a by-product of smelting. After this incident, 5000 people participated in the protest, a bandh (strike) was called and the town was shut down for several days in March 2013.

Due to this, the Tamil Nadu Pollution Control Board issued a notice directing the Vedanta group company to close the plant. At the time, according to the Tamil Nadu Pollution Control Board, a sensor in the smelter's smokestack showed sulphur dioxide levels were more than double the permitted concentration, which resulted in a temporary shutdown of the plant. However, the Supreme Court of India eventually permitted the plant to restart operations under the condition of a payment of INR 100 crore (~15 million USD at the time) to compensate for polluting the surrounding land and water sources since 1997 and for running the smelter without various environmental clearances for a few years.

In September 2017, the National Green Tribunal found the Sterlite plant responsible for dumping copper slag in the Upper Odai river and causing the blockade of the river stream. The judgment also revealed that between 2013 and 2017 the plant operated without authorisation under the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008, and ordered Vedanta-Sterlite Group to compensate the affected villagers for the pollution it had caused.

Since then, aside from occasional resistance, it was not until the announcement for expansion of the plant that public anger revived strongly. The plant was set to increase the smelter's capacity from 400,000 tons to 800,000 tons per year within the next 24 months. In corporate statements, Vedanta-Sterlite stated that this expansion would make the Tuticorin smelter, "one of the world's largest single-location copper smelting complexes". Protests re-emerged with residents calling for an indefinite dharna (protest) and hunger strike on 12 February 2018. It was reported that in the beginning of February, villagers had petitioned the district collector several times seeking closure of the unit, but no action was taken, showing structural violence. The plant is located beside the fragile Gulf of Mannar, where toxic waste has damaged fish populations affecting the livelihood of thousands of fishermen. "There are lot of environmental dangers as well as health dangers, particularly cancer. Almost every house is affected by cancer. Children are most affected. Throat

cancer has increased. Eye cancer has also gone up”, Fathima Babu, the convener of the Anti-Sterlite People's Movement was reported as saying.

Eventually, when top district officials failed to reach an understanding, around 250 people began an indefinite fast. Over 500 people, including many women and schoolchildren, blocked the company gates until they were rounded up and arrested on 14 February 2018. Since then, protests had been ongoing day and night, especially in the villages surrounding the plant which were the worst affected

On 22 May 2018, the hundredth day of the peaceful protests, more than 20,000 villagers marched to the collector's office demanding the closure of the plant. Police were not ready to take care of such a large number of people, and shot at the protestors, killing 13 of them. Due to a lot of public and international pressure following this incident, when claims were made on crony capitalism and industry-government collusion, the plant was finally ordered to be shut down. However, it is still not certain if this order will be carried out as the National Green Tribunal has termed the arguments for the closure of Sterlite plant as 'hyper technical' (Thirumurthy 2018).

Ecological Violence

The case of an industrial sacrifice zone, situated in the north of Chennai, bounded by the Korttalaiyar river, Ennore creek and Bay of Bengal³⁰ can be seen as an example of ecological violence. The case was the topic of a study by ecologist Nityanand Jayaraman that later was converted into an acclaimed Carnatic song by T. M. Krishna. The song explains that Ennore creek (with its mangroves and fishing grounds) was a true Poramboke, a 'commons', although the word Poramboke is now used in the sense of 'waste-land' or even 'waste-people'³¹. This industrial area has three operational state-owned coal thermal power plants, next to the Ennore Port from where the coal comes. The site hosts several other polluting chemical industries, including paint, fertilizers, cement and pharmaceutical, as well as a landfill. This case combines issues of coastal protection and enormous environmental damage by industry and utilities and can be considered as a case of ecological violence.

Fisherfolks, environmentalists and citizens have complained against this ecological violence over the years. In recent years, fisherfolks lodged their protest against the industrial encroachment and

³⁰ EJAtlas. 2017c. "Ennore coal power plant and fisherfolk protest, north Chennai, India." In *Atlas of Environmental Justice*. <https://ejatlas.org/conflict/fishers-protest-destruction-of-mangroves-in-ennore-india>

³¹ The song, which is a cultural expression of environmental justice movement can be viewed in this link: <https://video.scroll.in/826772/watch-tm-krishna-sings-to-arouse-people-into-preventing-chennais-environmental-degradation>

pollution that has destroyed mangroves and adversely affected aquatic life affecting their livelihoods. The industries are expanding; apart from the three operating CFPP, another one has been cleared. Within 10km, there will be 6 000MW of coal plants. All have environmental clearances, but environmentalists argue that these documents mean little. Clearance by the NTECL (Tamil Nadu Energy Company Limited) has proclaimed that the “Boundary for the proposed power project would be outside the CRZ [Coastal Regulation Zone].” But the plant boundary encloses mangroves. This industrial hell of fly ash and fumes is far from the eyes of the city dwellers who benefit from the electricity and the other products. Instead, the people living here (such as fishers and immigrant workers), despite bearing all costs, don't get any of the benefits. We report two examples.

The workers who have at once been employed to construct one of the power plants, now live with their families in miserable huts right on one of toxic fly ash dump without any facilities (water, sewage or electricity) and are left to their destiny. The residents are all casual workers, many from Odisha and Jharkhand. Environmentalist Nityanand Jayaraman reports that one Odiya worker from Keonjhar said: “We came here more than 15 years ago to build the power plant. We used to live there,” he said pointing inside the plant. “Once it was built, we had to get out. Now we get by with odd jobs here and there.” Sivanpadai Veethi Kuppam, an inland village of the fishing community, has been devastated by pollution, ill-health and dwindling catches. There are hardly any fish in the creek now, villagers report. Many species have disappeared. Those with boats sail to less polluted waters to fish. Others who use hand-cast nets walk along the banks all the way to the river mouth more than 8 km away, a full day's work with uncertain results.

Years ago, this area was home to mangroves and fishing communities. Today, the whole site is highly contaminated. Fly ash from the thermal power plant is dumped in the nearby riverbank and wetlands. Recently, locals notice the encroachment of wetlands. There are signs such as “This land belongs to NTECL” (Tamil Nadu Energy Company Ltd). Nityanand Jayaraman explains that these signs are a lie, as this was never land but water and wetlands. Until recently, this was a healthy marine ecosystem with life and livelihoods. Such sprawling wetlands are excellent flood mitigators. Their vast surface area allows them to swell and accommodate rain waters and tidal surges. Converting them into paved real estate will exacerbate flooding and deflect the impact of storm surges to less resilient areas.

On 31 December 2015, The Hindu reported: “Fishermen allege that mangroves have been destroyed at Athipattu owing to works undertaken by Kamarajar Port Trust” Fishermen in Ennore took to the streets protesting against the destruction of mangroves in the Athipattu area by a

contractor engaged by Ennore Port (officially renamed Kamraj Port Limited, KPL). As severe floods had recently affected Chennai, the fishermen claimed that mangroves were crucial for limiting the damage during cyclones. Also, the vegetation breeds prawns, a major source of livelihood in the area. According to A. Venkatesh, president of Mukadhwarakuppam Kadal Meenavar Cooperative Union, a large area of mangrove vegetation was levelled by dumping rubbish. The activity was carried out on behalf of the Port.

In late November 2015, the Port faced similar allegations when activists claimed dumping of spoils of dredging in 400 acres of hydrologically sensitive wetland area as part of the Port's development activities. In its response, the KPL said it had purchased land to the extent of about 683 acres adjoining the Ennore creek from the salt department. The letter stated that: "...the dredged material has been dumped at low-level area at the south of North Chennai Thermal Power Station road where the land was purchased from the salt department. It is informed that filling is proposed in KPL land only and not in the waterbodies".

It also assured the natural flow of the creek would not be disturbed. However, Mr. Venkatesh disputed the claim and said the very fact that mangroves have been levelled shows that a very sensitive area has been filled. He told *The Hindu*: "This activity is also a violation of CRZ (Coastal Regulation Zone) notifications. Our community will scale up the protests if this does not stop immediately". The conflict goes unabated.

Conclusion

India has the highest number of cases reported in the EJAtlas database. But few are considered as successes in environmental justice. Using the multidimensional approach for understanding violence, we can argue that violence is manifested in one way or the other in every single conflict. Ecological distribution conflicts follow often a pattern of brutality and violence, human rights violation, asymmetric power structures and illegal methods and intimidation tactics to coerce the ecosystem people into giving up their land, livelihood and often culture. It must be highlighted then, the tremendous effort by movements which continue to remain non-violent (as most in India are) under such exertions of violence at different levels. It doesn't come as a surprise then, that environmental justice movements are claimed to be forces of sustainability ([Scheidt et al. 2018](#)).

Analyzing only a few cases, in the limited space of an academic journal article, has shown how different forms of violence overlap across and within conflicts. It is coherent with the findings of Navas et al. (2018), which further discusses the different ways in which environmental defenders and communities resist violence against them, and conclude that 'the common understanding of

violence in environmental conflicts as a direct event in time and space is only the tip of the iceberg and that violence can reach not only environmental defenders, but also communities, nature and the many species living in, and the sustainability of their relations'. Violence has structural, cultural and ecological aspects. It is not only episodic, but also often slow and invisible for stretches of time.

In Central America, the resistances are not just against specific environmental injustices, but also against the violence of patriarchy and coloniality. In India too these links are probably present in the tribal population's resistance against internal colonialism, and in the role of women in environmental movements. They are largely unmentioned in the present article, and garners further research, both in the Indian context and comparatively with other regions of the global South. Meanwhile the role of Dalits both as victims and agents of resistance in environmental conflicts is one facet of political ecology of India that does not appear in the same form elsewhere (Sharma 2018).

The social metabolic processes are similar everywhere: the violence(s) and the resistance(s) are also similar (although India has a specific vocabulary of civil disobedience), as are the protagonists and the forms of mobilization of what we see as a global movement for environmental justice. What differs are the social, cultural and political specificities. In this regard, a future agenda for academic-activist coproduced knowledge on political ecology (defined as the study of ecological distribution conflicts) should aim towards more comparative south-south collaboration to learn from other parts of the world going through the same struggles and protests, with the aim to co-create a socio-ecologically just and equal society.

Chapter 4: The Open-pit of Procedural Violence: A decolonial analysis of procedural environmental (in)justice in India³².

Abstract

Indigenous communities are at the forefront of many environmental injustices. They face a disproportionate brunt of multiple types of violence, as a result of historical and structural relations of oppression. Using a case study of an indigenous village fighting against coal mining in eastern India, this article discusses how it is often impossible to separate direct physical violence and other forms of violence in a Global South setting. It analyzes how procedural injustices are perpetuated by direct and structural forms of violence, using a methodology of activist-academic coproduction of knowledge. This analysis warns against applying concepts such as procedural justice developed in a Western context without recognizing the multiple layers of violence which environmental defenders face in the Global South, as a contribution to the emerging decolonial environmental justice scholarship.

³² A modified version of this chapter is under review in *Antipode* as Roy, Brototi and George Monippally. "The Open-pit of procedural violence: A decolonial analysis of procedural environmental in(justice) in India."

Introduction

Indigenous communities are at the forefront of many conflicts over appropriation of land and resources, often in the name of development (Peet and Watts 2004; Borrás et al. 2012). These communities have significantly higher exposure to criminalization, (bodily or physical or psychological?) violence and assassinations for defending land and environment, with mining and extractive industries contributing to the highest number of killings (Global Witness 2019; Butt et al. 2019; Middeldorp and Le Billon 2019). This slow but steadily growing body of literature systematically examines the direct violence against environmental defenders and shows the disproportionate burden that indigenous communities face globally (Le Billon and Lujala 2020; Scheidel et al. 2020).

At the same time, there is also a growing interest in analysing the different types of violence faced by environmental defenders beyond direct physical violence. A multi-dimensional approach has been put forward to capture the often intersecting aspects of direct, structural, cultural, slow and ecological violence (Navas, Mingorria, and Aguilar-González 2018; Roy and Martínez-Alier 2019). Each type of violence affects separately and together different dimensions of environmental justice. Definitions of these different types of violence are often based upon Johan Galtung's seminal 1969 work entitled *Violence, peace, and peace research* published in *Journal of Peace Research*. Referring to structural violence as social injustice, Galtung makes the links between direct and structural violence as follows:

One may argue that all cases of structural violence can, by closer scrutiny, be traced back to personal violence in their pre-history. An exploitative caste system or race society would be seen as the consequence of a large-scale invasion leaving a thin, but powerful top layer of the victorious group after the noise of fighting is over (Galtung 1969, 179).

In a Global South and especially Indian context, this work shows how structural violence is aided by continued direct violence, and both these types of violence together perpetuate procedural injustices. We employ the term *procedural violence* to substantiate this phenomenon. We do so since our understanding of the realities of two simultaneous conflicts against coal mining and for asserting forest rights can't be explained by the definitions of both structural violence and procedural injustices as they are understood in the literature. By doing so, we engage and contribute to decolonial environmental justice scholarship.

Researching the role of violence on indigenous communities fighting environmental injustices in the Global South requires a decolonial approach. Over the years, multiple environmental justice scholars have commented on the pressing need to move beyond a Western understanding of environmental justice (Lawhon 2013; Vermeulen 2019). This comes from concerns about transposing Western ideas and approaches of environmental justice in case studies of Global South and/or indigenous communities without understanding the context and nuances, and leading to a 'coloniality of justice' (Álvarez and Coolsaet 2018a). It has led to a welcomed push towards critical and decolonial scholarship in environmental justice in the recent past (Pellow 2016; Rodríguez and Inturias 2018; Temper 2019). This approach to highlight particular forms of pre-existing oppressions when researching about environmental justice involving indigenous communities is studied under decolonial environmental justice scholarship, an emerging body of literature, mainly from Latin America (Álvarez and Coolsaet 2018b; J. A. Fraser 2018; Rodríguez and Inturias 2018)

This article aims to contribute to this emerging discussion around decolonial environmental justice by examining the role of violence in perpetuating procedural injustices. How are clear rules for procedural justice subverted? How do direct and structural violence facilitate procedural environmental injustices? This paper examines these questions using the case study of an indigenous village in the coal mining regions of eastern India in the context of the implementation of a law called the Forest Rights Act, 2006 which was written to undo the historical injustices done to the indigenous communities in India. Formally known as The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act, 2006, the law was enacted as a result of countrywide protests of indigenous communities, forest dwellers and activists for inclusion of indigenous communities (known as *adivasis* in India) by providing them recognition and procedural justice (Kumar and Kerr 2012)

Procedural environmental justice can be understood as impartiality in decision-making processes by directly engaging frontline communities (Schlosberg 2009). In other words, it refers to the capability of particularly vulnerable and marginalized communities to influence decision making processes, taking into account power relations and structural hierarchies (Carrick and Bell 2017). However, at the same time, only having protocols for participation does not always ensure procedural justice through meaningful engagement (Suiseeya 2020). This is more often than not the case for indigenous communities in the Global South.

Yet, insufficient academic attention has been devoted in the environmental justice literature to develop and apply the concept of procedural environmental justice theoretically and empirically (Heydon 2020), particularly in a Global South context.

As this paper shows, despite clear guidelines to ensure procedural justice, mechanisms of direct and structural violence were deployed to perpetuate what we term as 'procedural violence'.

The environmental justice literature, with an initial focus on unjust distribution, has since then incorporated more methodological pluralism and interdisciplinarity (Pulido and De Lara 2018; Pellow 2017). Procedure and recognition have since then been put forward as crucial components of environmental justice scholarship (Scholsberg 2004). This article focuses on procedural injustices, which can be understood by the ways in which access to information and participation, as well as access to resources and the time-space constraints of everyday life hinder the ability to be present in participatory spaces for the affected communities (Zavestoski, Shulman, and Schlosberg 2006; Robers and Parks 2007). This allows to analyze how strategic actions are carried out within and outside formal spaces of decision-making processes (Bickerstaff and Walker 2001).

This contribution aims to advance the discussion and debates around critical decolonial environmental justice perspective. It contributes to the emerging discussions, specifically from Latin America around the need of a decolonial environmental justice scholarship, by highlighting the disadvantages of using the concept of procedural injustices, formulated in the West, without contextualizing it in the light of the historical oppression of adivasis and asymmetric power relations involved.

It also contributes to a new methodology of transgressive research on environmental justice, which gives importance to both scientific as well as political rigor and attempts to ensure epistemic justice (Temper, Mcgarry, and Weber 2019; Fricker 2007).

The next section provides background on emerging debates around procedural justice, violence(s) in environmental conflicts, and the need for decolonial environmental justice scholarship. This is followed by a background on the Forest Rights Act, 2006 which was a result of grassroots mobilizations for the recognition of adivasi rights to land (Section 3). The Forest Rights Act was formulated as a strong legal tool to counteract the historical injustice imposed on to scheduled tribes and other traditional forest dwellers. Section 4 describes the methodology used in the paper, and provides the background of the case study, which includes a history of the movements in the region, highlighting a strong tradition of mobilizations for asserting rights by the indigenous communities. Section 5 provides a narrative of the struggle, by constructing a timeline from

September 2011-September 2014, It shows how, despite clear legal rules, procedural injustices were carried out, including with direct threats and intimidations, falsified documents and non-compliance with resolutions passed by the village council. In section 6, these findings are contextualized in a broader framework of how oppression works on multiple levels when the actors involved are marginalized historically and socially. We reinforce the need for a decolonial scholarship on environmental justice studies and activism to identify these violences and prevent them in future. Section 7 concludes.

Procedural Justice, Violence(s), and a Need for Decolonial Environmental Justice Scholarship

Environmental Justice literature has come a long way from its initial focus on unjust distribution of resources to incorporate more methodological pluralism and interdisciplinarity (Agyeman et al. 2016). Procedure and recognition have since been put forward as crucial components of environmental justice scholarship (Schlosberg 2004; Schlosberg 2009). Using the arguments of Young (1990) and Fraser (1997) a 'trivalent' theory integrating questions of distribution with those of participation and recognition is increasing being incorporated in the literature in order to derive a more complete picture. At the core of procedural injustices and misrecognition are cultural and institutional processes of disrespect, denigration, insult and stigmatization, which devalue some people in comparison to others and disallow meaningful engagement in decision making processes (Fraser 1997). Thus, it has been argued that environmental justice movements are fought for reclaiming denigrated places and racial and local identities, as much as they are in mobilization against the uneven impacts of the production of a specific commodity (Pulido 1996; Sze 2006).

Procedural justice can be understood by analyzing the ways in which access to information and participation, as well as resources and the multiple demands of everyday life hinder the ability to be present in participatory spaces for the affected communities (Zavestoski, Shulman, and Schlosberg 2006). It emphasizes how strategic actions are carried out within and outside formal spaces of decision-making processes (Bickerstaff and Walker 2001). Procedural justice also examines the multiple factors that which prevent fairness, transparency and inclusion in decision making processes, often as a result of power inequalities and pre-existing structural hierarchies (Suiseeya 2020; Edge et al. 2020). A basic acknowledgement Centering the margins by ensuring that socio-culturally vulnerable groups and the processes to involve diversity of experiences and views are fundamental for ensuring environmental justice (Walker and Day 2012).

In the recent past, the role of the indigenous communities as environmental justice defenders as well the disproportionately high level of violence they face have been well-documented (Butt et al. 2019; Global Witness 2019; Scheidel et al. 2020; Roy and Martinez-Alier 2019). Many scholars have highlighted the need for critical scholarship when analyzing environmental justice movements involving indigenous and marginalized communities (Pellow 2016; Walker 2009; Holifield, Porter, and Walker 2010). In this regard, a critical framework on environmental justice incorporates multi-scalar methodologies and theoretical approaches to understand the ways in which exclusion, marginalization, erasure, discrimination, violence and othering occurs due to multiple asymmetries and power inequalities (Pellow 2016).

However, despite these expansions in the critical environmental justice scholarship with more geographical coverage of empirical research, conceptually this scholarship largely retains a Western focus (Reed and George 2011; Vermeulen 2019; Lawhon 2013). An emerging literature from the Latin American context is challenging this and putting forward decolonial approaching to learning from and with environmental justice movements (Rodríguez and Inturias 2018; J. A. Fraser 2018; Álvarez and Coolsaet 2018a). The need for developing theories and concepts which are situated in geographic contexts instead of transporting Northern ideas of environmental justice in the abstract has also been felt in other parts of the Global South, such as in South Africa (Lawhon 2013).

This also applies in the case of India with marginalized communities facing multiple forms of social oppressions and injustices (Williams and Mawdsley 2006). The adivasis of India face the disproportionate burden from development projects on their territories, leading to violent land dispossession (Fernandes 2007; Kalshian 2007; Shrivastava and Kothari 2012; D'Costa and Chakraborty 2017). In central and eastern India specifically, adivasis have been stigmatized to an extreme degree and subjected to brutal vigilante and police action (Lerche and Shah 2018). Adivasis have undergone an intense and historic process of 'othering', being treated as non-humans of India with no rights, who can be discriminated against, and against whom atrocities can be committed with near impunity (Lerche and Shah 2018).

Under such circumstances, a decolonial theory of environmental justice for India should account for the distinctive and situated experiences of environmental injustices. In what follows, we aim to address this need (albeit partially) by examining the multiple forms of violence which perpetuate procedural environmental injustices.

The Forest Rights Act, 2006- A law for undoing the historical injustices faced by adivasis

This legislation in question is the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. Alternatively known as the Forest Rights Act (FRA), it was passed in December 2006 and enacted in December 2007, with additional rules incorporated by the Ministry of Tribal Affairs in January 2008 to clarify the procedural aspects.

In its preamble, the Act recognizes the historical injustice towards scheduled tribes and other traditional forest dwellers in terms of their historical rights to the land and the waves of successive displacement they have faced. It seeks to secure traditional rights over forest land and community forest resources, and to establish democratic community-based forest governance. FRA emerged as a legislative response to a national grassroots movement to record the rights of forest dwelling communities whose rights were not recorded during the consolidation of state forests in the colonial regime and in the post-Independence period, many of whom have been displaced for industrial and conservation projects without rehabilitation due to being labelled as ‘encroachers’ on forest land (Kumar and Kerr 2012). The Act stipulates that no member of the forest dwelling Scheduled Tribes (ST) or Other Traditional Forest Dwellers (OTFD) shall be evicted or removed from forest land under occupation until the recognition and verification process is complete.

The process of recognition and verification laid out in FRA is currently the only legal process for determining the genuine right holders and their rights of ownership on forest land. This is a very powerful tool, as legally, neither private enterprise nor the state can begin their projects in forested areas until the recognition and verification process associated with the FRA is complete.

To ensure these objectives, a number of institutional structures had been developed within the FRA. These structures follow a three-tier system- village level, district level and State level. The local self-government of each village known as the Gram Sabha (GS) is requested to elect a Forest Rights Committee (FRC). The FRC would be constituted by Gram Sabha members, and would be responsible in assisting the GS to conduct regular meetings and collecting and verifying forest rights claims. On the district level of the tiers are two institutions: the Sub-District Level Committees (SDLC), whose job is to collate and examine the claims, as well as adjudicate in times of any dispute, and the District Level Committees (DLC), which examines and approves claims in accordance with the objectives set out by the FRA. It is also responsible for ensuring that Gram Sabhas are organized freely and fairly. The highest level (after the district-level) is that of the State Level Monitoring Committees (SLMCs) whose role includes monitoring the entire process as well

as furnishing quarterly reports to the Central Government. A detailed account of the members and roles of the committees are provided in Table 1.

Table 1: Constitution and main roles of the five committees for incorporation of FRA.

Name of Committee	Members of the Committee	Main Roles of the Committee
Gram Sabha	<ul style="list-style-type: none"> • Must be convened by the Gram Panchayat. • Quorum shall be no less than half of the total members, with one third members as women. 	<ul style="list-style-type: none"> • Initiate the process for determining the nature and extent of forest rights and prepare a list and maintain a register with details of claimants and their claims. • Constitute, monitor and control Forest Management Committees for the protection of wildlife, forest and biodiversity from among its members. • Pass a resolution on claims for forest rights and forward the same to the SDLC.
Forest Rights Committee (FRC)	<ul style="list-style-type: none"> • 10-15 members • At least two-thirds adivasis • If not, at least one-thirds women 	<ul style="list-style-type: none"> • Receive and retain claims, prepare records of claims, verify claims and present their nature and extent.
Sub Divisional Level Committee (SDLC)	<ul style="list-style-type: none"> • Sub Divisional Officer- chairperson of the SDLC • Forest Officer in charge of a specific subdivision. • An officer of the Tribal Welfare Department in charge of the sub-division. • Representative of Block/Taluka Panchayat nominated by the Zila Parishad. <ul style="list-style-type: none"> ○ Here, two members should be adivasis, if not, at least one woman shall be nominated. 	<ul style="list-style-type: none"> • Provide all relevant information to the GS, such as forest and revenue maps and inform them of their duty. • Hear and adjudicate disputes between different GS, as well as petitions of individuals or state agencies against resolution of GS. • Forward the claims through Sub Divisional Officer to DLC for final decision.

District Level Committee (DLC)	<ul style="list-style-type: none"> • District Collector or Deputy Commissioner- Chairperson. • Concerned Divisional Forest Officer or concerned Deputy Conservator of Forest- Member • Three nominations of the district Panchayat of whom at least two shall be adivasis, if not, one woman shall be nominated. • An officer from Tribal Welfare department in charge of the district. 	<ul style="list-style-type: none"> • Ensure that the required information is available to the GS or FRC. • Provide the final approval of the claims and records of the forest rights prepared by SDLC. • Issue directions and ensure publication of the forest rights records in relevant government documents and provide certified copies of the record to the concerned GS and claimant.
State Level Monitoring Committee (STMC)	<ul style="list-style-type: none"> • Chief Secretary- Chairperson. • Secretary Revenue Department- Member. • Secretary- Tribal and Social Welfare Department- Member. • Secretary Forest Department- Member. • Secretary Panchayati Raj- Member. • Principal Chief Conservator of Forest- Member. • Nomination by the Chairperson of the Tribes Advisory Council of three ST members, in case there is no Tribes Advisory Council, nomination to be done by State Government. • Commissioner Tribal Welfare or equivalent who shall be Member Secretary. 	<ul style="list-style-type: none"> • Meet at least once in three months to monitor the process of recognition and vesting of forest rights, including devising criteria indicators to do so, as well as monitor resettlement. • Furnish a quarterly report to the Central Government.

Sources: (Raza 2018; India 2006)

Despite the detailed and thorough roles and responsibilities of each committee to ensure that claims of forest rights are justly recognized, the case study shows how community forest rights and the resolution to not allow mining were undermined through acts of procedural injustices as a result of direct and structural violence as described and discussed in the following sections.

Methods

Along with a critical reading and understanding of the environmental justice scholarship there is also a need for criticality in research methods. In recent years, notions of trans-disciplinary analysis, transgressive science and transformation research are increasingly being put forward for politically rigorous and scientifically robust research to challenge dominant forms of knowledge production (Klein 2015; Lotz-Sisitka et al. 2016; Temper, McGarry, and Weber 2019). These new forms of knowledge production call for inclusion of participation from actors outside academia to create legitimacy and ownership for integrating questions of socio-political justice in research (Lotz-Sisitka et al. 2016).

This contribution aims to follow this novel methodology of transgressive research, wherein the first author considers herself as the anti-oppressive researcher and the second author as the co-conspirer (Temper, McGarry, and Weber 2019). The first author conducted fieldwork in the state of Jharkhand between September and December 2017 and January and March 2019, while the second author is based in the district of Latehar since 2006 as an activist associated with the Campaign for Survival and Dignity and Jharkhand Van Adhikar Manch. In the absence of a long ethnographic fieldwork, and to ensure that there were no epistemic injustices, the role of the second author was monumental. This methodology is also in line with the theory of empowering research which focuses on creating spaces for multiple participants in different aspects of the research process (Ross 2017). Hence, although this contribution is written by the first author, the second author provided valuable support to ensure that neither the timeline of the events explaining the procedural injustices misconstrued nor misrepresented the adivasi testimonies in any way.

The fieldwork consisted of 24 in-depth interviews, including the affected people from Jala as well as activists and journalists who have worked intensively on tribal rights and environmental justice issues in Jharkhand. It also involves direct observation at activists' meetings for claims of forest rights in Ranchi, national gathering of activists fighting against coal mining and thermal power plants in Dhanbad, as well as academic workshops on land and tribal rights in New Delhi. An extensive study of secondary literature was also carried out, including grey literature such as newspaper articles, Right to Information reports, legal documents and activists' reports.

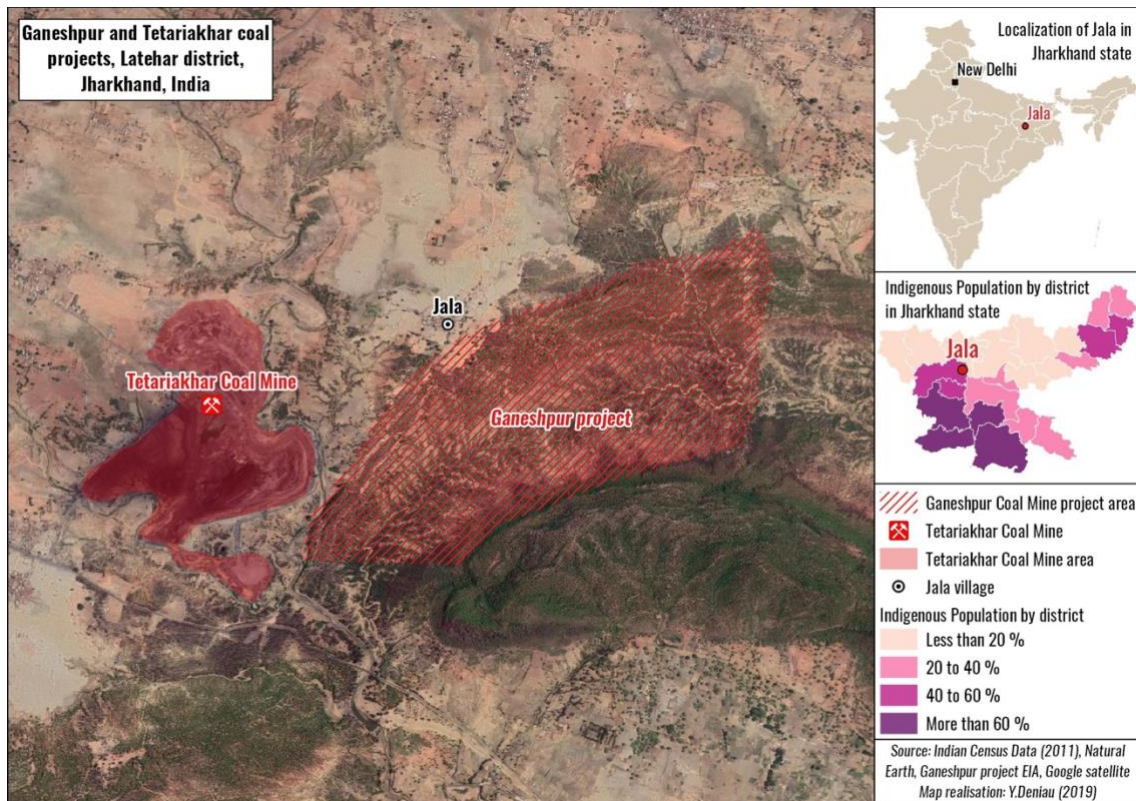
These data were triangulated to understand the scope of the Forest Rights Act and create a three-year timeline to examine how these rights were violated procedurally between September 2011-September 2014. The analysis was framed according to the theoretical concepts of critical environmental justice scholarship mentioned in Section 2. The results highlight the different

strategies which were employed to ensure that the claims of the community forest rights were not given to the adivasis, and the different ways in which the adivasis fought against this outcome in response. This fight of the adivasi can be better understood by taking a glimpse at the history of both the region of Jharkhand and the Oraon adivasi community, which is described below, upon briefly socially and geographically situating the case study.

Background to the case study

The state of Jharkhand was created in 2000 to address tribal demands for self-governance. Jharkhand is one of the most resource rich states of India, with one-third of the country's total coal reserve (Lahiri-dutt, Krishnan, and Ahmad 2012). There is also literature suggesting this state suffers from resource curse (Nathan and Dayal 2009). The theory of resource curse states that regions which possess rich natural resources have lower development and economic growth.

It consists of 24 districts and is a part of the Chotanagpur plateau. Latehar district lies in the north-west part of the state. It is predominantly a tribal district, with almost 40% of the population belonging to scheduled tribes. It has two active coal mines, namely Tetariakhar and Sikni. Jala is a village with 3 hamlets (*tolas*) in the Balumath tehsil of Latehar district with a population of 859. It has a significant tribal population close to 58% with 471 Scheduled Tribes and 25 Scheduled Caste population. Along with 41 other villages, Jala forms a part of the buffer zone and is already affected by the Tetariakhar mines, which started operating in 1992, on land first acquired in 1962. In 2009, the Ganeshpur coal block with an extractable reserve of 91.8 million ton of coal was auctioned to a joint venture between Tata Steel Limited and Adhunik Thermal Energy Limited. The total project area was 398 hectares out of which 168 hectares being forest area. The operation of the Ganeshpur coal block would require the complete displacement of the tribal hamlet of Jala, known as Harhi Jala.



4.2. Jharkhand as A History of Movements

The movement for the creation of the state, known as the Jharkhand Movement has been considered to be the most intense form of ecological resistance in India (Munda and Bosu Mullick 2003). The long battle for the creation of Jharkhand was fought on the premises that the coal, iron ore and steel from these regions for industrial development were a cause of deforestation, pollution and loss of land for the peasants and adivasis (Akula 1995; Omvedt 1993). It has been a historic struggle linked with the aspirations for control over natural resources and recognition of adivasi identities and traditions (Sundar 2005), the underlying goal of which has been to challenge a conventional development apparatus that seeks to exploit natural resources with little concern for the environmental and for the people who directly draw their subsistence from the environment (Akula 1995). Starting with the historic resistances against the exploitation of the environment by the British colonialism in the eighteenth century (Munda and Bosu Mullick 2003) to the recent Pathalgadi movement for the democratic assertion of village governance (Xaxa 2019; Singh 2019), there have been multiple adivasi struggles over ecological distribution conflicts over the years. These have included those against the Subarnarekha multi-purpose project, Icha dam protests, Karanpura Bachao Andolan, Jungle Bachao Andolan, and so on (Sundar 2005; Jewitt 2008; Omvedt 1993).

Oraons, the dominant adivasi community of Jala have a history of organizing and agitating against exploitation and oppression. The Tana Bhagat movement which originated in April 1914 among the tribal peasants of Ranchi district was a rejection of colonial capitalist penetration (Dasgupta 1999). Prior to this, the Mundas and Oraons of Chotanagpur were articulating their distinct identities against internal colonialism and communal politics of Bihar and Bengal between 1839-1939 (Munda and Bosu Mullick 2003). Although outside the scope of this paper, we recognize the need to examine the historical lineage of indigenous resistances within decolonial environmental justice scholarship, as has been done for other parts of India (Gunvald Nilsen 2015) as well as elsewhere in the Global South (Delina 2020).

Result and Analysis

Between September 2011 and August 2014, there were two simultaneous legal processes occurring in the village of Jala, namely making a claim for community forest rights on 456 hectares of land within the boundary of the village, and blocking a no-objection resolution for transferring 168 hectares of forest land required for operating the Ganeshpur coal block. The timeline of events in Table 2 shows how in both these instances, the adivasis were, despite exercising their rights, and following procedure, unable to have their voices heard and demands met. The result at the end of January 2014 was that only one acre of forest land was granted community forest rights and the rest was allocated to the coal mine.

Table 2: Timeline of the events between September 2011-August 2014

Time Period	Rejection of Community Forest Rights	Granting of Environmental Clearance of the Coal Block
September 2011- August 2012	<ul style="list-style-type: none"> Gram Sabha recommends Community Forest Right claim for 456 hectares and elects a Forest Management Committee. (October 2011) Submits the recommendation to SDCL (October 2011) 	<ul style="list-style-type: none"> A notice is issued to the FRC for passing a non-objection resolution from the Gram Sabha to transfer forest land within its boundaries for the Ganeshpur coal block (September 2011) FRC informs that until the FRA process is over, a non-objection resolution cannot be passed. (October 2011) Another letter asking for the resolution of the Gram Sabha with a no-objection

		<p>certificate for transferring forest land for the coal block is sent. (August 2012)</p> <ul style="list-style-type: none"> • A Gram Sabha is organized which resolves to not transfer any forest land until the FRA process is completed. (August 2012)
<p>September 2012- August 2013</p>	<ul style="list-style-type: none"> • The Gram Sabha is informed to correct the records, since the forest claimed isn't clear without a trace map. (July 2013) • The Gram Sabha reiterates that the traditional use of forest is on 456 hectares of land within the boundary of the village, and requests for a trace map and guidance for filling the form and conducting field verification. (July 2013) • The Sub Divisional Officer (SDO) takes it upon himself to form a team consisting of circle officer, circle inspector, revenue field staff and forest area officer and conducts a verification recommending CFR for only one acre of forest land. (July 2013) • The SDO sent a letter to FRC to return records and attached copies of FIR reports filed against the members of the Forest Rights Committee. (August 2013) • Another letter is sent giving the FRC an ultimatum to pass the appropriate resolution within the stipulated time, failing to do which would mean rejection of the claim. (August 2013) • Attempts to convene Gram Sabha is failed due to the presence of unidentified members of Trutiya Prastuti Committee (TPC), an extremist organization. (August 2013) 	<ul style="list-style-type: none"> • FRC sends a letter to SDLC expressing their apprehension about the mining company trying to use unfair means to get the no-objection resolution. (28 December 2012) • Another letter is sent to the Gram Panchayat (of Seregara, where the village Jala is located) asking for submission of the no-objection resolution of the Gram Sabha. (6 March 2013) • The Mukhya of Seregara replied that the resolution of the Gram Sabha stands until the FRA process is complete (15 March 2013). • A false and forceful Gram Sabha meeting is conducted which passes the no-objection resolution (15 March 2013). • Written complains about the illegalities of this Gram Sabha meeting is sent to SDO Latehar, DC Latehar and Governor of Jharkhand, requesting them to declare this Gram Sabha illegal. (March 2013)

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- The impossibility to conduct a Gram Sabha under these tense circumstances are reported to the SDLC and DLC. (August 2013)

September 2013-
August 2014

- FRC provides a detailed report to DLC on the ground realities of the village, (including intervention of the mining companies with vested interest in the land, and their contact with TPC), and requests the District Collector to ensure peace in the village to conduct the Gram Sabha (September 2013)
- Gram Pradhan and FRC informs the Deputy Commissioner of Police the intent to conduct a Gram Sabha on 9 September. (September 2013)
- Gram Sabha will full quorum pass the resolution recommending CFR on 456 hectares of forest within the boundary of Jala. (September 2013)
- Office clerk of SDLC refuses to accept the resolution and records, and hence is submitted to the office of DLC. (September 2013)
- SDLC recommends one acre of CFR to Jala (November 2013)
- DLC decides to delay the decision of CFR claim of Jala till the joint report on the ground realities of the village isn't submitted. (December 2013)
- Based on the recommendations of the SDLC and the reports of the committee to understand the ground realities, DLC decided to grant one acre of forest land as CFR, without looking at the document
- SDLC recommends the transfer of forest land for the Ganeshpur coal block by accepting the resolution of the false Gram Sabha (January 2014)
- DLC accepts the recommendation of the SDLC and provides environmental clearance. (January 2014)
- **The Coal Block is deallocated by order of the Supreme Court following the CoalGate Scam. (August 2014)**

This was done after much delays from the side of the government, starting from the first rejection of the claims in July 2013 based on a lack of evidence. The months of July and August are a time of intensive cultivation, despite which the villagers tried their best to organize a Gram Sabha, after seeking guidance on the technicalities of trace maps and conduct of field verification, which had come out as new rules in 2012. These rules were put in place after their first claim was submitted. However, instead of helping with the process, the SDO conducted his own verification, without the Gram Sabha or the FRC, a clear violation of the FRA and recommending only one acre of forest land which was being used as a burial ground. This physical verification report was signed only by three revenue officials and a forest official, although the report claimed that it was carried out in the presence of FRC and members of the Gram Sabha. When the villagers persevered, and managed to organize to convene a Gram Sabha despite the hectic schedule of the cultivation period, other illegal means were deployed to prevent it from being held including threats of physical harm and deaths, by company goons, and Maoist groups, who are allegedly in the pockets of the mining companies, preventing the Gram Sabha from passing any resolution. In this regards, the earlier claim of 1 acre made without following protocol remains the only document available in public office. Despite these threats, and due to the resolve of the villagers fighting for their rights, because they had seen the devastations of the Tetariakhar mines in adjacent regions, they managed to conduct a Gram Sabha despite these tense circumstances, only to meet with the refusal at the office of SDLC to accept the resolution and records. In the end, the DLC did not look at the Gram Sabha resolution, and had an overrepresentation of the forest department in the meeting. Both the district-level committees violated provisions of the FRA in rejecting the claims.

In the case of the mining operations, the violations were more direct. In March 2013, forceful Gram Sabha were conducted by the mining companies and in the presence of a large police force (Tatpati 2015). According to Ramchandra Bhagat, the village head (Gram Pradhan), the mining company produced a record of a Gram Sabha with more than 300 signatures. Among them were signatures of deceased people, multiple entries of single names and names which none of the villagers recognized. A lot of the names and signatures of the actual residents were also written down without their knowledge. They only came to know that they had allegedly attended the Gram Sabha when they saw the document, which also had the signature and seal of the Mukhya (elected

village head), although in the proceedings it is recorded that she had excluded herself from attending the meeting due to ill-health. There is a seal of the secretary for FRC Jala, but the secretary of FRC has no seal. Yet, despite informing the authorities about all these illegalities, this resolution was ultimately accepted in January 2014. These falsifications also extend to district level government officials with claims of brushing them aside as a case of caste divide, and recommendation to 'sit down and work out a consensus' (Edmond 2013).

Had the Supreme Court judgement of 25 August 2014, declaring the allotments of 214 out of 218 coal blocks between 1993 and 2010 illegal, not rendered this coal block illegal (popularly called the CoalGate scam), mining could well have commenced in Jala (Sarma 2013). In March 2015, the coal block was re-auctioned to another company called GMR Chhattisgarh Energy Limited. However, as of April 2019, coal mining has not begun due to financial problems, with the company likely to pay a huge fine to the Coal Ministry of India for non-performance (Mishra 2019).

Discussion

In our case study, we find multiple instances of violation of procedural justice, be it the insistence to conduct ram Sabha during an intense cultivation period, threats and intimidations by extremist organizations when the said Gram Sabha was supposed to convene and disregarding the claims of villagers as caste-based disputes or non-acceptance of resolution by the official clerk. These contraventions illustrate how powerful actors manipulate and override laws and use illegal means to keep the adivasis from asserting their rights. This is after the fact that information coming from the state required repeated appeals and requests.

Many scholar-activists and journalists have chronicled these varying successes and shortcomings of the implementation of the FRA in different parts of the country in the last ten years (Sahu, Dash, and Dubey 2017; Tatpati 2015). It is common knowledge among the activists, researchers and journalists working on tribal rights and environmental justice movements that the forest department and state officials do not consider the claims of adivasis to the forest land as legitimate, and there is an active process of stigmatization, exclusion and othering.

With regards to the false gram sabha conducted to provide forest clearance for coal mining in 2013, multiple interviews drew out the exclusion and othering process felt by the villagers-

The Mukhya had already written saying there was no point in conducting another meeting since the villagers had decided that until the FRA process is completed, no permission for mining will be given...but still they conducted the false gram sabha.....with 300 people, some dead, some not from the village, they even put some of our names even though we

were not there....we wrote to everyone saying it was illegal, but in the end it was accepted. Everyone knew it was illegal, but it was still accepted. (Interview notes, own translation from Hindi)

This contribution brings to light how across the process of adjudication, the assertion of community forest rights was blocked, and the resolution passed to not allow mining was overlooked. This ‘overwhelming experience of oppression’ (Lerche and Shah 2018) is facilitated through direct and structural forms of violence as shown above.

However, if we just follow the Western notions of procedural justice without understanding the embedded context, we would miss the full picture. This claim has been made using a Latin American and calling for decolonial scholarship (Álvarez and Coolsaet 2018b; Pulido and De Lara 2018). It is also equally true for India, where the state plays a ‘cunning’ role of strategically changing its position as a weak or a strong institution to favor neoliberal development projects (Randeria 2004; Williams and Mawdsley 2006). This pattern is seen in different parts of the Global South, using procedural tactics to influence land allocation decisions (Oskarsson 2013; Scheidel 2016; Zoomers 2010).

Conclusion

This contribution builds on the emerging body of literature around decolonial environmental justice scholarship and offers insights using the case of an adivasi village in eastern India that had been fighting for the recognition of community forest rights and preventing the transfer of forest land for a coal mining project. These two processes ran in parallel and both faced violations of procedural justice during a three-year time period between 2011-2014. These procedural injustices can only be understood if the pervasive history of social oppression of adivasis is taken into account, as we have illustrated in this account. This recognition reinforces the need for a more careful transposing of Western concepts of justice and recognition without embedding it in the local context.

An important implication from this analysis is the need for more engagement and exchange of ideas around procedural justice from a south-south perspective to strengthen the scholarship on decolonial environmental justice literature. The need for a Southern-specific perspective is salient particularly when the presence of a marginalized class and its oppression is inseparable from exploitative and extractive industries and development projects resulting in ecological distribution conflicts.

Section III. Coal and Climate Justice

Dear Matefele Peinam

.....And even though there are those, hidden behind platinum titles

Who like to pretend that we don't exist

That the Marshall Islands, Tuvalu, Kiribati, Maldives

And typhoon Haiyan in the Philippines

And floods of Pakistan, Algeria, and Colombia,

And all the hurricanes, earthquakes, and tidal waves didn't exist

Still, there are those who see us

Hands reaching out, fists raising up

Banners unfurling, megaphones booming

And we are, canoes blocking coal ships

We are, the radiance of solar villages

We are, the rich clean soil of the farmer's past

We are, petitions blooming from teenage fingertips,

We are, families biking, recycling, reusing,

Engineers dreaming, designing, building, artists painting, dancing, writing,

We are spreading the word

And there are thousands out on the street

Marching with signs, hand in hand, chanting for change now

They are marching for you baby, they are marching for us,

Because we deserve to do more than just survive

We deserve to thrive.

-By Kathy Jetnill-Kijiner, Marshallese poet

This poem was written for her then seven months old daughter and read during the 2014 UN Climate Summit. Here, I have only included a part of the poem, the full poem is much longer and can be found at www.kathyjetnillkijiner.com/united-nations-climate-summit-opening-ceremony-my-poem-to-my-daughter/

Section III- Coal and Climate Justice

Chapter 5: Mapping Anti-Coal Blockadia movements globally: Connections and Contradictions³³

Abstract

There has been a growing interest in supply-side climate politics in recent years with climate activists focusing on keeping fossil fuels underground. A very noticeable example of this activism is what is known as Blockadia- direct action against fossil fuel across the supply chain to mitigate the climate crisis. However, such direct action against fossil fuels differs vastly across the globe. In this article, we map 61 blockadia movements against coal using the EJAtlas- a global database of environmental justice movements. We examine the different methods and motivations for mobilizations as well as the intensity of the climate justice narrative to draw conclusions on what are the contradictions and connections across space. Our findings show that in the global north the climate justice narrative is much stronger than in the global south, where reasons of land, livelihood, health and culture take the center stage. We propose that an effective global grassroots supply-side politics on climate change must take into account the different motivations beyond climate change, to provide a more nuanced understanding of climate change politics and amplify the multiple voices which are raised against the coal supply chain.

³³ A modified version of the chapter has been accepted as a part of the special issue on Supply-side climate policies, guest-edited by Mural Arsel and Lorenzo Pellegrini for Global Environmental Politics.

Introduction

On August 26, 2016, from a climate camp set up at the edges of open-cast lignite mines in Germany, a solidarity message was sent for two anti-coal climate justice struggles in Bangladesh—against open cast coal mining in Phulbari and against a thermal power plant in Rampal. 2016 was the tenth anniversary of the fatal shooting at Phulbari when during the protests against the open-cast coal mine, paramilitary forces allegedly fired into a crowd of 5000 people killing 3 and injuring many others (Kotikalapudi 2016). The solidarity message sent to the Phulbari Solidarity Group (Raajmanik 2016) acknowledged that:

We know that we are battling against the same issues – the coal industry, state power, climate change, human displacements and ecosystem destruction. However, we acknowledge that the situation for people protesting in Bangladesh is much more severe than for those of us who live in Germany and Western Europe..... We are aware of our nations’ involvement in the destruction of your country – that the company that wishes to mine at Phulbari is listed on the London Stock Exchange and that our countries cause climate change, but Bangladesh is at the forefront of climate change impacts. At the Klimacamp we are taking actions against the coal industry and other polluters in Germany. We see this as a small piece of the bigger picture in the battles against coal and for a liveable climate. We want to send our support and solidarity to you, especially as you mark the tenth anniversary of the Phulbari demonstration and the murder of villagers.



Fig.1. Solidarity Photo taken during the 2016 Klimacamp, Germany.

As one of the thousand people present that particular day, as well as during the whole week in the Rhineland Klima Camp (Climate camp), it was heartening to engage in debates, seminars and informal conversations with people from all over Europe and across the world on ways to build networks, educate each other and organize actions. The Klima Camp in Rhineland, which first started in 2010, and since then gathered annually every summer had two components. One focusing on discussions, seminars, workshops and lecture to create awareness and share knowledge

of organizing for climate justice and the other as a form of a direct-action mobilization as part of Ende Gelände to stop the open pit lignite mines.

Such direct action against fossil fuels with a clear motivation to prevent climate change, along with other reasons has been popularized by Naomi Klein (2015) as Blockadia. They can be understood as interwoven spaces of resistance which include protests and direct action against coal power plants, fracktivists protesting natural gas extraction in their backyards, communities blockading the paths of pipelines (Temper 2019). However, the idea of Blockadia has its roots in the protests against oil extraction by Shell in the Niger Delta in the 1990s, which then spread to Latin America, particularly in the Yasuni in Ecuador, where the slogan of 'leave oil in the soil' was employed with an explicit link to climate change.

Recent years have seen a lot of research and activism around climate justice-from protests in the COPs, to stopping pipelines in Canada, from climate camps in Germany to disrupting fossil fuel shareholder's meetings in London. Within the energy transition literature, recent scholarship highlight the need for approaches focused on supply-side climate politics, focused on socio-economic and environmental justice, and taking into account indigenous and marginalized voices (Eaton 2021).

These movements are often led by the people directly or indirectly affected by the production, consumption and transportation of fossil fuels. The reasons for these movements vary. Some of them are a response against direct threats to life, land, livelihood, pollution and cultural conflicts, while others invoke the reason of climate justice. In recent years, there has been a small but consistently rising interest in the role of such movements for facilitating policy changes from the grassroots for sustainability (Temper, Del Bene, and Martinez-Alier 2015; Scheidel et al. 2018; Temper et al. 2018).

However, not all movements against fossil fuels invoke a climate justice narrative. According to a collaborative research carried out with the EJAtlas database – the largest database of environmental justice movements globally- in 2017, the total number of cases which invoked climate justice narratives and employed direct action, known as Blockadia movements were 69. This is only a tiny fraction of the total number of cases registered in the EJAtlas currently on fossil fuels and climate justice (as one of the 10 main categories of the EJAtlas) which counts to 601 (as of 5 February 2021).

This analysis is thus an attempt to not color every movement against fossil fuels as climate justice, which seems to be the tendency for some big international organizations and activist groups. This is as a result of the gap to deeply consider the heterogeneity of parties involved in climate justice (Forsyth 2014). There is a lack of a deeper introspection within environmental politics on where, how and with whose concerns climate justice claims arose might be applied. Climate justice movements have been said to reproduce old patterns of racism and colonialism (Kelbert and Virasami 2015). At the same time, it is also due to colonial structures that the “Southern” roots of claims for climate justice from organizations in Ecuador and Nigeria with the slogan “leave oil in the soil” are conveniently forgotten.

with world personalities such as Nimmo Bassey and Esperanza Martinez of ERA, Acción Ecológica and Oilwatch since 1997 (as recognized by Klein, 2014), the debate on livelihood emissions vs luxury emissions (started from India by Sunita Narain and Anil Agarwal at the Centre for Science and Environment in 1991, even before the Rio de Janeiro conference) on the injustice of climate change (*Global Warming in an Unequal World: A Case of Environmental Colonialism*), and the campaigns for recognition and payment of an Ecological Debt from North to South since the late 1990s (because of ecologically unequal trade and also because of disproportionate emissions of greenhouse gases). Northern countries have refused to recognize liability for climate change (as explicitly stated in the Paris agreement of 2015).

In this chapter, I address this gap by exploring movements against coal which invoke the narrative of climate justice, fully or partially, to look at the points of convergences and divergences, using the concept of Blockadia.

However, it is important to note that not all conflicts against fossil fuels invoke the narrative of climate justice. Climate change was foreseen since the end of the 19th century (Arrhenius 1896) but international politics did nothing until the 1980s, when the IPCC was formed (Martinez-Alier et al. 2018). Complaints against coal because of occupational accidents, local pollution, health consequences started much earlier – not least in Kolkata which enacted some preventive measures in 1863. It has only been recently that complaints against fossil fuels, including coal, have added to the global climate injustice narrative. According to the EJAtlas, a global, incomplete database of environmental justice movements, there are 566 cases registered as conflicts against Fossil Fuels. The entire database is categorized into ten subdivisions, one of which is termed as ‘Fossil fuels and climate justice/energy’. However, an analysis on mapping Blockadia- movements against fossil fuels with some form of direct action and invoking this narrative rendered only 69 cases which fit this category in 2017 (Martinez-Alier et al. 2018). However, the EJAtlas has grown by one-third

from 2017 to 2021, and cases of conflict on fossil fuels (coal, oil, gas) where the climate-change issue appears in the arguments by local opponents to such investments have grown. Hence the need for a new analysis as explained in the methodology.

Whatever the number of such conflict cases, related to coal, has existed and exists in the world and in the EJAtlas, this poses many interesting questions such as how and why do mobilizations against fossil fuel turn into climate justice movements; what role does international EJOs with specific climate justice agendas such as 350.org or Greenpeace play in such mobilizations; whose voices are heard and whose are silenced and what are the socio-political implications of those. These questions need to be addressed if we wish to arrive at a critical climate justice movement. Hence, in this article, we focus on movements which explicitly strive for climate just futures and provide examples from different regions and methods of mobilization, tackling the questions mentioned above, in the context of coal.

Out of all the fossil fuels, coal is the dirtiest. As the most carbon intensive fossil fuel, a phase-out of coal has been advocated as one of the most effective means of reducing emissions, leading towards a socio-ecologically just transition (Edwards 2019). Their contention is provoked by the large range of local impacts of carbon intensive projects (violation of human rights, social and environmental disruptions); as well as by concerns about the climate impacts at larger scales. In some conflicts, the global climate impacts take primacy while in others, claims focus on the local issues. However not much is written on coal and climate change (Edwards 2019), and this article addresses this gap in the literature as well. This paper explores the research question: How Blockadia actions are connected globally and what are the commonalities in the characteristics of the struggles?

This chapter is an empirical study on analysis of such anti-coal blockadia movements. We have used the EJAtlas which maps and documents movements against environmentally destructive projects around the world in ten categories. One of those categories is fossil fuel and climate justice with 556 listings. We mapped the cases in 2017 before the boom of climate justice mobilizations. After 2018, and with the success of Fridays for Future and newer groups of extinction rebellion, there has been a rise of many demonstrations and mobilizations against the fossil fuel infrastructure. The main drivers around the world of the opposition to coal is not however Fridays for Future, or 350ppm or Greenpeace, it is the relentless march of the industrial social metabolism at the commodity extraction frontiers. Even an industrial economy without growth would have every year to start new extraction of fossil fuels because the economy is not circular, it is entropic. To simplify, energy burns only once.

The analysis of this study is direct action against specific projects. The literature shows that the most prominent fossil fuel extraction which encounters blockadia type actions are fracking or oil pipes. However, not much research has been done on coal- the dirtiest fossil fuel- and climate justice movements or blockadia actions.

In the next section we provide a literature review of CJ and Blockadia and how these grassroots mobilizations have been directly influenced by Environmental Justice (EJ). We also provide the complexities involved in CJ movements, and push for a framework for a radical/critical CJ. This is followed by a section on the methods used to arrive at the analysis in section 4. Section 5 discusses the different issues highlighted in the analysis and section 6 concludes.

Literature Review: From Climate Justice to Blockadia

Research highlights the inability of nation-states and corporations not only in addressing global warming, but actively thwarting efforts of mitigation and adaptation to climate change (Martinez-Alier et al. 2018). This inaction has led to the rise in the intensity and frequency of movements against fossil fuels globally (Temper et al. 2020).

Movements for climate justice can refer to both broad-based mobilizations such as the Fridays for Future student strikes and direct actions by Extinction Rebellion, and those engaged in place-based mobilizations contesting and stopping fossil fuel projects along the entire project life cycle chain, from extraction, to processing, transport and combustion.

The premise of climate justice (Bond 2012) is simple: those actors in certain parts of the world who are responsible for the majority of historical and current greenhouse gas emissions should also take responsibility for the damages caused. The concept of climate justice is closely linked to those of climate debt (Warlenius, Pierce, and Ramasar 2015; Warlenius 2018). It was EJOs (civil society environmental justice organizations) that introduced and developed the concept of “climate justice”. For these grassroots movements financial redistribution is not enough, rather the climatic brakes need to be immediately applied. A 2000 event in The Hague sponsored by the New York group CorpWatch was the first known international conference where (based on CorpWatch’s document of 1999 authored by Bruno, Karliner, and Brotsky (1999), a definition of climate justice was elaborated:

“Climate Justice means opposing destruction wreaked by the Greenhouse Gangsters at every step of the production and distribution process—from a moratorium on new oil exploration, to stopping the poisoning

of communities by refinery emissions—from drastic domestic reductions in auto emissions, to the promotion of efficient and effective public transportation”.

The discourse of climate justice has directly been influenced by environmental justice, with both movements being based on issues of based on principles of social justice, democratic accountability and participation, and ecological sustainability. There are three broad conceptualizations of climate justice in the literature- ideal theories from the academic community, an elite NGO perspective on policy and grassroots movement perspectives (Schlosberg and Collins 2014; Martinez-Alier 2015).

Tim Forsyth warns that “We should not let an epistemological, ‘veil of ignorance’ deceive us that what we think are natural limits or appropriate solutions are universally applicable or without potential negative impacts on others.” He further claims that “An ideal solution does not overlook some people’s concerns, or make their problems worse”, rather allowing for addressing concerns of all parties concerned by including more diverse values and priorities of affected people which might influence what is seen as urgent. This would require looking beyond commonplace discussions of distributional and procedural justice. Environmental justice therefore needs to consider which risks are to be addressed, and to engage with a policy process that is not simply framed by what appear to be urgent solutions to problems that are currently seen as distressing. Paavola et al 2006 claim that distributive justice is unlikely to provide a sufficient foundation for climate justice due to the heterogeneity of involved parties.

In this regard, a polycentric approach has been put forward to better understand the climate justice movement (Tormos-Aponte and García-López 2018). This approach recognises the polycentricity of the climate justice movement with multi-sited and multidimensional facets and linked to broader issues of socio-economic and ecological justice and democracy.

Their contention is provoked by both local impacts of carbon intensive projects, such as violations of human rights, contamination of water, land dispossession, loss of livelihoods, poor working conditions, biodiversity loss, cultural loss, health impacts and inadequate distribution of benefits; as well as concerns about emissions and climate impacts. In some conflicts, the global climate impacts take primacy while in others, claims focus on the local issues. Broad alliances are formed in many cases for blocking fossil fuel projects of extraction, transportation or combustion, and making demands to keep fossil fuels in the ground.

However, it is important to remember that the basic concept of Blockadia is not new. It originates from the resistance against Shell in the Niger Delta in the 1990s. Following the destruction of the

land of the Ogoni and Ijaw peoples through oil spills and gas flaring, there was a peaceful uprising (Vidal 2015). This culminated in the torture and killing of thousands of Delta residents and the hanging of nine Ogoni leaders in 1995, which sparked international outrage against oil companies' violations of environmental regulations and human rights and eventually resulted in oil production withdrawing from Ogoniland. In 1998 the Ijaw Youth Council made a declaration against oil activities in their territories, calling their offensive Operation Climate Change, linking the fight for community control and against fossil fuel extraction (Temper, Fonseca, and Coelho 2012).

These ideas spread to Amazonian Ecuador where the Yasuni ITT initiative in Ecuador (EJAtlas, 2015a) to 'leave the oil in the soil' first arose in 1997 (at the parallel meeting in Kyoto) after Oilwatch had been founded as a response to the damage done by the Texaco-Chevron company (Temper, Fonseca, and Coelho 2012). Ten years later, Acción Ecológica and other groups saw a political opportunity in Ecuador and put forward the proposal adopted in 2007 by the government of Ecuador for leaving the oil of the Yasuni ITT fields under the ground. This was for a triple purpose: to protect local peoples, to protect local biodiversity, and to prevent climate change by decreasing carbon dioxide emissions.

Blockadia is then a new grassroots word for justice and sustainability, a word belonging to the global movement for environmental justice (Martinez-Alier et al, 2014) but with roots in the mid-1990s. It can be considered as a vast but interwoven web of campaigns standing up against the fossil fuel industry (Roy and Martinez-Alier 2017).

Methods

A mix of methods and tools have been implemented to analyze the points of convergences and divergences between anti-coal blockadia movements globally. The cases of coal conflicts registered in the EJAtlas is the unit of analysis for this chapter. The EJAtlas is a tool for collaborative research on environmental justice movements with a theoretical framing rooted in activist knowledge (Temper, Del Bene, and Martinez-Alier 2015; Martinez-Alier et al. 2016). As of January 2021, the EJAtlas covers 3340 cases worldwide, out of which 272 are on coal as a commodity. For this chapter, all the cases of coal were examined and the ones satisfying the following two criteria were selected for the analysis-

- Presence of a climate justice
- Use of direct form of mobilization, as understood by blockadia, strike, street protests and marches, and other forms of civil disobedience.

The selection of the cases was a two-step process. The starting point of this chapter was based on co-creation and analysis of a featured map of blockadia movements using the EJAtlas. The featured map was an exercise of activist-academic co-production of knowledge to provide data for climate justice activists for the COP 23 held in Bonn, Germany in November 2017. A call was sent out in October 2017 to our networks to send in call for expression or any information about any blockadia type of action. For the blockadia map, all the cases of fossil fuel conflicts (n=668) were analyzed in October 2017, out of which 24 included coal. This map was used in the mobilizations in Bonn as well as later on circulated to our networks of academics and activists.

In the second step, I analyzed all the coal cases which had been filled or updated between October 2017 and January 2021 (n=90) using the same selection criteria and found a further 35 cases which were relevant. A final check was conducted to verify that all the coal cases have been explored and fit the criteria of anti-coal blockadia movement, and a total of 61 cases were selected for the analysis.

Then a table was created to examine the intensity of the climate justice narrative, the presence of international NGOs and the main reasons for mobilization, by looking at the descriptions of each of the cases. The intensity of climate justice as the main mobilizing factor was measured using a three-scale system, where 3 stars (***) meant climate justice is the main mobilizing factor, 2 (**) meant Climate justice is one of the deciding factors, although other reasons for objection are present and 1 (*) signified that climate justice is not prominent, either it arrived later, or is spoken tangentially.

This was complemented with informal discussions with team of the Blockadia featured map as well as other researchers and activists working on coal conflicts and climate change in different parts of the world, including India, Bangladesh, China, Colombia, Denmark, Germany, South Africa, and the United Kingdom. The broad theme of discussions revolved around the actors and characteristics of the blockadia movements in each country/region, the similarities and differences between blockadia movements across geographies, the links between project specific movements and broader climate justice mobilizations, the role of international EJOs and the main concerns and reasons for mobilizations.

Blockadia: Keep It In the Ground!
A Map of Resistance against Fossil Fuels for Climate Justice



Let our struggles come together on the BLOCKADIA MAP!
Let's make it clear once again at COP23 that fossil fuels must be kept in the ground!

On every continent there is an increasing frequency and intensity of resistance movements against fossil fuel extraction. Originating from movements such as the **Ogoni** people against Shell in the Niger Delta since the 1990s and the **Yasuni** initiative in Ecuador to leave the oil in the soil, local people and activists are demanding we **keep fossil fuels in the ground**. Today there are diverse and widespread resistances: the **Ende Gelände** mass civil disobedience in Germany; the indigenous-led **Standing Rock** camp against the Dakota Access Pipeline; the movement in Kenya to **"deCOALanize"**; and, amongst many others, the campaigns **#BreakFree** and **#SaveTheArctic**. These resistances can be considered as **"Blockadia"**, a term popularised by Naomi Klein to describe the "roving transnational conflict zone" of "regular" people taking actions to block destructive fossil fuel projects.

What the Blockadia Map aims to do is bring together incidences of Blockadia-style resistances against fossil fuels **along the whole chain**, including extraction, transportation and combustion. The resistances are often characterised by diverse mobilisation against a specific project using **direct action** such as blockades, occupations or street demonstrations. By bringing together inspiring case studies, the **diversity** of the movements can be celebrated whilst the **connectivity** between them can be strengthened and the real 'glocal' threats of fossil fuel extractivism can be better understood.

[Let's build together and learn from each other through the collaborative mapping platform EJAtlas.org!](http://ejatlas.org/)

This November at the **23rd Climate Conference (COP23)** powerful leaders and stakeholders will be gathering in Germany, but in the collective consciousness of the global grassroots movements there is a rising urgency for **unburnable fuels** and for a power shift.

So if you know of a case of "Blockadia" in action, please get in touch with us in English or Spanish **before the 25th of October**. We would be grateful if you could check beforehand if the case has already been included on the EJ Atlas and help us to complete the information if it is not. We hope this will also be a long-term project and that we can continue to update the map on an ongoing basis. We would also be interested to hear of any opportunities for sharing the map at the activities around COP23 that you or your organisations may be aware of.

Please email us at ejatlasclimatejustice@gmail.com

To enter a case directly to the EJ Atlas visit <http://ejatlas.org/accounts/new>

Thank you very much for your contributions,

Alice, Andrea, Brototi, Daniela and Daria, from the EJ Atlas team

Fig 2: A screenshot of the call sent out for the co-creation of the Blockadia Featured Map

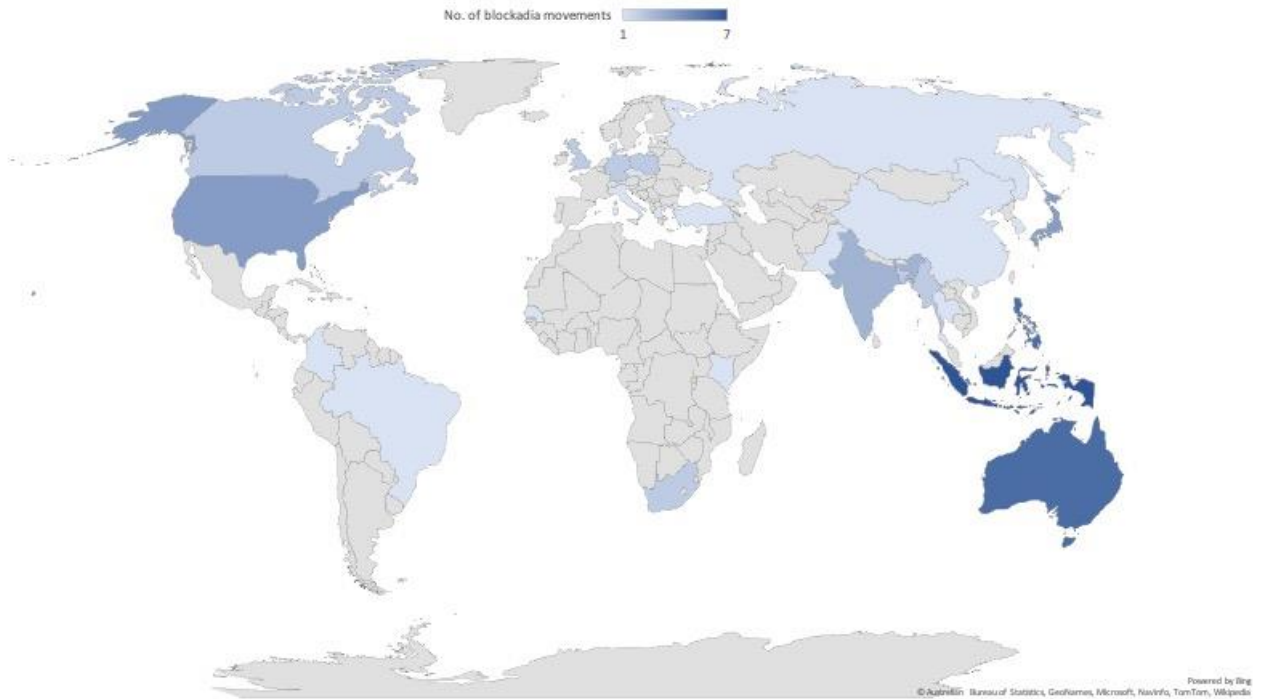


Fig 4: Map of country-wise blockadia cases (Source: Own elaboration)

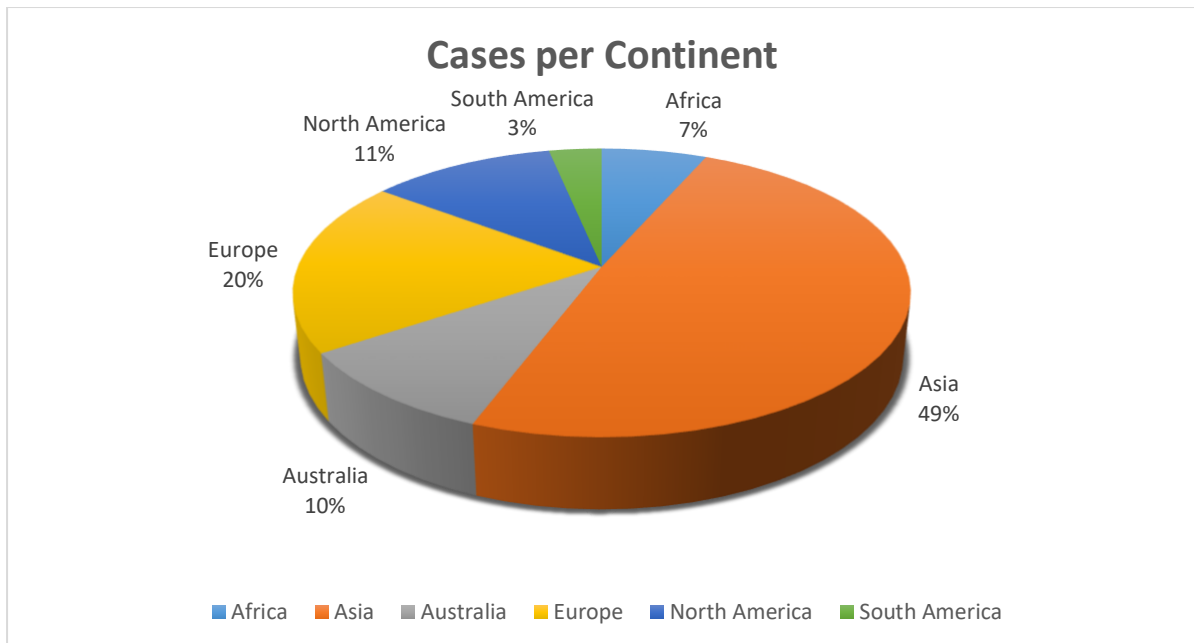


Fig. 5. Cases of Blockadia movement per continent (Source: Own elaboration)

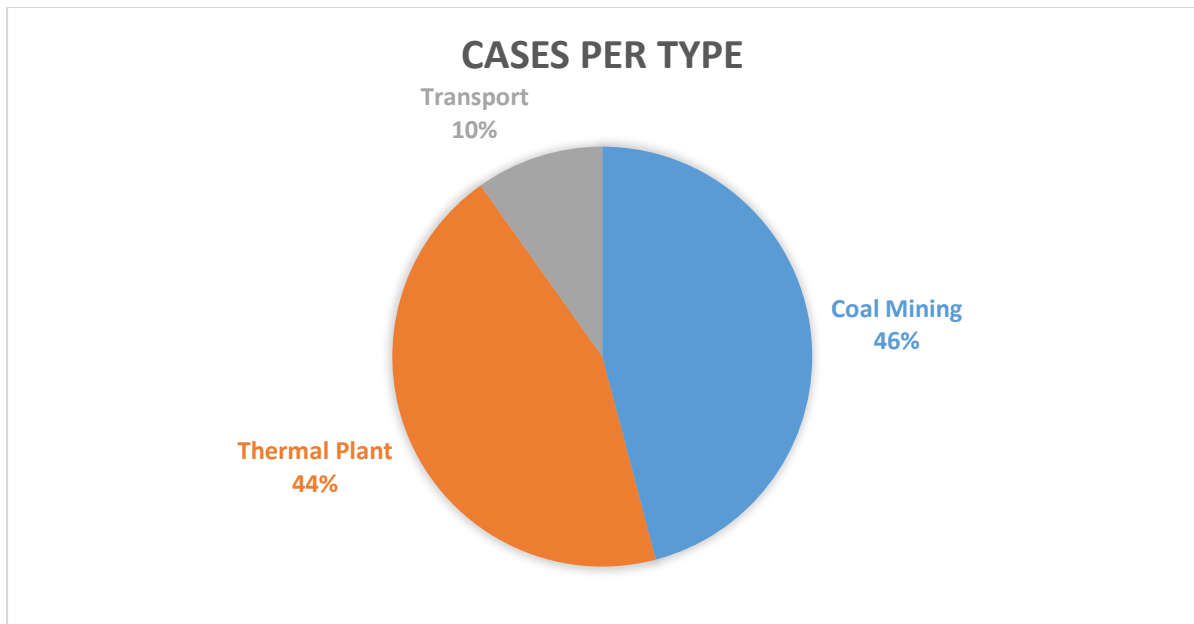


Fig. 6. Cases per type of coal activity (Source: Own elaboration)

Either international EJOs or large national coalitions are present in more than half of all the cases (57.4%).

From the table below it can be seen that in the global south, blockadia actions are more connected on aspects of territorialities, livelihood, pollution, etc. whereas, in the global north, they are more directly connected also to concerns of climate change. It can also be seen that except for in cases from Europe and North America, even in cases with intensive climate justice narratives, other reasons for mobilization such as health concerns, livelihood issues, biodiversity loss and/or violation of indigenous rights are present.

According to the analysis, in the global north, the concept of human action as the primary driver of climate change, is clearly perceivable by the people and are directly relatable to individuals as generally the lifestyle and society in the global north is more carbon intensive. Therefore, the sense of responsibility of being the primary drivers of climate change is present in the movements in the global north. Therefore, the need for a climate justice narrative to mobilize people on the streets is much stronger in the countries of the Global North

However, for the movements in the global south, even though the impacts of climate change is more prominent, the relation of human actions as the direct driver of it is not as present. Due to the lack of proper governance, being part of the territories in a global integrated hierarchical system, continuous marginalization of indigenous communities and nature is most strongly seen

in those areas of conflict. The resistance in the global south faces the worst forms of human rights violations. The land, property and safe health rights are violated by such projects. Therefore, for the resistance against fossil fuel infrastructure in the global south, it is often the immediate oppression and shifted down pollution that is the main driver of protest. The narrative of climate justice takes a back seat in those movements.

Rapidly changing patterns of mobilization in a climate-constrained world

Protesting against the local harmful impacts of coal on health, environment and livelihood is not a new phenomenon. Neither is the use of direct-action strategies as forms of mobilization. What is new, and the subject matter of this chapter, is the involvement of a climate justice narrative as a motivation for the protest, in what is termed as Blockadia movements. The discussion below on the three kinds of connections I draw from the analysis of the 61 projects analyzed above is just a starting point of this analysis into exploring comparatively the climate justice movements. Even as I write the thesis, more and more local groups and grassroots initiatives are mobilizing in the Global South, often with the support of international organizations. For example, 350Africa.org, the African continent focused branch of 350.org which is active in Democratic Republic of Congo, Ghana, Kenya, Nigeria, Senegal and South Africa is organizing Climate workshops in February-March 2021 with an aim of creating ‘a new wave of large-scale climate actions as we work toward ending the age of fossil fuels and moving to clean, renewable energy’ (350Africa.org 2021). Similarly, Greenpeace is also active in many of the countries with a dedicated focus on direct action for climate justice, as already seen from the table. A future research agenda would be a focused exploration of regional commonalities and contradictions, with and without the presence of international EJOs to understand how local mobilizations against coal are shaped.

Discussions

This chapter, however, aims to answer the question of how anti-coal blockadia actions are connected globally and what are the commonalities and characteristics of the struggles, as a starting point for these discussions. From the analysis of the anti-coal blockadia cases above, as well as multiple discussions with climate justice activists and researchers, three patterns emerge, which I call as ‘north-north connections’, ‘south-south commonalities’ and ‘north-south solidarities’. In the following sections I elaborate on what I understand by them, giving examples from specific cases to substantiate it.

North-North Connections

The north-north connections refer to the concrete motivation of climate justice as the driving force behind blockadia actions in countries of the Global North. In Europe, this has a specific characteristic - due to the free movement of people- it is often the same group of people who travels and participates in civil disobedience actions. Often, the same individuals are active in several groups (such as Extinction Rebellion and Fridays for Future), as well as site-specific protests. In addition to overlapping of people, the NGOs working on the theme often also collaborate on specific campaigns and play a decisive role in shaping the climate justice narratives in these struggles. Activists as well as narratives of Ende Gelände in Germany and Code ROOD in The Netherlands, for example, share strong coherence in terms of climate justice focus.

Across several countries in Western Europe, the coal industry has been a particular target of climate justice activists because it is the most polluting of fossil fuels and because the associated landscape destruction is visually striking and directly threatens local communities and local biodiversity. Climate activists, such as those in Germany and the UK, are generally young, well-educated and highly mobile; these privileges have allowed for a strong network and shared narrative to be developed and for large-scale civil disobedience actions to be organised.

Germany is home to the most prolific of these actions, Ende Gelände, which since 2015 has regularly brought together thousands of activists from across Europe for the mass trespass of coal mines and associated infrastructure. These actions cause delays for the industry, and are a symbolic act bringing media and political attention to these sites of destruction. Activists face arrest and police repression, but with the vast numbers of people participating and tactics such as mass anonymity (e.g. all dressing in white paint suits, not sharing personal details) the risks are somewhat minimised. At Ende Gelände, climate justice is a central and strong narrative; when asked “What do we want?”, the response is “Climate justice!”. There is also appeals to both decolonise and decarbonise. There is a recognition of Europe’s historical emissions and contribution to climate change impacts, and of the hypocrisy of the continued support for the coal industry despite Germany’s energy transition policies. Before the mass actions, there are camps where activists receive action training and have the opportunity to join workshops and talks to explore climate justice and related topics. This can include learning about other anti-coal or fossil fuel movements in Europe and the rest of the world, and learning about how climate justice intersects with other social justice issues such as labour, feminism, LGBTQ+ and anti-racism.

These camps share a history with the Camps for Climate Action organised in the UK from 2006 until 2011, symbolically occupying sites such as power stations or proposed airport runways. The camps were first organised by direct action networks involved in anti-G8 organising, and also follow the tradition of the anti-nuclear and peace camps of the 1980s. The camps attracted new activists, and involved longstanding environmental groups such as Greenpeace and Earth First!. As well as spaces of learning, these camps were cultural laboratories for alternative way of living such as with consensus decision-making and sustainable technologies.

The Camps for Climate Action model spread to Europe, and on several occasions have led to the long-term occupation of sites. This is the case for the Hambacher Forest in Germany, threatened by deforestation as the nearby open-pit lignite mine operated by RWE (which has been the target for several Ende Gelände actions) demands more land. For Hambacher forest resistance, activists have been occupying the forest by building tree houses and living inside the forest in order to stop the company from destroying it starting in 2012. The relations with the local communities are somewhat complicated as many are employed by the coal mine, and whole villages have been abandoned since being bought by the mining company to expand the mine. Nonetheless the occupation of Hambacher Forest since 2012 has gained widespread support, with legal campaigns to protect the forest wildlife a popular platform for public support and an opportunity for the climate justice message to be amplified. The site stands in solidarity with other frontline campaigns and has been visited by many international activists.

The popularity of the German anti-coal and climate justice movements has spread across Europe with similar actions organised in the Czech Republic against coal and in the Netherlands and Sweden against gas infrastructures. In the UK, activists have organised actions against coal mining, such as the action camp and mass trespass of the Ffos-y-fran opencast coal mine in Wales organised by Reclaim the Power. In 2017 they organised actions at the Aberthaw power station which is also operated by RWE, protesting climate injustice and the poor air quality suffered by local residents. There have also been actions in the North of England against the Pont Valley coal mine where there has been an alliance between local community groups and the Coal Action Network as well as the direct support of activists travelling to the site from the Hambacher Forest. These groups had cause to celebrate in the summer of 2020 as plans for the further exploitation of coal were rejected. One important point to note is that such forms of resistance are effective due to the relative civil and human rights situation and governance in Germany and more broadly in the Global North. For countries in the global south such forms of protest expose activists to higher oppression and often is quickly dispersed, such as in the case of Phulbari resistance where 3 people died during a strike.

At the same time, the climate movement in Germany as well as in broader Europe have been criticized for not being inclusive and un-reflected of their white privilege. The big environmental NGOs that often shape and run large climate-crisis related campaigns are also seen to reproduce colonial narratives. In the year 2020, certain progress can be noted in terms of the discussion. A widespread understanding is created among the movement on the need to work on the connection of racism and climate crisis. Moreover, more awareness is created on the need to be decolonial in all discussions and approaches. For instance, Ende Galaende had assigned specific resources to create BIPoC safer spaces in the climate camps and BIPoC finger for the mass coal mine occupying action in the September 2020. Specific consultation with lawyer were organize for people with different residency status to assess the risk for them of participating in such civil disobedience.

South-South Commonalities

In the cases from the global south, we see that there is a shared common experience of oppression, stemming from structural inequalities and pre-existing hierarchies which provides the foundation for commonalities. As shown in our analysis, the main motivations for protests, although not as strongly connected through a climate justice narrative, do share similar concerns of indigenous territorialities, loss of land and water, health damages, destruction of culture and heritage and loss of livelihoods. The common denominator which connects these movements are the struggles against the contemporary coal complex. In some instances, where movements against coal from different countries join forces, such as in the instance of the protest against the Godda thermal power plant in India and the Rampal power plant in Bangladesh, the primary concern is the common struggle against big corporations to advocate for indigenous rights and preserve rich biodiversity (such as the Sundarbans).

To substantiate this further, in Colombia too, the main motivations for resisting coal are local. In the coal mining area in La Guajira and Cesar local communities, indigenous peoples, Afro-Colombian communities, and peasant farmers have denounced the numerous impacts and conflicts of the coal mining activities, such as pollution of air, soil and water; cultural uprooting, health problems, violations to the right to food and the right to a healthy environment. The protests in La Guajira, which has the largest open-pit coal mine of Latin America owned by Cerrejón (transnational mining company equally owned by BHP Billiton, Anglo American and Glencore-Xstrata), are about conflicts mainly linked to dispossession, and appropriation of communal water source, and have led to local communities losing their livelihood, as well as identity and territory rights. Strong opposition against the project started after Cerrejón proposed to divert the Ranchería river. The inhabitants of the area also questioned the legal foundations of

this diversion of the river, since they denounced irregularities in the prior consultation process that was carried out by the Ministry of the Interior in 2014.

Similarly, protests have been carried out in El Páramo El Almorzadero since 1989 against coal mining due to its environmental impacts in a region with rich biodiversity. In 2004, the national company MINALMO began the illegal exploitation of the old, abandoned mines. Then young people from various environmental groups took up the task, which became known as the 'Campaign in Defense of life and the Páramo del Almorzadero', summoning all the communities of the subregion. This forced the Autonomous Corporation of Santander (CAS) to order the suspension of mining activity again. However, in September 2009 the government again granted new concessions to exploit coal in Paramo El Almorzadero for 29 years. This was not well received by the communities that have been fighting for more than 20 years against exploitation of coal in their territory. In February 2012, the Regional Environmental Forum in Defense of the Paramo El 'Almorzadero' was held with the support of the Association for the sustainable management of the environment-AMASOMA, involving different local communities, peasant organizations, environmentalists, social leaders, trade unions and students.

The same is also true if we move continents in the global south. In South Africa, the case of the Fuleni coal mine protests brought together two coal mining affected communities together, who are generally separated by a lake. This lake is now polluted by the coal mine. There is a coal mine in Somkhele, the other town across the lake, which was agreed on by the community of Somkhele because there were promises of new infrastructure, jobs, prosperity for the community etc. This was in 2007. Since then, very few people have been employed by the mining community and not many people are benefitting from the mine. Furthermore, there is a natural reserve very close to the coal mine, which also have negative implications.

For this reason, the neighboring community are resisting against an establishment of a coal mine in their town. They have seen that the other community is not benefitting and they themselves have also felt the negative impacts that coal mining brings with it such as coal dust destroying water resources, and livestock. So far, they have managed to block the mining company from extracting coal on their territory, but they have been through court twice and are still struggling with the mining company. However, the narrative of climate justice is not as obviously present as some literature seem to suggest.

North-South Solidarities

The connections between anti-coal blockadia movements between countries of the global north and south can be understood as a form of solidarity and support which they provide each other.

I illustrate the example of Bangladesh to make this point, where we see global north-south solidarity forming and sustaining the momentum of the movements.

In Bangladesh two internationally well-known protests that formed against coal in the last two decades are the Phulbari movement against a proposed open pit coal mine and Save the Sundarbans movement against the Rampal Thermal coal power plant that is currently in its construction phase. There are several dissimilarities amongst the two movements in terms of involvement of local population, type of mobilization, actions taken, escalation and government response. However, if we keep our focus on looking at the existence of climate justice narrative, we will see, the first reaction in both the movements formulated based on the direct immediate impact of the proposed projects on the local environment and people who are dependent on it. As the Phulbari open pit coal mine would displace more than 200000 people including indigenous population and destroy fertile arable land, that became the first and immediate point of resistance. In this case the potential harmful impact of the project was clear and immediately to the local people. The movement on the ground actively sought support from the central leaders of past people's resistance. With support from the national platform of people's movement the Phulbari resistance became stronger while staying deeply rooted in the region.

For the anti-Rampal power plant movement, the first resistance from local people were relatively small. The land acquisition was done promptly, and further intimidation was used to crush any spirit of resistance in the region. However, the movement started big nationally- focusing on the potential impact of the powerplant on the mangrove forest- the Sundarbans. The impact of the powerplant on the Sundarbans were not easily perceivable by the people. The movement primarily needed to fight more on the front of demystifying the government claims of super-advanced technology and winning on the scientific ground. As part of that fight, the narrative of climate justice was more used by the national movement. One of the major arguments used by the movement was- Bangladesh is one of the hardest impacted countries by climate change.

It is interesting to note how both the Phulbari movement and Save the Sundarbans movement became global from being a community led movement inside the country at the beginning. In both of cases, diaspora Bangladeshi community have played a crucial role. It is also important to note

that the narrative of climate justice became important in turning the movements global by engaging international actors.

Phulbari Solidarity group consists of many international NGOs and smaller alternative collective groups. In “check year” Bangladeshi activists living in the UK started protesting in front of London Stock Exchange (LSE) based on the fact that the stock of the mining company GCM is still being traded there. After continued intervention in the Annual General Meetings and protesting in front of LSE, in August 2020 the Financial Conduct Authority of UK said they would initiate the process of investigation against the GCM.

For Save the Sundarbans movement activist attended UNESCO world heritage committee’s annual meeting in 2019 and submitted a petition with over 17000. UNESCO took a strong stance supporting the concern of the civil society and suggested that all industrial construction including Rampal coal powerplant must stop near the forest. In 2020, a campaign specifically targeting the German Engineering and consultancy firm Fichtner was launched in Germany involving climate action groups like Fridays for Future, Extinction Rebellion and Ende Galaende.

For the international mobilization of different activist groups, the climate justice narrative is found to be crucial. That has been the single most important thread in connecting the struggles and motivating people to take action more than 5000 miles away from where the projects are located. The privilege of having a safer democratic space in mobilizing and organizing in global north has been a good logic for inspiring people. Additionally, the global hierarchical system which shifts down dirty-environmentally destructive project (international environmental racism) on the countries in the global south plays an important part in the narrative.

In both the Phulbari movement and the Rampal thermal power plant movement, we see Bangladeshi diaspora stepping up and making the local movement global to create higher international pressure in favor of the struggles on the ground. Following the initial push from the diaspora, local groups in the UK (Phulbari) and Germany (Rampal) took up to mobilize from a global climate justice perspective.

Another example of this can be understood from the example of the Pacific Warriors visiting the RWE mine in Germany in 2016, with climate justice narrative as the main grounding principle.

Conclusion and Future Research Agenda

This paper contributes to the literature on climate justice in particular and environmental justice and sustainability in general in the following four ways. Firstly, it employs a transgressive research

methodology of co-production of knowledge by creating a map with activists and academics for the use by climate justice activists for the Bonn COP23. Secondly, it reports the first in-depth empirical study on blockadia movements against coal globally to examine the regions of conflicts, reasons for mobilization, intensity of the presence of a climate justice narrative, and the effect of international EJOs in narrative building. Thirdly, it differentiates between the different types of connections as north-north connections, north-south solidarity and south-south commonalities and finds commonalities and contradictions with distinct features. Fourthly, it pushes for a decolonial approach to climate justice movements by advocating for awareness of the multiple hierarchies and injustices as well as not silencing the voices from the grassroots for a truly emancipatory climate justice movement.

The three different typologies of connections identified has different implications for both research and activism under climate justice. It allows to understand the existing perspectives and thus facilitate a more transparent and non-hierarchical movement for climate justice. An emancipatory climate justice movement can only be created if, in the name of climate change adaptation, other aspects of justice, such as indigenous justice, racial justice, gender justice etc. are not pushed to the background. Decolonial environmental justice scholars have noted how climate change policy is shaped by alliances between particular academic community and civil society organizations determining the types of knowledge used (Rodríguez and Inturias 2018). Climate justice activism must avoid falling into that trap of valuing certain knowledges and certain claims above others based on power hierarchies.

This chapter is only the first attempt at understanding the complexities involved in drawing global patterns from movements against coal under a climate constrained world. The focus of the chapter was to examine how climate justice narrative, in its different intensities share common and distinct features globally in coal conflicts. As a result, I couldn't explore the multiple cases, both old and new, against coal which do not *yet* invoke climate justice but are equally important in ensuring that 'coal is kept under the hole'. At the same time, in many regions of the world, including China there are visible concerns about coal and climate change, but these are not *yet* utilized as mobilizing strategies for project-based movements.

Recent years shows that as the world is heating, so are the debates around climate change and just transitions. From Chile to China, from the Arctic to the Amazonia, more and more movements and activists are gathering forces. A future research agenda should include examining the roles of these movements, both qualitatively and quantitatively, to explore their impacts in reducing carbon dioxide emissions, in countering dominant narratives of growth and development which are often

used as justifications for more coal projects, and in bringing to light the contemporary coal complex which functions through collaborations between governments and multinational coal companies.

Appendix to the chapter table: Map of anti-coal blockadia movements globally as reported in the EJAtlas

Sl	Name of case	Country	Reasons for objection	CJ intensity	Int present NGOs	EJAtlas link
Africa						
1.	Coal Power Plant in Lamu, Kenya	Kenya	Significant environmental impacts, lack of transparency and public participation, poor analysis of alternatives, incomplete resettlement plan	*	Sierra Club, 350.org	https://ejatlas.org/conflict/coal-power-plant-in-lamu-kenya
2.	Coal plant in Bargyn, Senegal	Senegal	Pollution and CC, safety standards, need to invest in renewables	**	350.org	https://ejatlas.org/conflict/coal-power-factory-in-bargyn-by-senelec-senegal
3.	Fuleni blockade and leave the coal in the hole campaign, South Africa	South Africa	local livelihood, indigenous territory, mining is not development, health impacts	*		https://ejatlas.org/conflict/fuleni-mine

4.	Transnet dig our port proposal in Durban, South Africa	South Africa	Livelihoods, environmental impacts including climate change	**		https://ejatlas.org/conflict/transnet-dig-out-port-proposal-in-durban-south-africa
Asia						
5.	Rampal thermal power plant	Bangladesh	Threat to the largest mangrove in the world	**	350.org	https://ejatlas.org/conflict/rampal-thermal-power-plant-rampal-bangladesh
6.	Phulbari coal mining project	Bangladesh	Loss of agricultural land, deplete groundwater, loss of livelihood	*		https://ejatlas.org/conflict/protest-against-open-pit-coal-mine-project-in-phulbari-region
7.	Datang coal to gas project, inner Mongolia china	China	Pollution, water and air, increased co2 emissions	*		https://ejatlas.org/conflict/datang-coal-to-gas-project-in-hexigten-banner-inner-mongolia-china
8.	Dehing Patkai, Assam	India	Wildlife and forest biodiversity	**		https://ejatlas.org/conflict/coal-mining-in-dehing-patkai-assam

9.	Goa against coal	India	Rich biodiversity, Fisher livelihood, air pollution	**		https://www.ejAtlas.org/print/goa-against-mormugao-port-trust-coal-projects
10.	Kanpur (Panki) coal-fired power plant, Uttar Pradesh, India	India	Air pollution	***	Greenpeace	https://www.ejAtlas.org/conflict/kanpur-panki-coal-fired-power-plant-india
11.	Indramayu coal fired power plant	Indonesia	Livelihood loss and health impacts	**	350.org , WAHLI	https://ejAtlas.org/conflict/indramayu-coal-power-plant-west-java-indonesia
12.	Cirebon I and II coal power plants,	Indonesia	Local livelihood, pollution	**	350.org, WAHLI	https://ejAtlas.org/conflict/cirebon-i-and-ii-coal-power-plants-west-java-indonesia
13.	Bengkulu coal-fired power plant	Indonesia	Local livelihood, pollution	**		https://ejAtlas.org/conflict/bengkulu-coal-fired-power-plant-bengkulu-province-indonesia
14.	Batang coal fired power plant, central Java	Indonesia	Livelihood of fishing community, environment	**	Greenpeace Indonesia,	https://ejAtlas.org/conflict/batang-coal-mining-central-java-indonesia

					Friends of the Earth Japan	
15.	IndoMet project, coal mining in east and central Kalimantan, Indonesia	Indonesia	Local livelihood, pollution	**	(WAHLI and Global Justice Now)	https://ejatlas.org/conflict/the-indomet-project-coal-mining-in-east-and-central-kalimantan-indonesia
16.	Celukan Bawang Coal Power Station, North Bali, Indonesia	Indonesia	Land acquisition, local impacts, marine biodiversity	*	Greenpeace	https://ejatlas.org/conflict/celukan-bawang-coal-power-station-north-bali-indonesia
17.	Banten Suralaya Coal-fired power complex, Banten, Indonesia	Indonesia	Air and water pollution, destruction of livelihoods due to declining fish catch, health impacts including premature death,	*	Greenpeace	https://ejatlas.org/conflict/banten-suralaya-coal-fired-power-complex-banten-indonesia
18.	Soga coal power plant, Chiba Japan	Japan	Pollution (blue sky) and CC	***	Friends of the Earth, coalswarm	https://www.ejatlas.org/conflict/soga-coal-power-plant-chiba-japan
19.	Kobe city fights against coal, Japan	Japan	Pollution, climate change	***		https://ejatlas.org/conflict/kobe-city-fight-against-coal

20.	Sendai coal fired power station, Sendai City, Miyagi prefecture, Japan	Japan	Health, waste accumulation, assessment,	**		https://ejatlas.org/conflict/sendai-coal-fired-power-station-sendai-city-miyagi-prefecture-japan
21.	Yokosuka coal power plant, Kanagawa prefecture, Japan	Japan	Climate change, air pollution	***	Kiko (Climate Action) Network	https://ejatlas.org/conflict/yokosuka-coal-power-plant
22.	Hpa-an coal plant, Karen state, Myanmar	Myanmar	Moratorium on coal national	*	Greenpeace	https://ejatlas.org/conflict/hpa-an-coal-plant-myanmar
23.	Nam Ma coal mines, Shan state, Myanmar	Myanmar	One of the many many concerns in the report	*		https://ejatlas.org/conflict/nam-ma-coal-mining-and-extrajudicial-killings-shan-state-myanmar
24.	Sindh Engro Coal Mining and Power Plant Project, Thar Desert, Pakistan	Pakistan	Land rights of the indigneous, pollution and health impacts of coal dust	*		https://ejatlas.org/conflict/sindh-engro-coal-mining-company

25.	Coal fired power plant in Batangas	Philippines	Threat to coastal landscape, health and pollution	***	Greenpeace, Philippine Movement for Climate Justice	https://ejatlas.org/print/coal-fired-power-plant-batangas-philippines
26.	Coal mining in Barangay Ned, Lake Sebu, South Cotabato, Philippines	Philippines	Indigenous rights	*	Philippine Movement for Climate Justice	https://ejatlas.org/conflict/coal-mining-in-barangay-ned-south-cotabato-philippines
27.	Coal fired plant in Luna La union, Luzon Philippines	Philippines	Local territory, pollution and cc	***	Philippine Movement for Climate Justice	https://ejatlas.org/print/coal-fired-power-plant-cfpp-in-luna-la-union-philippines
28.	Quezon coal fired power plant in Atimonan, Philippines	Philippines	Right to breathe clean air, climate justice	***	Philippine Movement for Climate Justice	https://ejatlas.org/conflict/quezon-coal-fired-power-plant-philippines
29.	Resistance to coal stockpiling leads to Gloria Capitan's murder, Bataan, Philippines	Philippines	Health impacts, impacts on coastal environment	***	Philippine Movement for Climate Justice, Greenpeace, 350.org	https://ejatlas.org/conflict/coal-mining-leading-to-the-killing-of-gloria-capitan

30.	Coal mining in Barangay Ned, Lake Sebu, South Cotabato, Philippines	Philippines	Indigenous rights, biodiversity	*	Philippine Movement for Climate Justice	https://ejatlas.org/conflict/coal-mining-in-barangay-ned-south-cotabato-philippines
31.	Chuvashka village in Kuzbass covered in black snow from coal mining, Russia	Russia	Pollution and livelihood concerns (Climate justice mentioned only in reports)	*	Coal Action Network	https://ejatlas.org/conflict/chuvashka-village-in-kuzbass-kemerovo-oblast-covered-in-black-snow-from-coal-mining-russia
32.	Dangjin coal plant, South Korea	South Korea	Health impacts and climate change concerns	***	Greenpeace	https://ejatlas.org/conflict/dangjin-coal-fired-power-complex
33.	Coal powered plants in Ban Krut and Bo Nok, Prachuab Khirikhand, Thailand	Thailand	Loss of health and environment (Main activist, Jintana Kaewkao, is termed as a climate hero)	***	Greenpeace	https://www.ejatlas.org/conflict/proposed-coal-power-plant-in-prachuab-khirikhand-thailand
34.	Gerze coal fired plant in Turkey	Turkey	Local env and socioeconomic conflicts	**	Mentioned by Greenpeace and 350.org	https://ejatlas.org/conflict/gerze-coal-burned-thermal-power-plant-turkey

Australia						
35.	Gloucester resources rocky hill open cut coal mines, NSW Australia	Australia	Land use change, noise and visual impacts	***		https://www.ejAtlas.org/conflict/gloucester-resources-rocky-hill-open-cut-coal-mine-nsw-australia
36.	KEPCO's Bylong Valley coal mine, NSW, Australia	Australia	Env impacts, intergenerational inequity	**	350.org	https://ejAtlas.org/conflict/kepcos-bylong-valley-coal-mine-nsw-australia
37.	Port of Newcastle and Break Free 2016 blockade, Australia	Australia	To contest its primary use as the world biggest coal export hub and highlight the negative impacts of Coal	***	350.org	https://ejAtlas.org/conflict/break-free-2016-port-of-newcastle-blockade
38.	Carmichael Coal Mine and Rail Project, Queensland, Australia	Australia	Indigenous land, threat to the great barrier reef, and uneconomic due to declining coal market.	***	Stop Adani, 350	https://ejAtlas.org/conflict/carmichael-coal-mine-and-rail-project-queensland-australia

39.	Alcoa coal closes in Anglesea, Australia	Australia	Health impacts and climate concerns	**		https://ejatlas.org/conflict/alcoa-coal-closes-in-anglesea
40.	Hazelwood Open-Cut Coal Mine Fire, Australia	Australia	Health impacts and pollution	**	Friends of the earth	https://ejatlas.org/conflict/2014-hazelwood-open-cut-coal-mine-fire

Europe

41.	Limits to lignite mining, Horní Jiřetín	Czech Republic	Relocation, climate justice	***	Greenpeace	https://ejatlas.org/conflict/limits-to-lignite-mining-horni-jiretin
42.	Enstedværket in Aabenraa, Denmark	Denmark	Climate justice	***	KlimaKollektivet (Climate Collective)	https://ejatlas.org/conflict/enstedsvaerket-in-aabenraa-denmark
43.	Hambach forest occupation against	Germany	Destruction of forest, local population, climate change	***	Endegelende, 350	https://ejatlas.org/conflict/occupation-of-the-hambacher-

	brown coal mining, Germany					forst-against-brown-coal-mining-germany
44..	Lignite mining and the Ende Gelände movement, Germany	Germany	Local impacts and climate change	***		https://ejatlas.org/conflict/lignite-mining-and-the-ende-gelände-movement
45..	Movement against imported coal plants, Greece	Greece	Local impacts, no need for coal, look for renewable alternatives	***		https://ejatlas.org/conflict/citizens-against-coal
46.	Coal power plant in Saline Joniche, Italy	Italy	Environmental and health impacts,	**	Greenpeace	https://www.ejatlas.org/conflict/ilva-of-taranto
47.	Czczott coal plant, Silesia, Poland	Poland	Pollution and climate change	***	Greenpeace, climate alliance germany, and more	https://ejatlas.org/conflict/the-czczott-hard-coal-fired-power-plant-poland
48.	Gubin Brody lignite mine, Poland	Poland	Displacement, climate change impacts	***	Greenpeace	https://ejatlas.org/conflict/the-gubin-brody-lignite-mine-poland

49.	Coal power plant Sostanj - TES 6, Slovenia	Slovenia	Climate change impacts	***	Greenpeace	https://ejatlas.org/conflict/coal-power-plant-sostanj-tes-6-slovenia
50.	Resistance against Rotterdam and Amsterdam fossil fuel ports, the Netherlands	The Netherlands	Climate justice	***	Code ROOD, Climate Justice Amsterdam	https://ejatlas.org/conflict/resistance-against-rotterdam-and-amsterdam-fossil-fuel-ports
51.	Ffos-y-fran opencast coal mine, South Wales, United Kingdom	United Kingdom	Health impacts of coal dust, loss of landscape	**		https://ejatlas.org/conflict/ffos-y-fran-opencast-coal-mine-south-wales
52.	Proposed coal mine in Pont valley, UK.	UK	Negative health impacts and CC	***	Coal action network	https://ejatlas.org/conflict/coal-mine-expansion-in-county-durham-uk
North America						
53.	Telkwa coal mine, British Columbia, Canada	Canada	CO2 emissions	***		https://ejatlas.org/conflict/telkwa-coal-mine-british-columbia

54.	Hunter Valley Coal, New South Wales, Australia	Canada	Climate change and health (coal mines for many decades)	***	Climate and Health alliance, Climate Action new castle	https://ejatlas.org/conflict/telkwa-coal-mine-british-columbia
55.	Coal plant in Jiuquan iron and steel for aluminim production, st Elizabeth, Jamaica	Jamaica	Climate justice	***	Saynoto coal initiative	https://ejatlas.org/conflict/coal-fired-plant-to-be-built-by-chinese-company-jiuquan-iron-steel-at-nain-st-elizabeth-jamaica
56.	Coal fired power plants in Chicago, USA	USA	Indigenous rights, end coal campaign	***	Local ones-chicago clean power coalition	https://www.ejatlas.org/conflict/coal-fired-power-plants-in-chicago-usa
57.	Coal exports in West Oakland: The Oakland Bulk and Oversized terminal (OBOT), California, USA	USA	Environmental racism, health concerns	***	350.org, Sierra Club	https://ejatlas.org/conflict/coal-exports-in-west-oakland-the-oakland-bulk-and-oversized-terminal

58.	Mountain Top Removal for coal production in Kanawha County, West Virginia, USA	USA	Health and environmental impacts (endangered species and water)	*		https://ejatlas.org/conflict/keystone-coal-by-mountain-top-removal-threat-to-kanawha-state-forest
59.	Mountaintop mining removal in West Virginia, USA	USA	Environment degradation, health damages and cultural loss	**	Greenpeace, Sierra Club	https://www.ejatlas.org/conflict/mountaintop-mining-removal-in-west-virginia-usa

South America

60.	Coal mining Project in mina guaiba in rio grande del sul, Brazil	Brazil		**		https://ejatlas.org/conflict/coal-mining-project-mina-guaiba-in-rio-grande-del-sul-brazil
61.	Comunidad Wayuu, Guajira, resistiendo la desviación del Arroyo Bruno por la empresa El Cerrejón, Colombia	Colombia	Indigenous community rights, loss of water source	*		https://ejatlas.org/conflict/glencore-switzerland-bhp-billiton-united-kingdom-angloamerican-australia

Chapter 6: Counterproductivity of the broad strokes of Blockadia: Two Examples from India advocating Decolonial Climate Justice³⁴

Abstract

There is a tendency of international environmental justice organizations to mobilize against fossil fuel projects in the majority world by employing a climate justice narrative. This often sidelines and/or invisibilises local concerns and voices. This top-down imposed climate justice narrative also reinforces preexisting inequalities and power hierarchies. The climate justice movement has been criticized for its racial and colonial roots in the context of climate marches and strikes. Yet, the academic literature on project-based climate justice movements in the majority world is silent on epistemic injustices. In this chapter, I argue for the need of a decolonial climate justice movement, with a focus on coal conflicts in India. The central argument is that not all movements against coal should be considered as climate justice movements, until and unless the local activists say so. Imposing a narrative on marginalized communities, such as the indigenous communities of India, leads to further injustices. By providing two examples of coal conflicts from (eastern and southern) India which have been termed as movements for climate justice internationally but are in fact mobilizations for indigenous land rights and common wetlands respectively, I show the counterproductivity of imposing a narrative for achieving (decolonial) justice. Using a mixed methods approach of fieldwork, extensive survey of grey literature and semi-structured interviews, I demonstrate how potential for real alliances requires a nuanced understanding of the reasons for mobilization across scales and contextualized in the national climate politics. I further propose what a decolonial climate justice movement could look like, by citing recent experiences of a coalition of youth climate justice groups from India and Australia advocating to ensure that local concerns are at the forefront of any climate justice discussion, and local voices are acknowledged in the struggle for planetary well-being.

³⁴ This chapter is under review as part of a special issue on Climate Justice in Political Geography guest-edited by Michael Mikulewicz & Tahseen Jafry.

Introduction

Not all direct-action mobilizations against fossil fuels should be clubbed as blockadia actions under the umbrella of climate justice movements. This is my final argument of the thesis.

By providing two examples of coal conflicts from (eastern and southern) India which have been termed as movements for climate justice internationally but are in fact mobilizations for indigenous land rights and common wetlands respectively, I demonstrate how potential for real alliances and solidarity does not come from climate justice in these cases. I contextualize this under India's broader climate justice activism which makes employment of the narrative of Blockadia counterproductive.

I am aware of the theories which argue contrary of my claim. One of them employs the concept of *glocalization*, which links local reasons for mobilization with the broader climate crisis (Urkidi 2010). A second claims that just as everyone is an economic actor, everyone is also an ecological (climate) actor (Cohen 2017). A third one recognizes polycentricity of climate justice movement with multi-sited and multidimensional facets and linked to broader issues of democracy and socio-economic and ecological justice (Tormos-Aponte and García-López 2018).

However, each of these theories acknowledge the role of power relations and structural inequalities; the voice of the subaltern in glocal struggles in Colombia (Escobar 2001), estrangement of poor people's movements and green policy elites in Brazil (Cohen 2017) and the contested nature of power sharing in polycentric arrangements in the Pacific Islands (Gruby and Basurto 2013).

This lack of an in-depth examination of the effects of the involvement of heterogeneous groups with imbedded structural inequalities has also been felt in the climate justice movement (Forsyth 2014). In fact, climate justice marches and strikes have received backlashes for sustaining patterns of structural racism and colonialism (Gayle 2019; Kelbert and Virasami 2015; López, Lam, and Hallam 2020).

Yet, surprisingly the academic literature on climate justice is glaringly silent on engaging with decoloniality. Not so surprisingly, grassroots initiatives are making the case for a decolonial climate justice movement, to put indigenous rights and racial justice at the center of the

discussion (Kelbert and Virasami 2015; Malik 2019). Claims for a real climate justice to be feminist, decolonial and intersectional has been put forward by activists, prominent among them the Wretched of the Earth collective.

Activists collectives and environmental justice organizations have a long tradition of providing key concepts for environmental justice, which are subsequently taken up by academia (Martinez-Alier et al. 2016). Infact, a bulk of the early literature on climate justice movement was written by activist collectives, such as International Climate Justice Network, Climate Justice Now, Third World Network, Klimaforum, among others (Warlenius 2018).

There is a “bottom up” civil society discussion on climate justice since 1991, if not before, were represented by Agarwal and Narain’s booklet, “Global warming :A case of environmental colonialism”, and in the proposals for “contraction and convergence” in GHG emissions per capita (Martinez-Alier 2015). And there has been also a “top down” discussion on the principles that should regulate the rights to produce and dump GHG in the atmosphere and the oceans, such as the principle of “common but differentiated responsibility” that came together with a denial of legal liability for climate change since Rio de Janeiro to Paris 2015 (Shue 2014).

In recent years studies on climate justice have gained prominence in social sciences (Routledge, Cumbers, and Derickson 2018; Schlosberg and Collins 2014; Tormos-Aponte and García-López 2018; Warlenius 2018). While the literature does mention the problems of power and structural hierarchies, very little is written on indigenous knowledge and action, and decolonization of climate justice movements.

The only exception to this academic silence has been the work of Kyle White. He claims climate justice can´t be achieved while ´violating consent, trust, accountability, or reciprocity among other qualities, towards diverse beings and entities´ and that climate injustice is intricately linked to colonialism, capitalism and industrialization (Whyte 2020).

Activism and research on climate justice are strongly linked with environmental justice scholarship. The discourse of climate justice has directly been influenced by environmental justice, with both movements being based on issues of based on principles of social justice, democratic accountability and participation, and ecological sustainability (Schlosberg and Collins 2014; Warlenius 2018). Originating as a field three decades ago, environmental justice remained largely a western endeavor until recently (Álvarez and Coolsaet 2018). It is only in recent years that calls for a critical and decolonial environmental justice scholarship is

emerging (Álvarez and Coolsaet 2018; Pellow 2017; Pulido and De Lara 2018; Rodríguez and Inturias 2018; Temper 2019).

Yet, at the same time, the climate justice movement has been claimed to be colonial, with indigenous voices and people of color being pushed to the background, both figuratively and literally (Arthur 2017; Nowshin 2020). There are multiple accounts of indigenous, black and brown voices being silenced and/or sidelined, such as during the climate march in London in 2015 (Kelbert and Virasami 2015), during the People's Climate March for Justice and Jobs in Paris in 2016 (Bobby 2016), and more recently in COP25, first with the change in venue (Sherriff 2019) and then with forcibly removing and sidelining indigenous communities (Harvey 2019).

This silencing of indigenous communities and vulnerable groups most susceptible to climate impacts comes from a long history of colonialism and racism, which many groups and collectives such as *Wretched of the Earth* highlight (Bobby 2016). As a result there have been multiple calls for climate justice to be intersectional, and encompassing racial and gender justice (Terry 2009; Kelbert and Virasami 2015; Kaijser and Kronsell 2014; Rodríguez Acha 2017).

In this chapter, I argue that climate justice scholarship can't afford to wait for three decades before incorporating non-western knowledges and worldviews. I substantiate this argument by analyzing two case studies of resistance against thermal power plants in India, focusing on the reasons of mobilization by the local indigenous population. Both these protests have been documented internationally as fights against climate injustices, yet my research found that locally the resistance was driven by a focus on saving livelihoods, common wetlands and indigenous land rights, with a clear lack of climate change as a mobilizing reason.

Drawing from these case studies, I examine the potentialities of decolonising climate justice, following the same logic of decolonising environmental justice, which contributes to the broader research agenda of understanding different ontologies and worldviews to inform the much-needed transformation towards socio-ecological justice (Temper et al. 2018). I claim that the urgent need of the climate justice movement is to acknowledge and respect the multiple voices from the margins, who are the first factual defenders against climate injustices, and understand and examine the multiples reasons for these resistances, being inclusive of different worldviews and aspirations. Such a decolonial climate justice will allow for finding ways of potential solidarities with other movements, which as the case studies show are not only climate justice. In the Indian context, imposition of a climate justice

narrative can prove to be counterproductive considering the a) long history of climate activism in the country based on the global north owing a climate debt to the global south, b) the many local reasons for opposition to fossil fuels mining and burning (local forest rights, local complaints against NO_x and SO₂ pollution etc). A decolonial understanding allows to break the north-south binary in this regard.

In the next section I describe the methods used in the study followed by a background of climate justice activism in the country. The fourth section provides a literature review of climate justice movement with a focus on grassroots mobilization, and the call for decolonising it. The fifth section describes the two case studies, and the sixth examines the real potential of solidarity with other anti-coal movements in India and elsewhere. It analyzes the relevance of adhering to the local reasons for mobilization and how that is beneficial both for real solidarity building and actualizations of justice. The final section proposes the potentialities of a decolonial climate justice movement for a radical transformation for socio-ecological justice. I conclude that a critical theorization of climate justice should invoke theories of decoloniality, such that the voices from the margins are neither dismissed nor assimilated without consent from the people on ground.

Background: India's Climate Justice Activism

Climate justice activism from a grassroots perspective has been present in India since the mid 2000s. As the first issue of *Mausam*, a quarterly magazine to talk about climate justice in India mentions (Ghosh, 2008, p.-1) -

Isn't it time that people's movements, citizens and civil-society initiatives in India include climate in their agenda? Isn't it time that we demystify the subject and ensure that any 'green' and 'scientific' exclusivity no longer shrouds the climate crisis—and related 'issues' like global warming, biofuel, and carbon trade?

It is time to say loudly that the crisis is not really about climate. It is not about rising sea levels and the melting arctic, dead seals and polar bears facing extinction. It is about us, our lives, and the planet—and the way the powerful and rich of the Earth have dominated and kept destroying them for centuries, to accumulate private wealth. Though many natural factors can cause climate change, what we see now is directly related to the continuing 'industrialization' of the planet and related human activities, all in the name of 'development'.

In 2002, during the Eighth Conference of the Parties of the UN Framework Convention on Climate Change (COP-8), more than 5000 people marched the streets of New Delhi on 28 October claiming climate justice. The people in this march were aligned with different local and regional coalitions, such as fisherfolk from West Bengal and Kerala under the banner of the National Fishworkers' Forum, farmers from the Agricultural Workers and Marginal Farmers Union, and a delegation of indigenous people threatened by the massive Narmada dam and from mining-impacted areas of Odisha as well as NGO delegates from twenty other countries came to participate (Roberts and Parks 2006). The protestors agreed that climate change was a human rights issue negatively impacting their livelihoods, the health of them and their children as well as natural resources, and were hopeful of building alliances to oppose climate change inducing patterns and rejected market-based principles which were guiding the negotiations to solve the climate crisis (Khastagir 2002).

Yet, the more dominant view followed by big non-governmental organizations was the one which is consistently used by Indian government representatives in international climate policy negotiations- that emission reduction targets (and, by extension, emission reduction *measures*) necessary because of the past and current high emissions of the world's wealthy countries must not interfere with the possibilities for development of the poorer countries (Goodman, Marshall, and Pearse 2016).

This hides the domestic realities where certain sections of the country continue to extract resources for a lifestyle which is in sync with the wealthy nations and has been called internal colonialism (Walker 2008). The understanding that sections of Indian society, often the most vulnerable, and facing structural and historical exclusion and marginalization due to caste, religion, gender etc. would be the ones paying for this 'development' was brought forward by the India Climate Justice Platform, which included grassroots organizations from forest people to waste recyclers to fish workers to displaced communities. Between 2009-2013, the Indian Climate Justice Platform, which was a voluntary, self-organized, non-funded group of grassroots actors actively connected with different issues of environmental injustices, in different parts of the country, as well as raised awareness about the climate crisis, and how the issue of climate justice is integral to issues of justice in general, including gender justice, indigenous justice, forest rights and land rights etc.

The members of the group also continued to raise awareness about the false promises of techno-fixes for combatting the climate crisis, including writing about the realities of CDM projects, waste-to-energy plants etc. (Dev 2009). They were directly involved with

communities which were paying or will pay in future the real cost of the climate crisis by mobilizing to prevent so called 'development' projects involving coal mines and thermal plants, and also other energy sources such as nuclear plants, large hydel projects etc.

However, there was a shift after 2013-14 from demanding the justice and equality to fighting to preserve what is left, which pushed the climate justice narrative behind. The fights in the recent past (since 2013) have been to counter human rights violation, seeking democracy, saving forests from being destroyed by large-scale mining and infrastructure projects, and even basic citizenship rights. As a result, the interconnectedness of movements to articulate a broader climate justice agenda was side-lined.

This being said, an analysis of the EJAtlas to map Blockadia movements globally didn't render any environmental justice movement in India directly using the climate justice narrative till 2017 (Martinez-Alier et al. 2018).

The last two years has seen a renewed connection between climate justice and environmental justice movements in the country. On one hand, a lot of Indian youth are coming forward as a part of the Greta Thunberg inspired Fridays for Future, which has multiple chapters in different Indian cities. These different chapters are taking up specific issues of environmental conflicts to the national level and mobilizing against these conflictive projects.

Other similar youth led organizations such as Extinction Rebellion and Let India Breathe are also bringing the discussion about climate justice at the forefront and linking it with immediate ecological distribution conflicts. For example, the Let India Breathe platform was started from the Let Aarey Breathe mobilization against felling of more than 2000 trees in Aarey forest, which is considered the green lungs of Mumbai, home of the Warli tribe and contains a lot of rich flora and fauna (interview notes).

On the other hand, in 2019 the South Asian People's Action on Climate Crisis (SAPACC) was formed, with an initiative to bring together activists, trade unionists, researchers and civil society members who are deeply concerned about the climate crisis. Many members of this new collective are part of the older India Climate Justice collective. In its inaugural meeting in September 2019, more than 300 representatives from Bangladesh, India, Maldives, Nepal and Sri Lanka met in Hyderabad over four days. SAPACC is a 'rainbow coalition' of multiple organizations and groups to bring new strategies and forms of mobilization to tackle the climate crisis together, as well as expanding the nature and boundaries of the climate justice movement (Adve 2020).

Literature Review: Climate Justice Movement and the need to decolonize it

The premise of climate justice (Bond 2012) is simple: those actors in certain parts of the world who are responsible for the majority of historical and current greenhouse gas emissions should also take responsibility for the damages caused. The term was introduced and developed by civil society environmental justice organizations. For these grassroots movements financial redistribution is not enough, rather the climatic brakes need to be immediately applied.

These multiple demands such as leaving fossil fuels in the ground, community control over means of production and consumption, recognition of local people's rights as well as concerns over ecological and climate debt constitute the movement of climate justice (Chatterton, Featherstone, and Routledge 2013; Tormos-Aponte and García-López 2018; Warlenius 2018). The slogan "leave oil in the soil" arose from the struggles against the terrible local damage done by foreign oil companies in the Niger Delta and in Ecuador (with ERA and Acción Ecológica as protagonists), and it was raised already at the alternative meetings on climate change in Kyoto in 1997, to which the slogan "leave coal in the hole" was added a few years later (Temper, Fonseca, and Coelho 2012).

The discourse of climate justice has directly been influenced by environmental justice, with both movements being based on issues of based on principles of social justice, democratic accountability and participation, and ecological sustainability. There are three broad conceptualizations of climate justice in the literature- ideal theories from the academic community, an elite NGO perspective on policy and grassroots movement perspectives (Schlosberg and Collins 2014).

The literature on the grassroots movement perspective on climate justice, the subject of this chapter, recognizes the problems of an international movement in terms of marginalization of some voices and concerns and has provided analysis from multiple angles, including but not limited to politicizing polycentricism (Tormos-Aponte and García-López 2018) and exploring intersections with antagonism, commons and solidarity (Chatterton, Featherstone, and Routledge 2013). Despite a clear understanding of the contested terrains of climate justice (Hulme 2009) and the tendency to reproduce rather than challenge unequal geographies of power (Sundberg 2007), the literature has largely been silent on envisioning a decolonial climate justice movement.

Such a decolonial climate justice movement, as being articulated by grassroots largely by black, indigenous and people of colour (BIPOC) collectives can be conceived to be similar to a decolonial environmental justice movement, gaining prominent from Latin American scholarship (Álvarez and Coolsaet 2018; Rodríguez and Inturias 2018). It would allow to counter the obvious coloniality of grassroots climate justice activism by giving space to indigenous voices articulating their concerns and possible pathways for political solidarity and social action. The next section demonstration with the help of two cases why such a call for decolonial climate justice is relevant for a radical transformation for sustainability.

Methods

This work is a part of broader research agenda to examine the political ecology of coal in India. A mix of methods and tools were implemented to understand India's climate justice activism and the lack of a climate justice narrative at local sites of conflicts in Sompeta and Godda. Fieldwork was carried out in multiple locations in India for a total of six months, between 2017 and 2019. Fieldwork in Godda was carried out in 2019 with 12 in-depth semi-structured interviews and in Sompeta in 2017 with 9 in-depth semi-structured interviews. The interviewees were people from the communities affected by the coal projects, district administration officials, as well as activists and journalists who have been associated with the movements. The main themes of the interviews revolved around the history of the conflict, the methods and motivations for resistances, the outcomes of the protests, the present situation and the perceived future plan of action. In both the cases, specific questions on climate change were asked to gauge the presence/absence of climate justice narrative. In Sompeta, some interviews were carried out in English and Hindi and some required translation in Telugu, while in Godda all the interviews were carried out in Hindi. This was complemented with telephonic conversations, video calls or in-person interviews with 8 climate justice activists from India to understand the background of India's climate movement. Analysis of reports, newspaper articles, documentaries and talks on coal conflicts and climate justice activism, with a special focus on Godda and Sompeta were also undertaken.

Results

The Case Study of Godda

A thermal power plant is being constructed in the eastern Indian state of Jharkhand, and facing stiff resistance from local, national and international activists. Internationally, the cause has been taken up by two collectives fighting against climate change- the Australia based Stop Adani movement and the End Fossil Fuels in Asia collective.

Situating the district

The district of Godda is one of the twenty-four districts of the state of Jharkhand, lying in the northeastern part of the state. It has an area of 2110km² and a population of 1.31 million, according to the Census of India 2011. It consists of nine blocks and 2311 villages, and the only one town being Godda, which is the headquarter of the district. It used to be a part of the older Santhal Parganas district and has a large tribal presence.



Figure 1 Location of Jharkhand in map of India

Earlier conflict

The Adani thermal power project is not the first such project in this region. In 2013, the foundation stone for a 1,320 MW thermal power plant by Jindal Steel and Power Limited was laid by the then President Pranab Mukherjee, which had an estimated cost of Rs. 8,500 crores and an expectation of providing employment (direct and indirect) to 20,000 people (Yadav 2013a). This project was lauded as Jharkhand's first power plant based on Super Critical Technology with two units of 660 MW each.

It was supposed to use coal from the nearby Jitpur coal block and water from Sundar dam, Gumani and Jalhara rivers to operate and provide electricity to the rural areas which faced a shortage of 33 per cent (Yadav 2013a). However, the project faced a lot of protests from the local population (EJAtlas 2014). People from 11 villages which were to be directly affected by this project had been opposing the land acquisition of this project. Even on the day of the foundation stone ceremony, about 200 villagers had decided to march to the place of the ceremony, however more than 50 adivasi farmers, including women were detained for more than six hours to prevent them from marching to the site (Yadav 2013b).

However, in 2014, the Jitpur coal block was de-allocated in the wake of the Supreme Court's decision deeming most coal blocks³⁵ allocated between 1993 and 2010 as illegal and arbitrary.

However, in subsequent auctions held in March 2015, Jitpur was won by the Adani group, which was the basis for Adani to propose its power plant project in Godda (which will be discussed in the next sub-section). In December 2016, after Adani decided to not use the Jitpur coal, but rather fuel the Godda power plant from importer coal, mainly from the Australian Carmichael mines, the state government of Jharkhand allowed Jindal to re-use so as to allow the stalled project to begin construction.

No one in the district of Godda was aware that Jindal would be making a come-back to restart the project. Everyone considered it a dead project since 2014 after the coal blocks were de-allocated.

The Protests against Adani power plant

³⁵ Popularly known as the Coalgate scam, this refers to the Supreme Court's verdict of 24 September, 2014 for the deallocation of 214 out of the 218 coal blocks allocated between 1993 and 2010 which had far-reaching economic, political and legal consequences.

In August 2015, a Memorandum of Understanding was signed with the Bangladesh Power Development Board to supply all the power from Godda power plant to Bangladesh. This was in light of the joint declaration on bilateral cooperation between India and Bangladesh which was signed in June 2015 when Prime Minister Narendra Modi visited Bangladesh.

The proposal for the power plant by Adani Power Limited (hereafter Adani) was in light of this August 2015 MoU. Consequently, in 2016 the government of Jharkhand signed an MoU to this end with Adani. In the initial proposal the coal needed for electricity generation was to be supplied from the Jitpur mines, which are about 20kms away.

However, in 2016, the company revised the proposal and stated that it would be using imported coal instead, which would be brought in via the Dhamra port in Odisha. This port is at a distance of 700kms away and owned by the port subsidiary of Adani. And the coal from the Jitpur mines would also be sent further away, over 2000kms to the Mundra power plant in Gujarat.

The rise of the ecological distribution conflict began when ten villages became contested territory due to the construction of the power plant which required over 2000 acres of land.

Between 2016 and 2019 (and still ongoing) there have been multiple cases of illegalities including threats and physical violence on the tribal people who have raised their voices against this project. From destroying crops to preventing entry into the public hearings, from false charges on local activists and journalists to contested claims of compensations being paid, there is a dominant narrative in the town that this isn't really a conflict, and it is only after we met the tribal villagers being affected that we could see the contradictory statements being made.

That being said, there are two court cases- one in the Ranchi high court about disputes around the land acquisition, and another with the National Green Tribunal about the water availability of the project.

In March 2019, the company had received formal approval of 222.68 hectares and in-principal approval of 202.32 hectares for the project. There have also been systematic amendments in the state's energy policy, which allowed Adani to charge higher price than other thermal projects in the state. In February 2019, this project became India's first standalone power project to get the status of a Special Economic Zone, with its tax benefits.

The conflict doesn't just end at the site of the power plant. There are multiple other conflicts that it gives rise to. There are latent conflicts brewing at the site of the water source which

would affect a lot of communities dependent on the rivers from where the power plant has proposed to source its water, as well as the land under which the pipelines would be constructed. This is also couple with the rampant illegal sand mining which the locals point out to, and which cannot be easily quantified as it is carried out during the night, and under the influence of a sand mafia. However, despite these multiple layers of conflicts, there have been systematic changes in policies and laws in the last few months to provide as much benefits as possible to Adani for construction of this plant- including changes in the state electricity policy as well as setting up of an SEZ which consists of just one thermal power plant, which has been a first.

The Case Study of Sompeta

Situating the district.

The district of Srikakulam is one of the nine districts located in the coastal Andhra region of the state of Andhra Pradesh and was formerly known as Chicacole. It has an area of 5837 km² and a population of 2.7 million according to the Census of India 2011. The district consists of 12 towns and 973 villages, which are divided into 3 revenue divisions namely Srikakulam, Palakonda and Tekkali.

Sompeta is one of the 6 census towns of the district located in the Tekkali revenue division. It is a wetland, locally known as *Beela*. The word *beela* signified a low-lying marshy area/swamp. The wetland consists of unique hydrological systems with a rich biodiversity comprising of three different water bodies. This wetland occupies over 4000 acres of land, and a length of about 20 kms, with different widths. It comprises of permanent shallow marine waters, swamps, mud flats, lagoons, aquaculture ponds, irrigated land, permanent freshwater lakes etc., and it vital to control the floods during each monsoon season. The wetland also has wider implications in relation to the water table, water quality and sustenance of the biodiversity of the neighboring regions. About 400 families are fully engaged in subsistence fishing as their primary livelihood, along with other families from surrounding villages engaged in part-time fishing. Not only this, the wetland is also an important source of medicinal and fodder plants, as well as provide material for thatching, roofing and fencing of houses.



Figure 2. Location of Andhra Pradesh in Map of India

The Conflict against Sompeta Thermal Power Plant

In 2008, Nagarjuna Construction Company (NCC) was allocated 1882 acres of land to construct a 2640 MW coal-fired thermal power plant in Sompeta, out of 1200 acres were a part of the wetland, which was met with local resistance. The environmental public hearing for the NCC thermal plant on 18 August 2009 saw an overwhelming majority of people strongly opposing the proposal. Cutting across community, class, occupation and political party' lines, people mobilized using countless rallies, dharnas, postcard and other peaceful campaigns against the thermal plant proposal for several months.

In October 2009, local farmers, fisherfolks and environmentalists who had been already mobilizing informally formed the Paryavarana Parirakshana Sangham (PPS) (Environment Protection Committee) to hold protests against this plant. On 14 July 2010, in one of the protests, police open-fired on protestors, killing 3 local residents and injuring hundred others. A fact-finding team issued the following statement about the shootings:

"The firing was suddenly done from inside a police van on the Sompeta-Baruva road, on either side of which the fields are located. The police van started moving towards Sompeta, while the man inside continued firing from a close range. The bullets hit the victims above waist level, except two who were hit on the thigh and the ankle. Two persons--G. Joga Rao of Lakkavaram and Krishnamurthy of Plasapuram--died on the spot and five others, including a cameraman of a local television channel, sustained bullet injuries."

After the graphic footages of the protests made national news, the ministry of environment and forest revoked the environmental clearance of the project. However, the situation was not clear with company spokesperson claiming that the project was only on hold, and not cancelled.

As a result, the protests continued. Dr. Y. Krishna Murthy, the president of PPS sent an appeal to the then Chief Minister of Andhra Pradesh, K Rosiah, on 22 July 2010 from the residents of over 30 villages who would face the devastating impacts of setting up of the powerplant which would take away their main source of livelihood as well as destroy an eco-sensitive zone. The beela is an important bird habitat with about 120 species. The region also had important places of worship for the local population, such as the famous Sri Kotilingeswara Swamy, Budalingeswara Swamy and Janardhana Swamy temples.

In June 2011, a judge of the Andhra Pradesh High Court Justice NR Rao issued an interim order suspending a government order (GO) allotting land to NCC. Justice Nuti Ramamohan Rao, while staying the GO, ordered that no work be carried out at the project site, but it was not clear if the project would be cancelled. While awaiting concrete results, the campaign continued to mobilize and put pressure against the thermal power plant.

The locals started a relay hunger strike which lasted for 2166 days until a final verdict was made in 2015, assuring them that only eco-friendly projects would be given permission to operate in the common wetlands. PPS funded the production of a report by the Salim Ali Centre for Ornithology and Natural History on 'Documenting the biodiversity of Sompeta wetland, Srikakulam District, Andhra Pradesh and Developing Biodiversity-Mediated livelihood options for local communities' which was released in March 2017 as a strategy to have scientific evidence against setting up of any big industry in the region (Sebastian *et. al.*, 2017). This cancellation notice was achieved after a struggle for eight years, including the relay hunger strike which lasted for almost six years.

Dr. Y. Krishna Murthy, in his appeal from 2010 and (in our conversations in 2017) was very clear about the reasons for mobilizations. The primary concern was to safeguard the beela, and its rich biodiversity and importance to the local population as the primary source of sustenance. He mentioned that the wetlands are a complex ecosystem supporting many kinds of flora and fauna. There are large coconut groves and orchards of cashews, jackfruits and mangoes, as well as a coconut nursery and coir industry. More than 600 families are involved in toddy tapping in and around the region, along with fishworkers' communities in 30 villages. The thermal power plant, or any other industrial construction will seriously undermine the marine catch and destroy their livelihoods. Local villagers were also aware about similar experiences in neighboring fishing villages where a thermal power plant set up by NTPC had resulted in more harm than good, despite promises of job and compensation. According to the 2010 appeal filed to the Chief Minister of the state:

We state categorically that we are not against development. We are all for it. But we are of the firm opinion that this thermal plant will not usher in development. Rather, it will destroy whatever development we have. It will devastate the lives of thousands of families from the farming and fisher-folk communities as well as throw into deep distress landless labourers and artisan classes.

In case the thermal plant comes up, it will cause irreversible damage to an eco-system of great value that we all need to preserve for future generations. The land here, the coast and our "beela" has supported and sustained the livelihood and economy of innumerable farmers and occupational classes. The location of the project directly conflicts with both livelihood and conservation objectives. Is it at all necessary to set up such a plant amidst lush greenery and in the midst of a population of about 1.5 lakh people?

Despite the victory of 2015, the locals continued protesting against setting up of any industry which destroys the wetlands. NCC had decided to construct an agro-business which was also met by protest.

Discussions

I do not disagree with the claims that climate justice is a global problem and fossil fuels must be left under the ground. In that regard, viewing Godda and Sompeta as climate justice movements seem to make sense, as being currently viewed by international media. Godda is spoken about in Australia based Stop Adani campaign and End Fossil Fuels in Asia campaign (End Fossil Fuels in Asia 2020) and Sompeta featured prominently in Naomi Klein's documentary *This Changes Everything*.

Yet, as these case studies illustrate, I am discomforted with painting each mobilization against fossil fuels as that of a climate justice movement, for the reasons mentioned above on how climate justice movements have been criticized for continuing with embedded power relations and invisibilizing voices and concerns that do not fit the dominant narrative. Whereas climate justice movements have come under scholarly scrutiny about taking into account the internal power dynamics etc., not much has been written on when climate justice narrative is absent in the local level. In this chapter I show the pitfalls of that and invoke the call for a decolonial climate justice approach.

I do so by examining the two cases of mobilization against thermal power plants in India, which have international claims to be climate justice movements, but the ground realities paint a different picture. In one case, I show how the banner of Blockadia was counterproductive for the movement, and in the other I show that the potential for solidarity is stronger when instead of climate justice, other narratives are employed.

Firstly, a movement which fights for a larger cause, such as safeguard of commons and protection of biodiversity would find it challenging if all the international support to stop a thermal power plant disappears once the power plant project is scrapped, and yet other projects- in this case agro-business continue to be proposed. Secondly, particularly in the global south context, solidarity can be forged stronger on common grounds other than climate justice, such as that of territorial rights, illegalities of power production, false promises of development etc., as seen in the case of Godda. Recent discussions among activists from India and Bangladesh illustrate this.

The case of the thermal power plant in Godda gives rise to at least three different EDCs- one at the site of the construction of the plant, one at the site of the source of water and one at the site of source of the construction material (sand from the riverbeds). If we look further into it, we can also mention the conflicts going on in the Charmichael coal mines in Australia where a large population is protesting against Adani's mine which poses threat to the Great Barrier Reef (as well as other coal mining sites in Indonesia) to the latent conflicts in the port areas and throughout the transportation channels, including the high tension transmission lines for exporting the electricity to Bangladesh. There are also reports which argue that the power purchase agreement puts Bangladesh at great financial risk and will "deepen" poverty in the country (Buckley and Nicholas 2018).

In Sompeta, the main concerns are that of livelihood and safeguarding an important biodiverse region. The wetland not only is the source of subsistence livelihood to hundreds

of families, it is also a home to migratory birds which arrive every October from Australia and Siberia for about six months and are locally known as “kondamkodi” and “nathagotta” as well as in important place of worship for local population.

There might be cases where local opposition to coal are reinforced by the global climate change argument, even though even in such cases the recognized protagonists of the conflicts might change depending on the balance between global and local arguments. Local communities complaining of black lung diseases would not be listened to in discussion on caps on coal burning and commitments under the Paris Agreement of 2015. At the same time there might be cases too where the climate change argument is counterproductive for a wider local opposition to coal mining, transport or burning. In other occasions such as in Phulbari, Bangladesh, as shown in the previous chapter, it can be reinforcing.

What could a Decolonial Climate Justice Movement Look like in India?

In the case of Godda, in recent years, there has been an increased mobilization, in collaboration with multiple youth climate activists groups in India and Australia against Adani coal projects.

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#YouthAction #StopAdani
#PlanetOrWallet #YASa

A video screening of people speaking from **Godda** (Jharkhand), **Kattupalli** (Tamil Nadu), **Goa**, **Mundra** (Gujarat), **Vizhinjam** (Kerala), **Kavalappara** (Kerala), **Farmer Protests** (Delhi), and **Juru Country** (Queensland, Australia)

LIVE ON: @yugmanetwork | @youngpeopleforpolitics
@CCAGofficial | @XRebellionInd | @letindiabreathe.in

Fig 1.- Centering the voices of the frontline fighters of coal projects as part of youth climate activism in India (Source: Let India Breathe Instagram page).

There are five projects which are being addressed together in this campaign- and in January 2021, there was a week-long action organized by many youth collectives under the initiative Youth Action To Stop Adani (YATSA). Each of the campaigns although do mention climate change in the broad context are very connected with the local struggles and with active support from the people on the ground. There was awareness of not imposing a narrative, and of ensuring that the voices of the people fighting on ground are heard. Involvement of local communities and realities, highlighting the many illegalities and hidden facts, as has been carried out by the Save Pulicat Campaign (Jayaraman 2021) were taken as the centerpiece of the discussion, since these were the real concerns of the people fighting on ground, and not as something to be discussed as an after-thought after the need to stop coal for preventing climate crisis was discussed. According to one of the organizers of the Youth

Action, "We are very aware that we have only been hearing what the members of big NGOs sitting in their comfortable AC rooms have been telling us for many years, and neither been aware nor engaged with the multiple fights happening in different parts of the country. With this action, this is what we wanted to do, to pass the mic and listen and learn." (Interview notes). For me, this is what a decolonial climate justice movement looks like in action.

Conclusion

Both these cases stress the need for a decolonial approach to understanding and analyzing climate justice movements. For a decolonial climate justice movement local concerns and reasons for manifestations against fossil fuels should be given prominence. If climate change is not yet a concern for local population, and there are potentialities for solidarity on other grounds, this should be acknowledged by a decolonial climate justice movement. This is a true in India as elsewhere. The solidarity arising from identification as indigenous people, defending one's territory, can extend from the Arctic to Antarctica as a global principle. This solidarity among Indigenous peoples in principle reinforces local arguments. However, it might perhaps undermine them if the local material reasons of environmental safety are given second fiddle. Something similar might happen with climate change arguments and the local struggles against coal or other fossil fuels. A population which has suffered the consequences of colonialism, industrialism and capitalism does not need to adhere to concepts from the epicenters of those processes in order to be relevant for a global movement which claims to be based on solidarity and well-being for all. By acknowledging multiple ontologies and world-views and giving validity to the voices from the margin can we reimagine a world with social, ecological, political and cultural justice and equity. Eminent questions which need to be asked for any transformative climate justice movement are: whose stories are told and whose being sidelined? What solutions are being heard and whose interests are being met? Are the voices and aspirations of those at the frontline of climate injustices, but also previously colonialism and capitalism being adequately listened and addressed?

Conclusion

*There's really no such thing as the 'voiceless',
There are only the deliberately silenced, or the preferably
unheard.*

Arundhati Roy

Conclusion

This thesis is the result of four years of research exploring new dimensions of ecological distribution conflicts against coal, as a result of growing concerns of climate change and new approaches to understand environmental justice. It is also based on an action-oriented framework of creating knowledge, co-produced by activist-academic collaboration to deal with issues of sustainability and justice. In this regard, it also revolves around the methodological and epistemological question of succinctly unraveling the multiple layers of complexities involved in conducting research in the global south. The chapters of this thesis provided insights to the multiple disciplines that the thesis draws from while aiming to undertake a transdisciplinary study as well as better understanding of the climate justice and environmental justice movement, both globally and with particular focus to India. In the following sections, I draw the general contributions, explore how each of the sections advances the literature in different ways, as well as imagine potential future research threads.

General Contributions

This study analyzed the political ecology of coal on three fronts. Firstly, it examined the reasons why coal continues to dominate the energy mix of India despite the multiple environmental justice movements against it despite the energy transition rhetoric. I also examine the state-business relations which created the new coastal coal geography. Secondly, the role of violence in environmental justice movements against coal, and how the multiple forms of violence interact and perpetuate environmental injustices by what I term procedural violence. Thirdly, the different ways in which coal protests around the world and in India, invoking a climate justice narrative and using direct-action mobilization, known as Blockadia movement are connected.

Drawing on concepts from the three interconnected disciplines of political ecology, environmental justice and ecological economics, the thesis was able to provide some contributions to advance the scholarship, both taken together as a part of call for integrated and pluralistic scholarship for research on sustainability, and separately as individual bodies of literature.

The first section of the thesis provided answer to the question- **How and why coal continues to enjoy unfettered growth in India?** Many scholars have highlighted the interconnectedness between political ecology and ecological economics specifically focused

on ecological distribution conflicts ([Demaria 2010](#); [Gerber, Veuthey, and Martínez-Alier 2009](#); [Kronenberg 2013](#); [Martinez-Alier 1995](#)).

In the same vein, this section offered a new perspective on understanding the 'true cost of coal' by analyzing both socio-metabolic and political economic and ecologic dimensions. By combining social metabolism analysis with the multiple valuation languages used in the four different types of coal economies in India to contest the growth of coal, this thesis contributed to the emerging discussions on the 'political ecology of social metabolism' ([Scheidel et al., 2018](#)) arguing that these environmental justice movements can be understood as conflicts over 'reconfiguration of metabolisms' ([Demaria & Schindler, 2016, p.295](#)).

At the same time, this section also contributes to the literature on energy transition, by emphasizing the old geography of coal in central and eastern India and by tracing the emergence of a new coastal coal geography in India. The optimism for energy transition is attributed to the definition of energy transition as the mechanism by which a new fuel acquires a dominant share of overall use ([Sovacool 2016](#)). But shifting the focus from the overall share to the total amount of energy used changes the picture completely since currently energy use is at an all-time high, leading the energy transition to be termed as energy addition ([York and Bell 2019](#)). Solar and wind energy are added to the old fossil fuels mix which also increases the quantity, even if not drastically modifying the percentages in the energy mix. This thesis advances the literature by examining the details of this energy addition for India, a country which is set to play a decisive role in the global energy mix in the coming years ([IEA 2021](#)).

Simultaneously, by shedding light to the interlinked logics of economy, environment, territory and subject formation which creates this conflictive energyscape, the thesis also advances the literature on energy geography and its associated environmental conflicts ([Cardoso and Turhan 2018](#); [Huber 2015](#); [Bridge 2011](#)).

In the second section, to answer the question **How are mobilizations against coal shaped taking into account pre-existing inequalities in India?**, I engaged with critical and decolonial environmental justice literature to explain the need for acknowledging multiple worldviews for epistemological justice. There is an increased awareness for the need of a decolonial environmental justice narrative for global south ([Pulido & De Lara, 2018](#); [Rodríguez & Inturias, 2018](#)) in general and India in particular ([Lele, 2020](#); [Williams & Mawdsley, 2006](#)). At the same time, this thesis also contributed to the scholarship on environmental justice and violence. In recent years, there has been a rise in literature examining the multiple

forms of violence that environmental defenders are subjected to ([Navas, Mingorria, and Aguilar-González 2018](#); [Middeldorp and Le Billon 2019](#); [Le Billon and Lujala 2020](#); [Scheidel et al. 2020](#)). Dalena et al.

By examining how direct and structural violence based on pre-existing ethnic and caste inequalities exacerbates procedural injustices, the thesis advanced the scholarship on a nuanced understanding of how injustices occur to better find ways to combat them. Showing how pre-existing inequalities mark the way injustices are carried out, I engaged with the literature coming from indigenous scholarship in the Americas, to build bridges with Indian environmental justice literature. For instance, adivasi populations in India cannot to Convention 169 of ILO but on the other hand, and in theory, they can appeal to the Forest Rights Act. In this way, the thesis contributes to starting a discussion between the different streams of critical environmental justice scholarship which is focused on examining and countering the underlying and systemic reasons for socio-ecological injustices.

In the third section, the thesis engaged with the climate justice literature, with an aim to advance the debates on the need for a decolonial climate justice movement. This section provided evidence on **How are mobilizations against coal connected globally?**. As Sharachandra Lele points out ‘mis-framing the climate crisis as solely a matter of global sustainability is one part of the problem; framing it as the ‘only’ environmental crisis, or as the mother of all ecological problems, is the other part. Many environmental problems and conflicts pre-date the climate crisis and continue to threaten current and future well-being across the world, especially in the South’ (Lele, 2020, p.53). The chapter on mapping the anti-coal blockadia movement provided methodological and empirical insights from 61 cases into exploring what are the other motivations for protests, and how are they related with a climate justice narrative, and who are the players dominant in propagating this narrative. So far, Blockadia has been investigated either as a global phenomenon of direct-action mobilizations against fossil fuels in different regions ([Klien 2015](#)) or been focused on particular sites of resistance ([Temper 2019](#)). This section advanced the literature on Blockadia and in general on environmental justice movements, by analyzing how climate justice narratives are employed with different degrees of intensity in different cases and explored the connections by categorizing them in three subsections- North-North Connections, North-South Solidarities and South-South Commonalities. It further provided evidence to show what a decolonial climate justice movement could look like, which contributed to the literature by providing key aspects to keep in mind while conducting activism or research on such issues of justice and sustainability.

More broadly, the overall methodology used in this thesis has been transdisciplinary, collaborative and action-oriented research. With this, I advanced ways of conducting research and writing together with activists, bringing in multiple perspectives and focused on finding solutions against injustices and inequalities. Each of the chapters in the thesis engaged with the big picture analysis in different scales- local, regional, national, and global, although focused on place-based movements against coal. Although focusing entirely on coal, and largely on India, the thesis also engaged with broader questions of growth, development, justice and sustainability.

In recent years, the focus of energy research has been on renewable forms of energy and analyzing ways for a just energy transition. If viewed separately, India is seen to be leading the way for such a transition. However, if viewed together with coal, this picture drastically changes, and the transition, as I have shown, is towards more coal and more energy use in general, despite a renewables-led rhetoric. Sorman et al (2020, p5-6) advocate that truly transformative research on energy should incorporate 'critical social science research focusing on agency, structure meaning while scrutinizing plural understanding and the relations mostly pertaining to the normative'. An important and currently understudied way to do this is to examine how post-truth politics in a world of rising authoritarian populism affects the role of energy and the need for situated knowledge production (Sorman et al 2020). This thesis contributes to this emerging direction in energy research by providing empirical evidence to dispute this post-truth energy politics in the Indian context, which can provide insights for other similar research to be carried out.

The role of violence in its multiple forms has been a cross-cutting theme of this dissertation. The direct physical violence that contesting coal entails in the first section, the structural violence of procedural injustices in the second section and the epistemic violence with relations to climate justice movements in the third section. The obvious violence associated with resource extraction in Global South has been studied extensively ([Zalik 2004](#); [Peluso and Watts 2001](#)). With this thesis, I contributed to advancing the literature by examining how other forms of injustices such as procedural injustice also perpetuate direct (physical) and structural violence when marginalized communities such as the adivasis of India are involved, and how this has striking parallels with the epistemic violence that erasure of local claims and voices entail. In both these situations, the marginalized environmental and climate defenders are excluded and othered.

Climate and environmental injustices are part of the broader injustices as a result of capitalism. The continued expansion of coal, despite the multiple crises faced today attests to this fact. The unfettered growth of coal, despite the multiple protests it generates, relies on a narrative of development. It shows how fundamentally flawed the growth and development rhetoric is. By providing evidence, the thesis signaled the need to repoliticize the debate of socio-ecological justice and equity, away from the growth and development narrative, and include the voices of the people at the frontlines, something which degrowth advocates ([Kallis et al. 2018](#)).

Envisioning A Future Research Agenda

In this last section of the thesis, I turn the attention to four key aspects of enquiry that emerged while conducting research on coal and India and could be explored in-depth in future.

Firstly, the Indian coal sector has historically been unique in the sense that it produces and imports coal with the help of domestic players. The national Coal India Limited (CIL) is the largest coal producing company in the world. Hence, India can be differentiated from other countries where coal mining is a big private business, such as the USA, or is a neo-extractive undertaking, owned by foreign firms such as in Colombia ([Burchardt and Dietz 2014](#); [Syampa 2019](#)). However, in recent years, Indian coal companies are starting to be key players in emerging coal frontiers, such as in the Russian Arctic (Peter, 2019). A special department of CIL known as Coal Videsh (translated as foreign) and International Cooperation Division (CV&IC) has targets of acquiring coking coal from Australia, Canada, USA and Russia. Private Indian companies such as Jindal and Adani also have mines for coal in different parts of the world, such as Mozambique and South Africa. A future research agenda would be to examine how the Indian coal players are changing the international coal market, both for thermal and coking coal.

At the same time, a second item in the research agenda could focus on the dynamics of these predominantly coal companies, as they begin investing in renewables without divesting from coal. Research indicates this to be the case for oil and gas majors from around the world ([Pickl 2019](#)). This is also the case for coal companies, such as the Adani Group, whose subsidiary Adani Green Energy is set to build the world's largest solar park in India. At the same time, conflicts over renewable energy projects because of land grabbing and new needs of rare earth metals continue to increase in the global south, following similar patterns of

injustices and inequalities (Avila, 2018; Lakhanpal, 2019; Temper et al., 2020). I envision a complex relation soon emerging between large scale coal and renewable projects, in India and elsewhere, which should be investigated in the near future to examine how unless structural and systemic causes are not addressed, changing the modes of energy although necessary will not be sufficient for socio-environmental justice, and why a 'degrowth' perspective is therefore plausible (Kallis et al. 2018).

Linking with the above two research avenues, a third research line proposed is to examine how both these emerging dynamics of coal players in different geographies and different energy sources are being contested, and how, if at all, they could be connected. In the case of Adani, there is a strong movement connecting activists between Australia and India already. How do these movements differ or converge? What are the ways in which they collaborate and provide solidarity? Why are such convergences and alliances not more common? And how could they be built, always ensuring that the local concerns and voices are not sidelined in such an endeavor? Is the emphasis on climate change helping or harming the strength of local movements? These are some of the potential research interests for my future research agenda.

The last, and personally the most interesting item of a future research agenda is to explore the role of art in contestations of coal. The involvement of multiple youth initiatives in the recent past has proliferated the already rich arena of different forms of artistic ways of expressing protest. Both art and academia produce knowledge, and recently there has been a growing interest in connecting art world's 'research turn' with the newer forms of knowledge production in academia (Hawkins 2021; Merlinsky and Serafini 2020). Yet, these artistic forms of expression are not new, only understudied. Going back to the Chipko movement of the 1970s, one of the leaders of the movement, Sunderlal Bahuguna viewed folk songs as the most effective way of mobilizing protest, and considered the poet Ghanshyam Sailani as the heart of the movement (James 2013). Bahuguna travelled across the country, and into the coal belts of central and eastern India advocating for socio-environmental justice and equity, and these songs travelled too, being an integral part of the collective history of protest mobilization of the country. Today, with faster and easier connectivity, iconographies and art-based activism are becoming more visible. How, if at all, are the older and newer generations of artistic expressions connected? How have their roles as mobilization strategies changed over the years, especially in light of rising authoritarianism and forceful squashing of any form of dissent, in India and beyond?

The iconography of environmental justice movements is very rich; the EJAtlas in itself is a very large repository of such artistic forms of protests. However, it is only in recent years that more studies are being carried out to examine artistic co-production of knowledge.

In the figure below, I share four photos from protests against coal in India in the last few months to illustrate this point. The posters express in creative ways the multiple problems that coal causes, without the need for articulating it in words. For example, how coal mining will destroy an elephant corridor, or how a new port with the aim of importing coal will destroy livelihood, engendered species of flora and fauna and create pollution to name a few. This research agenda is not limited to posters and banners, but also other ways of expressing protests, such as poems, movies, songs, street plays etc., (Ingram, 2008) and how they aid in the mobilization strategies.



Fig. 1. Four posters against coal conflicts in India, from top-left going clock-wise, in Goa to save a national park against coal transportation, in Assam against coal mining, in Tamil Nadu against a new coal port and in Assam to prevent mining in a wildlife sanctuary (2 and 4 are from the same protest).

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