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Adaptive State Capitalism in the Indian Coal Industry

A dissertation presented by

Rohit Chandra

to

The Harvard Kennedy School
in partial fulfilment of the requirements
for the degree of Doctor of Philosophy
in the subject of Public Policy

Harvard University

Cambridge, Massachusetts

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Adaptive State Capitalism in the Indian Coal Industry

Abstract

Adaptive State Capitalism refers to a set of characteristics (bureaucratic discretion, operational capacity, resource self-sufficiency, political influence, and ability to push for rule changes) manifested in state-owned enterprises (SOEs) which remain commercially viable and continue to hold market share in their respective industries. Adaptive SOEs create operational, financial and political space for themselves in the face of evolving external environments. Given the wide range of SOE performance observed across the developing world over the last few decades, this dissertation provides a framework to think about why certain SOEs persist and succeed, while others remain in inefficient, loss-making equilibria.

To illustrate this framework, this dissertation focuses on one large SOE in India: Coal India Limited and its organisational history, showing how it gradually manifested these various adaptive characteristics over its more than four decades of existence. This adaptive history of Coal India is divided into four functional areas where adaptation was most prominent: federal politics, finance, labour and local politics, and technology. Through each of these areas, the complexity of Coal India's relationships emerges, as does the importance of bureaucratic entrepreneurs initiating changes from within.

This dissertation argues, through the case of Coal India, that within state capitalist systems, SOEs themselves have considerable room for endogenous change; external conditionality and mandates are much more likely to succeed when SOEs themselves have the capacity, resources, and leverage to pursue such agendas. Gaining these characteristics is non-trivial, and the chapters of this dissertation illustrate how Coal India worked within the Indian

political and economic system to gain many of the adaptive characteristics that have made it a successful commercial organisation today.

At the broadest level, this narrative, which draws from a range of interviews, archival sources, and historical data, is a story about a large industrial SOE, its unique position within India's economic and political system, and its struggle to succeed at both its core mission (coal production) and the range of other social and welfare obligations that typically accompany state-ownership. By establishing the SOE as a key developmental actor, this dissertation challenges traditional notions regarding the inefficiency or lack of productivity of SOEs.

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The seeds of this dissertation were planted in Fall 2010, when I was working at the Centre for Policy Research (CPR) in New Delhi. At the time, CPR had just been asked to contribute to a government report reviewing India's natural resource allocation policies. In all his wisdom, Partha Mukhopadhyay decided to assign me, a neophyte research assistant broadly interested in energy policy, the responsibility of curating the coal chapter of this report. This began my prolonged engagement with the industry. My affinity to the industry may have something to do with my Bihari roots. But I am eternally grateful to Partha for irreversibly associating me with the black diamond. His early mentorship and trust in my abilities gave me the confidence to work on this larger project.

The coal industry's *trimurti* consists of the Coal Minister, the Secretary of the Ministry of Coal, and the Chairman of Coal India Limited. When these three officials are aligned in their thinking, the industry takes strides and moves forward. For me, mentorship has its own *trimurti*. In addition to Partha's guidance, Devesh Kapur and Pratap Bhanu Mehta were incredibly supportive of me in my early career.

As an ambivalent engineering student at the University of Pennsylvania with a nascent interest in politics and economics, Devesh Kapur is largely responsible for my corruption towards the social sciences. Taking his classes as an undergraduate student, working for him as a research assistant, and staying in the intellectual orbit of the Centre for Advanced Study of India (CASI) has shaped my thinking, skills, and ambitions in directions I could not have imagined. Devesh's constant support during both good and bad times has been invaluable, as has his continued generous mentorship over the last decade.

Pratap Bhanu Mehta was everything one would hope for in a first boss. As a Research Associate at CPR I had access to one of the most fertile intellectual environments for policy research in India. Being at CPR was a whirlwind education about the most pressing policy

debates in the country. Surrounded by exceptional faculty and talented young researchers, there was an optimism and urgency which made CPR an exciting place to work. Pratap led CPR by example, and his fierce independence, range of intellectual engagement and generosity with younger researchers are all characteristics which I can only hope to emulate over my career.

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Chapter 1: Adaptive State Capitalism

Introduction

There is a deep ambivalence about the role of state-owned enterprises (SOEs) in India today. On one hand it is impossible to dispute the large influence of SOEs in the Indian economy. Particularly in heavy industry (power, coal, steel, oil, heavy engineering) but also more broadly, SOEs retain significant market share across various sectors over twenty-five years after liberalisation. On the other hand, the range of performance of SOEs has been extremely wide: some companies are hugely profitable, contributing dividends to government coffers which financially justifies continued public ownership, others have been consistently delinquent and are perpetual drags on the government budgets which raises intermittent demands for privatisation and divestment. Managers at private power companies will often admit the technical and financial competence of National Thermal Power Corporation (NTPC), deeming it a worthy competitor, but at the same time will lament the continual mismanagement of the Damodar Valley Corporation (DVC).

T N Ninan, one of India's leading journalists, put it best, "Privatisation in India happens at the level of markets, not enterprises … India remains a soft state and the government does not allow the losing public sector entity in a market to die or be sold.[1]" The long tail of poor performing Indian SOEs has been regularly (and rightly) castigated by both journalists and economists alike.[2] For example, Air India, the state-owned airline which has been devastated

[1] Ninan, T N. "When a soft state privatises, it clings on to the public-sector deadwood." Business Standard. 23 March 2018. < http://www.business-standard.com/article/opinion/when-a-soft-state-privatises-it-clings-on-to-the-public-sector-deadwood-118032300882_1.html >.

[2] For a journalistic critique of the Indian state's underperformance across sectors, consider
Kaul, Vivek. India's Big Government: The Intrusive State and How It's Hurting Us. Amazon Digital Services, LLC, 2017.
For a more academic treatment, consider
Bhagwati, Jagdish, and Arvind Panagariya. Why Growth Matters: How Economic Growth in India Reduced Poverty and the Lessons for Other Developing Countries. Hachette UK, 2013.

by the introduction of competition into the aviation sector has been consistently running losses for almost a decade with its debt spiralling out of control. Privatisation was finally mooted in early 2018, prompting the headline, "Air India privatisation: 18,000 employees cannot hold nation to ransom; sale to set tone for other PSU divestment plans.[3]" While headlines do not always compel government action, it is fair to say that there are few in India today who believe Air India is a commercial venture worth bailing out continuously.

As a form of public accountability, this level of scrutiny on delinquent companies make sense. However, in a collective manifestation of loss aversion, views on these delinquent companies often defines the dominant narrative around the Indian public sector; the successes of the Indian SOEs often seem to be taken for granted. Given that many SOEs operate in environments where they continue to have large market share, there is an implicit assumption that their financial success comes from lack of competition, their dominance of rent-thick sectors (eg. natural resources) and their closeness to the Indian administrative state. While these assessments have some truth, the political and operational constraints on the management many of these SOEs were and remain just as organisationally burdensome as the liberties extended to them through sectoral dominance and industrial policy. This is true not just in India, but also more widely across the developing world.

Most industrial SOEs in developing countries materialized as a response to muted domestic private investment which mismatched the economic goals and industrial strategies most developing countries envisioned for broader growth. Usually accompanied by extensive foreign collaboration, industrial SOEs were focused primarily on project execution, building power plants, oil rigs, railways, heavy machinery and much more. However, given that their

[3] Kaul, Vivek. "Air India privatisation: 18,000 employees cannot hold nation to ransom; sale to set tone for other PSU divestment plans." Firstpost. 16 April 2018. < https://www.firstpost.com/business/air-india-privatisation-18000-employees-cannot-hold-nation-to-ransom-sale-to-set-tone-for-other-psu-divestment-plans-4433919.html >. Accessed 20 April 2018.

management was ultimately accountable to politicians, industrial SOEs frequently faced different kinds of political pressures. In theory, they were subject to close financial accountability that accompanied any spending of public money. In practice, once the funds were transferred, this accountability tended to be relatively difficult. Consequently, industrial SOEs frequently became a site of political rent extraction; kickbacks, preferential tendering, expectations of excess employment etc. all became part of the implicit contract between political classes and SOE management. Not surprisingly, many of the biggest financial scandals in developing countries have had been associated with large industrial SOEs (in the last few years think of fund diversion in Petrobras in Brazil[4], Xi Jingping's cleanup of C-suite officials in China[5], and Eskom in South Africa[6]).

How does an SOE navigate such a fraught environment? Given that SOEs were often laden with financial, operational and political expectations, how did they manage to create space for themselves in each of these areas? Were SOEs simple rule-takers in such systems, or were they able to exercise agency within the large structure of the state and its economic agencies? How did SOEs lessen their financial reliance on state transfers? Was it possible to develop a distinct organisational culture and a technical corps under such conditions? How was the management and operation of SOEs substantively different from private companies? These are the kinds of questions which are rarely considered regarding successful SOEs.

Returning to T N Ninan, "We need alternatives to the Air India kind of story in the public sector, and they exist. Especially if we can't steer clear of mountebanks when choosing

[4] Leahy, Joe. "What is the Petrobras scandal that is engulfing Brasil?" Financial Times. 31 March 2016. < https://www.ft.com/content/6e8b0e28-f728-11e5-803c-d27c7117d132 >.

[5] Anderlini, Jamil. "China corruption purge snares 115 SOE 'tigers'." Financial Times. 18 May 2015. < https://www.ft.com/content/ad997d5c-fd3c-11e4-9e96-00144feabdc0 >.

[6] "Eskom mired in new corruption scandal." SABC News. 19 January 2018. http://www.sabcnews.com/sabcnews/eskom-mired-new-corruption-scandal/

private sector entities for major projects, the essential challenge is to replicate the strong public entities created in the past, which (for a while at least) set performance benchmarks.[7]" This study takes up Ninan's cause, through the story of one of India's largest SOEs, Coal India Limited (CIL).

State Owned Enterprises in Perspective

These questions about SOEs are part of a larger debate about the nature of state capitalism that has been raging over the last five decades. SOEs as a common form of commercial organisation grew after World War II for a variety of motives. For some countries, it was a response to the market failures of the Great Depression, which necessitated the intervention of national governments to provide stability and allay concerns about monopolisation and market power. In developing countries, a combination of weak capital markets and the inexperience of local entrepreneurs in making large, risky investments, required the scale of resources associated with national governments to bring sufficient investment to infrastructure and industrial projects. "Public enterprises offered an attractive option that promised to combine business-like efficiency with social responsibility.[8]"

However, over the last fifty years, SOEs in many countries did manage to fail often and sometimes spectacularly at accomplishing their economic goals which led to various waves of reform measures. The first wave of reform, occurring in the 1960s and 1970s attempted to maintain public ownership while improving firms' performance. The second wave of reforms in the 1980s and 1990s, reacting to the dissatisfying efforts of previous decades, pushed an agenda of privatization. Much of this privatization agenda came from the 'Washington

[7] Ninan, T N. "Creating new winners." Business Standard. 15 September 2017. < http://www.business-standard.com/article/opinion/t-n-ninan-creating-new-winners-117091500947_1.html >.

[8] Gómez-Ibáñez, José A. "Alternatives to Infrastructure Privatization Revisited." Washington, DC: World Bank Publications, 2007. P. 1.

Consensus' line of thinking which was promoted heavily by development banks and Western aid organisations throughout the developing world. These ideas had their merits, and privatization was occasionally quite successful, but it also generated powerful resistance among those who had benefited from the redistributive effects of SOEs. Even today, in the developing world, partial privatization of former SOEs is far more common than outright privatization or divestiture.[9]

From this multi-decadal debate on the nature of state capitalism emerged four stylized lines of argumentation around the idea.[10] The *industrial policy view* argued that government investment was required to solve the underinvestment problem due to a variety of market failures. These included poorly developed domestic capital markets, and coordination problems with upstream and downstream investment. This latter problem was most famously articulated by Hirschman in his arguments for backward and forward linkages in production chains as a necessity for local development.[11]

Alternatively, *the social view*, argues that the spillover benefits of state capitalism alone are sufficient to justify its existence. Almost diametrically opposed to the profit or shareholder maximization view of firms, this view argued that an attenuated profit motive may even be necessary because of the social safety net and other economic benefits provided by SOEs. "Corporations controlled by the state will emerge as a way to mitigate market failure by pursuing social objectives – such as high employment or low prices – beyond the logic of pure profit or shareholder maximization.[12]"

[9] Roland, Gerard. "Introduction." Privatization: Successes and Failures. ed. Gerard Roland. Columbia University Press: New York, 2008.

[10] Chapter 3 of Musacchio and Lazarini's Reinventing State Capitalism, "Views on State Capitalism" lays out this literature in detail. These four stylized arguments are adapted from their work.

[11] Hirschman, Albert O. 1958. The Strategy of Economic Development. New Haven, CT: Yale Economic Press.

[12] Musacchio and Lazarini 2014, p 60.

A slightly more cynical view of the world, *the political view*, argued that SOEs were primarily used as tools by politicians and that political goals often dwarfed economic goals in many SOEs. Whether it was personal enrichment, using employment as source of patronage, granting contracts to favoured firms, or diverting funds for other political goals, SOEs were primarily "conduits of cronyism," ultimately spending in inefficient ways. This line of reasoning was perhaps most significantly forwarded by Shleifer and Vishny in The Grabbing Hand, where they put forward a set of political economic models which illustrate how institutional constraints, lobbying and the self-interests of those in power (bureaucrats or politicians) can often result in politically determined outcomes far from the ideals of a welfare maximizing social planner.[13]

Finally, *the path-dependent view*, is an amalgamation of various arguments about the idiosyncratic nature of state capitalism and how its emergence and partial retreat is more a product of country-level institutional features and ideology. Making the privatization agenda "stick" in a particular country was far more about the ability to build domestic political coalitions around the idea and making the transition publicly credible. Selling SOEs and state assets to large capitalists or foreign owners was frequently unpopular in developing countries.

What emerges from these views is widespread disagreement about not only the usefulness of SOEs, but also the ways in which they operate. And this is where the empiricism is decidedly mixed. In the 1990s a whole panoply of volumes emerged analysing case studies from various privatization exercises across the developing world.[14] Not surprisingly, many of these studies

[13] Shleifer, Andrei, and Robert W. Vishny. The Grabbing Hand: Government pathologies and their cures. Harvard University Press, 2002.

[14] For example,
Nellis, John R., and Mary M. Shirley. Privatization: the lessons of experience. World Bank Publications, 1992.
Ramamurti, Ravi, and Raymond Vernon. Privatization and Control of State-Owned Enterprises. World Bank Publications, 1991.
Ramamurti, Ravi. Privatizing Monopolies: Lessons from the Telecommunications and Transport Sectors in Latin America. Johns Hopkins University Press, 1996.

were sponsored by the World Bank, whose loan conditionalities had been a crucial part of the larger global push towards privatization.[15] But the evidence from these studies was at best mixed.[16] While divestment did markedly improve efficiency, profitability and financial health of companies, it was far from clear whether consumers actually benefited from these changes.[17] It wasn't necessarily privatization that was the problem; rather, more fundamental reform of the state and state-business relations seemed to be necessary preconditions for private companies to realize the theoretical efficiencies accorded to them by economists. If SOE reform was difficult, privatization did not seem to be much easier, even if it was prescribed often.

In many ways, the *path-dependent view* ended up encapsulating some of the most interesting rebuttals to the "grabbing hand" school of thought. In political science, a parallel wave of literature was emerging. A series of influential studies emerged in the 1990s and early 2000s which emphasized the importance of the state's role in economic development, particularly in emerging markets. Amsden, Johnson, and Wade, in particular, convincingly argued how South Korea, Japan and Taiwan, respectively, managed to grow precisely because the state had a massive role in slowly constructing comparative advantages and sheltering domestic companies in higher technology industries while learning from global competitors.[18]

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[15] To be fair, the World Bank often dealt with countries which were lacking both in financial and state capacity. In such scenarios, the average prescription of privatisation was good advice. However, the political consequences of these actions were frequently severe, and many countries with leverage resisted privatisation efforts strongly. I thank Lant Pritchett for this insight.

[16] Sundaram, Jomo Kwame. "A Critical Review of the Evolving Privatization Debate." Privatization: Successes and Failures. ed. Gerard Roland. Columbia University Press: New York, 2008.

[17] Megginson, William L., and Jeffry M. Netter. "From State to Market: A Survey of Empirical Studies on Privatization." Journal of Economic Literature, vol. 39, no. 2, 2001, pp. 321–89.

[18] Most notably,
Wade, Robert. Governing the market: Economic theory and the role of government in East Asian industrialization. Princeton University Press, 1990.
Amsden, Alice Hoffenberg. Asia's next giant: South Korea and late industrialization. Oxford University Press, 1992.
Waterbury, John. Exposed to innumerable delusions: Public enterprise and state power in Egypt, India, Mexico, and Turkey. Cambridge University Press, 1993.

These countries all had large conglomerates/SOEs with intricate connections to the economic planning bureaucracies of the state. Whether they were publicly or privately owned, their growth was a result of their governments' ability to resist international pressure to break monopolies, while still filtering through the technological learning and price pressures of global competitors. In the Shleifer and Vishny typology, these countries were far closer to the "helping hand" (an idealized social planner who maximizes collective social welfare) than the "grabbing hand" (the self-interested kleptocratic state) or the "invisible hand" (exposed to international competition and highly deregulated markets).

One of the common threads amongst all these studies was reflected in Peter Evans' work on embedded autonomy.[19] Evans' emphasis on Weberian bureaucracies and their embedding within larger societal and governmental networks was crucial to the efficacy of developmental states around the world. As he argued, "Real bureaucracy is in scarcity, not excess. It is the absence of bureaucratic structures that leads to the utilitarian nightmare of the state as a collection of self-interested incumbents using their offices for purposes of individual maximization. Ineffective states are characterized precisely by the lack of predictable, rule-bound, bureaucratic norms and relations within the state apparatus.[20]" This was one of the key institutional variations across countries that would determine the relative success or failure of SOEs; could countries recruit competent managers into SOEs who could pursue economic goals and yet function within the larger national bureaucracy and political scenario?

Kohli, Atul. State-directed development: political power and industrialization in the global periphery. Cambridge University Press, 2004.

Johnson, Chalmers. MITI and the Japanese miracle: the growth of industrial policy: 1925-1975. Stanford University Press, 1982.

[19] Evans, Peter B. Embedded Autonomy: States and Industrial Transformation. Princeton University Press, 1995.

[20] Ibid. pg. 71.

In all the high-level conversations about the nature of state capitalism and propriety of SOE privatisation, what was often lost especially amongst economists was the agency of the SOE and its bureaucrats/public managers. It was assumed that managers' roles at SOEs were static and simply part of a larger economic structure that could not change. But much of this was driven by the short-term myopia of policy making. Those taking a longer view described some of the major changes these bureaucrats/public managers participated in. A key part of Evans' and others' articulation of the developmental state was to give agency back to the bureaucrat/public manager. In Japan, Johnson elaborated on the role of MITI and its role in coordinating Japan's economic transformation. In Korea, Amsden attributes much of the country's early economic success to the "discipline its state exercises over private firms".[21] And in China, Steinfeld talks about the importance of granting SOEs "rights" in exchange for the realities of a hard budget constraint.[22]

More recently, Mariana Mazzucato has highlighted the coordinating and research promotion functions of the state, arguing that many of the technological innovations and breakthroughs claimed by the private sector were built on the back of decades of government seeded technologies and investments. Although primarily in a Western context, Mazzucato emphasizes the "public sector's centrality to risk-taking activities and radical technological change……From the development of aviation, nuclear energy, computers, the Internet, biotechnology and today's developments in green technology, it is, and has been the State – not the private sector – that has kick-started and developed the engine of growth.[23]"

[21] Amsden, p. 14

[22] Steinfeld, Edward S. Forging Reform in China: The Fate of State-Owned Industry. Cambridge University Press, 1998.

[23] Mazzucato, Mariana. The Entrepreneurial State: Debunking Public vs. Private Sector Myths. Vol. 1, Anthem Press, 2015.

It is this space, focusing on SOE agency, that this study occupies. In the continuing conversations about SOEs and their relevance, most analyses have been top-down views of how governments and their economic bureaucracies control and motivate SOEs. They typically ask the following kinds of questions: How can SOE productivity be improved? How can their financial efficiency be enhanced? Can the imposition of a hard budget constraint discipline SOEs sufficiently to prevent their bankruptcy? Can managerial and financial training of managers from SOEs change their outlook? What kinds of accountability mechanisms and policies (eg. performance contracts, memoranda of understanding, performance-linked pay etc.) prevent an SOE from deviating from the goals of its principal? What is less considered is how SOEs themselves have internally adapted to changing macroeconomic, regulatory, and political circumstances (particularly in the Indian context).

Organisational and Institutional Theories

Over the last few decades, there has been a broad recognition across disciplines that understanding institutions and their changes over time is essential to explaining many organisational and social phenomenon.[24] From ethnic conflict, to variance in public goods, and divergent incomes to ease of doing business, institutional variation has become a crucial plank of both social science reasoning and development practice. Not surprisingly, how authors use institutions in their arguments varies quite widely. In one of the best articulations about how institutional argumentation has changed, Suddaby, Foster and Mills argues that the "old" institutionalism was far more historical, focused on empirical phenomena, endogenous change, complex causality, making particularistic truth claims whereas "new" institutionalism came

[24] This institutional school of thought was led by Douglass North, and a perhaps the best articulation of the institutional approach is made in his book. "Institutions are the rules of the game in a society, or more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social or economic. Institutional change shapes the way societies evolve through time and hence is the key to understanding historical change (3)."
North, Douglass. Institutions, Institutional Change and Economic Performance. Cambridge University Press, 2009.

from a far more rational-choice theoretic approach, focusing on unitary causality, gaps in theory, exogenous change and making universal truth claims.[25] While there is definitely a spectrum in between these poles, this typology captures the essence of the tensions that have emerged as institutional arguments have been adopted across various disciplines.

The vast majority of the work on the developmental state, described earlier, falls into the former category of old institutionalism. Given the context this makes eminent sense; decision-making by states about industrial policy was far from one-shot policy decisions that determined the economic trajectory of a country. Rather, effective industrial policy was the product of a continued series of decisions, legislations, policies, and rule-tweaking over decades to calibrate incentives, prices, availability of capital, and access to technology for thousands of economic actors (either public or private). It was like maintaining an artificial ecosystem, where a scientist creates an environment, populates it with plants and animals, changes the conditions (eg. temperature, humidity, disease, food availability), and then hopes that their experimentation would help the colony thrive. Those at the helm directing industrial policy (usually bureaucrats and public managers) had some broad sense of the consequences of their decisions and actions, through the predictions of economic theory, the actions of past governments, and the collective wisdom of internal and external policy advisors. But ultimately, there was considerable uncertainty about the consequences of any specific policy or action. The construction of industrial policy in any given area was an iterative process.

Considering the major variation in the performance of SOEs, understanding their relative successes and failures requires digging into specific cases. As described earlier, the "grabbing hand" school of thought was quite thorough about diagnosing some of the systemic problems that led to the failure of many SOEs. But to paraphrase Tolstoy, failing SOEs are all

[25] Suddaby, Roy, et al. "Historical Institutionalism." Organizations in Time: History, Theory, Methods. Ed. Bucheli, Marcelo and R. Daniel Wadwhani. Oxford University Press, 2014. pp. 100–23.

alike, but each successful one succeeds in its own way. Some SOEs tend to succeed because of their industry; this is typical of oil & gas SOEs who have access to at least parts of the supernormal profits that accompany their sales. But the vast majority of SOEs have to much work harder on multiple fronts to gain operational, financial and bureaucratic space to operate. Much of this is because of the of the developmental polycentricism that exists in many locally embedded SOEs in developing countries.

When the idea of political polycentrism was first articulated by the Vincent Ostrom and co-authors in in the early 1960s, it was focused primarily on the governance of metropolitan areas in the US.[26] Citing Alexander de Tocqueville's observations about America, Ostrom comments on the differences in city governance between France and the US.

> Tocqueville's distinction between the one circumstance where "the government can administer the affairs of each locality" and the other where "the citizens do it for themselves" points to basic differences between a monocentric structure in France and a polycentric structure in the United States. Tocqueville explicitly recognized that Americans had recourse to diverse foci of authority and relied upon methods of election and adjudication to resolve conflict among public authorities rather than a single hierarchy of command.[27]

Given the shortage of state capacity in most developing countries, particularly during their early years, most industrial SOEs inevitably end up inhabiting developmental roles which are relatively far from their core industrial mission. Industries like oil & gas, which are point resources, or concentrated offshore, often have little social footprint and are not subjected to the same expectations. But industrial SOEs in coal, railways, power and steel are far more embedded in local contexts. In industrial enclaves, not only are they the dominant source of economic activity, but they are often drawn into basic developmental activities (housing, roads,

[26] Ostrom, Vincent, Charles M Tiebout and Robert Warren. "The Organization of Government in Metropolitan Areas: A Theoretical Inquiry." American Political Science Review, vol. 55, no. 4, 1961, pp. 831–42.

[27] Ostrom, Vincent. "Polycentricity (Part 1)" in Michael D. McGinnis (ed.) Polycentricity and Local Public Economies: Readings from the Workshop in Political Theory and Policy Analysis. Ann Arbor: University of Michigan Press, 1999, pp. 52–74.

water/electricity provision etc.) because of their organisational and technical competence. Essentially, in areas where they are the largest local economic actors, industrial SOEs become indispensable to the polycentric governance of developing countries. But as SOEs become part of developmental polycentrism, the claims made on them also increase. Competing or coordinating with other bureaucracies which share these overlapping responsibilities and mediating these political claims while maintaining operational space becomes the balancing act of the SOE manager.

In the field of organisational theory, there has been a considerable work on the idea of the "interorganisational field." "The concept of the interorganizational field is based on the observation that the interaction between two organizations is affected, in part at least, by the nature of the organizational pattern or network within which they find themselves.[28]" This interorganisational field is much easier to describe and define in developed countries, primarily because of the stability of institutions; developing countries are often defined as countries with weak institutions. For example, consider the interaction between a company and its subcontractor. When the rule of law is well-defined, and the consequences for reneging on a contract are severe and swift, a subcontractor has little incentive to default on their obligations. But in most developing countries, where breaking contracts is not uncommon, resorting to courts to resolve such a dispute would usually take a long time and incur significant costs; consequently, most companies engaging subcontractors try to have other forms of leverage as well, like reputational shaming, or local administration contacts with coercive power to make sure that their contract is fully executed. This simple illustrative example shows why the difference between de jure rules and de facto practices complicates the interorganisational field considerably in developing country contexts. Methodologically, this is also easier in developed

[28] Warren, Roland L. "The Interorganizational Field as a Focus for Investigation." Administrative Science Quarterly, vol. 12, no. 3, 1967, pp. 396–419.

countries because of the availability of almost more than a century of historical and empirical material. This is one of the key reasons the historical approach to studying SOEs is so important in developing countries; it not only tracks the SOE but it also describes its interorganisational field which is often poorly understood because of the sheer paucity of primary literature; it establishes the background while also working on the portrait.

In their influential paper on the US commercial radio broadcasting industry, Leblebici and co-authors use interorganisational fields and their transformation over time to show how fringe players in the radio industry generated new practices, which were then adopted by larger players and eventually pervaded the entire industry. In the process, they make a powerful argument for how gradual endogenous changes within the industry, rather than any kind of critical juncture, led to the major changes in the structure of the industry and its technological practices.[29] Given the reformist waves that have often hit SOEs in developing countries, there is often a very strong assumption that external intervention and conditionality are the only reasons these organisations ever became successful. However, one of the most important pre-conditions for successful reform of SOEs was their embedding in the larger interorganisational field. Given the density of networks and the strong dependencies across bureaucracies that exist in developing countries, successful SOEs had to be not only technically competent, but also have enough legitimacy within the larger state system (eg. civil servants, bankers, economic planners, upstream and downstream SOE partners), a key component of their interorganisational field. **This study uses the case of one specific company, Coal India Limited (CIL) and demonstrates how it situated itself within its interorganisational field in its first few decades of existence, making it well equipped to deal with the reformist**

[29] Leblebici, Huseyin, et al. "Institutional Change and the Transformation of Interorganizational Fields: An Organizational History of the U.S. Radio Broadcasting Industry." Administrative Science Quarterly, vol. 36, no. 3, 1991, pp. 333–63.

waves that hit Indian SOEs after liberalisation in the early 1990s. CIL has continued this reformist impulse even after the withdrawal of external pressures and conditionality.

Here it is useful to draw upon Thelen and Mahoney's work on gradual institutional change.[30] While the World Bank loans that bail out CIL in the mid-1990s are certainly a major external event that effected major change on the organisation, these loans do not help explain the changes that happened within CIL from the early 2000s onwards, after the loans lapsed and external conditionality waned. Part of CIL's internal changes were simply improvements in compliance; established rules (such as timely payment of wages or contractor dues) were not being followed and started being enforced more stringently. But as the following chapters will make clear, CIL experienced change through subversion. Thelen and Mahoney define *subversives* as "actors who seek to displace [remove old rules and introduce new ones] an institution, but in pursuing this goal they do not themselves break the rules of the institution. They instead effectively disguise the extent of their preference for institutional change by following institutional expectations and working within the system.[31]" **This study will introduce a cast of subversives, primarily bureaucratically entrepreneurial officers within CIL, who were able to slowly change the organisation from within.**

CIL in Context

India's coal industry is distributed primarily across seven states in central and eastern India (see Figure 1.1).[32] Soon after Independence in 1947, the Industrial Policy Resolutions of

[30] Mahoney, James, and Kathleen Thelen. Explaining Institutional Change: Ambiguity, Agency, and Power. Cambridge University Press, 2009.

[31] Ibid. pg. 25

[32] More than 95% of India's recoverable coal deposits are located within the red box outlined on Figure 2, which also corresponds to CIL's operational area (excluding Andhra Pradesh). Rajasthan, Tamil Nadu, Assam, Meghalaya, Nagaland ad Arunachal Pradesh all have coal deposits (as shown in Figure 2) and active mines, but their coal production is either of low quality (Rajasthan and Tamil Nadu) or relatively small in quantity (all four northeastern states combined produce less than 1% of India's overall coal production). Coal in each of these areas is governed slightly differently. This study will focus primarily on the operational area of CIL.

1948 and 1956 made clear the goals of Indian government: SOEs had exclusive expansionary power over the coal industry; private mining companies could continue operating on their existing leases, but the expansion of the coal industry was expected to come from two newly formed SOEs, National Coal Development Corporation (NCDC) and Singareni Coal Collieries Limited (SCCL). Both these companies were formed in the late 1950s. SCCL remained under the control of the Andhra Pradesh state government (and remains so even today, in a 51:49 ownership split between the state government and the Central government), while NCDC was owned by the Central government.[33] Until the early 1960s, the majority of India's coal production was concentrated in two states, Jharkhand (at the time undivided Bihar) and West Bengal. Two districts, Dhanbad and Burdwan constituted over 50% of India's coal production at the time. For various reasons which will be explored in the chapter on federalism, India decided to successively nationalise the coking coal industry in 1971, and then the broader coal industry in 1973. By 1975, a single umbrella corporation, Coal India Limited, controlled the majority of the Indian coal industry. This company's evolution and adaptations are the focus of this study.

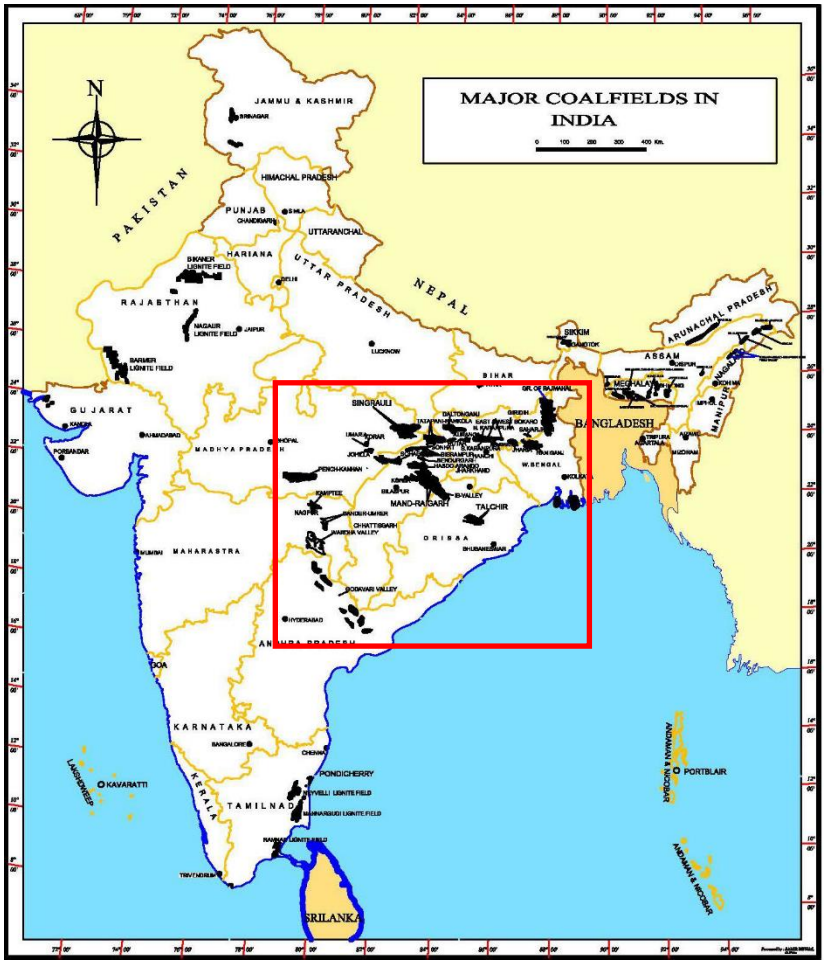
At its height in the late 1960s, NCDC was a marginal player, at best, in the industry with only 15% market share. Today, over 85% of all coal produced in India is through CIL, but the corporation has 20% of its shares publicly traded. Over the same period, Indian coal production has almost quintupled, while the full-time workforce in the industry has decreased by more than half. There is no doubt that the Indian state has played a major role in the evolution of this industry.

CIL operates primarily in six states (Jharkhand, West Bengal, Orissa, Chhattisgarh, Orissa, and Madhya Pradesh) and has operational subsidiaries headquartered in each state (see

[33] SCCL still remains under the ownership of the Andhra Pradesh state government, in a 51:49 ownership split between the state government and the Central government.

Appendix A). Second only to Indian Railways, CIL is one of the largest SOE employers in India today although these numbers have declined appreciably since their peak around nationalisation.[34]

Figure 1.1: Coal India's Operational Area (Source: CIL website)



Reflective of its situation in global climate debates today, there is deep ambivalence in India about its coal industry. On one hand, India has a deep dependence on the fuel. Coal based power generation provides over sixty percent of India's power and it is also an important input both as feedstock and fuel in cement, steel and sponge iron manufacturing. On the other hand, there is rising domestic concern about both its environmental and health impacts, and the

[34] Technically, the Indian Army and India Post both employ more people, but neither of these organisations is run as an SOE.

thuggish strong-armed contracting culture that often follows the industry. Two notable Bollywood movies have brought these tensions to national public imagination. *Kaala Patthar*[35] (1979) told an epic story about the brotherhood of mine workers struggling against reckless capitalists with Amitabh Bacchan at the height of his angry young man phase; the movie was loosely based on the Chasnallah mine flooding disasters of 1975 and brought the disaster to national consciousness. More recently, *Gangs of Wasseypur* (2012), captured the frequently lawless culture around mines and the contestation around mines between historical elites and new local contenders. But despite these public reservations, it is unlikely that the Indian coal industry will retreat in the short to medium term given the Indian power sector's dependence on the fuel. Even if India stopped building coal power plants today, the existing fleet of coal plants would last at least 20-30 years.

India's coal industry is in the middle of a glacial but seismic transition. Since liberalization in 1991, the government run coal monopoly, CIL, has been gradually increasing the involvement of private sector companies through various forms of contracting. However, the fundamental question of government ownership of the industry has never faced serious political opposition since the nationalization of the industry in the early 1970s (despite a few attempts in the late 1990s to deregulate the industry). This dichotomy of continued state control yet declining state operation presents an unusual form of state capitalism for those expecting quick privatization and exit, but a familiar hybrid form of state capitalism which has simultaneously evolved across many developing countries.[36]

[35] Translates literally to "black stone"

[36] For example, David Victor and Thomas Heller argue that in electricity systems across Mexico, Brazil, India, China, and South Africa, there seems to have a developed a "dual market" form of industrial organisation which seems to be both politically and organisationally stable.
Victor, David G., and Thomas C. Heller. The Political Economy of Power Sector Reform: The Experiences of Five Major Developing Countries. Cambridge University Press, 2007. pg. 292-293.

This form of state capitalism exists in many industries in India (power, railways, oil exploration and drilling to name a few), and is deeply rooted in the historical and political circumstances which evolved from Independence onwards. Partly driven by ideology, and partly by specific political compromises forged in the late 1960s and early 1970s under Indira Gandhi, the role of the state in the Indian coal industry has evolved considerably. While CIL as a monopoly SOE has remained constant from 1975 onwards, much of its internal functioning has changed dramatically. This study is dedicated to exploring and theorizing these changes and to explain how coordination between CIL and the Indian state changed on multiple axes, despite a multiplicity of adverse conditions, and allowed Indian coal production to keep pace (albeit sometimes laggardly) with domestic industrial demand. Internal reform, both within CIL, and of the rules of the Ministry of Coal was not an easy process. **A consistent theme throughout this study will be one of bureaucratic entrepreneurialism: individuals or groups of managers at CIL innovating and taking large personal risks to overcome inertia within and outside the organisation.**

Adaptive State Capitalism

Despite the unprecedented expansion of the private sector in India since the early 1990s, the Indian public sector still plays a major role in the Indian economy, not just through administration or regulation, but also through direct economic activity of SOEs. The public sector's share of GDP has hovered between 20-25% since the early 1990s.[37] Central government ownership of SOEs in India has continued for a variety of reasons.[38] Repeated attempts at privatization and disinvestment has often been met with major opposition from employees' unions, left-wing parties, and regional politicians with vested interests. From the

[37] Nagaraj, R. "Can the Public Sector Revive the Economy?" Economic and Political Weekly, vol. 50, no. 5, 2015, pp. 41–46.

[38] Note that this analysis does not consider state-level SOEs, which are numerous, generally much less profitable, and more problematic. The scale and scope of central SOEs dwarfs state SOEs in India.

early 1990s onwards, almost every government budget has made some overtures towards reducing holdings in SOEs, but in practice this has been exceedingly difficult.[39] From 1991-1996, after India's balance of payments crisis, there was strong pressure from various multilateral agencies who had provided large bailout packages to privatise various SOEs. And despite this pressure, only one enterprise was actually privatised during this period (Maruti Udyog, which was already a joint holding). Between 1998-2003, under the BJP-led National Democratic Alliance (NDA), there was genuine momentum behind the idea, leading to the formation of a separate Department of Disinvestment headed by a new cabinet-level minister and the eventual sale of majority stakes or transfer of management control of 14 companies. While this was a major symbolic accomplishment, both financially and operationally these companies were a miniscule portion of the Indian government's SOE holdings.[40]

As of 2016-17, the Indian government was the majority owner of 257 operating SOEs, despite repeated rounds of incremental disinvestment of some of its more valued companies over the last fifteen years. Collectively these companies employ 1.13 million people as of 2016-2017, although through contractual workers this number is likely much higher. Roughly two-thirds of these companies (174) are profitable, the rest are subsidised by the government. But the distribution of profitability (and losses) are highly skewed. The top ten most profitable SOEs account for 63.6% of all net profits by profitable SOEs. Coal India alone accounts for almost 15%. Similarly, amongst loss-making SOEs, the top ten loss-making firms account for a whopping 83.82% of all net losses by loss-making SOEs.[41]

[39] Gupta, Nandini. "Privatization in South Asia." Privatization: Successes and Failures. ed. Gerard Roland. Columbia University Press: New York, 2008. Pg. 177-178.

[40] Ibid. p. 178.

[41] Government of India, Department of Public Enterprise. Public Enterprises Survey 2016-2017: Volume I. New Delhi, 2017. < http://dpe.gov.in/public-enterprises-survey-2016-17 >

Particularly in energy, infrastructure, and heavy industry, India still has major SOEs which control large market shares: coal, upstream and downstream oil and gas, power generation, railways, highway construction, steel and more. In the last three Five-Year Plan periods (2002-17), the public sector has consistently outspent the private sector in the realm of infrastructure investment although its share has declined from roughly three-fourths to half over this period.[42] One of the main reasons for retaining control of SOEs, particularly in the last ten years, has been their increasing profitability and the consequent contributions to both government budgets (through dividends) and investment. Particularly after the global financial crises in the late 2000s, having control over the investment cycle through the cash reserves of industrial SOEs was one way the Indian government countered the slump in private investment that has been observed in the past decade.[43]

Clearly the distribution of SOE performance in India today is very wide. There are some exceptional companies which are competitive, efficient, profitable, and relatively professionally managed, and there are laggard SOEs which fall into the more traditional characterizations given in the introduction. This study will focus on one of the SOEs in the former category, Coal India Limited, and describe the drastic internal changes that have been implemented over the company's four decades of operation (1975 – present). In the process, it will argue that CIL has displayed *adaptive state capitalism*, particularly in the years after liberalisation. Broadly defined, state capitalism is the widespread influence of the government in the economy, either through ownership or through the provision of subsidized credit and/or

[42] Chatterjee, Vinayak. "Is India investing enough in infrastructure?" Business Standard. 17 April 2017.

[43] Khanna, Sushil. 2015. "The Transformation of India's Public Sector: Political Economy of Growth and Change." Economic and Political Weekly 50 (5): 47–60.

other privileges to private companies.[44] SOEs displaying *adaptive state capitalism* have five essential characteristics.

1. *Bureaucratic Discretion* – The ability for bureaucrats/state managers to take large, consequential actions and decisions without seeking approval from a higher authority

2. *Organisational Capacity* – The ability to use internal resources, knowledge, and processes to undertake complex projects and execute them successfully, within reasonable timelines

3. *Resource Self-Sufficiency* – The ability to finance new projects, raise money from capital markets and commercial banks, and cover all liabilities using solely internal financial resources, without budgetary support from the government

4. *Political Influence* – The ability to manage political pressure from all levels (local, state, and national), strike appropriate deals when needed, and if required, mobilize networks within and outside government to prevent unreasonable demands on the company

5. *Rule Shaping* – The ability to lobby within the bureaucracy (and possibly political circles) for policies and rule changes that are beneficial to the company

In many ways, the first three conditions are simply a reflection of a competent commercial organisation in a competitive market. But the final two conditions of political influence and rule shaping, is something that few private companies can ever aspire to. While private companies may be able to influence politicians and government officials through various extra-

[44] This definition is adapted from Musacchio and Lazarini, 2014.
Musacchio, Aldo, and Sergio G. Lazzarini. Reinventing State Capitalism. Harvard University Press, 2014.

legal means, and the largest corporations are certainly well-networked in both administrative and political circles, it is much more difficult for these companies to lobby legally within the bureaucracy. Private companies are not incapable of political influence or rule shaping, but they incur much higher costs for engaging in such behaviour, which makes it prohibitive for all but the largest firms. Being part of the state gives SOEs access to certain networks and privileges, but not all SOEs are able to use these networks effectively to their advantage.

It is useful to think of adaptive state capitalism according to the following matrix.

Table 1.1: Comparative Adaptation between SOEs and Private Enterprise

	Adaptive	Non-Adaptive
State Capitalism	SOEs which are able to manage their external political and economic environment to maintain resource self-sufficiency and pursue their core mission. Often deeply embedded in state networks, with a strong technical corps, and able to resist political pressure.	SOEs which succumb to political claim making and/or competitive pressures, stuck in a loss-making equilibrium because of lack of capacity or resources. Despite this situation frequently continue operations because of political support or lack of political will to privatize
Private Enterprise	The default mode of any successful private company, periodically readjusting strategic priorities and reacting to market conditions to maintain commercial viability. May or may not be embedded in state networks.	Struggling or unsuccessful private companies that face short-term losses, are forced to consolidate and cut costs. Ultimately go bankrupt unless they effect major organisational and financial changes.

Almost the entire field of business history is partially devoted to the bottom two quadrants and explaining either the transitions between quadrants or narratives around organisations that manage to remain in the bottom left quadrant, constantly changing and adapting. Because of the threat of bankruptcy and financial loss, private enterprises are forced to be perpetually adaptive in a way which SOEs often do not (unless they face significant

market competition). Business history abounds with narratives about private companies and their internal transformations. One of the most influential works (and authors) in this tradition, Alfred Chandler's Strategy and Structure recounts the administrative history of four of America's best known industrial enterprises (Du Pont, General Motors, Standard Oil and Sears) and their respective idiosyncratic transitions into the "multi-divisional structure" which had begun to dominate American business by the mid-1900s. Writing on Indian business history has flowered in the last few decades, but much of it has focused on traditional business communities and houses.[45] From the early 1990s onwards, there has been renewed focus on India's many successful private companies, although much of the popular work produced in this space has hagiographic tendencies, lacking analytical depth. Harish Damodaran's book on entrepreneurship among non-traditional business communities is a welcome exception in this space.[46] There has also been a wealth of shorter analytical work through business school cases produced by various universities.

However, for the top two quadrants, both the descriptive literature and the theories of transition between adaptive and non-adaptive states are far from clear. Why do SOEs fail or succeed when they do? Does the commercial/profit motive distinguish SOEs from other government organisations? How important is it to have a strong technical corps in SOEs? Can such organisations be led by administrative generalists (ie. the civil service), or is there value in having industry veterans as top management? What kind of a cultural and organisational shifts are required for a non-adaptive SOE to become adaptive? What kinds of resistance prevent this from happening? The interesting part of this framework is not the organisations that manage to consistently stay in the

[45] For a good summary of the existing state of business history research on India, read
Kudaisya, Medha. "Introduction: Business History in Twentieth-Century India" in Medha Kudaisya (ed.) The Oxford India Anthology of Business History. Oxford University Press, 2011.

[46] Damodaran, Harish. India's New Capitalists: Caste, Business, and Industry in a Modern Nation. Springer, 2008.

top-left quadrant (of which there are very few), but the ones that transition from non-adaptive to adaptive state capitalism. Coal India is one such organisation that manages to make this transition over its forty-year history.

Apart from government reports and documents which tend to be focused on reporting rather than analysis, there are a few disparate sources for SOE histories. India has produced a wealth of retired bureaucrat biographies, of varying quality, which illustrate the political and financial pressures SOE managers often face. A few of these genuinely insightful, but many are post-retirement lists of grievances.[47] Most SOE histories show up primarily in analyses of broader political economies of reform of developing countries (as Steinfeld does with the steel industry in Forging Reform in China) or in cross-national comparisons in economically significant industries (as David Victor and colleagues do with the oil industry).[48] One major exception to this is Yi-Chong Xu's edited volume which compares SOEs in India and China in coal, oil & gas, power, steel and banking.[49]

What is missing from the majority of work on Indian SOEs so far is what Daniel Carpenter refers to as "the mezzo level," which in the case of CIL would correspond to mine managers, area managers, and other positions which exist under executive leadership, but do all the real work of implementation (see Appendix A for the organisational structure of CIL).[50] As one former subsidiary chairman put it to me early in my research, "Area managers do all

[47] Among the best reflections by retired SOE managers in India are,
Bhargava, RC and Seetha. The Maruti Story: How a Public Sector Company Put India on Wheels. Harper Collins, 2010.
Bhargava, Jitender. The Descent of Air India. Bloomsbury, 2013.
Kapur, D V. The Bloom in the Desert: The Making of NTPC. Collins Business, 2015.

[48] Victor, David G., et al. Oil and Governance: State-Owned Enterprises and the World Energy Supply. Cambridge University Press, 2011.

[49] Xu, Yi-chong, ed. 2012. The Political Economy of State-Owned Enterprises in China and India. New York, NY: Palgrave Macmillan.

[50] Carpenter, Daniel P. The Forging of Bureaucratic Autonomy: Reputations, Networks, and Policy Innovation in Executive Agencies, 1862-1928. Princeton University Press, 2001. Pg. 19-21.

the work in Coal India. If you want to understand the industry you have to talk to them.[51]" While laws and high-level policymaking are important to understand the overall direction of an industry, for an embedded industry like coal there are innumerable local variations in implementation. One of the few works in this space in India is Varun Rai's study of ONGC, which describes the problematic relationship between the SOE and its parent ministry.[52] Outside of India, Judith Tendler's work on Electric Power in Brazil, is canonical in this space. Tendler describes on how the technological choice of hydropower in the Brazilian power industry influenced the specialization of the state in building generation capacity, while it allowed foreign investors to dominate distribution, leading to the rare happy marriage of both domestic public and foreign private investment in the same industry. Outside of the SOE space, there have been some remarkable works following civil servants and their effective implementation of programs, perhaps most notably David Leonard's African Successes which biographically follows four Kenyan public servants working on rural development.

This elaboration of the "mezzo level" is in some ways reflective of the larger trend towards descriptive empirical work on public institutions in India. Moving away from the macro political analytical style epitomized by Lloyd and Susanne Rudolph's In Pursuit of Lakshmi[53] and Francine Frankel's India's Political Economy[54] or the macroeconomic narratives of Joshi and Little[55], volumes like Devesh Kapur and Pratap Mehta's Public Institutions in India take a deeper look at how pivotal government institutions did or did not

[51] Sahay, A N. Personal Communication. 28 April 2016.

[52] Rai, Varun. "Fading Star: Explaining the Evolution of India's ONGC." Victor, David G., et al. Oil and Governance: State-Owned Enterprises and the World Energy Supply. Cambridge University Press, 2011.

[53] Rudolph, Lloyd I., and Susanne Hoeber Rudolph. In Pursuit of Lakshmi: The Political Economy of the Indian State. University of Chicago Press, 1987.

[54] Frankel, Francine R. India's Political Economy: The Gradual Revolution (1947-2004). OUP Catalogue, 2006.
[55] Joshi, Vijay, and Ian Malcolm David Little. India: Macroeconomics and Political Economy, 1964-1991. World Bank Publications, 1994.

work.[56] Clearly there was a major gap between the roles of these institutions on paper, and how they actually functioned in practice. Establishing a good primary literature on the de facto operation of major public institutions was necessary for any kind of analysis which was grounded in reality, rather than in the world of hypothesis. In parallel, there has been a movement been towards subnational analysis in study of politics and development in India. The increasingly divergent developmental outcomes between states have engendered a range of explanations from historical land tenure arrangements[57], to fundamental differences in state developmental strategies and institutional quality[58], to the ability of rural communities to mobilize and redirect resources to the countryside.[59] Not surprisingly both the public institutions and subnational literatures have converged on ideas polycentrism and polycentric hierarchies being critical to understanding the Indian state and its economic governance.[60]

Historiography

The history of the Indian coal industry has been covered relatively unevenly over time. Because of the preponderance of material in the colonial archive, the pre-Independence history of the coal industry is relatively well documented. In the late 1960s, a group of historians, sociologists, and political scientists from Heidelberg University and the Gokhale Institute of

[56] Kapur, Devesh, and Pratap Bhanu Mehta. Public Institutions in India: Performance and Design. Oxford University Press, 2007.
The follow-up volume also continues in this tradition.
Kapur, Devesh, et al. Rethinking Public Institutions in India. Oxford University Press, 2017.

[57] Banerjee, Abhijit, and Lakshmi Iyer. "History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India." American Economic Review, vol. 95, no. 4, 2005, pp. 1190–213.

[58] Sinha, Aseema. The Regional Roots of Developmental Politics in India: A Divided Leviathan. Indiana University Press, 2005.

[59] Kale, Sunila S. Electrifying India: Regional Political Economies of Development. Stanford University Press, 2014.

[60] See for example,
Devesh Kapur's chapter on "Explaining Democratic Durability and Economic Performance: The Role of India's Institutions" in Public Institutions in India. Similarly, Aseema Sinha's second chapter in The Regional Roots of Developmental Politics is focused on "A Theory of Polycentric Hierarchy"

Politics and Economics led by Dietmar Rothermund descended on Dhanbad for a wide-ranged research project on the district. These scholars dug deep into the documentation and archives available in the district: cadastral surveys in circle offices, managing agency accounts and filings, oral histories, zamindari records and diaries of former district collectors were all part of their evidentiary base. The result was two volumes which comprehensively covered various aspects of the district: the political economy of land, the changing role of managing agencies, the tension between industrial enclaves and the rural hinterland, tribal rights and much more.[61] Amiya Bagchi's omnibus study on private investment in India from 1900-39, including the coal industry, was based almost entirely on the detailed official documents of the colonial Government of India.[62] Later on, Dilip Simeon's documentation of broader labour struggles in mines and industrial units in Chota Nagpur became an exemplar for labour histories in the colonial era.[63] Dhiraj Kumar Nite's detailed forays into mine culture and the lives of labour, particularly in Jharia have also contributed to this space.[64]

However, scholarship on coal after Independence is a little sparser. While the Indian state did inherit many of the colonial era institutions that produced documentation, statistics, and publications related to the coal industry, it was clear that by the 1960s, many of these publications were significantly altered, reduced, or discontinued altogether.[65] This was not

[61] Rothermund, Dietmar, et al. Urban Growth and Rural Stagnation: Studies in the Economy of an Indian Coalfield and Its Rural Hinterland. Manohar Publishers, 1980.
Rothermund, Dietmar, and DC Wadhwa. Zamindars, Mines and Peasants: Studies in the History of an Indian Coalfield. Manohar Book Service, 1978.

[62] Bagchi, Amiya. Private Investment in India: 1900-1939. Cambridge University Press: Cambridge, 1972.

[63] Simeon, Dilip. The Politics of Labour Under Late Colonialism: Workers, Unions, and the State in Chota Nagpur, 1928-1939. Manohar Publishers, 1995.

[64] Nite, Dhiraj Kumar. "Reproduction Preferences and Wages: The Mineworker in Jharia Coalfields, 1895–1970." Studies in History, vol. 30, no. 1, 2014, pp. 55–87.
Nite, Dhiraj Kumar. "Familist Movement and Social Mobility: The Indian Colliers (Jharia) 1895–1970." Indian Historical Review, vol. 41, no. 2, 2014, pp. 297–322.

[65] The archival collections of the Director General of Mine Safety's office in Dhanbad visibly demonstrate how report quality, frequency, and volume of India's mining labour regulator declines post-Independence.

entirely unexpected given that the Indian state was forming its own independent identity with new forms of bureaucratic accountability in ministries and between the private sector and government. But what it did result in is a reduction of material in the intervening period between Independence and nationalisation. Fortunately, managing agencies and businesses were still meticulous with their records, so much of the scholarship about this period tends to be reconstructed from the records, correspondence, and legal battles of these companies, proceedings of commercial associations and investor manuals.[66] A contribution of this study is to bring a relatively new archival source, a weekly coal trade journal published out of Dhanbad called The New Sketch, into the study of this period (see Appendix B).

From nationalisation (1971) onwards, research on the coal industry became even more difficult. Now that the coal industry was part of the Indian state, the kinds of commercial documentation and investor accountability that were expected of managing agencies and other private firms ceased to exist. The newly formed subsidiaries of CIL were accountable to their umbrella corporation, various ministries, and the Standing Committee on Public Enterprise (SCOPE) in Parliament. While annual reports and aggregate accounts of CIL were published regularly, the ministry responsible for the coal industry changed multiple times between the early 1970s and the 1990s, which confounded lines of accountability and made public data on the coal industry extremely difficult to access. During this period, only researchers with bureaucratic connections could access the internal statistics of the company. Occasionally journalists would ferret out internal documents, but this was a far cry from public reporting or accountability. In fact, some of the most consistent statistics from this period came not from

[66] See for example,
Goswami, Omkar. "Sahibs, Babus, and Banias: Changes in Industrial Control in Eastern India, 1918–50." The Journal of Asian Studies, vol. 48, no. 02, 1989, pp. 289–309.
Roy, Tirthankar. "Transfer of Economic Power in Corporate Calcutta, 1950–1970." Business History Review, vol. 91, no. 1, 2017, pp. 3–29.

CIL or its governing ministry, but rather from its labour regulator, the Director General of Mine Safety's statistical reports.

Arguably the biggest contribution of this study is the range of archival sources, historical statistics, and interviews that are used to reconstruct this twenty-year period between 1971 and 1991 (see Note on Sources and Appendix C for list of interviews). Over twenty months of fieldwork in the Indian coal belt between 2011-2016. I conducted 150+ interviews with current and former personnel from the Indian coal industry. This includes almost every living chairman of CIL, 20+ subsidiary chairmen, and various officials who have served in the Ministry of Coal. In addition to formal interviews, there were hundreds of hours of informal off-the-record interactions with coal industry employees, union leaders, transporters, civil servants serving in the coal belt, subcontractors and political fixers. I also spent considerable time at the libraries of the Central Mine Planning and Design Institute (CMPDI) in Ranchi, which is the planning and consulting arm of CIL where all mine plans for subsidiaries are originated and finalised. This study is informed largely by what I have learned through these interviews.

During this twenty-year period between nationalisation and liberalisation, two semi-official histories of the Indian coal industry were published by Amiya Bhushan Ghosh, a former head of the Department of Commerce in the Delhi School of Economics. Ghosh's volumes were characteristic of much of official economics at the time, it summarized many of the trends in the public and private sectors before and after nationalisation, and for the first time presented many useful aggregate and specific statistics regarding production, prices, wages, labour and mechanisation. However, much of the book was dedicated to explaining why the mismatch in plan goals and realities existed. His volumes were useful as a statistical and economic summary of trends in the industry, but largely devoid of any managerial insights or institutional details

about coal companies. Not surprisingly, both books were endorsed by Secretaries from the Department of Coal. [67]

Fortunately, especially since 1991, there has been a wealth of work by labour historians, anthropologists and sociologists about bottom-up conditions of coal labour and the evolution of these conditions over time. Much of this work has challenged the traditional narrative of turnaround and revival that CIL and its parent Ministry have touted in the last fifteen years. Perhaps the most prolific author in this space has been Kuntala Lahiri-Dutt, whose work on gender and mines, mine-induced displacement, coal nationalism, informal employment and the evolution of laws and policy around coal mines have shined a light on the realities of coal labour and life around coal mines.[68] The Coal Nation, a volume edited by Lahiri-Dutt, is arguably the best compilation of labour history, ground-level narrative on environmental and social impact, and policy evolution on the Indian coal industry.[69] Slightly laterally, Padel and Das' work on aluminium mining in Orissa and the erosion of tribal rights strikes a much shriller, anti-state, and almost conspiracy theoretic tone.[70] This body of literature is important, but in its critique of mining companies these works seem to ignore the crucial interaction between local politics and mining.[71] Rights-based argumentation often takes for granted that

[67] Ghosh, Amiya Bhushan. Coal Industry in India. Sultan Chand Publishers: New Delhi, 1977.
Ghosh, Amiya B. Coal Industry in India (An Historical and Analytical Account): Part II (1947-1982). Calcutta: Coal India Ltd., 1990.

[68] For some representative work, see
Tony Herbert, and Kuntala Lahiri-Dutt. "Coal Sector Loans and Displacement of Indigenous Populations: Lessons from Jharkhand." Economic and Political Weekly, vol. 39, no. 23, 2004, pp. 2403–09.
Lahiri-Dutt, Kuntala. "Illegal Coal Mining in Eastern India: Rethinking Legitimacy and Limits of Justice." Economic and Political Weekly, vol. 42, no. 49, 2007, pp. 57–66.
LAHIRI-DUTT, KUNTALA, et al. "Land Acquisition and Dispossession: Private Coal Companies in Jharkhand." Economic and Political Weekly, vol. 47, no. 6, 2012, pp. 39–45.

[69] Lahiri-Dutt, K (ed.). The Coal Nation: Histories, Ecologies and Politics of Coal in India. Taylor & Francis, 2016.

[70] Padel, Felix, and Samarendra Das. Out of This Earth: East India Adivasis and the Aluminium Cartel. Orient Blackswan New Delhi, 2010.
[71] Much of the anti-state orientation of this body of work has reverberations of James Scott's Seeing Like a State.

the oppressed or dispossessed are the only righteous political actors in this space; there are often local collaborators and other political interests who are instrumental in allowing the entry of mining companies in the first place. Labelling all such activities as cronyism dismisses an entire range of interactions between local populations, capital, and the state which has come to define the political economy of mining today. In this study I hope elaborate on some of these dynamics.

Methodology

Given the shortage of primary material on SOEs in India, a study of CIL and its transition to adaptive state capitalism necessitates constructing a managerial history of the company and its various phases of development. For this study, much of the post-nationalization history of CIL and its managers is assembled through a range of primary sources and personal interviews (discussed earlier). The archival sources used to construct this history range from trade journals and CIL internal documents, to Government of India reports and World Bank reports on the coal industry (see Note on Sources before Appendices).

Naturally, to the extent possible, I cross-verified the statements during my interviews with other interviews and archival sources. But given the range of actors interviewed and the divergence of views on the CIL and the industry more broadly, sometimes I had to use my own judgement to assess the validity of a source's claims, complaints or accusations. Because of the muscular nature of the industry (even today), and the potential consequences for current and former employees of the state, the vast majority of the interviews in this project are reported anonymously with generalized job titles. Names are mentioned only when interviewees explicitly authorized it.

Scott, James C. Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed. Yale University Press, 1998.

The purpose of this historical institutionalist approach is to get establish the texture of the interorganisational field which CIL inhabits. Considering that the company interacts with three levels of government (local, state, national) across six states, this field is particularly complicated. To break down CIL's adaptations, the chapters of this study are organized by functional areas where CIL displayed adaptive characteristics: federal politics, finance, local politics and labour relations, and technology. These four areas can almost be considered bureaucratic specializations within CIL. Federal politics is almost exclusively handled by the higher management of CIL. CIL has a separate cadre of financial specialists (primarily cost and finance accountants) who are recruited through competitive exams. Labour relations and local politics is primarily the domain of Area Managers and Regional CMDs. Most of the senior managers in CIL are people with engineering expertise, but among them there is a particular technical corps that focuses on mine planning, technology, and extraction methods. This technical corps at every subsidiary tends to interact with the Central Mine Planning and Design Institute (CMPDI) far more than other parts of the organisation.

Thus, chapters are organized not chronologically or by adaptive characteristic, but rather by functional bureaucratic verticals; each chapter focuses on different parts of the organisation, and how they dealt with the operational and political pressures over the four major periods in CIL's history. These bureaucratic verticals were not always mutually exclusive, but their substance was different enough that any individual embodying multiple roles often had to switch functional areas in their managerial style. A financial professional talking to fellow accountants could speak a common tongue, but their language and demeanour would have to change considerably when dealing with union leaders, or the technical arm of the same subsidiary. Bureaucrats who could switch fluidly and effortlessly between different audiences were often the ones who were most successful in their organisations. The vertical chapters are organized by size of influence.

The five adaptive characteristics listed earlier (bureaucratic discretion, organisational capacity, resource self-sufficiency, political influence, and rule shaping ability), are collectively a modified form of the bureaucratic autonomy idea put forward by Carpenter. In Carpenter's studies of executive agencies in the US, certain agencies (the Post Office and the US Department of Agriculture) during certain periods were able to establish enough public legitimacy and foster enough political support, both within and outside government, to make decisions according to their own preferences which "neither politicians nor organized interests prefer but they either cannot or will not overturn or constrain in the future.[72]" No SOE in India is quite this powerful. Ultimately, all majority-owned SOEs in India have their board membership dominated by government or government-nominated officials. Their ministers or parent ministry bureaucrats can compel SOEs to take actions against their preferences relatively easily if they decide to exercise this power (as long as they are not illegal and in accordance with service rules). And SOEs in India have rarely been capable of shaping the legislative agenda the way Carpenter describes in the US. At best, they can work within existing legislation, but are capable of lobbying for major changes in rules and policies. The constraints on CIL were consistently stronger than the constraints on Carpenter's executive agencies. However, the argument is similar; CIL was able to carve out operational space for itself and gain enough leverage by not only reacting to external changes in its environment, but also reforming internally.

Chapter 1 focuses on the role coal played in the federal dynamic between the Central and state governments, and how the formation and spatial spread of CIL forced the company to mediate between multiple levels of government. Chapter 2 describes the financial evolution of CIL, and how the introduction of the World Bank loans allowed the company to effect significant changes not only in its own financial practices, but also in its relationship with

[72] Carpenter, The Forging of Bureaucratic Accountability, p.17

other arms of the state. Chapter 3 tracks the evolution of the coal industry's relationship with labour and how CIL's introduction of subcontracting significantly changed local politics in coal bearing areas. And finally, Chapter 4 will discuss changing technological regimes within the Indian coal industry, and the attempt, and ultimate failure of CIL to expand underground mining within the country, pushing the company towards opencast mining. The chapters will be organized loosely around the following periodisation: Pre-Nationalisation (prior to 1971), Post-Nationalisation (1971-1991), and Post-Liberalisation (1991 – 2000) and the Profit-Making Era (2001 – Present). While each of the adaptive characteristics may not necessarily show up in each of the chapters, collectively the chapters will span all of the facets of adaptions laid out in the introductory framework.

Chapter 2: Public Sector Enterprises and Indian Federalism: The Case of Coal

Introduction

Most recent discussions around federalism in India drift towards two particular varieties: Constitutional and fiscal.[73] The former addresses the legal powers allocated to the Centre and States in the framework of India's Constitution, and in subsequent rulings by various courts throughout India. The latter refers to the system of revenue (through taxes) and expenditure (through budgets, schemes and policies) by which money is devolved from the Central government to States. While these varieties of federalism are theoretically useful, at times they are unwieldy, abstract and high-level when thinking about more complicated, concrete economic activities.[74] Economic federalism encompasses a broad group of activities and responsibilities including regulation, permits and licensing, inter-state commerce, assigning natural resource ownership, and access to capital to name a few. But more importantly, economic federalism has a pragmatic, empirical bent; it looks at how the polycentric powers of Central and State governments resolve themselves on the ground, often through institutional intermediaries outside of the state.

In the spectrum of federalism between unitary systems and confederation, India's brand of cooperative federalism is understood to lean towards "federalism from above" with the Centre having stronger powers than states.[75] Much of this comes through Part XI (Articles 245-255) and the Seventh Schedule of the Indian Constitution which assigns powers of legislation over various domains to the Centre, to States, or concurrently between both. Any residual

[73] Varshney provides a good overview of the existing literature on Indian federalism.
Varshney, Ashutosh. "How Has Indian Federalism Done?" Studies in Indian Politics 1.1 (2013): 43–63.

[74] A welcome departure from the prevailing federalism literatures is Singh and Rao's authoritative book on the political economy of Indian federalism.
Singh, Nirvikar, and M Govinda Rao. Political Economy of Federalism in India. OUP Catalogue (2006).

[75] Khan, Rasheeduddin. Federal India: A Design for Change. Vikas Pub, 1992: New Delhi. 47.

powers not explicitly assigned are assumed to lie with the Centre. Akhtar Majeed best describes the system as follows,

> A dimension that needs to be discussed is the various different ways in India in which institutions and tiers of government … interact to manage inter-jurisdictional conflict and tension. The actual operation of the Indian federation should be not categorized in terms of rigid structures for the division of powers, but as involving a process that enables reconciliation of internal diversity within the federal framework. Power-sharing, cooperation, and accommodation are more effective, cheaper and lasting methods of accommodation for developing plural societies, as found in India. They become a meeting point for antagonistic groups and seemingly irreconcilable positions.[76]

Expressed differently, Indian federalism can be described as a repeated set of deals struck between different federal and state institutions over resource allocations, rights, and powers. Whether it is rights of taxation, access to water, allocation of Plan funds, or electricity usage, over the long-term most of these areas have been de facto negotiated spaces. Laws and statutes may define the broader game that is being played, but the specifics are always up for debate and renegotiation. It is this space of deal-making and negotiation that has become an essential part of a firm's economic life in India.

Most major economic activities, particularly in the industrial space, span multiple domains and end up interacting with the Central government on certain matters, the State government on other matters, and other intermediate institutions on yet other matters. Inevitably, businesses strategically manage political, bureaucratic, and economic relationships to be successful. Such layered relationship management by firms has gradually become an essential part of Indian economic federalism. "Firms that structure production through personal networks do not seek to transcend but rather embrace the 'connectedness' that constitutes

[76] Majeed, Akhtar. "India: A Model of Cooperative Federalism." Ward, Ann, and Lee Ward, eds. The Ashgate Research Companion to Federalism. Ashgate Publishing, Ltd., 2009. 503.

market exchange in South Asian economies, using personal ties to other actors as a source of reciprocity, obligation and trust."[77]

If we accept this framing of Indian economic federalism, the next empirical question that follows is, what are the sites of Majeed's "power-sharing, cooperation and accommodation"? If jurisdictions and divisions of power are not rigid, then how are rival federal claims settled in any particular industry? What institutions mediate this federal compromise? And are these settlements stable, or have they changed over time? Naturally, the answers to such questions will vary considerably depending on the industry of choice.

This chapter will use a specific case to illustrate how the division of powers between States and Centre changed after Independence, particularly in the industrial space. It will argue that this malleable division of power was strongly mediated by the introduction of a particular organizational form: the state-owned enterprise (SOE). While SOEs had existed in India well before Independence, they became a much larger part of the national economy after a spate of nationalizations between 1969 and 1975. A number of Central government SOEs were formed during this period to pursue to India's industrial ambitions. Many of these companies (eg. NTPC, Coal India, BHEL, ONGC) exist even today, and form the backbone of India's industrial landscape.[78]

This article will use the case of the Indian coal industry as a lens into Indian economic federalism. In the process, it will also show how CIL created operational space for itself after nationalisation. Why is coal an appropriate case? Firstly, among SOEs in India, Coal India is among the largest (at its height it employed over 700,000 employees), most distributed (with

[77] Naseemullah, Adnan. Development after Statism: Industrial Firms and the Political Economy of South Asia. Cambridge University Press, 2016: Cambridge. Pg. 258.

[78] Chatterjee, Elizabeth. "Reinventing State Capitalism in India: A View from the Energy Sector." Contemporary South Asia 25.1 (2017): 85–100.

mining operations in seven states, and consumers in almost all large states), and most interactive (with a direct impact on at least 10-15 million livelihoods). Also, coal was explicitly part of India's industrial strategy from Independence, with planning targets, private sector involvement, and eventual nationalization. From the early 1990s onwards, state control has remained, but private sector operations have increased in many ways. Because of its distributed and interactive nature, coal has been important in both local and national political life.[79] Consequently, the mediating role of Coal India, India's monopoly SOE in coal, came from not only its economic role, but also its repeated interaction with political figures at all levels of the Indian state. Few SOEs can claim to be as locally embedded in India as Coal India. And it is for this reason that it is an ideal organization/industry to analyse Indian federalism.

The trajectory of India's coal industry can be divided into four periods for analytical purposes. In the period prior to nationalisation in 1971, coal mining in India was dominated by small private companies, run as legacies of colonial managing agencies. From 1971-1991, Coal India was formed, and ran the industry as part of India's larger socialist industrial project directed by the Central government. From 1991 onwards, Coal India was forced to adapt to the profit motive in a serious way after India's moves towards economic liberalization and subsidy reform were implemented. And from 2000 onwards, Coal India finally gained significant operational autonomy as the World Bank loans lapsed. This caused serious changes in both the welfare provisioning and operational practices of the company. Comparing across these four periods will give a sense of how the coal industry's interactions with the larger state apparatus changed over time, and how the SOE was forced to adapt. Through this narrative, Coal India's mediating role will become clear, as will its importance not just as an economic entity, but as an important site of political compromise. This chapter will focus on two main areas where India's federal structure interacted most strongly with the coal industry: industrial policy and

[79] Bhattacharjee, Subhomoy. India's Coal Story: From Damodar to Zambezi. SAGE Publishing India, 2017.

royalty regimes, and the formation of competing bureaucracies and the deal-making that occurred between them.

Industrial Policy, Royalties and Control

On September 13, 1961, Vigyan Bhawan[80] was populated with some of the most influential people in the Indian coal industry; they were present for a high-level meeting between consumers and producers in the industry. Sardar Swaran Singh, the Union minister for Steel, Mines and Fuel, presided over the event, and made an announcement which would unsettle many: the coal industry would have to reduce its monthly production by 300,000-400,000 tonnes to cope with the shortage of railway wagons which prevented effective evacuation of coal. [81] This was a remarkable announcement given the ambitious production goals set forth earlier by the Planning Commission in the Third Five-Year Plan (1961-1966). It was effectively a concession that coal evacuation infrastructure (primarily by rail) was lagging behind the industry's ability of extract coal from the ground. Already a scarce resource, this meant that there would be some form of rationing of coal consumption across the board. [82]

Most of the attending parties were unhappy with this announcement. But perhaps none more so than Dr. Bidhan Chandra Roy, West Bengal's Chief Minister.[83] Over the last six months, Dr. Roy had been engaged in increasingly heated negotiations with the Central government regarding West Bengal's right to mine coal independently of the existing legacy private operators, and the two dominant SOEs, the National Coal Development Corporation (NCDC) and Singareni Coal Collieries Limited (SCCL). Neither of these SOEs had established operations in West Bengal, and consequently, it was perceived that the state was not receiving

[80] The building housing the Planning Commission in New Delhi.
[81] Average monthly production in 1961 was around 4.3 million tonnes, so this was almost a ten percent reduction. (Monthly Coal Bulletin, 1961)
[82] The New Sketch. September 11, 1961 and September 18, 1961. Dhanbad.
[83] This itself was a major development, considering that Dr. B C Roy had been a prominent leader in the nationalist movement with the Congress party.

a fair share of the benefits of its own resource endowment, especially considering its large established industrial base.

The existing legal framework allowed private mining companies to continue mining coal on the existing leases that they controlled after Independence, but required Central government approval for any expansion or new acquisition of virgin coal bearing lands. [84] Consequently, the majority of new coal leases were given to the NCDC, a Central government owned company formed in 1956 with the express goal of maintaining a regular supply of coal for Railways (also owned by the Central government). NCDC was considering expanding its operations to Raniganj (one of the most prominent coalfields in West Bengal), but the West Bengal government opposed NCDC's entry into the state, and filed a petition in the Indian Supreme Court asserting the state's right to develop the recently ceded *zamindari* estates.[85][86] These debates made it all the way to the Lok Sabha (India's lower house of Parliament), with Bengali parliamentarians being quite outspoken about the injustices perpetuated by the Central government during the planning process. Recently, Dr. Roy had even made a trip to Poland to try to establish technical partnerships with Polish mining companies independently of those that already existed with NCDC.[87]

These disagreements over coal between States and the Central government would only intensify later in the decade. At the core of these disagreements were conflicting sub-national visions of industrialization.[88] Through the Five-Year Plans, the Central government had

[84] Established by the Coal Bearing Areas (Acquisition & Development) Act, 1957, and the Mines and Minerals (Development & Regulation) Act, 1957 (MMDR).

[85] *Zamindars* were upper-caste feudal landowners who were an essential part of how the colonial state collected revenue in eastern India. After Independence, in the interest of equity, many states attempted to break up their landholdings and redistribute their land, although this was largely unsuccessful.

[86] See Figure 2. In the top map, Raniganj and Dhanbad are the darkest coloured districts.

[87] The New Sketch. August 21, 1961.

[88] For an excellent explanation of the "subnational developmental state," consult Aseema Sinha's The Regional Roots of Developmental Politics in India: A Divided Leviathan. More recently, Prerna Singh has argued for the

articulated a unified, integrated planning approach to economic growth which included targets, quotas and allocations of resources for all states. States were expected to fall in line with the planning goals set by the Central government. However, some state governments had alternative industrial ambitions.[89] The problem was that many of them did not have legal right to the key natural resources lying within their state borders. Coal was among the most important of these resources because of its importance as an industrial input.

By early 1962, an agreement had been reached between the Central government and the West Bengal state government regarding the sharing of resources.

> Side by side with the proposed decentralisation of the National Coal Development Corporation's set-up, partnership agreements with several State Governments other than and in addition to the State Government of West Bengal are envisaged. These agreements with State Governments to exploit coal mines situated in their territories are expected to be patterned on the lines of the said recent agreement with the West Bengal Government…The other day Bihar's Dy. Minister for Irrigation and Power Mr. L N Jha told reporters that the decision of the Central Government to permit the West Bengal Govt. to enter the field of Coal mining had opened up a new opportunity for expansion and development of industries by State Governments. The agreement between the Central and the West Bengal Govts, he said, was being studied by the Bihar Government. He congratulated the Union Ministry of Mines and Fuel for allowing the West Bengal Govt to enter the field of coal mining in the public sector. Apparently the Bihar Dy Minister is immensely impressed with the implications of the agreement which are being so studied by the Bihar Govt with a view to introduce similar coal mining operations in the State of a Bihar on a priority basis.[90]

However, this concession would be short-lived victory for the States. Most of these agreements were made under Jawaharlal Nehru, India's first prime minister, who in addition

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positive effects of subnational solidarity in being able to promote social development more successfully in some Indian states.
Singh, Prerna. "Subnationalism and Social Development: A Comparative Analysis of Indian States." World Politics, vol. 67, no. 3, 2015, pp. 506–62.

[89] West Bengal was not the only state registering such objections. The Centre-State Relations Inquiry Committee (Rajamannar Committee) in 1971 formally articulated the simmering apprehensions of many other states including Punjab, Andhra Pradesh, Kerala and Tamil Nadu by recommending major changes to the Indian Constitution to check the imbalances of Central power.
[90] Pg. 14. The New Sketch. September 19, 1962.

to being close to most of the early state Chief Ministers, also had a much more conciliatory approach to resolving federal disputes. After his daughter, Indira Gandhi, gained traction within the Congress party and rose to power in the 1960s, her muscular approach to asserting Central authority would drastically change the nature of Indian federalism.

In the second half of the 1960s, the coal industry started creaking under the burden of the Central government's planning goals. The Central government expected private companies to ramp up their production from existing mines, but assumed that the bulk of the increased production would come from public sector coal companies. However, this transition was not nearly as easy as they had imagined. The Third Five-Year Plan (1961-1966) apologetically explained the shortcomings in public sector coal production by describing the myriad problems encountered when opening new mines and getting the administrative authority to operate them.[91] As Table 2.1 shows, the Planning Commission consistently overestimated coal production capabilities in the first few decades after Independence.

Table 2.1: Planned vs. Actual Coal Production[92]

Plan Period	**Target Production**	**Achieved Production**
	(Millions of Tonnes)	
1955-56 (end of First Plan)	39.00	38.23
1960-61 (end of Second Plan)	60.00	55.72
1965-66 (end of Third Plan)	97.32	67.74
1973-74 (end of Fourth Plan)	93.50	78.17
1978-79 (end of Fifth Plan)	124.00	105.10

Why was this the case? The multiplicity of actors involved in the coal industry in 1961 made its governance unusually complicated. For example, in the earlier conference, the

[91] "Minerals and Oil." Third Five Year Plan. Planning Commission. http://planningcommission.nic.in/plans/planrel/fiveyr/3rd/3planch27.html

[92] Data for this Table are adapted from Table III.17 in Prasad, Anubhuti Ranjan. Coal Industry of India. APH Publishing, 1986: New Delhi.

producers were represented by at least three different associations: the Indian Mining Federation represented most of the smaller Indian companies running mines, the Indian Mining Association (IMA) represented the larger managing agencies (eg. Bird & Co., Andrew Yule) and conglomerates (like the Tatas), and the Indian Colliery Owners Association represented zamindars and other landowners. There were more than 500 separate legal entities represented through these three groups.

The producer groups in particular were well-networked among local and national level institutions. With members like Tata Iron & Steel Company, Bengal Coal Co. Ltd. and Equitable Coal Co. Ltd., the largest and best-established coal companies in India, the IMA controlled more than fifty percent of the coal production within India.[93] Leaders like J.R.D. Tata had been embedded in the larger nationalist movement, and were known to have the ear of national and state-level political elites. In addition, the IMA's members also had major roles in local planning organizations, chambers of commerce, labour advisory boards, hospital committees, Coal Labour Welfare Fund Advisory Committees, railway user consultative committees, and state mining boards.[94] This created a business environment which was difficult for new entrants; the larger players in the coal industry had been embedded in the system for a long time, and displacing their influence was not trivial, both logistically or politically. The managing agencies in particular, were vertically integrated with downstream industries all over India, particularly in Calcutta. Their influence extended well beyond Raniganj and Dhanbad.[95]

[93] In Coal Industry in India by A B Ghosh observes,
"A structural pattern seems to have emerged in the second half of the third decade continuing in the fourth decade of this century, viz. about ten per cent of the coal mines [the managing agencies] was producing nearly sixty per cent of the output; there was a steady increase in the number belonging to the group of largest coal mines; the number belonging to the next group remained more or less steady at around sixty producing about ten per cent of the output; the next group produced on average thirty per cent of the output with variations (though not steady) in the number belonging to it according to conditions of trade" (106).
[94] Indian Mining Association. Report of the Committee for the year ended 31st December, 1967. Calcutta, 1968.

[95] At the time, these were the established centers of coal mining in eastern India in West Bengal and Bihar respectively.

Consequently, it is no surprise that NCDC started its initial operations in greenfield states like Orissa, Maharashtra and Madhya Pradesh, rather than attempting to enter the established eastern coalfields. A report commissioned by the Central government to review NCDC's performance in 1968 highlighted some of the difficulties the company had faced after over a decade of operation:

> It was with a view to fulfilling the high Plan targets that the National Coal Development Corporation embarked on an expensive programme for acquiring machinery and manpower and for the development of mines in several areas, particularly in the outlying areas of Madhya Pradesh, Orissa, and Maharashtra. Some of the present difficulties of the NCDC are due to the magnitude of the development and the speed which with it was undertaken. Large and expensive projects which the NCDC had undertaken have led to investments in capital assets which are not presently needed for the current level of production.
>
> In the process of development with speed and since 1964, of retrenchment and readjustment, several organisational weaknesses had not received adequate attention and stresses and strain have appeared affecting all aspects of working in NCDC.[96]

NCDC had clearly struggled to enter this already crowded market and were it not for the guaranteed contracts that the company had with Railways and other SOEs, it would have struggled to keep a foothold in the industry. It had undertaken the difficult task of opening new, primarily opencast mines, and could barely compete with the prices offered by private coal companies. One of the problems that NCDC faced was that most of its coal was sold to consumers not directly, but through middlemen and merchants who were responsible for transportation and distribution of coal.

Coal merchants played an important, but often disputed role: they were responsible for transporting coal from producer to consumer, and often were also the ones who aggregated coal from smaller mines and sold it to larger consumers. Since the majority of mines were producing small amounts of coal, the merchants inspected quality, ensured secure long-term

[96] Pg.41.Government of India. Report of National Coal Development Corporation Committee, 1968. New Delhi, 1968.

supplies to regular industrial consumers (mainly steel, power and cement), and were often the wealthy middlemen who would supply credit to consumers in times of need. Consequently, they also had a lot of power in the system, since they could hold up supplies and mix in lower quality shales. Ensuring delivery of quality coal often demanded a premium over the prevailing coal prices. With little regulation at the time, despite the existence of the Coal Controller, this was one part of the industry that the government attempted to seriously reform. The following letter to the editor of The New Sketch by an indignant coal merchant, illustrates their evolving role in the early 1960s:

> Sir,
>
> Right since the inception of coal industry, the coal merchants have functioned as a useful link between the producers and consumers and, acting as they do as del credere agents, have contributed much to the development of the industry, But the Government now seems determined to eliminate them.
>
> …
>
> The Coal Controller, Mr. Zaman, however said at a recent press conference at Dhanbad that coal merchants were not necessary and that by November there would be none. His theory is that middlemen have no contribution to production and therefore the must go the way of the Zamindars.
>
> I would not say any thing about Mr. Zaman's economic theory, except that its exponents were snubbed into silence by their betters a hundred years ago. But if what he says is any indication of the way the Government's mind is working, then there is a real danger ahead. The Commercial world is predominantly a world of middlemen who have invested large sums of money and built up their business with years' strenuous labour. There is no analogy between the position of the Zamindars and that of us middlemen. Moreover the Zamindars have not gone away empty-handed. They have been paid compensations amounting sometimes to as much as twenty times their annual incomes. Should we middlemen be dispossessed and thrown out into the streets with our dependents and employees by an official order, with India still calling herself a Welfare State! I think the commercial community should seek a clarification of this point now on the eve of the general elections. Yours etc.,
>
> -D. S. Thaker, President, Coal Merchants' Association Jharia[97]

[97] Pg. 14-15, The New Sketch. August 28, 1961.

Even before nationalisation, smaller, local coal merchants were being eased out, with the government preferring a small number of players who could be more easily co-opted.[98] Unfortunately, the comparison between coal merchants and zamindars made earlier is a false one: coal merchants were not nearly as politically influential as zamindars, which is part of the reason that zamindars often received settlements and other benefits. As Francine Frankel observes, "The land reform laws bore obvious marks of political compromise. While they abolished the zamindari system, the provisions topped well short of expropriating the zamindars. On the one hand, the zamindars' proprietary rights were vested in the state governments; on the other, the zamindars were permitted to keep land in their direct occupation for personal cultivation and in most cases no ceiling was placed on the size of the "home farms" so retained."[99] This pattern of selective compensation of politically salient elites would repeat itself during nationalisation.

Throughout the 1960s and early 1970s, India suffered from "coal famines" where industrial requirements were not met by coal producers.[100] This was particularly acute in West Bengal, where the industrial ambitions within the state were severely mismatched with the resource allocations prescribed by the Planning Commission via the Coal Controller. Oftentimes, this was not a production problem; mined coal would be lying available at the pithead but could not be evacuated because of wagon unavailability or poor scheduling and coordination with Railways. Since at this point, Railways was still the largest consumer of coal, and the main mode of coal transport[101], the power dynamics between two industries was always

[98] Only larger coal merchant houses, like Karamchand Thapar and Naresh Kumar & Co. managed to stay in business, and are consequently still some of the largest non-government coal transporters today.

[99] Pg. 193-194. Frankel, Francine. India's Political Economy: 1947-2004. Oxford University Press: New Delhi, 2005.

[100] This coincided with shortages in other essential commodities: foodgrains, cotton, sugarcane, and oilseeds.

[101] According to the July 1961 Monthly Coal Bulletin, 3,914,475 tonnes of coal were transported by rail (93.7%) while only 264,247 tonnes of coal were transported by road (6.3%).

fraught. In fact, in a World Bank assessment of the coal industry in the early 1961 made the following observations.

> The gravest problem facing the Indian coal industry today is transport. Virtually all of the nation's production moves by rail. Of the Second Plan coal production target of 60 million tons, the railways were originally expected to transport 55 million tons, the difference being consumption at mines and shipments by road and by sea. However, the railways were not assigned sufficient funds for such a program, and their Second Plan target for coal movement was set at 48 million tons.
>
> This was reappraised in 1958 and adjusted to 51 million tons out of a then expected coal production of 56 million tons. Although actual production fell short, the availability of railway cars fell shorter, and a serious crisis developed in the summer of 1960 when a lack of coal caused considerable curtailment of industrial production.[102]

What emerges here is a complicated political skein. To maintain effective control over the industry, the government needed to exert influence over a diverse set of producers, an increasingly alienated set of coal merchants, and erstwhile landlords who were still politically influential in coal-bearing regions. And even if these state-level actors could be co-opted, it did not preclude the possibility of contestation within the Central government between the Railways and Steel, Mines and Fuel ministries. Coordination in the industry was clearly becoming a problem.

Despite this, one of the saving graces of the Indian coal industry was its strong set of regulatory institutions. The Coal Board, the Coal Controller and Chief Inspector of Mines were statutorily established roles which ensured order in an industry which was being drawn in many different directions by interest groups. [103] The Coal Board was the apex body responsible for the administration of the coal industry. Policy decisions may have been made in Delhi at the

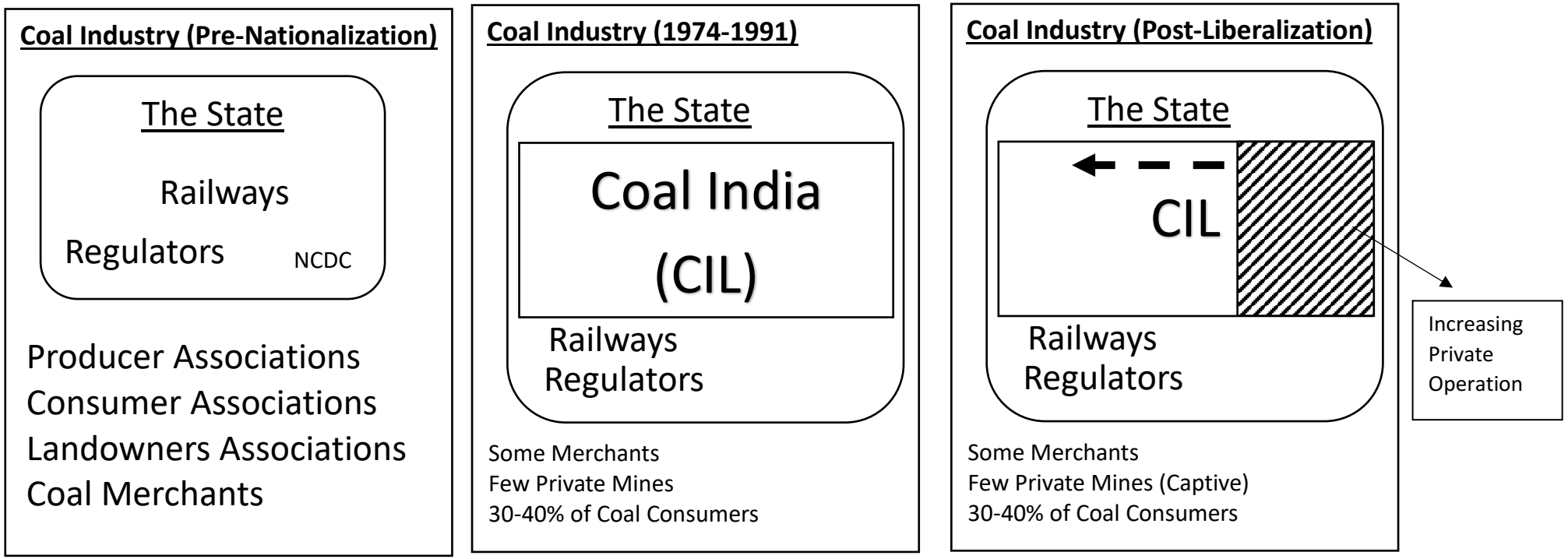
[102] World Bank. 1961. "Appraisal Report: The Indian Coal Industry." India - Coal Production Project (English). Technical operations projects series ; no. TO 287." Washington, DC: World Bank. pg.6-7 http://documents.worldbank.org/curated/en/566391468041669530/India-Coal-Production-Project

[103] In the early 1970s, the Chief Inspector of Mines was renamed the Director General of Mine Safety, and formally became part of the Ministry of Labour.

Ministry of Steel, Mines and Fuel, but the Coal Board set prices, approved licenses, and was involved much more in the day-to-day oversight. The Coal Controller, on the other hand, was responsible for logistical coordination and coal conservation.[104] The Coal Controller played an important coordinating function between the coal industry and Railways; since wagon availability and evacuation infrastructure was always in short supply, the Coal Controller was often involved in public debates with aggrieved producers and consumers. Finally, the Chief Inspector of Mines was the apex labour regulator in the mining industry. Responsible for not just coal, but all mines, they were responsible for maintaining standards for mine safety, and were expected to conduct random checks at mines to ensure that standards were being followed. De facto, the Chief Inspector of Mines had the power to shut down mines, but practically the office often had trouble enforcing orders because of its small staff and the increasing number of mines. It was this complicated institutional backdrop which nationalization tried to disentangle.

[104] Coal conservation refers to the economical use of coal, ensuring that there was no waste or misallocation to industries which were not considered useful. The idea of coal conservation carries in it a presumption regarding the optimal or most efficient use of coal, which was the prerogative of the government and by proxy, its regulators.

Figure 2.1: Institutional Configuration of Coal Industry (Pre-Nationalization, Nationalization to Liberalization, and Post-Liberalization)



In 1971 and 1973, the Indian Parliament passed two new laws which nationalized the coal sector and transferred control of all coal mines to the Central government. [105] The Coal Minister[106] at the time, well-known communist leader Mohan Kumaramangalam, published a short monograph justifying the nationalization of the sector, in which he explained:

> Rational and co-ordinated development of coal industry consistent with the principles of mineral conservation has been the rationale behind the nationalisation of coal industry in many foreign countries as in UK, France and East European countries....
>
> The takeover of the non-coking coal mines was thus a response to the historical situation. Further inaction on the part of the Government would have meant permitting the continuance of unsound mining methods including slaughter mining, uneconomic collieries, mismanagement, unfair labour practices including underpayment of workers and malpractices in sales; and more than anything else it would have meant giving up the objective of establishment of a single authority, to whom the task of massive development in coal production as well as conservation and optimum utilisation of our coal reserves could be entrusted.[107]

Kumaramangalam's critique of private coal companies was partially justified. Multiple committee reports in previous decades had found private coal companies delinquent on the labour front. Among their offences were delayed wage payments, taking undue advantage of government subsidies and using legal loopholes to hire cheap contract labour.[108] However, on the financial front, the critiques were less justified. "In saying all this, he ignored how the

[105] An interesting aside, which I do not have time to cover in this chapter, is the exclusion of select captive mines from nationalization. The Tata Iron & Steel Company (TISCO) was the only private company that benefited from this kind of preferential treatment (DVC and IISCO, SOEs, also had their mines excluded from nationalization). The CEO of TISCO, JRD Tata was close to both Indira Gandhi and Mohan Kumaramangalam had frequent personal correspondence with both leaders. This and TISCO's importance as a leader in the steel sector at the time was a potential reason for excluding their mines from nationalization. The fact that a former TISCO mining engineer, R N Sharma became the second Chairman of CIL also helped preserve Tata's coal mining interests.

[106] Given the increasing importance of power generation and coal in the Indian economy, the Ministry of Steel, Mines and Fuel was split up into separate ministries in the late 1960s. This created a new Ministry of Coal.

[107] Kumaramangalam, Mohan. Coal Industry in India: Nationalisation and Task Ahead. Oxford & IBH Publishing Company: New Delhi, 1973. Pg. 51-52.

[108] In particular, the Reports of the Coalfield Committee 1937 and Reports of the Coalfield Committee 1946, which were both high level committees set up by the central government to assess the state of coal mining in India. The latter report, also colloquially known as the Mahindra report, was particularly critical of the disarray in the Indian coal sector. Mohan Kumaramangalam tended to quote this report rather heavily in his justifications for the problems with the Indian coal sector.

public sector had failed to rely on internally generated resources, but more importantly how the government through its own policies had brought about precisely the situation he criticized: the socialization of savings forced the private sector – whether in coal or elsewhere – to go to public financial institutions for funds; the government either directly controlled prices, or its railways as almost a monopoly buyer dictated prices, which determined the coal industry's profits, and the threat of nationalization that constantly hung over the industry left little incentive for investment.[109]" The government's gradual stranglehold of both upstream finance and downstream consumption necessitated nationalisation for ideological consistency. But the private sector could not bear the blame for all the ills of the industry.[110]

The decision to nationalise coal was part of a growing dissatisfaction within the Indian government about the country's capitalist class and their lack of investment in industrial projects. Part of the larger systemic problem with the majority of India's large businessmen was their expectation of short-term returns. As Nasir Tyabji argues, "the existence of a class of businessmen does not automatically mean the existence of a group of industrially oriented entrepreneurs, because the development of industries is not necessarily the only money-making activity available to them.[111]" Describing the business class in India at the time, Tyabji argues that "[t]hey were part of an imperfectly formed group of industrialists possessing characteristics that reflected their background of engagement in non-industrial activities – activities with which they continued to be involved, event as they acquired control over

[109]Nayar, Baldev Raj. India's Mixed Economy: The Role of Ideology and Interest in Its Development. Bombay: Popular Prakashan, 1989. Pg. 302.

[110] For further critiques of the nationalisation, also consider
Kumar, Rajiv. "Nationalisation by Default: The Case of Coal in India." Economic and Political Weekly, 1981, pp. 757–68.
Das, Monindra Mohan. Fantasy of Coal Nationalisation. Howrah: M Das, 1975.

[111] Tyabji, Nasir. Forging Capitalism in Nehru's India: Neocolonialism and the State, C. 1940-1970. New Delhi: Oxford University Press, 2015. Pg. xxviii

industrial companies.[112]" In the first twenty year after Independence, Tyabji argues that the Indian government tried to "socially engineer" this group towards more patient investment in large industrial projects. But this was largely unsuccessful and public sentiment toward private companies had eroded to such an extent that state intervention became necessary in a much more hands-on way: through nationalization and abolition of managing agencies.

Mine owners who were dispossessed literally lost their assets overnight. In a familiar theme, a select few received compensation. Particularly in 1973, district collectors were already in touch with trusted government mining officials on how to go about dispossessing current owners. [113] As soon as the order was passed, accompanied by police, these collectors and mining officials would raid the offices of most of the major mine owners and confiscate all their files and records. Police were posted around most major mines to prevent civil unrest, although since this was a pro-labour move, it was mainly the managers and owners who were discontent. More than 600,000 people became government employees overnight. Trusted government mining officials became "custodians" of existing mines under a temporary body called the Coal Mines Authority Limited (CMAL). Within a few years, a formal holding company was created, called Coal India Limited (CIL).[114] Most of the top officials in CIL came from NCDC, but some were also inducted from the erstwhile managing agency coal companies.

CIL was birthed during troubled times. The immediate decision to nationalize was primarily political although the idea had existed in administrative imaginations for decades. Indira Gandhi, the Prime Minister, had estranged most of the establishment in the Congress Party in the early 1970s, and consequently had to seek support from a whole host of other

[112] Ibid. (xxviiii)

[113] In 1971, only coking coal mines were nationalized, which affected a relatively small region of the country around Dhanbad which provided high quality coal to the steel industry. The 1973 legislation affected **all** coal mines in India, which covered a much broader spatial range.

[114] Personal Communication. Shyam K Chowdhury. July 20, 2013.
Mr. Chowdhury was Chairman and Managing Director of CIL in the mid-1990s, and had joined the coal industry a few years prior to nationalisation.

national political leaders who tended to be far more left-leaning, like Mohan Kumaramangalam from the Communist Party of India. Since the stalwarts in the Congress were regional leaders, nationalization of industries was a convenient way of centralizing control in industries which tended to be dominated by state-level actors. As described earlier, the multiplicity of actors in the industry made it quite difficult to navigate. But with nationalization, in one fell swoop the producer associations were made irrelevant (because the government owned all the coal mines), the coal merchants were marginalized (because the government was the main producer and consumer of coal), and most of the functions of the regulatory institutions were gradually absorbed within CIL (as shown in the transitions in Figure 1).[115] [116]

This obviously alienated state governments completely. The fledgling industrial projects that West Bengal and Bihar had imagined in the early 1960s were also taken over by the Central government. So now there was no dispute over the Central government's control over the industry. However, the 1970s was also a period of severe industrial unrest. To allay these concerns to some extent, CIL was touted as one of the "model employers" in the industry.[117] CIL built housing for its employees, invested in the construction of large hospitals and had its own small army of doctors who were full-time employees. But perhaps the biggest impact of CIL was its development of industrial townships in frontier areas. Whether it was Korba in Madhya Pradesh, Chandrapur in Maharashtra, or Talcher in Orissa, CIL brought roads, electricity and the Central government's vision of the industrial modern to many parts of India.

[115] With the notable exception of the Directorate General of Mine Safety, which became part of the Ministry of Labour.

[116] Pg. 19. The New Sketch. June 25, 1973.

[117] For a good description of the public sector as a "model employer" during this period read,
Subramanian, Dilip. "'No Room for Class Struggle in These National Undertakings': Providing Social Welfare for Indian State Sector Industrial Workers (circa 1950–2000)." Modern Asian Studies, vol. 49, no. 5, 2015, pp. 1526–79.

This development fundamentally changed the nature of bargaining between Central and State governments over coal. Prior to nationalization, there was at least a sense that States could stake a claim on coal resources within their borders. After nationalization, it was clear that this would not be possible; the nature of the federal compromise had been fundamentally changed, mainly through the Central government's coercive power of expropriation. No longer was there a façade that industrial policy would somehow be jointly determined between States and the Centre; Indira Gandhi had taken away multiple levers from states through the nationalization of not only coal, but banks and insurance as well. States lost direct access to both capital, and a key input to their industrial ambitions. The time for long, tedious, multi-party conferences like the one described earlier in this chapter were over. Now negotiations would be had directly with the Central government, or its representatives.

The carrot that was given to States was that they would now be fiscally compensated for the resources extracted within their territories by Central government SOEs. The MMDR Act, 1957 and Mineral Concession Rules, 1960 had already established a royalty regime with respect to minerals. This meant that all mining companies (public and private) owed state governments either a percentage or an ad valorem payment per unit of mineral mined within their territories. On top of this, various cesses were added to coal production by States to generate extra revenue. After nationalization, the Central government was responsible for setting the royalty rate, the price of coal and for paying royalties state governments through CIL. Naturally this led to all kinds of perverse incentives, where the royalty rates remained low for extended periods and payments were often delayed. Even before nationalization, government increases in royalty policies without corresponding increases in coal prices had generated much discontent among private miners.[118] It was perceived as a way of squeezing

[118] Verghese, B G. "THE NATIONAL SCENE: Juggling With The Core." The Times of India (1861-current); Mar 12, 1958; ProQuest Historical Newspapers: The Times of India. pg. 6. Online.

profits out of the private sector into public coffers. But since mineral royalties were a major part of State budgets, it wasn't only private sector companies who were affected. Bihar faced severe budgetary problems in the aftermath of nationalization when royalty payments temporarily ceased during the transfer of power from private companies to CIL.[119] Over the next four decades, royalties would become a key axis of federal bargaining between states looking to get a more revenues and a Centre which had rights and control over all major minerals.

As Figure 2.2 and the maps in Figure 2.3 show, the locus of the coal industry changed considerably after nationalization. By the early 1990s, Madhya Pradesh, Orissa and Andhra Pradesh experienced much more production growth than the historical coal centres in West Bengal and Bihar/Jharkhand. In part, this was due to the politics of the latter two eastern states which led to stronger, and assert physical control over the industry, occasionally through criminal means. It is almost universally accepted among coal industry professionals that the criminalization of the coal industry expanded after nationalization.[120] In some ways, the political cost of nationalization was that the Central government often looked the other way when it came to petty and large-scale coal theft, as it was an important source of electoral financing for local politicians.

[119] "Bihar govt. asks for higher coal royalties." (1975, May 14). The Times of India (1861-Current). ProQuest Historical Newspapers: The Times of India. Retrieved from http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/739053397?accountid=11311.

[120] Bharti, Indu. "Usurpation of the state: coal mafia in Bihar." Economic and Political Weekly (1989): 2353-2353.

Figure 2.2: State Level Coal Production (1951-2010)

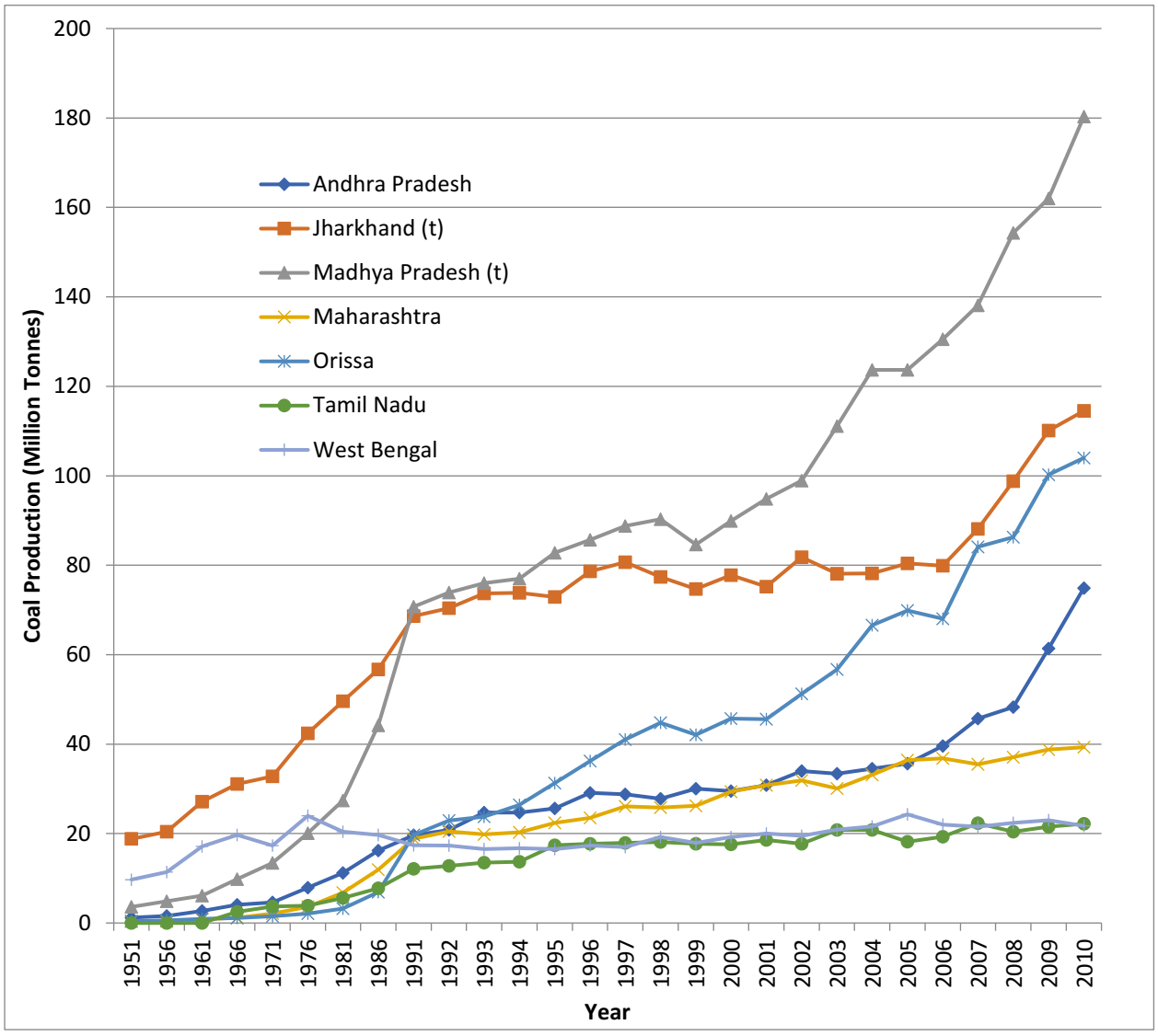
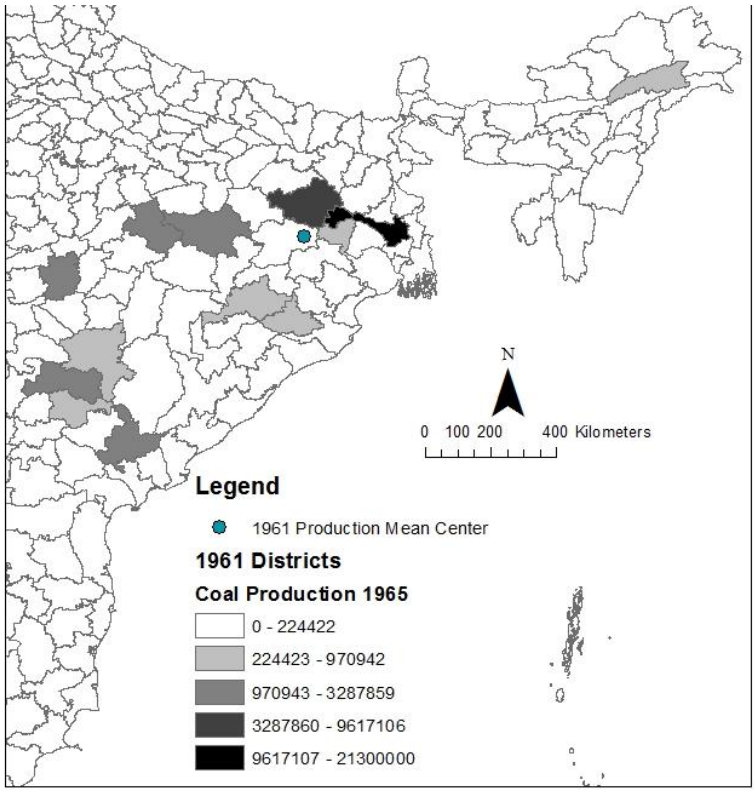
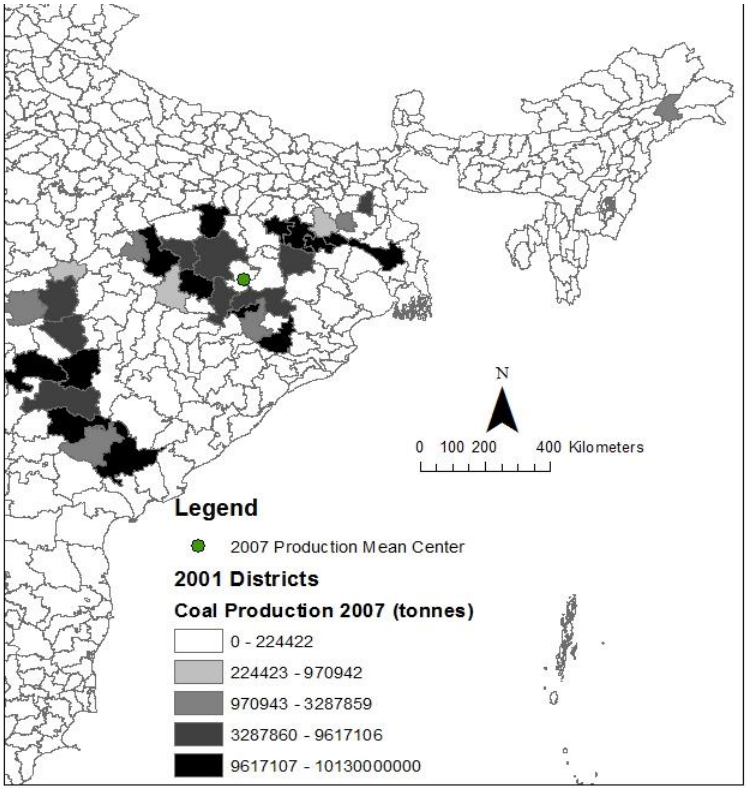


Figure 2.3: Indian Coal Production: 1965 and 2007





There were two main reasons for the increased criminalization of the coal industry after nationalization. The first was a definitional shift which officially made many uses of coal illegal. The Coal Mines Nationalisation Act, 1973 (CMN) narrowly circumscribed the "approved end uses" of coal to a handful of industries: power, cement, railways, steel, sponge iron and a few others which could be additionally notified by the Central government. Unfortunately, this definition completely ignored the extensive dependence of small and medium enterprises (SME) on the coal industry: brick kilns, cotton mills, glass factories and many other small industrial units scattered around West Bengal, Bihar and Uttar Pradesh all became illegal users of coal overnight. While the exact intentions behind this definitional change are not well understood, the result was clear; there was no longer an open coal market and resource allocation had transitioned from market to administrative processes.[121] A small amount of coal was made available to State governments for sales to SMEs, but these allocations were often insufficient. If central planners did not officially allocate an industry coal, it inevitably would have to find extra-legal ways of obtaining fuel, or face bankruptcy.

To get a sense of the magnitude of alienation of SME coal consumers consider the following. In 1972 there were about 70 large glass factories in India, only 13 of which were fully automated.[122] The total capacity of these plants was about 215,000 tonnes of glass per year. Assuming the fully automated plants are running on electricity, it is likely that most of the others had less regular sources of electricity, and hence depended on coal as their primary energy source. Glass as an industry is incredibly energy intensive, because of the sustained high temperatures needed to melt the silica in sand and shape it. If we conservatively assume that about two-thirds of the plants are using coal, and that about seven tonnes of coal are needed

[121] Even today, the Chandasi coal market outside of Varanasi is one of the largest coal black markets in India. In Chapter 4 of his book, Subhomoy Bhattacharjee gives many details on the criminal networks that operated these black markets in different parts of India.
Bhattacharjee, Subhomoy. India's Coal Story: From Damodar to Zambezi. Sage Publications: New Delhi, 2017.

[122] "A Matter of Raw Materials?" Economic and Political Weekly 7.8 (1972): 441–442. Web.

to produce one tonne of glass[123], then the industrial requirement just for the glass industry is about one million tonnes of coal.[124] If we conservatively assume the same amount for cotton, paper, and brick industries then we get to about four million tonnes of coal, out of an annual production of about 75 million tonnes in the early 1970s. This was about 5.0% of India's overall coal production at the time. But the employment of these SMEs was much larger than the capital intensive heavy industries which were legitimate end users of coal, making them an important political constituency. In fact, in 1981 employment in smaller factories and non-factory manufacturing units was around 17 million employees, more than double the large factory employment (6.9 million).[125] Neither state nor Central governments could not afford to let these companies fail, which meant that they often ignored the rise of coal black markets as a pragmatic response to the excessive constraints of the CMN Act. What used to be legitimate state claims on coal resources had now been partially forced underground.[126]

Not surprisingly, the administrative response by some states, most significantly West Bengal, was to increase cesses on coal production on top of existing royalties. Until the 1970s, political relationships between the Centre and States were relatively easier to manage because of the Congress party's dominance. In the early years this depended largely on Nehru's personal relationships with Chief Ministers of various states and their common background in the Indian nationalist movement. After his death in 1962, the Syndicate (a group of powerful Congress state leaders) took his place, coordinating between the Centre and various States to

[123] Recent estimates in the EU place the specific energy demand of glass at about 5 GJ/Mg in the late 1990s. Coal has a specific energy of about 24 MJ/kg. If we assume thermal conversion is 70% efficient, then the ratio of coal input to glass output is about 7:1 (with very conservative estimates).

[124] This is not a heroic assumption given how much of the industrial base at the time was still not connected to the electrical grid.

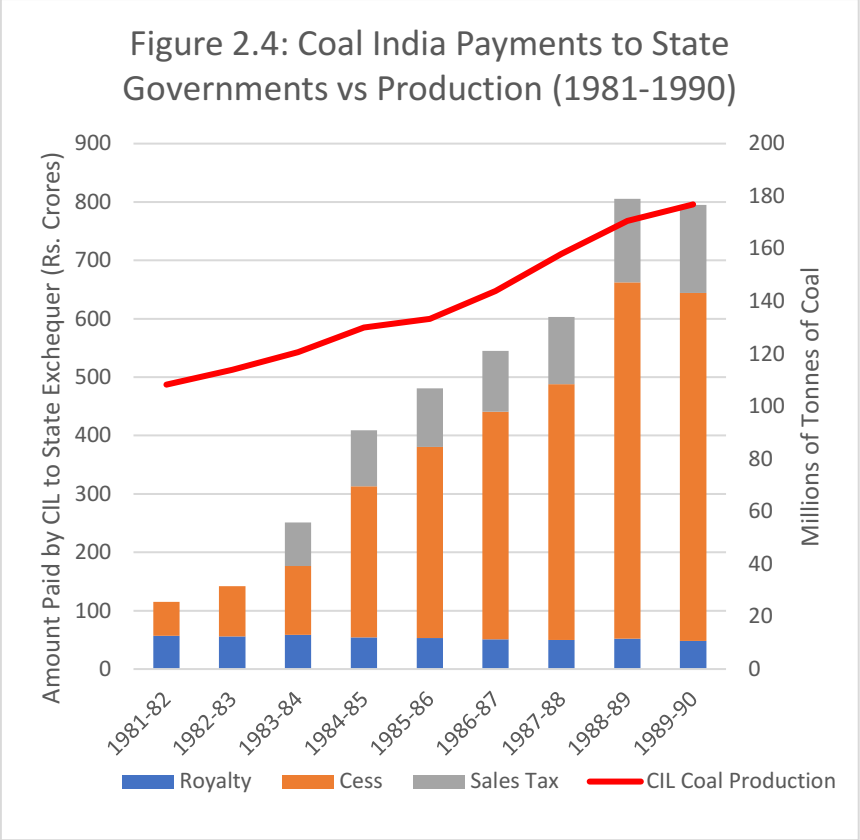
[125] Eapen, Mridul. "Structure of Manufacturing Workforce: A Preliminary Analysis of Emerging Tendencies." Economic and Political Weekly (1984): 1454–1456. Print.

[126] A more detailed analysis of the bottom-up political processes that facilitated criminalization is given in the chapter on labour and local politics.

maintain the party's dominance. However, after the Congress' disastrous electoral results in 1967, the emerging fissures between Indira Gandhi and the Syndicate widened, and the party split. "The balance was lost once the Congress party split (1969), and Prime Minister Indira Gandhi took to the strategy of radical rhetoric and strong centralized personal leadership. In consequence, the regional accommodation, which had been possible by way of the internal federalization of the Congress party, was subsequently eroded.[127]" Non-Congress state governments became bolder, willing to take steps in opposition to perceived Central overreach. Unsatisfied with the slow and marginal revisions in royalty rates, during the 1980s, state level cesses and taxes on coal production rose dramatically (see Figure 3[128]). Payments to state governments increased more than four-fold over the 1980s whereas coal production increased about sixty percent. Over 10% of the landed price of coal became royalty, cesses and taxes. Between informal markets and fiscal transfers from the Centre, state governments were reclaiming at least some of their lost agency.

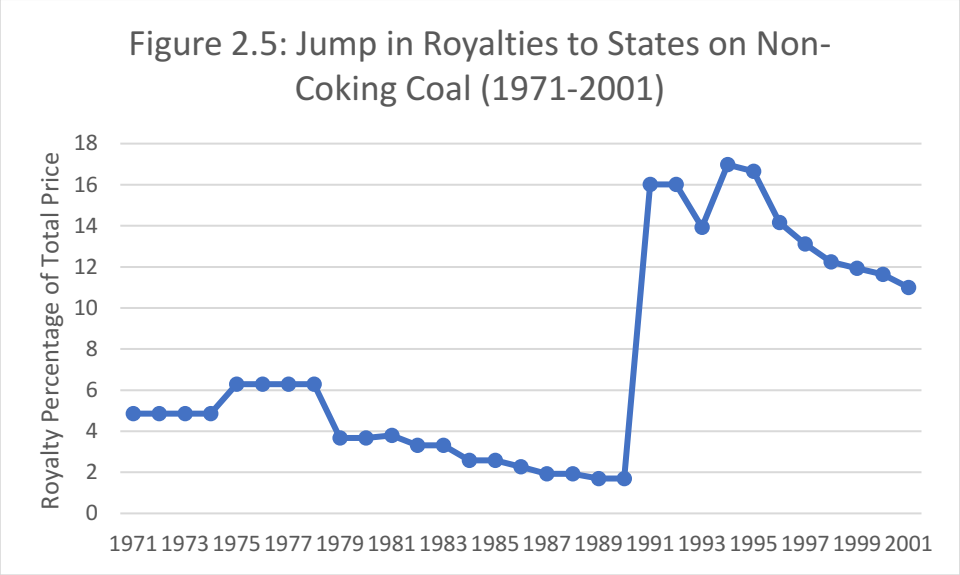
[127] Mitra, Subrata and Malte Pehl. "Federalism." Ed. Jayal, Niraja Gopal, and Pratap Bhanu Mehta. The Oxford companion to politics in India. Oxford University Press, 2010.

[128] Figure 3 contains inflation adjusted royalty, cess, and sales tax data from CIL's annual reports. Unfortunately, sales tax data is not available for the first two years.



But India's balance of payment crisis, and the following reforms to CIL and other SOEs had a major impact on state governments' ability to extract rents from these companies. In fact, in the early 1990s, there was a huge upward revision in royalties on coal as a way of partially compensating state governments for lost revenue and rents due to SOE financial reform (see Figure 2.5[129]).

[129] Data in Figure 4 comes from, Table 5.8 in the below Planning Commission report,
Rao, Hemlata et al. "Economic and Fiscal Impact of Royalty Rates of Coal and Lignite in India." May 2003. < http://planningcommission.gov.in/reports/sereport/ser/stdy_coal.pdf >



Political Claim-Making at the Federal Level

One of the Congress Party's responses to increasing political contestation in coal-bearing states was to adopt a more direct patronage strategy using ministerial allocations; a practice which has persisted.[130] This was reflected in the regional origins of the Cabinet minister overseeing coal and energy. Post-nationalisation, running the coal ministry was not only a policy role overseeing private actors, but an active role in shaping the expansion, contracting, and appointment of executives of Coal India and the allocation of coal as part of India's larger industrial project. As we can see in Table 2.2, from the early 1980s onwards, the political control of the industry shifts east. Initially, technocratic ministers like T A Pai, and K C Pant run the sector. With strong connections to the Planning Commission, it was during the mid to late 1970s that the expansion of the technocratic base of the Indian coal industry took place. Extensive collaboration with Poland and the Soviet Union during this period ensured that Indian mining technology shifted from its traditional base of underground mining to more economical opencast approaches. But from the early 1980s onwards, as the Congress' traditional base was slowly uprooted, the Coal Ministry became a reward for coalition partners

[130] I am grateful to Devesh Kapur for this idea.

or strong regional leaders. P C Parakh's account shows, by the mid-2000s, regionally powerful Coal Ministers are making all kinds of inappropriate claims on Coal India through their position.[131]

Table 2.2 – Ministers of Indian Coal Sector Post-Nationalization

Period	Ministry	Minister	State
1971-1973	Steel and Mines	Mohan Kumaramangalam	Pondicherry
1973-1974	Steel and Mines	T. A. Pai	Tamil Nadu
1975-1976	Energy	K C Pant	Uttar Pradesh
1977-1979	Energy	P Ramachandran	Tamil Nadu
1980-1984	Coal and Energy, Railways and Programme Implementation	A. B. A. Ghani Khan Choudhary	West Bengal
1985-1986	Steel, Mines and Coal, Energy	Vasant Sathe	Maharashtra
1988-1989	Coal (Minister of State)[132]	C K Jaffer Sharief	Karnataka
1989-1991	Power and Energy	Arif Mohammad Khan	Uttar Pradesh
1991-1993	Coal (MoS)	P A Sangma	Meghalaya
1993-1995	Coal (MoS)	Ajit Panja	West Bengal
1995-1996	Coal (MoS)	Jagdish Tytler	Delhi
1997	Coal (MoS)	Kanti Singh	Bihar
1998-1999	Coal(MoS)	Dilip Ray	Orissa
2000	Coal(MoS)	N T Shanmugham	Tamil Nadu
2001-2002	Coal	Ram Vilas Paswan	Bihar
2002	Coal (Deputy Prime Minister retains portfolio)	Lal Krishna Advani	Uttar Pradesh
2002-2003	Coal	Uma Bharti	Uttar Pradesh
2003-2004	Coal	Kariya Munda	Jharkhand
2004	Coal	Mamata Banerjee	West Bengal
2004-2006	Coal	Shibu Soren	Jharkhand
2007-2012	Coal (Prime Minister retains portfolio)	Manmohan Singh	Assam
2012-2014	Coal	Sriprakash Jaiswal	Uttar Pradesh
2014 – Present	Coal (MoS)	Piyush Goyal	Maharashtra

[131] Parakh, P C. Crusader or Conspirator: Coalgate and Other Truths. Manas Publications: New Delhi, 2014.

[132] Ministers of State are often appointed as junior ministers in the Cabinet, assisting the .

The labour force at CIL became increasingly politicized as politicians attempted to give their constituents and party workers jobs in the company. This was particularly true in West Bengal and Bihar/Jharkhand, where for long periods the employment of the CIL subsidiaries in those states far exceeded what was necessary for coal production. Evidence began emerging about the absenteeism and free-riding of certain groups of CIL employees. One of the key leaders who institutionalized these practices was A.B.A. Ghani Khan Choudhary, a Congress stalwart from Malda in West Bengal.[133] Earlier in his political career he had been the Power minister of West Bengal. During the 1980s he held both the Railways and the Coal ministries at different points. Choudhary's blatant disregard for both public sector technocrats and company's hiring practices emerged in many of my interviews.[134] One of the stories about him is worth repeating here, not necessarily for its factual accuracy, but for its demonstration of how some regions viewed SOEs at the time.

> Barkat-da (a familiar term for Choudhary) was a great man for Bengalis. Government companies were opening left and right all over Bengal, but most of it was extractive; they wanted our coal, they wanted our land, they wanted our water. What were we getting in return? We were stuck with the Communists who were busy killing industry in our state. The public sector was by far the most secure source of employment for any young Bengali. Barkat-da made sure that the next generation of Bengali youth would have jobs. He would go from village to village in his constituency, take the name of one young man, and ensure public sector employment for them.[135]

Thus, not only CIL, but most SOEs became enmeshed in this battle of comparative extraction between the Centre and States. Whether it was through fiscal means and taxation, criminal means and coal theft, or pressures for additional employment, keeping

[133] Rather belatedly, Choudhary was eventually indicted for his ministerial overreach and illegal patronage approach to politics in 1996.
"Court indicts two ex-ministers." (1996, Feb 20). The Times of India (1861-Current) Retrieved from http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/595618004?accountid=11311

[134] Former Chairman of CIL. Personal Interview. 31 July 2015.

[135] Political Fixer in West Bengal. Personal Interview. 15 August 2015.

operations running at an SOE like CIL during this period was nothing like running an idealized private corporation. Rather it was a much more complicated exercise where, on a daily basis, multiple levels of mine and company managers were triangulating between top-down political demands, bottom-up social demands, in addition to the financial and technical constraints faced by a normal, profit-seeking corporation. The individuals who navigated this maze became some of the most administratively entrepreneurial and effective bureaucrats in India (discussed in greater depth later in the paper).

Naturally, India's economic liberalization in the early 1990s disrupted the existing system considerably. Like many other SOEs, CIL was highly dependent on budgetary support from the Central government, both as direct allocations from the Ministry of Coal (MoC), and as project specific allocations from the Public Investment Board (PIB). Among the reforms in the early 1990s was cutting the umbilical cord between the Central government and SOEs; most large SOEs would be expected to finance their own projects. Until this point, the government had been maintaining a low price of coal, but subsidizing CIL's projects. Until 1985-86, more than 95% of CIL's annual capital outlays came through budgetary support. Requiring a move from this extreme to completely financial self-sufficiency was a huge shock to most SOEs, and one that they were not equipped for. Existing practices of advancing coal to State Electricity Boards (SEBs) without payment, tolerating long delays in payment from customers, and liberal welfare spending would all have to change quickly if CIL had any hope of becoming profitable. In the words of the then Coal Minister, P A Sangma, "it had to be decided as to whether Coal India was to be operated as a commercial organisation or a service organisation.[136]"

[136] "Coal India to lose central support." (1991, Sep 25). *The Times of India (1861-Current).* Retrieved from http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/609899803?accountid=11311

CIL faced severe financial problems between 1991-1995, and mounting losses forced the company and the Indian government to seek outside help. Ultimately CIL took more than $1 billion dollars in consolidated loans from the World Bank, JICA and the Government of India (GOI) to restructure the company. It was clear that the approach CIL had used over the last fifteen years would now have to change drastically. And among these changes was a high-level policy decision regarding private mining which would have long-reaching consequences. The CMN Act had basically given the state a monopoly on coal mining, but it was clear that CIL was not currently able to grow India's coal industry. On the other hand, multiple cash-rich private companies had emerged in the private sector, and were interested in building power plants. While CIL was unable to supply them with coal, it had developed a process called blocking, where a larger, continuous coalfield was parcelled into geographically continuous blocks which could be developed and mined independently of each other.[137] At the time, CIL had over 100 blocks which were unlikely to be developed any time soon given the company's financial troubles.

Seeing an opportunity to spur investment in India's stagnating power sector and in line with the prevailing direction of economic liberalization, the government took a decision to allow allotment of captive coal blocks to companies who qualified as "approved end users" under the CMN Act. These could be either private companies or other SOEs. An amendment to the CMN Act was quickly put together and a notified without much fanfare. "The amendments of 1993 must rank among the briefest ones ever made into an economic sector law in India. The entire bill was a two-page gazette notification without any explanatory clause or scope to write detailed rules under it. Once the amendments were in place, Sangma's team at the coal ministry was sure that the central government could notify coal blocks to companies

[137] Sachdev, R K. Personal Interview. 4 May 2016.

that could show they needed one.[138]" Among the main mechanisms set up by Sangma during this period was a screening committee, which would periodically judge applications for and make determinations regarding allocations of coal blocks. More than twenty years later, it was this committee's decisions and the relatively hasty manner in which it was assembled that would be questioned, escalating to the Coalgate scam from 2012 onwards. But for the time being, the Central government had established an administrative mechanism to allocate coal to public and private companies other than the existing coal companies, which were in bad shape. This was a major change which allowed states renewed access to coal resources, although still mediated by the Central government.

Applications to the screening committee were initially limited, and often came with significant, legitimate state government support. The earliest proposals in front of the committee, in 1993, came from CESC with Jyoti Basu's recommendation, a joint sector power project in Tamil Nadu with Jayalalitha's recommendation, and an Australian firm which had the backing of the Rajasthan government for a project in Barsingar.[139] As Table 2.3 shows, the first decade of the screening committee's operation was slow and methodical. But there was a sudden acceleration in allocations in the late 2000s, and the rationale behind the allocations were increasingly opaque. Even before the allocations were eventually investigated, this had been noted both by coal sector bureaucrats, and by government committee reports evaluating resource allocation policies.[140] [141] As a consequence, coal block allocation became yet another bargaining chip for Central governments. For example, states in opposition to the Central government, or states with lesser financial bargaining power would have to provide either

[138] Ch. 5, Bhattacharjee, India's Coal Story
[139] Ibid.

[140] Ch. 14, Parakh, Crusader or Conspirator

[141] Cabinet Secretariat, Government of India. Report of the Committee on Allocation of Natural Resources. 2011. Retrieved from http://www.cuts-ccier.org/pdf/Report_of_the_Committee_on_Allocation_of_Natural_Resources.pdf

political guarantees. In one notable example, the Bihar government was willing to back the Congress party's nominee for President in return for a coal block allocation because of the state's huge power deficit problems.[142] Thus, while coal block allocation initially gave State governments some access to coal if they could make a good commercial argument for it, the process ultimately failed because the sanctity of the allotment process could not be maintained.[143]

Table 2.3 – Screening Committee Details[144]

Time Period	Number of Screening Committee Meetings	Number of Coal Blocks Allotted
14/07/1993 to 19/08/2003	21	21
04/11/2003 to 18/10/2005	9	26
29/06/2006 to 08/09/2006	3	20
20/06/2007 to 03/07/2008	2	38

However, all the commotion over coal blocks allotment, while important from a legal standpoint, was less than 10% of overall coal production in India at its height. CIL and its subsidiaries continued to produce the vast majority of coal in India, so State governments cared far more about the internal processes of CIL after liberalization and financial restructuring. Not surprisingly, contracts and tenders floated by CIL increasingly became an important source of local patronage. And these terms of these contracts, how they were awarded, and the nature of the interaction between CIL and private companies was mediated through various

[142] Senior Journalist in Patna. Personal Interview. 14 July 2012.

[143] This chapter will not go into the minutiae of the 2012 coal scam, which has been adequately covered both in media and other popular literature. Ch. 5 of Bhattacharjee's India's Coal Story provides a good summary of the scam and its immediate consequences.

[144] These data are taken from the Supreme Court judgement which struck down the allocation of the captive blocks.
Manohar Lal Sharma vs. *The Principle Secretary & Ors.* SCC. Judgement delivered on August 25, 2014. WRIT PETITION (CRL.) NO. 120 OF 2012.

bureaucracies, whose role shifted in the post-liberalization era, but who remained powerful, albeit in different ways.

Competing Bureaucracies

The legacies of British governance left a tradition of strong bureaucracies in India. This was true not only of the Indian Administrative Service (IAS), the elite federal civil service, but also of other organizations which were formed in the first few decades after Independence. Actors in the Indian coal industry interacted with multiple bureaucracies; the IAS, the Directorate General of Mine Safety (DGMS), Coal India, the Ministry of Coal, and Railways to mention a few. Much of the implementation of federalism and the mediation between Central and State level demands were made by the officers of these bureaucracies. As mentioned earlier, these bureaucrats were often triangulating between many different claims made on their organizations. The interplay between these bureaucracies had major implications for federalism in the Indian coal industry.

Before jumping into the nature of the interaction between different bureaucratic organizations, it is important to understand how drastically nationalization changed potential career trajectories in the coal industry, especially at the managerial level. In the pre-nationalization era, mines were managed mainly by representatives of their owners. For a fresh mining engineering graduate, life began as a shift manager at a mine, and, if successful, culminated as a Chief Mining Engineer in a large managing agency firm. Chief Mining Engineers often oversaw multiple mines, did high level mine and production planning, were the primary representative of managing agencies with regulators (DGMS, Coal Controller, Railways), and also dealt with politicians. Except for very large companies like Tata Steel or Bird & Co., owners rarely bothered with the minutiae of the industry. In many ways, it was

necessary to have an individual who understood and could engage with "mining culture."[145] This included things like labour negotiation and incentives, understanding when concessions should or should not be made, dealing with perennial theft and criminality and political arrangements to prevent work disruptions. This also meant having the ability to deal with the inevitable human costs of mining during accidents. During this period, mining engineers were political actors, but their interactions were usually restricted to local or state level politicians. Given the small size of most mines, mining was by design a local activity.

Nationalisation changed all of this. Through the formation of CIL, multiple hierarchies were created. Initially, CIL had only four subsidiaries, but by the mid-1990s CIL had seven regional companies which covered the entirety of eastern India (Appendix A contains details of CIL's structure). Smaller mines were amalgamated into larger Areas, regional subsidiaries consisted of 15-20 Areas, and each of these units were eventually managed by a mining engineer. Area managers regularly interacted with local politicians, subsidiary Chairmen regularly interacted with major state politicians, and the top management of CIL were regularly interacting with the most important politicians in the country. Over the course of a career, a successful mining engineer at CIL could now aspire to rub shoulders with Cabinet Ministers and potentially even become a Secretary level officer in the Ministry of Coal. Mining engineering had transformed from being an extremely well-paying, borderline blue-collar job to a potentially life-transforming job with national respectability and status. Naturally all mining engineers started at the mine, but within a decade they could graduate to essentially white-collar status. An interview with a subsidiary chairman of BCCL, T K Lahiry, illustrates this transformation.

[145] Sahay, A N and Raman Srikanth. "Perspectives on Private Participation in the coal industry." Brookings India. 12 August 2016. Panel Discussion.

Lahiry: So tell me, why was the Mahabharata started?

Me: The conflict between the Pandavas and the Kauravas over land?

Lahiry: No. The Mahabharata was started because Lord Krishna decide to draw a line between what was right and what was wrong.

Me: So are you saying that you drew such a line here in Dhanbad?

Lahiry: Well that would be presumptuous, but there have certainly been many changes while I have been in charge of BCCL. I am more popular in this district [Dhanbad] than the District Collector. We provide water to villages. We have our own foundations which provides employment and livelihood opportunities to women. We have undertaken public works projects which the district administration could not. And BCCL has also turned around financialy in the last five years. We are one of the most profitable parts of CIL.

Me: Dhanbad has been a notoriously difficult place to work. How do you manage the political pressure?

Lahiry: You have be strong-willed. The first day I joined here I had various politicians bully their way into my office and try to tell me what to do. People used to walk into the BCCL head office like it was a market. I chased them all out, and established strict security procedures for entering our offices. No one would be allowed to intimidate us.[146]

This nascent national coal bureaucracy had to quickly adapt to collaborating with or competing with other bureaucracies for political and operational space. Strictly speaking, CIL had control only over mining operations. However, to undertake mining and ensure delivery of coal to end consumers, there were many considerations before and after mining. Prior to mining, land had to be acquired, people had to be relocated and compensated, physical security had to be ensured, and settlements had to be reached with local communities. This required interaction with district and state administration (often in the form of IAS officers and their subordinates), local police (IPS officers and their subordinates), labour commissioners, and forestry officials. After coal was mined, it was transported (primarily by Indian Railways), and then used by an array of consumers (initially railways, but more importantly power, steel,

[146] Lahiry, Tapas Kumar. Personal Interview. 30 April 2014.

sponge iron and cement) each of which had a some amount of state control in the pre-liberalization era. Considering that the pre-nationalization economic environment had pervasive price controls, the relative profitability of an upstream industry like coal depended partially on the ability to get preferential treatment from the GoI relative to downstream industries: it was often a battle for relative subsidization between upstream and downstream organizations. This meant repeated negotiations with the various branches of Indian Railways over freight pricing, and with State Electricity Boards (SEBs) and other SOEs in the steel and power industries for coal prices. Two cases in particular will illuminate how these inter-bureaucracy interactions played out over the last fifty years.

Railways

After nationalization, CIL and the Ministry of Coal were competing for subsidies, project funding, pricing decisions, and operational autonomy with a bevy of other bureaucratic organizations which were more entrenched and arguably more mainstream. The foremost among these was Indian Railways and its associated institutions. Unlike coal, Railways had been controlled by the government since Independence, and had a huge footprint throughout eastern India. In fact, large parts of the Railway network in eastern Indian had been developed specifically to transport coal from pithead to end use. Around Independence, Railways was both the largest consumer of coal, and the monopoly transporter for other consumers.[147] Consequently, Railways had major power in determining the price of coal. As mentioned earlier, coal was a fractured industry during this period, and had very little bargaining power. Larger companies could ensure wagon availability for evacuation of their coal, but smaller mines and producers were constantly struggling for consistent and reliable transport of their

[147] Almost one-third of all Railway freight business was coal at the time of nationalization. Pg. 29. The New Sketch. 19 July 1976.

coal. In fact, this was the vacuum that led to the rise of coal merchants, who could mediate between producers, railways and consumers.[148] However, nationalization changed all of this.

CIL now could negotiate with Railways as an organization with equal power and representation in the Central government. Instead of having the long, deliberative conferences described earlier, and entire ministry now represented the interests of the coal industry in the central government. While CIL could not set its own prices, the Ministry of Coal could now make representations to the Planning Commission, the Public Investment Board, and other federal institutions regarding the necessity of increasing coal prices, allocating more money to CIL projects, and giving greater autonomy to subsidiaries to undertake non-mining activities. Between nationalization and liberalization, CIL grew not only as a mining company, but also a company that built housing for hundreds of thousands of employees, built public infrastructure (power, roads) in remote mining regions, and a provider of healthcare services to millions of people in the coal belt (beyond just its employee base). Particularly in Bihar and West Bengal, CIL started competing with Railways not only for project cost allocations, but also as an alternative source of welfare provision in these poorer states. During this period, the profitability of companies was not nearly as important as the ability to spend large amounts of money (and possibly use some of it for patronage and political power).

As a consequence of the bureaucratic equalization between coal and railways, conflicts between bureaucracies and ministers of the two industries became more common. Especially during the coal shortages of 1970s, recriminations often flew back and forth. Coal officials would argue that the coal had been raised, but was not being transported in a timely manner because of wagon shortages and train delays.[149] Also, since coal was transported in open wagons, there was a widespread practice of people jumping onto slow-moving or stationary

[148] Kumar, Naresh. Personal Interview. 22 May 2016.
[149] Steps to speed up coal movement. (1972, Mar 22). *The Times of India (1861-Current)* Retrieved from http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/609058488?accountid=11311

wagons to shovel out coal over the sides. Such theft was considered to be a result of Railways' lax security and even potential collusion of regional officers with thieves.[150] On the other hand, Railways would argue that CIL was covering up its underproduction of coal by filling wagons with stones and other materials. It also argued that without long-term planning cooperation, with estimates and forecasts of mining output, it could not build infrastructure to manage the increasing load of coal. All of these arguments had elements of truth in them; neither organization was particularly efficient and both were plagued with internal problems. As one newspaper at the time put it, "[t]he unseemly feud between the railways and CIL is, however, only a symptom of a deeper malaise that afflicts many other state-owned undertakings, not to speak of several ministries of the Union government. Either to escape criticism for poor performance or in a spirit of upmanship, they have been freely attacking one another in public.[151]" Not surprisingly, consumers suffered in this process. Representatives of coal consumers would bounce back and forth between railway and coal offices trying to ensure timely delivery of quality coal to their plants. Industrial units had low utilization rates, power production was affected, and the overall industrial project was severely handicapped by this lack of coordination, particularly in the late 1970s and early 1980s.[152]

CIL's response to this problem was to start substituting parts of the coal transportation process towards the road, using heavy trucks to hundreds of millions of tonnes of coal per year (see Figure 2.6). While this was financial more expensive, the inability of the railway system to cope with the increased coal load was becoming a liability. As a consequence, CIL was able to at least partially de-link its supply of coal from railways.

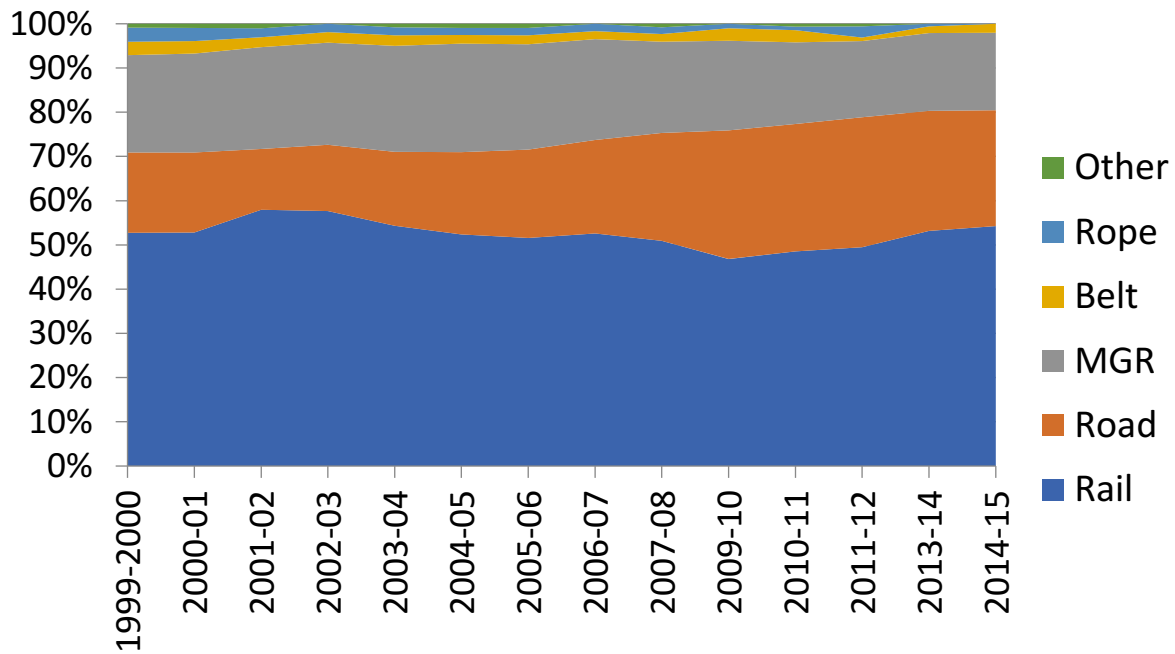
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[150] Saksena, N. S. (1980, Nov 07). Growing crime on railways. *The Times of India (1861-Current)* Retrieved from http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/609703212?accountid=11311

[151] UNSEEMLY FEUD. (1978, Apr 10). *The Times of India (1861-Current)* Retrieved from http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/750803405?accountid=11311

[152] Jha, Prem Shankar (1981, Dec 14). Struggle for survival. *The Times of India (1861-Current)* Retrieved from http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/500067135?accountid=11311

Figure 2.6: Expansion of Road-Based Coal Transport



After liberalization, neither CIL nor Railways were able to adapt to the profit motive particularly well. CIL ended up needing a massive World Bank loan for internal restructuring, whereas Railways remained a perennially subsidized company, primarily because of its public facing nature. Comparatively, Coal India's performance was able to improve faster because of partial decontrol of coal prices starting in the early 2000s onwards. As a consequence, by the mid-2000s Coal India was a self-sustaining, profitable SOE paying dividends to the GoI. Railways on the other hand was not able to change its passenger fares as quickly; freight income had always made up the bulk of railway earnings and the inability to raise passenger fares prevented Railways from becoming self-sufficient. Not surprisingly, in recent years, CIL has actually started funding parts of its own railway connections to main lines, and has also contributed funding to the new dedicated freight corridor projects which will further help by separating passenger and freight logistics. Railways may have won some early battles, but coal has been winning the war.

Police, Security, and Theft

Coal theft in the Indian coal industry has always been a problem, but it is uniformly agreed in the industry that the scale of theft and pilferage increased considerably *after* nationalisation. One big reason for this was given earlier; nationalisation alienated a group of small, but significant industrial consumers who were forced to resort to black markets to obtain coal. But another, and perhaps more insidious part of the industry has been the widespread collusion of law enforcement and local administrations in the coal theft process.

Prior to nationalisation, the fractured nature of the coal industry made small scale coal theft easier. There were hundreds of mines, with variable security, and employees taking small amounts of coal for household use was not an unusual form of informal compensation. Some coal merchants were involved in diverting high quality coal, and grade dilution, but the scale of such activities was limited. The people with real control in the industry were the labour contractors, who used their influence and muscle to recruit labour for various mines. Especially in areas like Dhanbad, it was common for smaller mine owners to come to an understanding with labour contractors, in return for a regular, seasonal flow of employees and freedom from harassment and strikes. But the price of this control was often worker intimidation and the persistence of poor working conditions. Many established coal syndicates in Jharkhand and West Bengal, like Singh Mansion in Dhanbad, can trace back their origins and leadership to labour contracting in the 1950s and 1960s.[153]

The rise of these criminal syndicates coincided with the weakening of state institutions by Indira Gandhi. "The political class's particular reliance on criminals, gangs, and assorted toughs posed a complex quandary for the politicians because they had to find ways of awarding protection to such nefarious characters in exchange for their cooperation. This meant, above

[153] "How fortunes flowed with blood." The Telegraph. 23 March 2017. Online https://www.telegraphindia.com/1170323/jsp/jharkhand/story_142138.jsp

all, that the police had to be neutralized. The chosen solution was to ramp up political control of the police and remove any semblance of a firewall between the people making the laws and those actually implementing them.[154]" In most coal-bearing areas, the coal industry played an important role in political financing and consequently most coordinated criminality had informal political backing. In such an environment, it was difficult for the police to act without facing consequences for interrupting politicians' cash flows.

What changed after nationalisation was the ability of CIL to coordinate the supplier side of the industry. As an essential national input, the company gained widespread protection from the Central Industrial Security Force (CISF), which gradually increased the security deployments around larger mines and mining dense areas. In addition, CIL was now a significant local entity in most coal-bearing districts. Its stature itself meant that the Superintendent of Police (SP) in the district had to take the organization seriously as a major local employer and economic entity. Most earlier mining companies did not have such privileges. The officer class at CIL quickly assembled the Coal Mine Officer's Association of India (CMOAI), which both within and outside of CIL ensured that intimidation and harassment of managers was minimized. CIL's own bureaucracy was certainly not immune from colluding with large scale coal theft either.

> Concern evinced by the district administration and CIL is usually driven by the degree of media exposure of major accidents. District collectors view the problem of illegal coal mining as one of law and order, yet avoid taking direct responsibility for preventing theft from company-owned land. They also tend to ignore larger illegal operations on privately owned land as long as the owners accede to local power structures. Police officials vary in their views and actions regarding illegal coal; the district Superintendent of Police often tries to control larger operations, both mining and truck transportation, but tends to ignore the cyclewallahs. Mine managers also appear to be fully aware of the exact locations of large illegal operations.[155]

[154] Vaishnav, Milan. When Crime Pays: Money and Muscle in Indian Politics. New Haven, Yale University Press: 2017. Pg. 92.
[155] Lahiri-Dutt, Kuntala. "Between Illegitimacy and Illegality." The Coal Nation. Ed. Kuntala Lahiri-Dutt. Surrey, Ashgate: 2014. Pg. 55.

In fact, it would be fair to say that while CIL's bargaining power relative to security forces improved in the post-nationalization period, its incentives for stopping theft did not. Coal prices were artificially low, and most coal was already allocated to designated consumers. A large part of the company's budget came from central grants and subsidies, rather than coal sales. The company's responsibility was mining, not delivery of coal. Any theft that occurred outside of the mine could easily be blamed on someone else.

As coal mining expanded to virgin areas in Madhya Pradesh and Orissa in the 1970s and 1980s, the company benefited, at least initially, from a clean slate. Local politicians were not used to making claims on public sector companies in the same ways, and highly mechanized mines in these states reduced the bargaining power of labour. But Jharkhand, West Bengal, and Maharashtra remained notorious for coal theft. Dhanbad may have caught national attention because of the deaths of many notable local leaders and strongmen, but other states were no less criminalized. However, one of the informal codes that emerged during this period was the strong line drawn at the loss of life by local police. Theft, intimidation, and other tactics were somewhat tolerated, but murder was not. In the social life of coal-bearing areas, mafia heads, district administration, police offices and coal mining managers were often known to each other. Multiple local officials have narrated stories to me about cordial interactions, and even genuinely warm relationships with notorious local criminals. For example, one former area manager in Jharkhand narrated an incident where Sakaldeo Singh, a well-known member of the Singh Mansion syndicate, showed up at his hospital when he was beaten up by a local union leader.[156] Singh not only guaranteed his family's safety over the next few days, but also brokered a peace with this leader to prevent future assault on local officials.

[156] Former Area General Manager in CCL. Personal Interview. 14 March 2016.

Such localized settlements made sense for many of the more influential local syndicate leaders, who graduated during the post-nationalization period into political leadership themselves. "Many politically savvy criminals eventually realized that, having worked in the service of politicians to win elections, they had accumulated enough local notoriety to contest elections directly. Over time, criminals had acquired a considerable amount of social capital as a result of their ethnic bona fides, their reputation as fixers, their access to resources, and their roots within local communities. This social capital gave criminal entrepreneurs useful leverage they could now exploit in the political realm.[157]"

But the nature of CIL's relationship with security organizations has changed considerably after liberalization. Forcibly weaned off Central government resources, now the coal resource was far more valuable to the company. Theft or pilferage of 5-7% of CIL's annual production could now mean the difference between being a profitable company, or running losses. CIL's own internal accounting of coal had been extremely shoddy, and more than ten years of stock shortages and overreporting were revealed in a public report in 1994 penned by then NCL Chairman and future CIL Chairman, R N Mishra. The report was a major shock to the system; amongst its more damning allegations were the consistent practice of production overreporting, stock shortages, excess hiring and more. [158] Between this report and the consequent conditionality of the World Bank loans in the mid-1990s, CIL significantly improved its internal monitoring processes. A system was developed so that officers from separate subsidiaries would travel across India to audit each other regularly and verify stocks. The vigilance department within the company, which existed mainly in name prior to nationalization, became much stronger from the early 2000s onwards. In combination, these

[157] Vaishnav, When Crime Pays. Pg. 103.
[158] Ahmed, Farzan. "Figures are for fudging." India Today. 15 December 1995. Online. http://indiatoday.intoday.in/story/coal-fraud-bccl-gets-embroiled-in-manipulation-of-coal-production-figures/1/289723.html

changes significant decreased the incentives within the CIL bureaucracy to collude in any kind of large scale pilferage or theft.

In fact, from the mid-2000s onwards, CIL started professional recruitment of Area Security Officers to counter large scale theft. One recently hired Area Security Office in an area near Asansol described the uphill task he faced in securing mines.

> Look at the staff I have. I basically have a few hundred *chowkidars* (guards) who are used to standing in front of a gate and holding it open for cars and officers. I can't really expect much from them. We have a few guns in our lockbox, but using those will just get me in trouble. They are mainly for show. Even the cycle thieves have become smarter these days; they use the women to do all the manual theft. If I use any force with women stealing coal, then I am perceived to be harassing women. I have had to spend a year convincing management to hire female security officers as well. Anyways, it doesn't matter if we arrest individual thieves, another two will pop up in their place.
>
> To stop theft, you need to stop the intermediaries commissioning this crime through locals. But I have neither the jurisdiction or the manpower for such an investigation. My jurisdiction ends at the mines and any other land CIL owns. Any larger operation has to be done in collaboration with the local police or the Intelligence Bureau, and getting them to be on my side is a constant labour of gaining their goodwill without treading on their toes. There is only so much they will do for me. Since I have a background in the armed forces, they at least have some begrudging respect for me. Otherwise, they would probably just ignore me.
>
> Ideally, we should have fences around any big mine. But that has never happened historically, and I doubt they will start now. A large part of job is simply coming to acceptable local settlements, where the quantum of coal being stolen is small enough that management does not object too much.[159]

In most coal-bearing districts, police complicity in coal theft did not subside nearly as quickly after nationalization. One senior IPS officer told me that maybe one out of three SPs in any coal-bearing district in Jharkhand could be considered honest. Becoming the SP of a coal-bearing district is often still considered an "investment" position; one which officers pay hefty sums for preferential transfers, only to recoup the "investment" through illicit earnings.

[159] Area Security Officer. Personal Interview. 1 August 2013.

The Central Bureau of Investigation (CBI) has an entire cell in its Kolkata office which looks at inter-state transportation and theft of coal between West Bengal and Jharkhand (the source), and Varanasi (the destination).[160] A former SP of Dhanbad intimated a suspicion that their phone records were accessible to the local coal mafia, because of the specificity of their public allegations and attacks in the media to counter strong police action in the district.[161] Much of the earnings of police now come not from CIL operated mines, but from outsourced mines which are operated primarily by private sector companies. Again, the situation in Jharkhand and West Bengal is much worse than other states, but there is no doubt that the police establishment in general has not made cracking down on coal theft a priority. Comparatively, the police have also been more politicized in coal-bearing regions than CIL. This may explain their inaction.

CIL is not a blameless organization in this process. But relative to the police services, it would seem that the company has adapted and modernized faster in trying to stem its many leakages, particularly from the late 1990s onwards. As of today, the majority of large CIL mines have RFID tagged trucks, which are weighed when entering and leaving the mine to record the weight of coal they contain. They are also GPS tracked, and some of the more advanced subsidiaries like MCL use a technology called geofencing to prevent trucks from wandering or leaving designated routes. Given the lack of wireless connectivity or reception in certain remote mining areas in Jharkhand, CCL has been deploying its own wireless network, independent of Internet or mobile telephony, to transfer data more quickly between mines and their central data centres in Ranchi.

[160] Additional Director General Level Police Officer. Personal Interview. 22 April 2016.

[161] Former Dhanbad Superintendent of Police. Personal Interview. 11 April 2016.

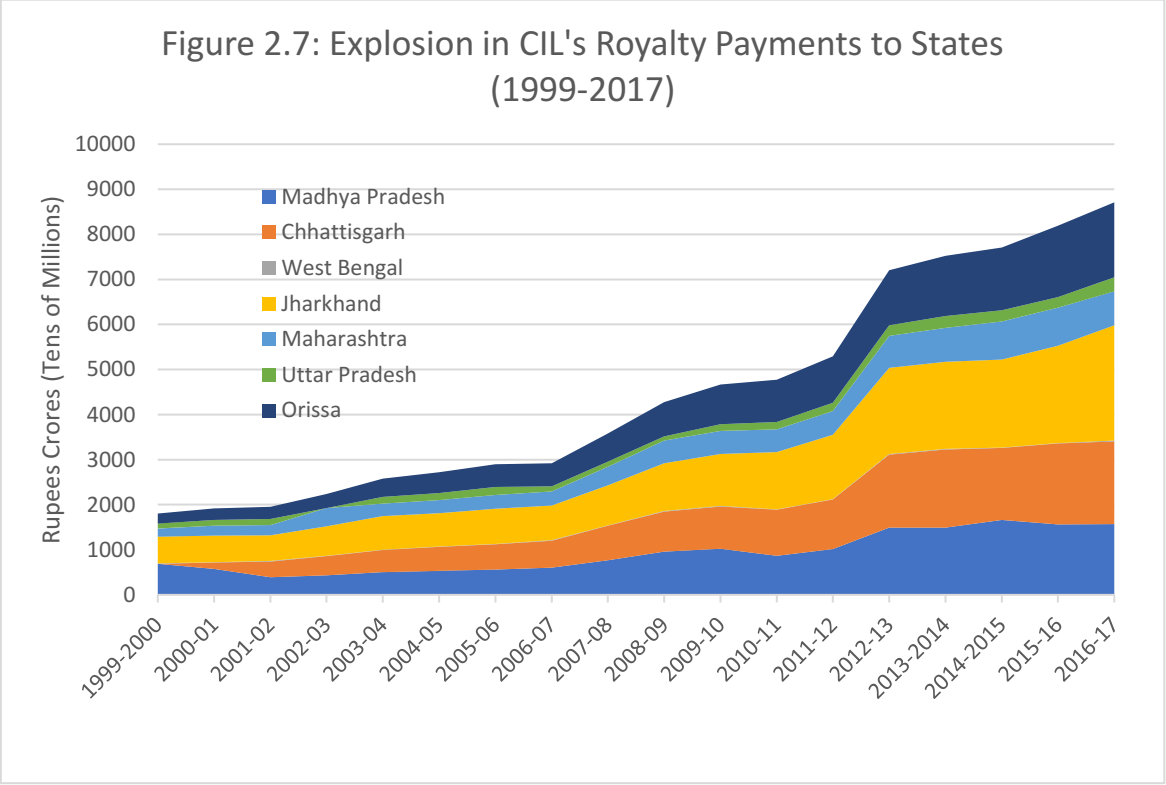
Conclusion

Part of CIL's ability to adapt in the last twenty years comes from its renewed financial vitality. The ability to undertake expenditures on technology and qualified new personnel (among other things) has expanded the organization's operating space. However, much of this space was created after nationalization. Inheriting a small, relatively unorganized industry, CIL and its allied organizations (primarily the Ministry of Coal) created an administrative space within the Indian state for the industry. The coal industry became important in political consciousness not only because of its financial value and the ability to extract rents, but also because of its reach among local populations in coal-bearing areas, its ability to execute projects in remote areas and conduct operations while maintaining order locally (albeit not free from criminality). Not all of these things happened immediately; many of these qualities were refined in the post-liberalization era after CIL's financial restructuring.

In many ways, CIL became an indispensable part of the federal process wherever it existed. Given that it operated primarily in developmentally laggard regions, it became an essential part of the welfare distribution process in those areas. In the process, it created enclaves of privilege. It is difficult to argue that CIL's distributive process was universal or fair. But in its wake, CIL created markets and jobs. In the late 1990s, ECL was on the verge of being closed due to bankruptcy. Ultimately, the Central government did not approve this action, but one estimate put the livelihood multiplier cost of this action at 1.1 million jobs. For a company that employed only 73,000 people at the time, this was more than a tenfold impact on livelihoods.[162] But CIL became more than a welfare provider.

[162] Biswas, Ashok. "Driven into the ground." Outlook. 25 January 1999. Online. https://www.outlookindia.com/magazine/story/driven-into-the-ground/206862

It also mediated the transfer of funds between Center and States through the royalty process. For States dispossessed of their aspirational mining rights in the early 1970s, it became a site of potential recovery of agency and resources. Not surprisingly, CIL's royalty payments to States have increased dramatically since the early 2000s (see Figure 2.7). If the creeping invasion of sovereignty of the Central government defined Indira Gandhi's tenure, CIL and other SOEs offered sites for States to get their pound of fiscal flesh in return. Naturally, this created a complicated operating environment, which only improved from the early 1990s onwards when some amount of financial prudence was restored to the company.



CIL was, and remains, an important part of India's economic federalism in the coal belt. But what has also emerged from this narrative is the agency of CIL in shaping its role within this federal structure. With mineral royalties accounting for up to ten percent of certain states'

budgets today[163], CIL has gained considerable leverage vis a vis state governments in the last fifteen years as its aggregate production has grown. While the payment of taxes, cesses, and royalties are a statutory responsibility, paying all of these in a timely fashion without any legal dispute about the assessed quantity is a source of power. CIL has in the past strenuously contested what it has considered excessive tax or royalty demands by state governments. Considering the precarious financial situation of many state governments, few of them can afford to forgo this income for a prolonged period. The one state that has tried to magnify its state-level cesses on the industry, West Bengal, has faced retaliatory decreases in its royalty payments, evidence of CIL's increased rule-shaping power in this space.[164]

In a review of the World Bank's Investment Climate Enterprise Survey in Africa, Mary Hallward-Driemeier and co-authors make the distinction between a "rules" world and a "deals" world.[165] In a "rules" world, actors and firms are rewarded for following the letter of the law, complying with all administrative and technocratic procedures, and waiting patiently for all permits, permissions and licenses. But in many countries firms "do not cope with policy rules, rather they face deals; firm-specific policy actions that can be influenced by firm actions (e.g. bribes) and characteristics (e.g. political connections).[166]" These characteristics do not magically appear; in CIL's case they were cultivated over a decade and a half of pre-liberalization institution-building, embedding and networking. CIL had to strike various deals as a pseudo-arbiter of resource control between State and Central governments. The changing

[163] Siva, Meera. "Mining Royalties." The Hindu Business Line. 25 August 2015. < https://www.thehindubusinessline.com/opinion/mining-royalties/article20852046.ece1 >
[164] "Bengal coal cess under scanner." The Telegraph. 23 August 2016. < https://www.telegraphindia.com/1160823/jsp/business/story_103870.jsp >.

[165] Hallward-Driemeier, Mary, Gita Khun-Jush, and Lant Pritchett. "Deals versus rules: policy implementation uncertainty and why firms hate it." No. w16001. National Bureau of Economic Research, 2010. http://www.nber.org/papers/w16001

[166] Ibid. Abstract.

nature of these deals over time is what this chapter has described These adaptations are summarized in Table 2.4.

There are a few broad trends which emerge. The first is that relative financial performance unlocks leverage over other SOEs and bureaucracies; CIL's improved finances in the latter periods allow it to substitute away from sub-standard services offered by other agencies (in this case Railways and the security services). In an interorganisational field defined by multiple dependencies, financial resources allow an organisation to decrease its dependencies, improving its own independence. This same logic can be applied to the political influence as well; ability to resist political influence at various levels increased considerably once CIL had the cover of the World Bank loans and then its own financial resources. Finally, just because CIL was able to decrease these dependencies and improve its own finances does not mean that larger systemic problems in the industry went away. Coal theft is still prevalent and corrupt practices within and around the industry have scaled with increased production. They may be bounded at administratively acceptable levels (with occasional scandals and revelations), but the larger political and social culture around the industry has remained relatively constant, as will become apparent from the following chapters.

Table 2.4: Federal Adaptation by CIL

	Pre-Nationalization (Before 1971)	**Post-Nationalization (1971-1991)**	**Post-Liberalization (1991 – 2000)**	**Profit-Making Era (2000 – Present)**
Bureaucratic Discretion	**NCDC**: Extremely diluted, some local operational autonomy but close monitoring by parent ministry and planning apparatus	Some amount of local operational autonomy but close monitoring by parent ministry and planning apparatus. Major concessions to railways in pricing and security services in allowance of theft.	Increasing, but closely monitored by World Bank and Ministry of Coal. Major gains relative to railways, security services and other Central services because of loan conditionality	High, able to make investment in infrastructure and manpower due to newfound profitability, if needed independent of other bureaucracies
Organizational Capacity	N/A	N/A	N/A	N/A
Resource Self-Sufficiency	**Private Companies**: Yes **NCDC**: No, heavily subsidized	No, highly dependent on government budget for subsidies.	No, highly dependent on government and external loans	Yes, profitable and gaining leverage on state governments
Political Influence	Extremely limited at national scale, some influence in local and state institutions	Limited, succumbed to local and national political pressure frequently	Increasing, hard budget constraint allowed rejection of unreasonable demands	High, quantum of royalties gives CIL leverage over states and better standing with Central government
Rule-Shaping	Extremely limited at national scale, some influence in local and state institutions	Limited at national scale, increasing in local and state institutions	Limited at national scale but assisted by World Bank loan conditionalities, low in local and state institutions because of retreating welfare function	Moderate, able to provide input in most major coal policies because of financial contribution to both Central and state governments

Chapter 3: Financial Adaptation

Introduction

State-owned enterprises (SOEs) have historically had a difficult time managing budget constraints. Because of the perennial possibility of government financial support and budgetary assistance, one of the classic arguments against SOEs has been that their financial losses end up being a drag on both national budgets and larger growth. In fact, the entire "grabbing hand" set of arguments articulated by many academics and practitioners in the early 1990s was predicated on the assumption that changing SOEs and their internal incentives was impossible.[167] If this line of argumentation is to be believed, outright privatization is the only method of instilling the profit motive and hard budget constraints onto these presumed inefficient and potentially kleptocratic organisations.

However, the persistence of SOEs in the industrial space in many developing countries and their gradual adoption of the profit motive indicates that many of the assumptions of "grabbing hand" theorists were questionable. Converting a soft budget constraint to a hard budget constraint within existing SOEs was possible, but it required major institutional changes from within. Many larger SOEs were able to take on the profit-motive, albeit usually with external prodding by both domestic governments and multi-national organisations.

The financial changes within Coal India (CIL) are a good example of major external events (India's foreign exchange crisis followed by World Bank loans to the coal industry) triggering a set of major endogenous changes which would continue well beyond the life of the loans. The first half of the 1990s was a major turning point for the Indian economy at large, which naturally had effects on the coal industry as well. But ascribing all the financial changes within CIL to external pressure would be a disservice. The endogenous changes within CIL

[167] Shleifer, Andrei, and Robert W. Vishny. The Grabbing Hand: Government Pathologies and Their Cures. Harvard University Press, 2002.

continued well into the 2000s, culminating in the company's IPO in 2009. In a fourteen-year span, CIL had transformed from being a budgetary support dependent, loss-making SOE to India's most valued publicly listed company by market capitalisation. By reclaiming its financial agency and adapting to the new political and economic contexts of post-liberalization India, CIL became a good example of how SOEs could turn themselves around financially.

The Nationalization Transition

Administratively, CIL experienced an extremely complicated birth. Created as the unification of hundreds of different mining companies with their physical assets and financial obligations, CIL's early days were primarily about consolidating information from various companies and trying to assemble a coherent picture of what the national coal industry looked like. All the while also trying to maintain operational and logistical continuity so that downstream industries were not unduly affected.[168] This involved amalgamating roughly 688 operating mines nationwide into about 173 operating collieries. Owners of small mines were likely to have outdated mine plans and irregular ledgers, which made this process even more difficult.

The Coking Coal Mines (Nationalisation) Bill of 1972 and the Coal Mines (Nationalisation) Act of 1973 legislated compensation for mine owners based on the assets of the mining company and its coal stores, after the subtraction of their existing liabilities to secured and unsecured creditors and wages to employees. It did not consider the paid-up capital of companies. Many owners who had their mines nationalised had complicated debt liabilities and frequently underreported their total assets to avoid taxation. Since the government was responsible for determining coal prices and the value of various assets, it had considerable discretion in determining the quantum of compensation. Naturally, this led to huge differences

[168] Former Advisor (Projects) at Ministry of Coal. Personal Interview. 4 May 2016.

in compensation calculations between the conservative CIL estimates and the generous estimates of dispossessed owners. The Indian Mining Association, an industry body representing the largest private mine owners at the time, went so far as to call the legislation "a bill of expropriation rather than of nationalisation." They alleged that the amount of compensation according to the Act worked out to only 20% of the net depreciated value of their assets combined.[169]

However, for better or for worse, most of these owners ended up accepting the meagre compensation offered by the government. The few owners that went to courts disputing the compensation amount often faced major delays in their settlements as the judicial process dragged on interminably. Some of the compensation cases had not been resolved as late as the early 2000s.[170] As for those leasing coal mines from owners, their claims were last on the government's list of compensation, and they suffered the most from nationalisation. Many of their claims for compensation were negated by a major Supreme Court ruling in 1980.[171] In Calcutta, even now there is a collective memory among the business community (particularly the Marwaris) about how a generation of businessmen were unjustly bankrupted through nationalisation.

In many ways, the formation of CIL was an attempt to simplify and resolve the complicated financial skein of debt and shareholding that had emerged not only from the managing agency system and private ownership of mines, but also the relatively poor performance of the National Coal Development Corporation (NCDC). NCDC was CIL's

[169] "Coking coal mine owners call it expropriation." The Times of India (1861-current); Sep 6, 1972; ProQuest Historical Newspapers: The Times of India. pg. 7. Online. Retrieved from http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/497116203?accountid=11311

[170] Former CMD of MCL. Personal Interview. 7 April 2016.

[171] Tara Prasad Singh v. Union of India. AIR 1980 SC 1682, (1980) 4 SCC 179, 1980 3 SCR 1042. http://supremecourtofindia.nic.in/jonew/judis/4521.pdf

predecessor SOE, with about 15% share of the national coal market prior to 1971. Formed in 1956, NCDC struggled for a decade and a half to meet the optimistic planning goals put forward by the Planning Commission.[172] Many of the financial and incentive problems observed in the pre-independence mining system, like profit juggling between agency companies and underinvestment in upstream concerns, persisted well after Independence.[173]

CIL emerged from this consolidation by the late 1970s as one of India's flagship state-owned enterprises (SOEs), headquartered in Calcutta but with regional subsidiaries in Jharkhand (CCL in Ranchi and BCCL in Dhanbad), West Bengal (ECL in Sanctoria), Maharashtra (WCL in Nagpur) and Assam (NECL in Margherita).[174] Over the first few years of its existence, its administrative structure evolved in a direction which gave considerable operational autonomy to regional subsidiaries. The regional subsidiaries had separate boards from the parent corporation; the majority of the members on each board (regional and CIL) were chosen by the Government of India, primarily bureaucrats from the Ministry of Coal, and other relevant professionals. And after the first few years, board leadership and management were combined into a consolidated role: Chairman and Managing Director (CMD). This early decision had major implications for the way the companies would interact with political and financial actors.

Each subsidiary of CIL had a considerable amount of financial and managerial autonomy. Each regional subsidiary had its own relationships with India's nationalized banks, and the CMDs of these subsidiaries along with their boards could procure equipment and

[172] This is covered in greater detail in the Federalism chapter.

[173] For details about these problems and why the institution of managing agencies partially hindered the development of the coal industry, read
Papendieck, Henner. "Managing Agencies in the Indian Coalfield." Zamindars, Mines and Peasants: Studies in the History of an Indian Coalfield. Edited by Dietmar Rothermund and DC Wadhwa. Manohar Book Service, 1978.

[174] See Appendix A for details regarding CIL's organizational structure

authorize spending up to stipulated limits. Any larger transaction would have to be elevated to CIL and its boards. In this way, smaller operational issues were kept away from CIL, and the umbrella corporation's responsibilities remained primarily in oversight of subsidiaries, high-level financing, bulk procurement, and strategic planning. Officers at CIL headquarters were rarely involved in the day-to-day operational details of mining and dispatching coal.

Given that one of the explicit goals of nationalisation was to scale up India's coal production, an immediate concern of CIL and its subsidiaries was increasing production from existing mines, and also opening new mines which could provide coal for India's expanding coal and steel industries. Opening new mines was an expensive and lengthy process. Geological surveys and exploratory drilling was required to assess what locations were suitable for new mines. Mine plans had to be drawn up, assuming appropriate technologies, which would describe how coal would be systematically extracted from the mine over the life of the mine (usually at least 20-30 years). Much of the land for prospective mines was privately held among many owners, which meant that regional subsidiaries had to engage in collective negotiations, often with political mediation, to purchase coal-bearing land.[175] Depending on the kind of mine proposed, then the subsidiaries would have to procure explosives, various kinds of mining equipment, trucks for transportation, fuel, and of course employ people to work in the mines.

But after nationalisation, CIL was not just a mining company. While that may have been its primary objective, nationalisation of coal clearly had a social objective to it as well. And this had major financial implications. During nationalisation in 1973, Mohan Kumaramangalam, coal minister at the time, had articulated a strong developmental role for the newly formed state-owned coal companies. In practice, this meant that CIL and its

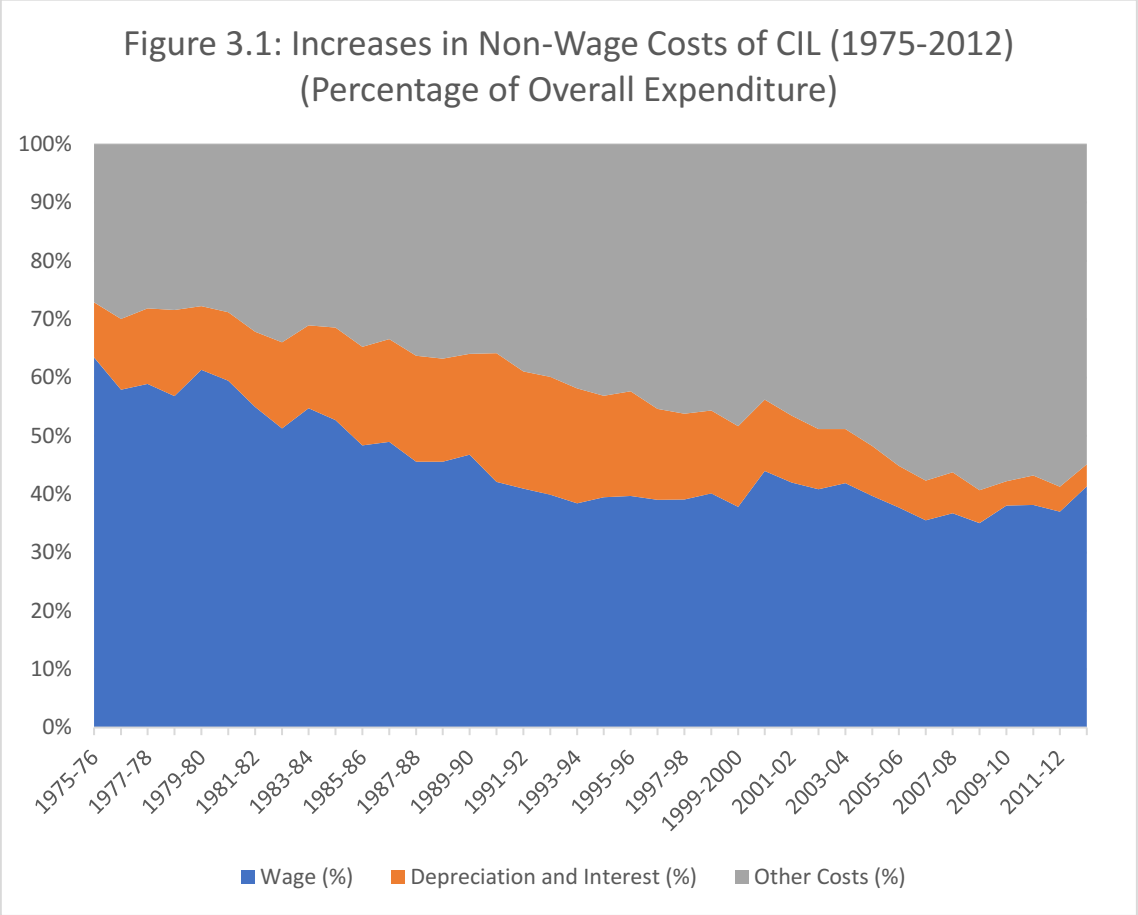
[175] The Coal Bearing Areas Act, 1957 (which had been established at the time of NCDC's formation) gave the Central government, and by delegation CIL, wide-ranging powers to engage in exploration for coal on private land. If coal was found, CIL could compel the owners to sell the land to CIL.

subsidiaries were involved in a range of activities which normally would be the responsibility of state governments: road construction and infrastructure development, housing development for all permanent employees, establishing and running schools for employees and other children in coal-bearing areas, providing medical services through clinics and hospitals near all operation coalfields and more. While most of these benefits were intended solely for CIL's employees, inevitably many of these services ended up serving a much larger constituency. By 1980, CIL had constructed over 170,000 residences, operated 565 schools and colleges, supplied water for over 1 million people, and operated 386 dispensaries and 45 hospitals.[176] Most of these were new assets which had been created after nationalisation.

While these benefits may have been successful at accomplishing social and political goals (discussed in labour chapter), they were not so beneficial for CIL and its subsidiaries' financial performance. Given the reluctance of the Central government to revise coal prices, CIL's revenues from coal sales increased relatively slowly. By comparison, its non-wage costs ballooned as its struggled to meet both operational and social objectives simultaneously (see Figure 1). Fortunately, after nationalisation the Central government was committed to the success of its flagship SOEs. As a consequence, it was willing to pay for most of the CIL's reasonable capital expenditures (usually mediated through approval bodies like the Planning Commission's Public Investment Board) directly from the government budget. Such a mechanism often led to a mentality among CIL officers frequently described as "loss-minimization." Rather than looking to maximize the profits of their companies, the officers of CIL were often simply trying to minimize their losses so that they were not censured by Parliament or the government's internal auditing agencies. They knew that as long as costs were not egregious or could be justified, the Central budget would make them financially whole. While such attitudes are not historically uncommon among SOEs, they did lead to a lax

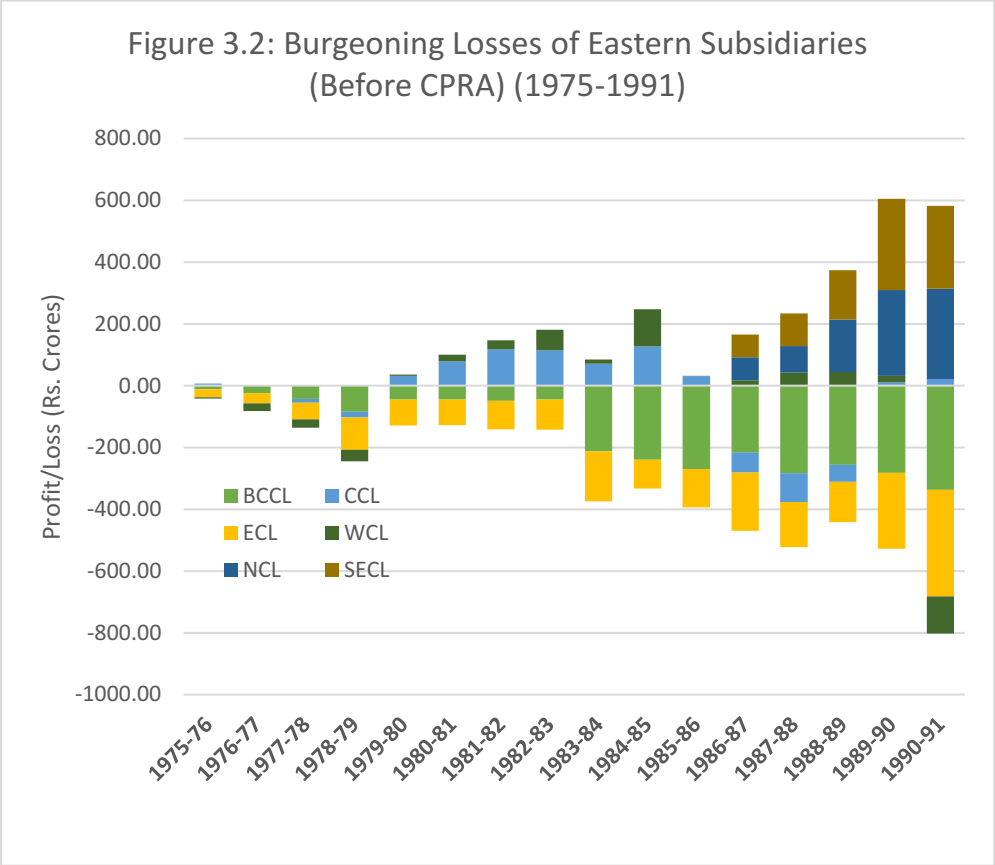
[176] Coal India Ltd. Annual Report & Accounts for 1979-1980. Calcutta: 1980.

organisational financial culture which would be dealt a rude shock after liberalisation in the early 1990s.



CIL's losses after nationalisation were not evenly distributed among its subsidiaries. The subsidiaries in Jharkhand and West Bengal (ECL and BCCL in particular) were frequently the most delinquent when it came to financial performance (see Figure 3.2). There were a few reasons for the concentration of these losses. The majority of CIL's employment was concentrated in West Bengal and Jharkhand. These two states had the highest concentration of old underground mines, most of which were not mechanized and extremely labour intensive. Consequently, CIL employment in these areas was unusually high. In fact, during nationalisation, when all the former managing agency miners were regularised as permanent employees of CIL, these two states (particularly the areas around Jharia and Raniganj) benefited disproportionately. The historical labour intensity of mining in these areas also made

them more likely to have activist labour unions, which multiplied the redistributive demands made by politicians in the region.[177] In contrast, subsidiaries with newer mines (primarily WCL and later on SECL and NCL) tended to be far more capital intensive, and thus had lower labour costs, and less of a problem with labour unions. Consequently, these subsidiaries were far more profitable on average.



Recognizing the regional financial disparities that emerged among subsidiaries, CIL developed a practice called the Coal Price Regulation Account (CPRA), which essentially transferred profits from more profitable subsidiaries towards loss-making subsidiaries. While this was mainly an accounting exercise to make the regional companies look good in audits and reports to the Central government, it was also a further disincentive for subsidiaries to put any effort in achieving profitability. Subsidiaries that performed well knew that their profits would be

[177] Discussed in labour chapter

redistributed away, and not reinvested in their own companies. As Figure 3.2 shows, towards the late 1980s and early 1990s, the disparity between subsidiaries became quite pronounced.

Much of the informality that existed during CIL's messy formation carried well into its operations in the 1980s. Coal supply contracts were loosely written, and lines of authority between CIL and its consumers were not always clear. For example, if a state electricity board delayed its payments for coal, subsidiary CMDs often had to use their influence and connections in state governments to resolve the situation. Stopping the supply of coal was not considered an optional, particularly because of the possibility of political backlash. Similarly, if a consumer was unhappy with the quality of coal from one of CIL's subsidiaries, their only recourse was often to lean on their contacts within CIL to try to resolve the situation. The last resort of going to courts was rarely used during this period; it was considered a nuclear option and against the spirit of collaboration within the state. Consequently, officials' personal networks were incredibly important for any kind of successful conflict resolution.

This informality carried over to CIL's internal financial practices as well. In addition to the CPRA, there were all kinds of transactions between the subsidiaries and CIL which were far from standard corporate practice. Subsidiaries unable to deliver on supply obligations in the short run called in favours from other subsidiaries, and then balanced compensation financially afterwards. While this may have met short-term operational targets, it also severely distorted coal stock figures, which were frequently misaligned with actual stocks. When BCCL or ECL were short on working capital, sometimes it was easier to borrow money from other subsidiaries that were more credit worthy, rather than go to the banks. And the most problematic part of these transactions was that most of it was done on the basis of relationships and good faith, rather than explicit contracts. This made it extremely difficult for accountants and auditors to make sense of the company's books after the fact, especially during periods where turnover in management was high.

From the Central government's perspective, one of the biggest problems with CIL was the rise in non-Plan support provided to the company. The Central government's planning and budgeting process would annually estimate the subsidy CIL required. But CIL, and many other capital intensive SOEs, ran over budget frequently as wage costs increased discontinuously after bipartite labour negotiations and project delays led to cost overruns. In the five years between 1976-1981, Almost 28% of CIL's funds came from non-plan support.[178]

The Fall and Rise of CIL After Liberalisation

CIL and many of India's SOEs experienced symptoms of withdrawal as government support was gradually tapered off by a series of policy changes after India's balance of payments crisis in the early 1990s. Among the conditions of the IMF loans given to India was a commitment to stop subsidizing SOEs using budgetary resources. Not only was CIL receiving 70-80% of its capital budget from the government, but it was also borrowing large amounts of money to finance its wage payments and other daily and monthly expenses as well. By March 1995, CIL owed the GOI US$1.4 billion (Rs. 4900 crores), and three of its subsidiaries had exhausted their ability to borrow any further money.[179]

Part of the problem was that the tapering of budgetary support was hurting not just CIL, but its consumers as well, which were primarily SOEs. CIL's sundry debt exploded in the first half of the 1990s as state electricity boards, power generators, and steel companies all started delaying their payments for coal (see Table 3.1).[180] The majority of India's industrial system had been built up on a series of cascading financial interdependencies between SOEs. Losing the financial support of the Central budget threatened to financially unravel not just CIL, but

[178] World Bank. 1982. *India - Coal sector report (English)*. Washington, DC: World Bank. p. 41. http://documents.worldbank.org/curated/en/838321468258268981/India-Coal-sector-report
[179] World Bank. 1997. *India - Coal Sector Rehabilitation Project (English)*. "Staff Appraisal Report." World Development Sources, WDS 1997-2. Washington, DC: World Bank. http://documents.worldbank.org/curated/en/348841468750292930/India-Coal-Sector-Rehabilitation-Project

[180] This table was adapted from Table 3.2.4 of *World Bank. 1997. "Staff Appraisal Report."*

many other SOEs as well. The amount outstanding in excess of six months to CIL at the end of March 1996 was a staggering US$695 million (Rs. 2430 crores).

Table 3.1: Increasing Amounts Owed to CIL (1991-1996)

(Rs million)

Year end March	*Sundry Debtors*			*Months' gross sales*
	Total	*Prov. for doubtful debts*	*Net*	
1991	18950	4713	14237	2.68
1992	23153	9344	13809	2.19
1993	31271	10473	20798	2.60
1994	36965	12709	24256	2.64
1995	36706	12173	24533	2.50
1996	32491	11352	21139	1.90

Source: Coal India Audited Accounts

CIL and its subsidiaries experienced such extreme shortage of working capital, that wage payments to workers were being delayed for multiple months, leading to major unrest among workers' unions. As one subsidiary chairman narrated, "For the first time in my professional career I had to pledge my coal stocks to the banks to get short term loans for wage payments. This was unthinkable. Coal was what we sold to make money in the first place. And we were now pledging it as collateral.[181]" Operational problems extended to equipment and stores as well. Maintaining equipment was difficult without the requisite spare parts, which had been exhausted. To maintain some semblance of operational continuity, mine managers often had to "cannibalise" spare parts from existing machinery. Considering the age of some of CIL's mines, increasing production annually required that new mines come online as older mines were exhausted. However, given the shortage of working capital, new mine openings were more or less frozen for 3-4 years as budgetary support was tapered off. Without some kind of

[181] Varma, S K. Personal Interview. 2 April 2016.

intervention, this would lead to an inevitable cycle of insufficient revenue, unsuitability for further debt, reduced investment and eventual decline.

As a temporary measure in late 1995, the GoI restructured parts of CIL's debt in a financial relief package that converted part of CIL's repayment arrears into equity and waived interest payments. But with this package, the umbilical cord was severed; CIL would no longer receive any budgetary support. And financial recovery was nowhere in sight. This is where World Bank assistance was sought out.

The World Bank had a history with the Indian coal industry. Even prior to nationalisation, it had provided loans to the Indian private sector to facilitate the foreign exchange requirements of procuring mining equipment internationally.[182] Despite the American ideological reluctance to engage with Indian SOEs, the World Bank provided loans to CIL throughout the 1980s for the development of three separate mining areas (Dudhichua, Jharia, and Gevra).[183] These loans were synchronized with the Bank's unprecedented support of the National Thermal Power Corporation (NTPC), which was CIL's largest customer, India's single largest power producing company and the recipient of over half of the World Bank's funding of power sector projects in India.[184]

The World Bank's unprecedented loan to the Indian coal industry triggered myriad changes within CIL. Even prior to the loan's final approval in 1996, the Central government signalled a major organisational change by appointing P K Sengupta as CMD of CIL. Sengupta had previously been Director (Finance)[185] of CIL and had built up a strong financial team at CIL HQ which understood the gravity of the company's situation. Apart from a few short

[182] World Bank. 1961. *India - Coal Production Project (English)*. Washington, DC: World Bank. http://documents.worldbank.org/curated/en/150741468267027981/India-Coal-Production-Project
[183] World Bank. 1997. *India - Coal Sector Rehabilitation Project (English)*. "Staff Appraisal Report." P. 23.
[184] Dubash, Navroz K., and S. C. Rajan. 2001. "Power Politics: Process of Power Sector Reform in India." Economic and Political Weekly 36 (35): 3370.
[185] This position is the equivalent of a Chief Financial Officer in the Indian public sector.

stints[186], CIL had been run by mining engineers since its inception. This had led to an organisational culture which regularly privileged expansion and engineering procurement over financial sustainability. Given the pressures to expand coal production dramatically in the 1970s, this mindset was not entirely unjustified. However, CIL needed to change its internal operations dramatically if it was to meet the conditionality of the World Bank's loans.

For the Coal Sector Rehabilitation Project (CSRP), the World Bank came in with clear objectives: "[T]o support market-oriented reforms in India's coal industry, and specifically to provide financial and technical support to Coal India to make itself viable and self-sustaining. The project aimed to increase productivity and domestic supplies of coal, by financing investment in 24 of the most profitable opencast mines of CIL until imports and production from private sector investments could fill the emerging supply gap.[187]" Since all 24 projects were opencast mines, a linked project, the Coal Sector Environmental and Social Mitigation Project (CSESMP), was developed to ensure that all the people affected by the opening of these mines were appropriately compensated, and that there were no compromises in the management of the environmental consequences of these mines.[188] For each of the 24 mines, CIL was expected to come up with an Environmental Action Plan, a Rehabilitation Action Plan, and an Indigenous Peoples' Development Plan whose execution would be closely monitored.

[186] The founding CMD of CIL's precursor Coal Mines Authority Limited (CMAL) was run by J G Kumaramangalam. From 1983-1985, a former Railway Board Member, M S Gujral, was the CMD of CIL.
[187] World Bank. 2002. *India - Coal Sector Rehabilitation Project (English)*. "Implementation Completion Report IDA-29860." Washington, DC: World Bank. http://documents.worldbank.org/curated/en/381761468750023338/India-Coal-Sector-Rehabilitation-Project
[188] World Bank. 2004. *India - Coal Environment & Social Mitigation (English)*. "IMPLEMENTATION COMPLETION REPORT (IDA-28620)" Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/186901475100880755/India-Coal-Environment-Social-Mitigation

The strongest conditionality associated with the CSRP loans was regarding the financial socialization of subsidiaries through the CPRA. The staff appraisal of the project was particularly harsh about the World Bank's disapproval of this practice.

> This approach clearly regarded each company as merely a division of Coal India and effectively:
>
> > (a) undermined corporate identity, independence and operating autonomy of each company;
> >
> > (b) prevented the retention of sufficient income within each company and limited their ability to operate as commercial entities;
> >
> > (c) caused taxation difficulties due to the disproportionate allocation of interest charges; and
> >
> > (d) reduced management's incentive to control and reduce costs, clouded accountability and created an unwieldy conglomerate which was difficult to control and manage.
>
> In view of the withdrawal of budgetary support and deregulation of the coal price, Coal India is decided to ensure its survival by (i) phasing out these practices; (ii) emphasizing the necessity to improve efficiency, eliminate waste and control costs throughout the group; (iii) restructuring its balance sheet to ensure the independent financial operation of each company; (iv) restricting its role to that of strategic direction and the receipt of dividends and debt servicing; and (v) ultimately allowing each company to compete freely and operate independently (Annex 3.2, p.7).[189]

For the 24 mines financed by the World Bank, CIL worked very hard to meet the mold of a modern corporation that the World Bank clearly expected. In CIL HQ, Sengupta set up a World Bank Project unit which was responsible for oversight and monitoring of all the mines financed through the loan. But more importantly, he placed trusted financial officers in each subsidiary. By empowering financial professionals within CIL and its subsidiaries, Sengupta started a major change in organisational mindset which his proteges would continue. Over time, financial accountability became just as important as operational accomplishments in board meetings; historically this had not been the case. Over the previous twenty years, CIL had developed a culture where most financial professionals were subservient to mining engineers

[189] *World Bank. 1997. "Staff Appraisal Report."*

in management. As a generation of empowered, assertive and outspoken finance directors joined subsidiaries, subsidiary CMDs were obligated to include them in all major financial decisions, and not simply inform them after decisions were taken. The IAS officers on subsidiary boards supported this transition towards financial accountability, which led to frequent tensions as mining engineers felt their influence wane throughout CIL. But perhaps more importantly, this changing paradigm within the company was felt all the way down as young CIL managers had to start justifying their costs and operational decisions more thoroughly. In fact, part of the technical assistance program provided by the World Bank was to run training programs within CIL that "would familiarize these managers with the principles and techniques of managing commercial operations" (Annex 4.2, p. 2).[190]

With rising financial professionalization, came a longer and more substantial paper trail. The informality and ad hoc financial decision making that had characterized CIL after nationalisation came to an abrupt halt. All of CIL's supply obligations (particularly from the 24 World Bank mines) were codified in explicit contracts, whose form was determined with the help of both Indian (CRISIL) and international consultants hired through the World Bank's Technical Assistance program. These contracts were much tighter, and placed expectations on both CIL, and its customers. In addition to specifying the quantity and quality of coal, most of these contracts also had trigger levels for penalties and bonuses. However, these contracts also required consumers pay for coal in advance using cash, or at the very least supply a Letter of Credit to CIL which it could draw upon. Gone were the days of CIL being generous with its coal, even to delinquent customers. [191]

[190] *World Bank. 1997. "Staff Appraisal Report."*
[191] For example, if a subsidiary failed to supply at least 90%/80%/70% of the contracted amount it would face increasingly severe financial penalties. But if it supplied >95% of the contracted amount, it was entitled to a financial bonus.

One of the World Bank's clear goals was to reduce the financial delinquency of the two CIL subsidiaries haemorrhaging money: BCCL and ECL. In the CSRP loan agreement, BCCL and ECL were prohibited from incurring any further debt.[192] None of the 24 new projects opencast projects were sited in either of these subsidiaries, and there was a clear expectation that over time, the debt to equity ratios of these two companies would be reduced to reasonable levels. By financially ringfencing BCCL and ECL, the World Bank loans forever altered the geographical locus of India's coal industry by moving it towards Orissa, Chhattisgarh, and Madhya Pradesh as demonstrated in the maps in the chapter on federalism.

As one of India's largest and most labour-intensive SOEs, CIL had historically used employment not just as an input to production, but also as a form of compensation. This was a practice that had persisted since the colonial era, particularly in Jharkhand and West Bengal, as a way of getting local buy-in to new mining operation. Projected Affected People (PAP), primarily landowners who were displaced by the opening of new mines, were offered both compensation and employment proportional to the area of land that CIL acquired. Similarly, in addition to offering medical treatment and financial compensation, injured CIL employees were often able to get their children or relatives jobs at the company. While historically this practice may have had some merit, the rising wage costs of CIL made this practice financially unsustainable. As one former chairman of CCL put it, "Much of our welfare spending ended up taking the form of long-term liabilities, rather than one-time expenditures. After the World Bank loans, we were forced to change the nature of our welfarism and slowly remove these long-term liabilities which were ruining our balancesheet. [193]"

[192] Legal Dept of World Bank. 1998. *Conformed Copy - C2986 - Coal Sector Rehabilitation Project - Loan Agreement (English)*. Washington, DC: World Bank. http://documents.worldbank.org/curated/en/382891468251425736/Conformed-Copy-C2986-Coal-Sector-Rehabilitation-Project-Loan-Agreement

[193] Varma, S K. Personal Interview. 2 April 2016.

Another consequence of these loans was that CIL and its subsidiaries were forced to have difficult conversations with labour leaders and local politicians which had been avoided for decades. So far, in forums like the Joint Bipartite Committee on the Coal Industry (JBCCI) which determined the five-yearly revision of compensation, CIL had been forced to submit to unions' demands repeatedly due to political pressure.[194] This helplessness changed after the World Bank loans. Over the course of a few years, subsidiary chairmen confronted both national and local union leaders with the stark reality that without a reduction in CIL's workforce and an allowance for private subcontracting (known as outsourcing in the industry), the welfare state that had sustained the unions for the last two decades would likely crash and burn. Compromises were necessary for the survival of the industry; political posturing, threats of strikes and potential violence, and holding out would not work this time. And thus, the gospel of financial literacy and the urgency behind these ideas spread not only within CIL as an organisation, but also among India's unions and labour leaders.

As a result, Coal India implemented one of the largest Voluntary Retirement Schemes (VRS) the Indian public sector history. Between 1998 and 2001, almost 47,500 permanent employees were removed from BCCL and ECL's employment rolls, about 16% of their combined total workforce.[195] [196] Over the course of the loans (1996-2001), almost 87,000 people were removed from CIL's rolls, about 14% of the company's total employment. Many of CIL's requirements which were not part of its core objective, mining coal, were gradually subcontracted to private companies. For example, in the past, employees on CIL's rolls included vehicle drivers for management, janitorial staff, hospital attendants, guards and security personnel, and truck drivers for overburden removal. Almost all of these ancillary

[194] Covered in detail in the labour chapter

[195] This money came not from the World Bank's loans, but rather from Government of India grants

[196] *World Bank. 2002. "Implementation Completion Report IDA-29860."*

functions could have been subcontracted out to more specialized organisations long ago. However, CIL had been under immense pressure from its unions to avoid subcontracting and give equal benefits to all employees, regardless of their actual job. Similarly, politicians and some members of CIL's higher management saw non-mining employment in CIL as a convenient source of patronage and favour swapping.[197] Hence, these practices were only jettisoned when CIL was under extreme duress through the World Bank's loans.

The enormous changes enacted by CIL to meet the World Bank's loan conditionality did not proceed unopposed. India's larger macroeconomic crisis had afforded the Congress party considerable room at the time to garner cross party support for its actions under Prime Minister Narsimha Rao. But in mid-1996, after the Congress lost the general election, regional claim making on Coal India surged. The reforms within CIL had hurt many vested interests. Union leaders and politicians close to the industry had generally seen a decline in their power; the access to CIL's resources which had enabled their patronage politics was no longer as feasible. Even genuine union leaders, like the firebrand A K Roy[198], were strongly opposed to the declining social contract that accompanied many of CIL's moves towards subcontracting.[199]

While not enshrined in the World Bank's legal conditionality, there was a strong expectation that the Government of India would move legislation to privatise the Indian coal industry.[200] The Coal Mines (Nationalisation) Amendment Act, 1993 had allowed select coal

[197] This practice is elaborated on in the labour chapter.

[198] Arun Kumar Roy was one of Dhanbad's most firebrand and vocal union leaders who served in various labour and Communist parties. He served as a Member Parliament for over 15 years between 1970-1990, and was one of the main leaders of the Jharkhand movement. In the coal belt, he is acknowledged as arguably one of the most principled and incorruptible politicians of the region.

[199] Roy, A. K. "Disinvestment and Outsourcing in Coal." Economic and Political Weekly 38.49 (2003): 5153–5154. Web.

[200] *World Bank. 2002. "Implementation Completion Report IDA-29860."*

blocks to be allocated to end users for mining their own coal, provided that they passed an administrative selection process run by the Ministry of Coal. However, by the late 1990s this policy had not managed to encourage much investment in private captive coal mines.[201] In the early 2000s, disinvestment of public sector assets was a major agenda item of the new BJP government. Given the party's pro-market orientation compared to the long-ruling Congress party, it was assumed that a privatisation agenda could be pushed through more easily under this government. However, even with the BJP, deep rifts emerged around this issue.[202] Arun Shourie, the outspoken and combative disinvestment minister at the time, put it best, "Infighting within the coalition is being conducted through the 'danda' [stick] of privatisation…..Let the coal minister say what she feels. As long as I have the cabinet order I will not be cowed down. Things are going smoothly. But if the cabinet asks me to stop, I will do that.[203]" When draft versions of a more comprehensive coal privatisation bill were circulated in Parliament in the early 2000s, more than 40 MPs and 300 MLAs from across India expressed their reservations about the law, either publicly or privately.[204] Given this opposition, the government at the time decided to discontinue its privatisation agenda, at least around the coal industry.

However, in a rather reassuring turn of events given India's tendency for delayed timelines, CIL's return to profitability (see Figure 3.3) and the increased productivity of its new mines remained on schedule although the regional divergence between financial performance of CIL's subsidiaries was still a problem (see Figure 3.4). By the early 2000s, CIL's financial

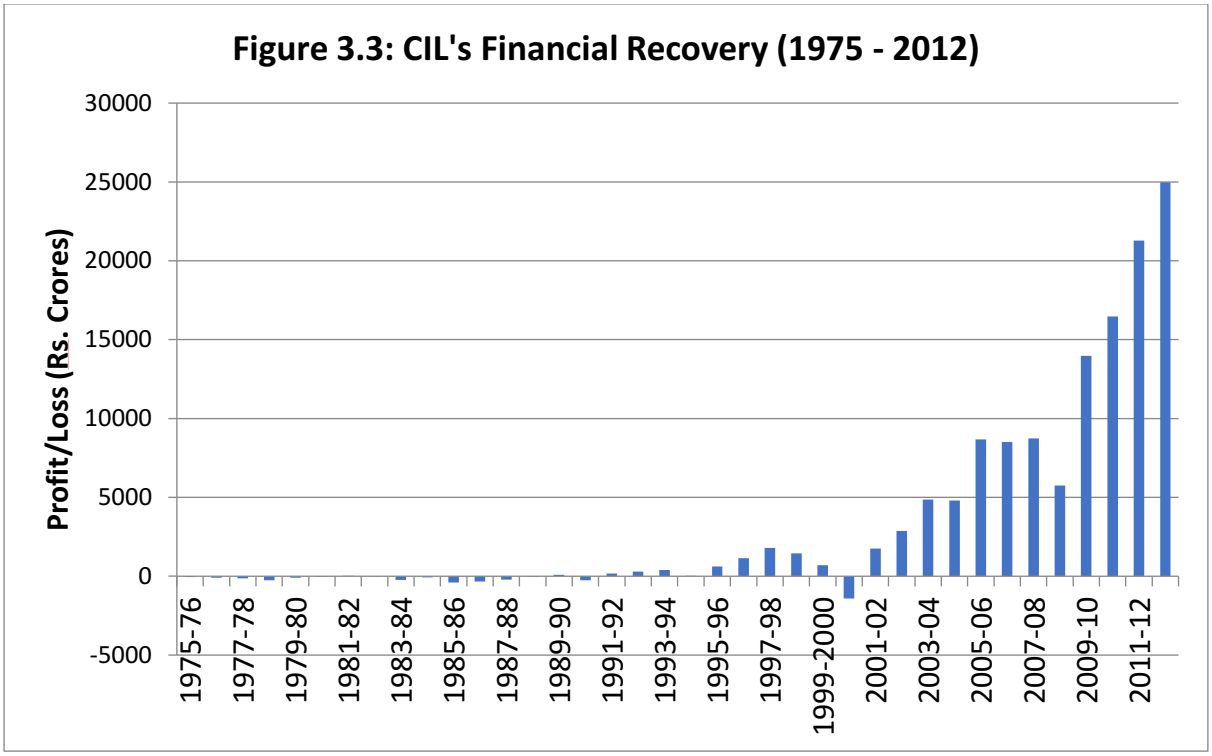
[201] Banerjee, Subir Kumar. "Private coal mining is still a non-starter." 20 January 1997. ProQuest Historical Newspapers. The Times of India (1861-current). pg. 20. http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/596665243?accountid=11311

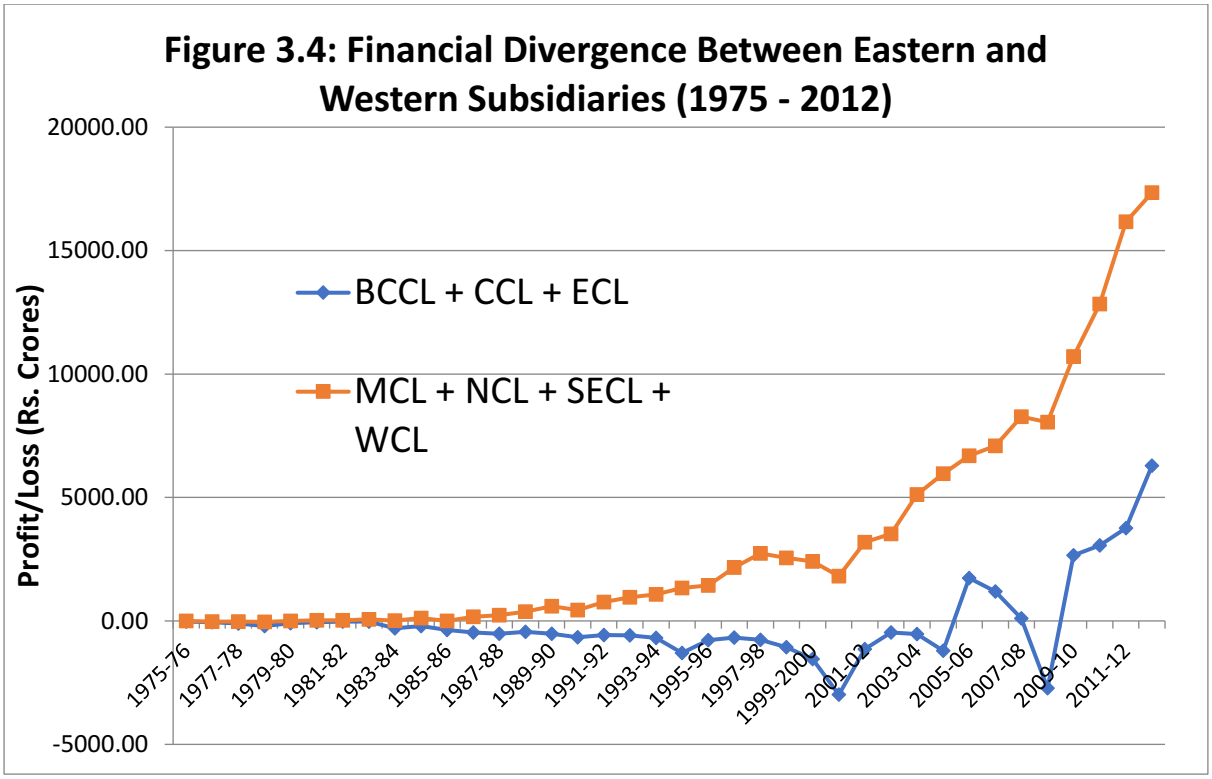
[202] Mukul, Akshaya. "Disinvestment dept prepares for struggle." The Times of India (1861-current); Oct 11, 2002; ProQuest Historical Newspapers: The Times of India. pg. 8. http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/855996046?accountid=11311

[203] Ibid.

[204] Former Advisor (Projects) at Ministry of Coal. Personal Interview. 4 May 2016.

situation had improved remarkably. CIL had been granted the power to price coal (although still strongly guided by the Ministry of Coal), and also had some agency in choosing its consumers after the existing coal obligations through the Ministry of Coal had been fulfilled. However, the World Bank was discontent with the pace of change.





The shelving of the privatisation bill and the continued losses of BCCL and ECL discomforted the Bank. But perhaps more importantly for the Bank, the rehabilitation-oriented CSESMP project was progressing much more slowly than expected. The CSESMP loan was ambitious in its attempt to introduce comprehensive participatory processes into the relocation practices of CIL. With extensive involvement of local NGOs as intermediaries between CIL and the populations displaced from mine expansion, the idea was to bring much more progressive and consultative resettlement and rehabilitation (R&R) policies to CIL. For landless displaced people, CIL was not particularly generous in its R&R policies historically.[205] The Bank's goal was to train a generation of CIL officers in the principles of community development and the mitigation of environmental & social impacts, who would continue to carry on these ideas even after the end of the loans.

[205] Covered in greater depth in the labour chapter.

In practice, the Bank's goals for organisational transformation were ambitious, and perhaps even misplaced. In the CSESMP's Implementation Completion Report, the Bank noted the following:

> During preparation the Bank did not adequately assess the degree of political and social resistance to reforms and relied too much on government and CIL assurances of ability to implement and on their interpretations of ground realities. The Bank also underestimated the difficulties of shifting the institutional culture of CIL given the complexities of actors and locations that the project was expected to reach. Greater attention might have been given to securing changes in national legislation governing the transfer and ownership of land and rights governing compensation for those losing access to land held under customary tenure arrangements. Greater attention might also have been given to securing 'buy in' at higher management levels to the different ways of doing business that the project was being designed to achieve. With hindsight, the delinking of the Coal Sector Reform Project from the CSESMP created structural impediments to successful implementation that the supervision team had to grapple with throughout implementation.[206]

For example, in its zeal to provide resettled PAPs permanent land tenure, it seems that the Bank had very little understanding of how cumbersome and legally problematic acquiring land title in India actually was, even for state-run institutions. Similarly, trying to convince PAPs to take compensation in a form other than employment was almost unthinkable to the majority of the displaced, who considered government employment a kind of windfall gain whose security could not be substituted with cash or other promises. Some received jobs at the mine that displaced them, some received jobs with contractors, and some received self-employment assistance which would help them set up their own small businesses. But compared to the Bank's projections of the number of mine jobs given to PAPs, the actual compromises were over 200% higher.[207] To be fair, CIL as an organisation was not too enthusiastic about the generous norms that CSESMP was establishing in newer mines and there was considerable internal resistance within CIL's management who thought that the CSESMP

[206] World Bank. 2004. *India - Coal Environment & Social Mitigation (English)*. "IMPLEMENTATION COMPLETION REPORT (IDA-28620)." Pg. 28.

[207] Ibid. pg. 13

norms would "spoil" PAPs, raise CIL's long-term costs and worsen project timelines in the future.[208]

The larger problem, which the Bank could not possibly deal with within its loan timeline, was that CIL was not the correct site for implementing many of these reforms. For land acquisition, CIL would often enlist the help district collectors and other state administrators who had authority over these issues and were better placed to negotiate feasible political compromises between PAPs, local politicians and CIL. Without changes in land acquisition laws and the slow resolution of land cases in courts, CIL's ability to unilaterally grant PAPs land title was limited. Considering that CIL's primary objective was coal production, its Environmental Impact Assessments (EIA), were decidedly one-sided and lacklustre. Frequently, empanelled experts through the Ministry of Environment and Forests (MoEF) were hired as consultants to ensure that these assessments were done properly. And then the follow-up after the beginning of mine construction was often conducted by a mix of MoEF officials, state environmental regulators, and local activists. Even given the conditionality of the World Bank loans, it was incredibly naïve to assume that CIL would somehow internalise better environmental and social practices without an external threat of costs or damages. But again, this would require changing a range of institutions and laws, which was well beyond the capability of the Bank and the timeline of its loans.

Not surprisingly, the Bank was unhappy with progress on the CSESMP project; it started floating the idea of suspending the loans to CIL in the early 2000s due to a variety of objections that had arisen. And somewhat surprisingly, CIL agreed relatively quickly. The last five years of financial support was enough for CIL to turn around its profitability. The conditionality of the loans had armed CIL with enough bargaining power to take on many of

[208] Former CMD of CIL. Personal Interview. 24 May 2016.

the state and Central institutions which were holding the company back. Sebastian Morris' observations about the role of World Bank funding in giving National Thermal Power Corporation (India's largest SOE power producer) leverage vis a vis other governmental organisations could is entirely applicable to CIL.

> It is interesting that when the NTPC used World Bank funds, it found the Bank's conditionalities useful in 'disciplining' the Indian government! It could pressure the government to allow it to implement projects quickly without the dysfunctional interference and interventions by government departments. It also used the conditionalities to persuade the government to allow it rational prices for its output. The World Bank conditionalities, even when its lending constituted a small part of the total funds of projects, and even when guaranteed by the government, put much weight in the hands of an organization that was attempting to orient itself towards its primary task. Thus the value of the World Bank assistance or project funding may have been much more than that measured by its lending to development projects in India. Had the same or similar procedures been adopted for much of Plan Funds by the Commission especially from 1965 onwards, it is quite possible that things would have been very different, and growth would have been much faster to unambiguously bring about the industrial transformation in India.[209]

Thus, the CSRP project was discontinued in mid-2000 on the Government of India and the Ministry of Coal's request. The CSESMP project continued until completion, but was severely hampered since the cross-linkages between the projects had now been voided. Retrospectively, within the Bank's assessment frameworks, the project was treated relatively harshly. It was giving an Unsatisfactory outcomes rating, and Modest institutional development impact rating.[210] But as one of the lead officers on the project at the World Bank later confided, "The loan saved the coal industry, and likely averted a major crisis in India's power system. Within India, everyone I interacted with acknowledged this. Compared to that, our ratings don't matter.[211]"

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[209] Morris, Sebastian. 2003. "Expenditure Accountability in India: The Interlinkages." India Infrastructure Report 2003. Edited by Sebastian Morris. New Delhi: Oxford University Press. Pg. 24

[210] *World Bank. 2002. "Implementation Completion Report IDA-29860."*

[211] Former World Bank Loan Officer. Personal Interview. 18 March 2015.

Change From Within – CIL After the World Bank Loans

An Individual's Contribution

Arguably one of the most influential people in the evolution of CIL after liberalisation was one of P K Sengupta's proteges, Partha Sarathi Bhattacharya. Bhattacharya was the CMD of CIL between October 2006 and February 2011. But even before this, he was part of the core of trained financial professionals deployed by Sengupta to rein in the excesses of CIL from the mid-1990s onwards. Not only was Bhattacharya influential within CIL's hierarchy as part of the leading edge of financial corporatization, but he also left his fingerprints many of the policies and internal reforms which CIL implemented from the mid-2000s onwards after the World Bank's exit. Bhattacharya's career trajectory and the decision he made along the way reflect many of the larger organisational trends within CIL.

Bhattacharya started his career as a Junior Executive Trainee (JET) in CIL in 1977 with an MSc in Physics from Jadavpur University, and a certification in cost and managerial accounting. The JET program was CIL's most prestigious recruitment program, aiming to induct young managers who would spend their careers at CIL. At the time, the JET program recruited high potential students from India's best universities through a competitive examination, and then sorted the into different cadres (electrical, mechanical, civil, finance, medical) based on their qualifications. This was early during CIL's formation, and many of the young entrants to the organisation were staffed on construction projects to create new assets for the company (residences, guest houses, area offices, roads and evacuation infrastructure).

During his early years, Bhattacharya was posted in the financial side of Central Mine Planning and Design Institute (CMPDI)[212], which was responsible for originating project reports for

[212] Technology chapter goes into significantly more detail about importance of CMPDI's role vis a vis the rest of the CIL and the coal bureaucracy.

every new project within CIL. This was a fortuitous assignment; from here he could observe the complicated financial federalism of CIL and its deterioration over time. Not only was CMPDI responsible for proposing all subsidiaries' expenditure on land, buildings, and machinery at the project level but it was also the organisation that sent projects for approval to the Public Investment Board, which approved large capital projects and consequently recommended subsidy disbursal from the Central government's budget. From very early on in his career, he had a bird's eye view of the organisation, and its various financial inefficiencies. And he was not the only one, many of CIL's best managers rotated through CMPDI. He remained in CMPDI until the early 1980s, when he was given his first major regional assignment.

In the early 1980s, Bhattacharya was transferred to his first major field project, which was the Dankuni Coal Complex (DCC) based on the outskirts of Kolkata. Given the abundance of coal and shortage of other fuels within India's territorial boundaries, the DCC was an experimental facility meant to produce fuel gas from coal, which would then be piped into the city of Kolkata for commercial. Bhattacharya was the highest ranked financial officer on the project, and for the next 5-6 years, he would work with a small team to originate a project report, procure equipment, supervise construction, and ensure that project timelines were met. While this project was somewhat distant from CIL's main operations, it had to distinct advantages.

Firstly, DCC was located close to Kolkata, and under the direct supervision of CIL HQ. This meant that Bhattacharya was a regular visitor to HQ as part of the project, whether it was internally lobbying for funding or hastening procurement orders through personal favours. But more importantly, over this period, Bhattacharya became well socialized with much of the middle and higher management of CIL in Kolkata. The second advantage of DCC was the sporadic nature of the financial work, which gave Bhattacharya time to volunteer for side

projects at CIL HQ; in any government system, a bureaucrat asking for more work is a rare occurrence, and Bhattacharya's enthusiasm and work ethic were noticed early. The DCC project was also supervised by a relatively senior officer from the coal industry, A N Banerjee, who had been in the industry well before nationalisation. Especially during its early days, mentorship in CIL and its subsidiaries was a bit of a lottery. While CIL developed many formal professional development programs, the majority of the job was learned in the field, by interacting with other professionals. The mining industry generally had a tendency to harden people; harsh working conditions, managing unions, pressure from local politicians, and long, often physically demanding hours meant that not all senior officers were interested in training the next generation. Getting through the day, and simply having your subordinates follow directions without making mistakes was difficult enough. Many CIL managers, particularly mining engineers, carried this hardened mindset from the field into the latter parts of their careers; they may have been technically competent, but the social part of their jobs was treated more as a burden than a responsibility. Mentorship was a luxury which was provided by officers who had not been jaded in the first 10-15 years of their career. [213]

Bhattacharya had the distinct advantage of having various senior officers like Banerjee, and at CIL HQ take an interest in him and teach him about the intricacies of CIL and the industry more broadly. It helped that he was social, well-spoken, and able to carry on conversations with an entire range of actors. When he moved from DCC to CIL HQ as Technical Secretary to the Director (Finance) of CIL (Swaminathan) in 1987, one of his most important assignments was serving on the JBCCI as one of CIL's representatives. In this job, he was often negotiating face to face with some of the most powerful union leaders in the country. And yet, these union leaders remembered him quite fondly. Compared to many other CIL executives who were much harsher and more dismissive with union demands,

[213] Former CMD of MCL. Personal Interview. 7 April 2016.

Bhattacharya had a reputation of dealing with all with parties equanimity and respect, walking them through the financial logic of the cutbacks that were required to prevent CIL's bankruptcy. In a bureaucratic culture where the exercise of power and status was commonplace, Bhattacharya had patience, persistence, and conversational ability which made his logic seem inevitable.

In the early 1990s, when CIL's financial problems emerged and Sengupta was promoted to CMD of CIL after the R N Mishra committee reports, Bhattacharya was one of his most trusted officers. He was one of the main architects of CIL's capital restructuring program in 1996 which formed the backbone of the CSRP proposed by the World Bank. He was one of the main CIL officers interfacing with the World Bank's loan officers on the CSRP and CSESMP projects, flying to Washington, DC multiple times to pitch the project. Trusted by the Bank's loan officers, he became essential to CIL's projection of financial competence; his knowledge of the internal workings of various subsidiaries and numerical familiarity with their balancesheets, combined with a strong sense of financial propriety helped him establish a great working relationship with the team that structured the initial CSRP loan. And given the importance of the CSRP project in CIL's financial recovery, Bhattacharya gained a reputation within CIL, the wider bureaucratic class, and even among politicians as a problem solver. Being well socialized among the upper echelons of the Indian government would be important later on as he became more influential in CIL.

Within CIL, Bhattacharya was one of the main advocates for the early termination of the World Bank loans. By the early 2000s, CIL's financial viability was clearly back on track, but the World Bank's conditionality was not only becoming politically inconvenient, but the longer the loan was active, the longer the prohibition on investment into BCCL and ECL was in place. These subsidiaries may have been financially delinquent, but their operational areas also contained some of India's best quality coal, which was not being mined effectively because

of the Bank's conditionality on investment into loss-making companies. Also, almost ten years of subdued investment into the coal belts of these states had resulted in major political rumblings; the separation of Jharkhand from Bihar in 2001, and the rise of Mamata Banerjee in West Bengal had changed the political environments of these state considerably. With so much turnover in these states' politics, there was a chance that CIL could revive its operations in those states and renegotiate a new equilibrium in local politics which was not nearly as dependent on welfare spending.

But reviving BCCL and ECL was not an easy task. A decade of hiring freezes and lack of investment had left these subsidiaries starving for resources. Payment delays to both employees and contractors, despite the reduced manpower, unionism was still relatively strong in these states.[214] Working with the unions and convincing their leaders to change their models of political financing and patronage was not simple. But this is precisely what Bhattacharya volunteered for.

After a short stint at WCL as its Director (Finance) from 2001-2003, Bhattacharya had his pick of jobs within CIL. But instead of applying for the Director (Finance) position at CIL HQ, he chose to become CMD of BCCL, arguably the toughest subsidiary of CIL.[215] Not only was BCCL financially delinquent, but it also had the most confrontational politics of any subsidiary of CIL. Dhanbad had historically been a hotbed of criminality since the colonial era because of the region's high quality coking coal which was highly sought after by industrial customers; while the decade after liberalisation considerably reduced investment in the area, illegal coal mining was still rampant.

[214] Labour chapter explains why

[215] Former CGM Level Officer in CIL. Personal Interview. 2 March 2018.

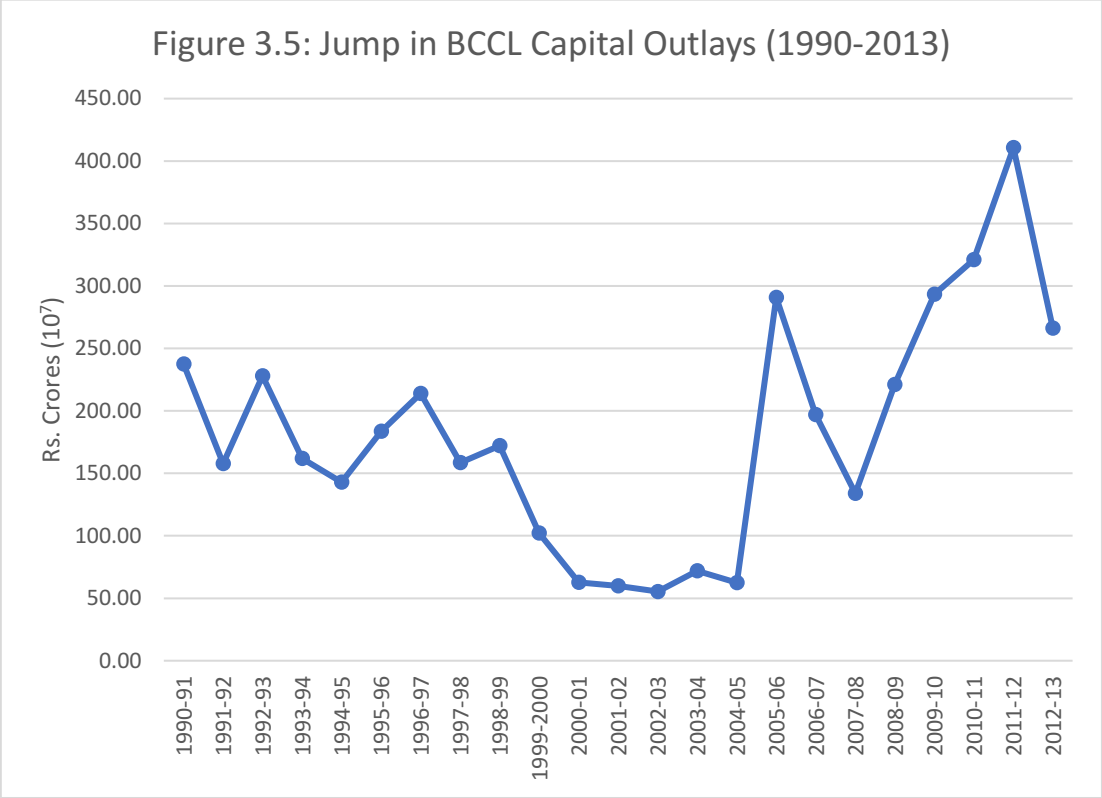
BCCL epitomized the legacy problems of the welfare providing SOE. The administrative response to the R N Mishra committee reports was temporary; much of the middle management of the company was still guilty of sins of omission and a few were even actively involved in allowing the nexus of organized crime, local politicians, and union leaders to operate in the region without much resistance. The previous CMD of BCCL, B N Pan had set a good foundation for Bhattacharya, by starting talks with local politicians to allow outsourcing in various patches of mines. However, outsourcing was not a substitute for internal managerial reform. And this is precisely what Bhattacharya initiated when he joined as CMD of BCCL in late 2003.

Bhattacharya's management of the turnaround of BCCL was sophisticated and multi-pronged. It revolved around four main planks: getting special investment funds for BCCL, improving labour relations to undermine the muscular politics of the region, improving revenue realisation and getting BCCL a fair price for its coal, and expanding outsourcing operations.[216]

Firstly, Bhattacharya needed money for his revival plans. The previous decade had left BCCL with a shortage of working capital. It was delaying wage payments regularly, months behind on its dues to contractors, and dependent on monthly coal sales just to make ends meet. Bhattacharya and his team at BCCL came up with a proposal to the Ministry of Coal for a one-time loan of Rs. 300 crore (3 billion) (see Figure 5 for spike in BCCL's capital outlays in 2004-2005) which would be paid off within five years. Naturally this would have been impossible under the World Bank loans, but even without conditionality, it was not easy to convince the Ministry of Coal that this was a worthwhile investment. The financial logic of Bhattacharya's proposal notwithstanding, many previous executives had tried and failed to effect operational

[216] Bhattacharya, Partha. Personal Interview. 14 March 2015.

changes in BCCL. He was essentially staking his future career in CIL on successfully executing this turnaround.[217]



After securing the loan one of Bhattacharya's first moves was to gradually eliminate all pending delays in wage payments in BCCL. Because of its perpetual shortage of working capital, BCCL was notorious for delayed payment of wages, often for months at a time. The practice had become so common in the previous decade, that getting pending wages cleared was a source of power for union leaders; leaders who had good relationships within BCCL could often get wages disbursed earlier for their workers. Such practices not only alienated BCCL employees, but it also generated a lot of ill will against the company more broadly as families and dependents were affected by the company's poor managerial practices. Within six months of joining BCCL, Bhattacharya had exerted enough pressure on BCCL's financial

[217] It should be noted that the Coal Secretary at the time, P C Parakh, was among the most progressive in the industry's history. His cooperation was essential for the disbursal of this loan.

bureaucracy to eliminate most delays in wage payments. This gained him considerable popularity among BCCL's employees.[218]

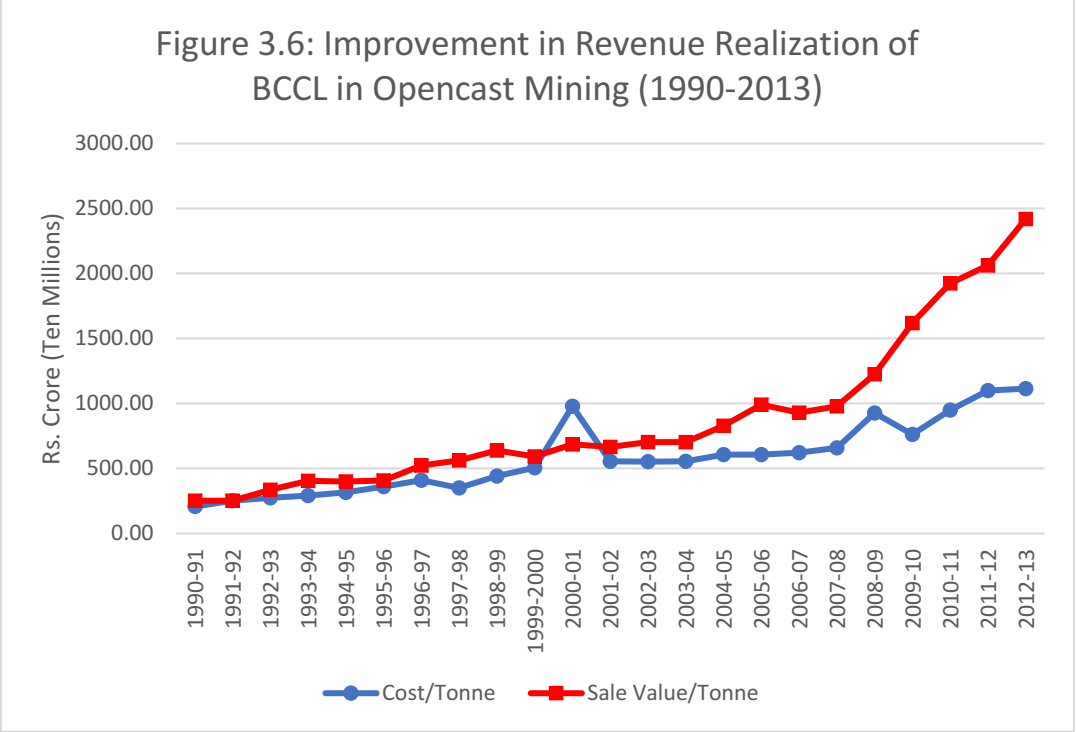
Chandrashekhar 'Dadai' Dube, a Member of Parliament from Dhanbad and a major leader in the Indian Trade Union Congress (INTUC) was one of the main opposers of Bhattacharya's changes. Despite the improvement in wage payments, his opposition to outsourcing and any private involvement in BCCL meant that work disruptions were common throughout BCCL. Dube's political legitimacy came as much from his public demonstrations of dominance (through strikes, protests, work disruptions, intimidation etc.) as it came from getting concessions for his union members. He even called the Coal Secretary at the time and berated him for not consulting Dube before allowing outsourcing at BCCL and later levelled unfounded corruption allegations against the same secretary.[219] And yet, Bhattacharya managed to push through his reforms, partially because of his ability to foster a positive relationship with both his employees and the media. In 2005, Dube's party (Congress) suffered a major loss in the state assembly elections which gave Bhattacharya more operating room, since the state leaders and the Members of Parliament were not aligned. When Dube confronted Bhattacharya in his office, accusing him of supporting his rivals, Bhattacharya calmly walked Dube through the political logic of his loss. Dube's activism was preventing BCCL's employees from actually claiming their wages, because when work was disrupted, their names were not present on the daily employment rolls. Dube used disruption as a tool to compel payment of wages, but without any delays in payment, he was now acting against his employees' own interest. He left Bhattacharya's office, temporarily defeated, reconsidering his political strategy.

[218] Former CMD of CIL. Personal Interview. 24 May 2016.

[219] Parakh, Prakash Chandra. Crusader Or Conspirator?: Coalgate and Other Truths. Manas Publications, 2014. Pg. 129-131.

BCCL had some of the best quality coal in India, and there was a clear shortage of coking coal in the country. In fact, by the mid-2000s India's coking coal imports had increased dramatically because of CIL's inability to mine enough through BCCL and ECL. But this was not reflected in CIL's prices; coking coal was still being sold at a major discount from international prices. Despite the official deregulation of prices through the Colliery Control Order, 2000, coal prices were still predominantly guided by Ministry of Coal. Subsidiaries typically had little control over pricing policy, but Bhattacharya's relationship with both Ministry of Coal officials and its consumers allowed him to push for price changes for coking coal with existing consumers. As a result of these behind the scenes negotiations, one of BCCL's largest customers, the Steel Authority of India Limited (SAIL), agreed to a one-time increase of coking coal price by 40%.[220] Given the traditional self-interest of most Indian SOEs, pulling off such a deal was a major accomplishment. Later on as CMD, Bhattacharya would introduce further measures helping improve BCCL's profitability.

[220] "SAIL agrees to pay 40% more for BCCL coal." The Hindu Business Line. 25 May 2008. https://www.thehindubusinessline.com/todays-paper/tp-corporate/SAIL-agrees-to-pay-40-more-for-BCCL-coal/article20131852.ece



Outsourcing, as practiced by CIL's subsidiaries, was not only a form of subcontracting, but also a method of transferring financial risk away from CIL onto its contractors. In its pre-liberalisation business model, CIL procured its own equipment, hired its own employees, and also paid for many ancillary services directly from its own budget. The idea behind outsourcing as it started in the early 1990s, was to improve subsidiaries' financial efficiency by farming out non-mining operations like overburden removal out to subcontractors. The nature of compensation in the contracts, known as HEMM (Heavy Earth Moving Machinery) contracts, was on a per tonne basis. The contractor was expected to bring their own trucks, labour and machinery. This was both a form of labour arbitrage (since private contractual employees were not owed the same benefits and social overheads), and way of moving capital risk onto subcontracting companies. Since subcontractors were responsible for providing machinery, they also had to deal with the procurement and maintenance costs of this equipment. All these costs were expected to be built in to the bids placed on HEMM tenders put out by CIL's subsidiaries. Given's CIL's problems with equipment, inventory, and maintenance in the early

1990s due to financial constraints, this approach allowed CIL and its subsidiaries to make their limited funds go much further.

When Bhattacharya first tried to introduce contractors into BCCL, Dube's supporters prevented the contractors from entering the mines and threatened the use of force. Bhattacharya tried to get the Coal Secretary to intervene through the Jharkhand bureaucracy and even that was not successful.[221] Eventually, it would take multiple interventions through the Ministry of Coal and state ministers from Dube's own party to get Dube to withdraw his protests.[222] And with that Bhattacharya's revival plan was finally in motion. Most trade unions other than Dube's had already understood the necessity of outsourcing for keeping BCCL afloat; Bhattacharya had earned enough goodwill from BCCL's employees to proceed. And the results came in quickly. In 2005-2006, BCCL posted profits for the first time since nationalisation.

While Bhattacharya's turnaround at BCCL was not the only instance of bureaucratic entrepreneurialism after the end of the World Bank loans, it was definitely the most dramatic given the its speed and circumstances under which it was accomplished. Not surprisingly, this turnaround only further bolstered Bhattacharya's candidacy for the top post in CIL. Top jobs at India's major SOEs are highly contested, with extensive lobbying by both bureaucrats and politicians.[223] However, in Bhattacharya's there was no real competition; he was respected and admired both within the organisation and among the wider Indian bureaucracy. In October 2006, Bhattacharya became CMD of CIL.

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[221] Parakh, *Crusader or Conspirator?*, Annexure 18-I

[222] "BCCL resumes outsourcing at Dhanbad mines." Financial Express. 11 January 2005. http://www.financialexpress.com/archive/bccl-resumes-outsourcing-at-dhanbad-mines/123910/

[223] For an example within CIL, read Chapter 6 of India's Coal Story, which discusses the succession battle for the CMD position after Bhattacharya retired in 2011.
Bhattacharjee, Subhomoy. India's Coal Story: From Damodar to Zambezi. SAGE Publishing India, 2017.

From Financial Dependence to Autonomy: Becoming a Modern Public Company[224]

By the mid-2000s, CIL as an umbrella corporation was in relatively good financial shape, even if a few of its subsidiaries were still undergoing major restructuring. As Figure 1 and Figure 3 show, CIL's debt service had decreased considerably, and its profitability had grown steadily since the early 2000s after CIL benefited from favourable price revisions in coal. These profits gave CIL considerably more bargaining power with the Ministry of Coal and within Government of India more broadly.

In 1997, India's Department of Public Enterprise had come up with a tiered classification system for SOEs based on a set of financial indicators, which would confer upon them increasing levels of financial autonomy. The higher an SOE's classification, the more money it was allowed to spend on large projects without board or ministry approval. 'Navratna'[225] status was the highest rung of this ladder, which allowed companies to spend up to either 15% of their net worth, or up to Rs. 1000 crores (10 billion), without government approval.[226] During the period of the World Bank loans, the government naturally maintained strong board control over CIL and its various subsidiaries to ensure compliance with loan condition. But the managerial accomplishments and financial recovery of CIL from the early 2000s onwards allowed Bhattacharya and his colleagues to make a case for greater autonomy. In late 2008, CIL was granted Navratna status.[227]

[224] This entire section is largely informed by interviews with CIL executives who served with Partha Bhattacharya in various capacities.

[225] Literally translated, 'Navratna' is a configuration of nine gems which has historically been associated with royalty, and is considered particularly auspicious.

[226] Another requirement of Navratna status was the nomination of independent directors onto boards of SOEs. In theory this was supposed to enhance the accountability of the company, but independent directors often ended up being political appointees or former bureaucrats who would vote in line with government representatives.

[227] Mukherjee, Ambarish. "Navratna status binds CIL to get listed in 3 years." The Hindu Business Line. 27 October 2008. < https://www.thehindubusinessline.com/todays-paper/tp-economy/Navratna-status-binds-CIL-to-get-listed-in-3-years/article20146035.ece >.

SOEs granted Navratna status were expected to publicly list within a few years. The government's justification for this policy was primarily centred around disinvestment; large industrial SOEs, especially profitable ones, could fetch attractive valuations through public offers. Even without diluting its majority stake, partial disinvestment of large SOEs would allow the government to raise considerable budgetary resources which could be used towards short and long-term goals. Much of the initial spark for disinvestment came as a follow-up to India's balance of payments crisis in the early 1990s. But the implementation lagged well behind the stated intent of various governments throughout the 1990s. [228] In 1999, the Bhartiya Janta Party (BJP) led National Democratic Alliance (NDA) coalition government came into power with a strong stated preference for state exit from various forms of economic activity. But at the time, CIL was nowhere near attractive enough as a corporation to attract investment. However, by the late 2000s, CIL was both profitable, and benefiting from robust domestic demand conditions as private power generation capacity in India expanded rapidly. It was a good time to go public.[229]

Bhattacharya spent a large chunk of his time as CMD preparing CIL for its IPO in late 2010. Given the levels of scrutiny, both financial and operational, that would accompany a public offer, CIL and its subsidiaries had to change many of their internal processes to be palatable to outside investors. In many ways, the imposition of norms leading up to an IPO was Bhattacharya's way of maintaining pressure on CIL and its subsidiaries to keep improving.

[228] T. G. Arun & F. I. Nixson. (2000) "The Disinvestment of Public Sector Enterprises: The Indian Experience", Oxford Development Studies, 28:1, 19-32, DOI: 10.1080/713688302

[229] Coal India Limited. Prospectus. 26 October 2010. https://www.db.com/india/docs/Prospectus.pdf

Prior to Coal India, three other SOEs had made public offers with tepid responses from the market.[230] Bhattacharya did not want to meet a similar fate.

Myriad changes were made between 2006-2010 to this end. Many of CIL's mines and facilities were brought under ISO quality management norms, which required certification from external consultants. CIL's books were thrown open to an array of investment banks (which included Citibank, Deutsche Bank, Morgan Stanley, Merrill Lynch, and Kotak) who were handling portions of the public offer. CIL hired multiple external lawyers to bolster the operations of its internal legal departments as it tried to dispose of the incredible backlog of cases that it had accumulated over the years. Even then, at the time of filing its prospectus, CIL and its subsidiaries were involved in over 10,000 separate pending cases whose subjects ranged from land acquisition, to internal service complaints, to civil suits over damages through CIL's operations.[231]

One of Bhattacharya's larger goals, which was informed by his time at BCCL, was to generate a stronger sense of company pride and identity and improve the public image of the industry. In the aftermath of nationalisation, company loyalty came primarily from a sense of contribution to the national project; many of CIL's upper management had taken significant forced pay cuts after transitioning to public employment. Most acknowledged the systemic problems of private mining and bought into Mohan Kumaramangalam and Indira Gandhi's vision of an efficient, scaled, centrally planned public sector coal company which would also act as a model employer. But in the thirty years since nationalisation, much of this optimism had faded. The confrontational relationship between management and labour had intensified over time, increased external scrutiny and hiring freezes had placed greater pressure on the

[230] Press Trust of India. "IPO to attract huge response from investors: CIL Chairman." LiveMint. 28 April 2010. < http://www.livemint.com/Money/RPUS0PRcHPDPI8kBfdEo9I/IPO-to-attract-huge-response-from-investors-CIL-chairman.html >.

[231] Coal India Limited. Prospectus.

remaining employees of the company, and the industry at large had become stigmatized for both corruption and inefficiency. While many of these characterizations may have been justified, it did little to help company morale. Mining was still a difficult job and those who worked for CIL generally felt that they were doing a thankless job.

For perhaps the first time in CIL's history, its increased financial agency allowed Bhattacharya and his subsidiary CMDs to embark upon a mission of revitalizing brand Coal India, both inside and outside the company. Internally, Bhattacharya institutionalised the annual celebration of Foundation Day in every subsidiary, which included performance awards for employees, cultural programs, and speeches by notable figures from CIL's past, ministers, and other dignitaries. In many area offices all over the country, Bhattacharya commission the construction of a *Shaheed Smarak* (Martyrs Memorial). He initiated a tradition to remember those who had perished in mine accidents on Foundation Day, invite their families, and publicly honour them. Bhattacharya even commissioned the writing of a company song, which would be used in all public events. Even if primarily symbolic, these steps played a major role arresting the demoralisation that had settled into the organisation over the last three decades.

In preparation for the IPO, Bhattacharya also gave CIL employees an opportunity to buy discounted shares of the company. Unlike in other countries, labour representatives had never had a role on the board of CIL and its subsidiaries. Bhattacharya commissioned a private company to financially educate the entirety of CIL's permanent workforce on the benefits of the equity market, and afford them the opportunity to invest in CIL during the IPO.[232]

Externally, Bhattacharya and his CMDs went on a public relations offensive to try to restore the reputation of the company. But as one General Manager in charge of public relations put it, "Nowhere does the coal industry have a positive image. Our job is simply to defend

[232] Majumdar, Shyamal. "From Miners to Investors." Business Standard. 30 April 2010. http://www.business-standard.com/article/opinion/shyamal-majumdar-from-miners-to-investors-110043000022_1.html

ourselves.[233]" Bhattacharya was determined to prove this wrong. In the pre-liberalisation period, local media would often be treated as a nuisance, rather than a potential ally. Press conferences, open door policies for favoured journalists and strategic local investments to build goodwill all became part of the CMD's toolkit. Albeit with some reluctance, publicity, some amount of transparency, and local engagement started seeping into the organisation. In contrast to many other SOE IPOs in India at the time, Bhattacharya and CIL put considerable effort into promoting the organisation to both domestic and international institutional investors. Officials from CIL and the Department of Disinvestment went on a five-country roadshow in September 2010 to promote the stock to international investors.[234] And all of these efforts paid off.

In October 2010, over the course of four days, CIL had its IPO, offering up 10% of the company for public offer in the hopes of raising $3.5 billion in investment. Investor response was emphatic. Its share offer was oversubscribed more than fourteen times, and with the valuations reached during the IPO, CIL jumped into the top ten Indian companies by implied market capitalisation.[235] Within a year, albeit for a brief moment, CIL became the CIL had finally earned financial legitimacy; the symbolic value of this was immense. Within a decade, the company had gone from being a loss-making, bailed out SOE to a thoroughly profitable publicly listed company with a host of reputed minority investors outside the Government of India. CIL had reclaimed its financial agency.

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[233] Former GM (Public Relations). Personal Communication. 5 July 2013.

[234] Dash, Jayajit. "CIL in hunt for global investors for country's biggest IPO." SmartInvestor.in. 13 Sep 2010. http://smartinvestor.business-standard.com/market/iponews-41737-iponewsdet-CIL_in_hunt_for_global_investors_for_countrys_biggest_IPO.htm

[235] Press Trust of India. "Top six companies add Rs 33,638 cr in market cap; CIL, ITC shine." The Hindu. 2 June 2013. http://www.thehindu.com/business/markets/top-six-companies-add-rs-33638-cr-in-market-cap-cil-itc-shine/article4775316.ece

Conclusion

CIL's financial adaptations took different forms during different periods. After nationalisation, CIL developed relatively loose internal financial norms, which was partially reflected the urgency its mission at the time: production above all else. But what was arguably more problematic was the Indian planning environment's expectation that CIL support other loss-making SOEs and provide welfare functions while simultaneously operating in a controlled low-price environment. Consequently, a decade of forced convalescence during the 1990s was needed to reorient both the organisation's internal culture, and for CIL's officers to convince its various stakeholders (labour, politicians, and other bureaucrats) that these changes were necessary, and could not be rolled back. Looking at the continued financially delinquency of some Indian SOEs even after liberalisation (like Air India or Indian Railways), there was the distinct possibility that CIL could have relapsed into similar modes of inefficiency and financial dependence after the conclusion of the World Bank loans. In fact, the opposite happened. Starting with P K Sengupta's influence in the early 1990s, both financial and mining professionals within CIL absorbed the necessity of resource self-sufficiency for the organisation's continued success.

The World Bank loans certainly played a large role in this process through both training and by inculcating a strong culture of accountability in the twenty-four new mining projects that it sponsored between 1995-2000. The generation of CMDs and senior managers that were trained during this period and rose through the ranks, exemplified by Partha Bhattacharya, were able to tighten up operational performance through the rising use of outsourcing contractors while also reducing excessive welfare spending. But more importantly, the intellectual alignment between the Ministry of Coal and CIL's management (best reflected in the joint tenures of Partha Bhattacharya and P C Parakh), allowed CIL to resist political pressure and

push for reforms in pricing, industrial relations, subsidiary discretion and investor transparency (these adaptations are summarized in Table 3.2).

As this chapter has illustrated, the rise of financial professionals and the increasing weight on financial logic was not something which happened easily in the coal industry. The realignment of the interorganisational field along lines of financial accountability required agents within CIL, like P K Sengupta and Partha Bhattacharya, to take major professional risks to gain enough internal and external support rehabilitate their organisations. Policy entrepreneurs like Sengupta and Bhattacharya can be found in every successful SOE in India. The momentum behind these changes was representative of broader transitions in India's public sector; India's Leviathan was adopting the profit motive, and this would have serious implications for local politics.

Table 3.2: Financial Adaptation by CIL

	Pre-Nationalization (Before 1971)	Post-Nationalization (1971-1991)	Post-Liberalization (1991 – 2000)	Profit-Making Era (2000 – Present)
Bureaucratic Discretion	**NCDC**: Extremely diluted, some local operational autonomy but close monitoring by parent ministry and planning apparatus	Some amount of local operational autonomy but close monitoring by parent ministry and planning apparatus. Formation of CIL gave subsidiaries some limited independence through their boards but procurement highly controlled	Increasing, but closely monitored by World Bank and Ministry of Coal. Financial professionals increasingly empowered within CIL. Arguments made on commercial terms gain more traction than those based solely on operational targets	High, able to make investment in infrastructure and manpower due to newfound profitability. Navratna status a major boost to operational and financial independence. Public listing required demonstration of some managerial independence from government.
Organizational Capacity	**NCDC**: Limited, mines opened but struggled to acquire both customers and market share	Operationally competent (in mining), but frequently loose and ad hoc financial management. Financial goals often subordinated to operational goals.	Improved considerably during this period because of close management of World Bank supported mines. Relationship between CIL and subsidiaries approaching that of a normal corporation. Introduction of subcontracting allows CIL to take on more of a managerial role and cut costs significantly.	High, financial self-sufficiency gives CIL considerably more leverage vis a vis downstream customers. Rapidly expanding outsourcing allows CIL to spread operational and capital risk to private subcontractors.
Resource Self-Sufficiency	**NCDC**: No, heavily subsidized	No, highly dependent on government budget for subsidies.	No, highly dependent on government and external loans. But return to profitability	Yes, profitable and able to borrow money from banks and government on commercial terms. Accumulated considerable cash reserves
Political Influence	Extremely limited at national scale, some influence in local and state institutions	Limited, succumbed to local and national political pressure frequently	Increasing, hard budget constraint and World Bank conditionality allowed rejection of unreasonable demands	High, CIL management empowered to resist major pressure by their own minister on multiple occasions. Alignment with Ministry of Coal a major contributor to increased organisational confidence.
Rule-Shaping	Extremely limited at national scale, some influence in local and state institutions	Limited at national scale, increasing in local and state institutions	Limited at national scale but assisted by World Bank loan conditionalities, low in local and state institutions because of retreating welfare function	Moderate, able to provide input in most major coal policies because of increased coordination between CIL and Ministry of Coal.

Chapter 4: Labour and Local Politics

Introduction

The essential nature of coal in many countries' energy systems, both historically and presently, gives the commodity a special place in how it affects labour mobilisation. The ability to exert control over energy supply chains has enabled miners, mine-affected populations, and politicians mobilizing around coal to play a large part in the social life of coal bearing areas.

Much of the political narrative around the coal industries of Western Europe and the US tends to focus on their importance in national labour movements, and their democratizing nature. In Carbon Democracy, Timothy Mitchell makes a convincing argument that in the first half of the 20th century, coal played an important role in the promotion of "mass democracy" in the Western world.[236] A combination of factors led to this. The oppressive conditions of mining led to the close socialization of miners and was responsible for their consequent political expression for improved working conditions and wages. The ability to physically control dispatch networks of coal because of the lack of mechanization during this period gave workers disproportionate power over energy networks. And the large spatial and social footprint of the industry meant that this was not an isolated movement; coal labour politics was able to percolate up to the national level and influence democratic politics more broadly. Such a narrative has been part of the larger historiography of coal as a commodity. Even in China, the industry was one of the original sites for Mao and the CCP's labour mobilization, and still maintains an important symbolic role in the cultural history of revolution in China.[237]

However, this characterization does not seem appropriate for India; generally, industrial labour movements in India have not been nearly as politically effective. This is true not just in

[236] Mitchell, Timothy. Carbon Democracy: Political Power in the Age of Oil. Verso Books, 2011. Print

[237] Perry, Elizabeth. Anyuan: Mining China's Revolutionary Tradition. Univ of California Press, 2012. Print.

coal, but also more broadly across industrial sectors. Some argue that this is because of structural reasons (primarily laws and regulations favourable to big business) which handicapped the labour movement at its very inception during Independence.[238] But a more convincing argument has to do with the lack of representativeness of labour leaders and their interests.

Lloyd and Susanne Rudolph laid down a set of conditions regarding the balance of power between unions and the state in 1987 which, even now, well characterizes the status quo. Amongst the most important of these was the procedural environment created by the state, which "encourages unions to depend for recognition and benefits on government and management more than on their membership and their capacity to represent its interests." The strength of a union leader was often determined by their ability to credibly negotiate with the state, rather than the number of people who supported them. This often led to situations where recognised union leaders would strike deals that benefited a small group but was detrimental to the labour class more broadly. Another problem that emerged among unions was their proliferation; every major regional party formed a labour wing. This kind of fractured representation led to myopia; unions often struggled amongst themselves to capture the political support of existing labourers, rather than looking to expand the pool of labour, which would ultimately make them more politically sustainable in the long run. Finally, public sector wages were usually revised through a technocratic process within the bureaucracy (like the Finance Commissions), rather than socially determined through repeated negotiation. This gave most unions very few remaining areas to negotiate on; the base wage was usually non-

[238] Chibber, Vivek. Locked in Place: State-Building and Late Industrialization in India. Princeton University Press, 2003. Print.

negotiable, so allowances and non-wage benefits often became the only areas where bargaining was possible.[239]

Clearly, the Indian state has played an active role in shaping the rules and environment which legitimate unions operate in. Consequently, very few union leaders have been able to create a political space for themselves where they could simultaneously represent workers' and local citizens' interests, and also collaborate with the state. The few leaders that did temporarily find this balance tended to be concentrated in older coal mining areas in West Bengal, Jharkhand and Maharashtra.

This chapter will argue that after the formation of Coal India in 1975, state policies and practices in the coal industry evolved in a way which slowly eroded to the bargaining power of unions and relegated them to representing a shrinking coal labour force. Simultaneously, a parallel power base arose around the new financially lucrative practices of "outsourcing" or mining subcontracting. As political actors shifted their gaze from the developmental benefits of government employment to the financial benefits of subcontracting, labour unions retained the label and official standing of a "union," but relinquished much of the political function of a classical union. Rather, these new political entities represented other local interests in coal bearing areas which were sometimes more representative of local populations (eg. Jharkhand), and sometimes much more beholden to outside capital (eg. Chhattisgarh, Orissa).

The Colonial Inheritance

Workers in the Indian coal industry were not always bound solely to the mine, as they tend to be today. When industrial scale coal mining first started in India in the late 1800s, the majority of the labour at mines worked in the mines part-time, spending the rest of their time

[239] Rudolph, Lloyd I, and Susanne Hoeber Rudolph. In Pursuit of Lakshmi: The Political Economy of the Indian State. University of Chicago Press, 1987. Pg. 273-274.

tending to crops as farmers. The nature of labour recruitment, at least initially, was local to coal-bearing areas and conducted with the help of mine leaseholders, primarily *zamindars*. With the cooperation of *zamindars* and the social power that came with it, colliery owners (who paid rent for the mine and surrounding land) could exert considerable power over local residents as proxy *zamindars*.

In many areas, like Giridih, this led to a system where entire villages near mines were repopulated with a class of labourers who willingly committed part of their family to work in the mines in exchange for tenancy rights on agricultural land nearby. Around the mines, the living standards for mining labour were quite low; poor quality impermanent housing, negligible healthcare facilities available on site (except for very large mines), frequent unavailability of potable water and sanitation facilities, and entire families (including women and children) employed in various mining functions. Not surprisingly, this led to many informal labour arrangements and periodic absenteeism (on the order of 20-25% sometimes), as migratory workers circulated between their village and the mines, primarily due to the seasonality of the crop cycle.[240] "[I]rrespective of whether money and/or the real wage moved up, down or remained constant, the difference between the income necessary to allow the mine workers to support their families and also to provide for their own insurance against accidents, sickness, unemployment, and old age on the one hand and the wage earnings made in the mines was so wide that mine workers continued to rely on the tribal subsistence pattern and semi-feudal agriculture, and also their kinship ties for the support of their families.[241]"

[240] Simmons, CP. "Recruiting and Organizing an Industrial Labour Force in Colonial India: The Case of the Coal Mining Industry, C. 1880-1939." Indian Economic & Social History Review 13.4 (1976): 455–485. Print.

[241] Gupta, Ranajit Das. "Migrants in Coal Mines: Peasants or Proletarians, 1850s-1947." Social Scientist (1985): 18–43. Pg. 38.

One of the most well-known and persistent labour practices (existing even today) was the *badli*[242] system, where different labourers substituted in for the same job, often giving an alias or someone else's name on the attendance roll. Often, this would be members of the same family, where sons would replace their fathers in the mine; this had a dual purpose of giving mining workers a reprieve from hard manual labour (there was very little mechanization early on) and ensuring that the next generation was guaranteed employment in a contract labour system which was not particularly labour-friendly. Naturally, the *sardars*[243] and labour contractors involved in recruitment understood this practice and often ignored it as part of the social contract of getting labour to work in mines. As we shall see later on, the *badli* system morphed into a new form after nationalization.

Initially, colonial administrators ignored these poor working conditions because of the urgent necessity of coal for their industrial concerns. But as the scale of mining increased exponentially in the first few decades of the 20th century, the public health problems, the social unrest in mining areas, and the migration of labour for other opportunities (particularly in the Assam tea fields) forced administrators to start putting in some policies and minimum standards around mining labour.

The colonial government passed a Mines Act in 1901, which was periodically amended in labour-friendly ways and then completely replaced with a new Act in 1923. Among the most salient features of 1923 Act was the banning of children under the age of 13 in mines, a

[242] *Badli* literally translates to exchange, transfer, or replacement in Hindi. In this context it refers to the practice of informally switching in different labourers for the same position in mining jobs.
[243] *Sardars* were essentially contractor nominated foremen of mining gangs. Simmons (1976) describes them as follows. "[I]n the mines the *sardars* had great, if not absolute, power over the men under their charge. It was through the *sardar* that the contractor generally paid the wages to the gangs; such an arrangement could scarcely have provided a better opportunity for the *sardar* to extract *dasturi* (fee or cut) from practically every wage earner. The contractor would alsoo use the same medium to lend money to the workers, at high interest, which was one very potent reason why there was often such a fund of "loyalty" between miner, *sardar*, and raising contractor…..The *sardar* not only played a pivotal role on behalf of his superior but used his position to distribute a myriad of "petty" favours – of vital significance to the everyday working life of the men – to those who were prepared to reward him" (478).

maximum work hour limit (60 hours at the surface, 54 hours underground), and owner/managerial responsibility for an array of health and safety services for miners. This was the first serious statutory effort at welfare measure in mines, although the implementation of these measures by private mine owners often fell well short of the ideal. While the Chief Inspector of Mines did have punitive power, the majority of his "prosecutions" tended to result in relatively small fines (compared to the revenue of most mines), rather than more serious consequences for criminal negligence. Not unlike the Indian Forest Service during this period, the office of the Chief Inspector of Mines often seemed to care as much (if not more) about mine sustainability and production growth as accident rates and labour standards.[244] Given that the penetration of the formal colonial legal system in *zamindari* estates in eastern India was already limited, the legislative approach was not particularly effective at improving welfare provisioning for coal miners.

Wartime production introduced major changes to the Indian coal industry, which would have long legacies even after Independence. Firstly, the Central government took control of all coal distribution and intervened to control all coal prices through the Colliery Control Order of 1944. With wartime demands on coal, there were enormous coal shortages in all non-essential industries. Also, there were persistent labour shortages in coal mines. Without some form of state-controlled rationing, coal prices would have skyrocketed. sUntil this point, coal markets had been relatively unregulated in India with primarily bilateral distribution arrangements between producers and consumers. Because of its control over Railways the colonial government played a major role in wagon allotment to producers, but generally stayed away from expressing direct preferences on where the coal should be consumed. Railways had always been the largest coal consumer in the country, and the price it paid generally guided the

[244] These observations are made after reviewing roughly seventy years of the Annual Report of the Chief Inspector of Mines from 1895-1966.

market price for all other grades of coal. Grading of coal was government regulated to ensure some degree of quality control, but often consumers had to hire intermediaries, merchants or transport contractors because coal producers were notorious for skirting regulations to deliver poorer quality coal. Consequently, transporters and merchants became an increasingly influential group in the industry.[245]

But institutional changes during wartime production also resulted in significant improvements in labour conditions. Recognizing that coal mine labour had exit options, and that direct oppression through the *zamindar*-allied labour contract system was not getting the desired, urgent production during wartime, the colonial government passed a special 4 *anna*[246] cess per tonne (Rs. 50-60 lakhs raised annually) in 1944. This money would be collected in a labour welfare fund administered by the Labour Department of the colonial government and used to finance large Central and Regional hospitals, pit-head baths, mining township construction, ambulances and more.[247] This in itself became a large source of employment in the industry.[248] Previously, much of this welfare function had been conducted by the Provincial governments whose revenues were not directly tied to coal production.

The other major change introduced during wartime was a transition in labour recruitment practices. One of the most contentious issues in coal mines had been the disparity between the *zamindari* system of labour recruitment (the service tenancies described earlier)

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[245] Report of the Indian Coalfields' Committee (1946). Government of India Press, New Delhi: 1946. Pg. 186-190 (Hereafter, Mahindra Report).

[246] An *anna* was a unit of currency which corresponded to 1/16th of a rupee. 4 *annas* is a quarter of a rupee.

[247] Annual Report of the Chief Inspector of Mines, 1945.

[248] Ibid.
As the earlier annual report put it, "There has been a considerable increase in surface workers. This increase is primarily due to building programmes, which were held in abeyance during a large part of the war period now being undertaken. As there has been so much extraneous work which has really no direct connection with coal production it is considered that the most equitable comparison per capita output would be to [consider coal-cutters and loaders only]" (2). Revising this calculation almost doubles the labour productivity numbers for this year.

and non-*zamindari* systems, which included both direct recruitment (where employees worked directly for the employing agency) and labour contracting (which had many different forms). Mining labour clearly preferred direct recruitment, also known as the *sarkari* system, for various reasons: more transparent interaction with owners rather than with their agents, less leakage of wages and side payments to contractors, and better wages which allow for full-time employment, rather than the uncertainty and switching between two jobs (agriculture and mining). From 1919 onwards, government reports had repeatedly recommended a large scale transition to the *sarkari* system as a way of improving labour welfare and developing a permanent, albeit unskilled mining workforce. However, mine owners were reluctant to switch because of the flexibility of the contracting system; coal demand was variable enough that dealing with permanent employees was not a burden they wanted to take on. [249] [250] [251]

To encourage a move in this direction, one of the main wartime innovations was to bring in labour from outside the region, who were committed to the mine rather than having an easy exit option of leaving for their village. In 1942 and 1946 respectively, the colonial government established two organisations, the Gorakhpuri Labour Organisation (GLO) and then its parent, the Coal Recruiting Organisation (CRO). Labourers from Gorakphur in eastern UP had established themselves as sturdy, mobile workers in other industries. Their introduction into the coal industry through a relatively systematic recruitment process was a way to fill the vacuum that had been left behind when coal workers left for other industries as wartime labour demand surged. The GLO was subordinated to the CRO, which basically functioned as a more legitimate, credible labour contractor recruiting not just from UP, but also the Central

[249] Seth, Bal Raj. Labour in the Indian Coal Industry. Bombay: DB Taraporevala Sons & Co., 1940. Pg. 42-150.

[250] Ghosh, Amiya B. Coal Industry in India (An Historical and Analytical Account): Part I (Pre-Independence Period). New Delhi: Sultan Chand., 1977. Pg.135-137.

[251] Raghavan, Srinath. India's War: World War II and the Making of Modern South Asia. Basic Books, 2016. Print. Pg. 333-336

Provinces. It was established as a private agency under the Trade Unions Act, 1926. Over 30,000 Gorakhpuri labourers ended up being employed in mines in West Bengal, Madhya Pradesh, and Orissa. But as we shall see, despite the seemingly benign intent behind the CRO, it came to exacerbate the very problems it was trying to correct.

Origins and Growth of Coal Unions

"Labour" in the coal belt in the pre-Independence period has been best described by Dilip Simeon:

> The workers of Chota Nagpur[252] lived in a complex and concrete historical situation. Banded together as a class under the new industrial regime, their links with society at large remained intact nonetheless, and their movements can best be comprehended as a part of an unfolding historical context. They were not always in a state of agitation. 'Industrial peace' prevailed for prolonged spells, and routine interactions between them and other social groups took place. These groups included jobbers, gang-*sardars*, contractors, foremen, clerks and supervisors – the mediators of employment and work-discipline; and the shopkeepers, moneylenders, petty bureaucrats and policemen who provided access to marketable necessities and who represented the state. In addition, the backdrop of retreating colonial authority significantly affected the crystallisation of social interest.
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> …
>
> The social spectrum stretching from the poorest workers to the clerks and supervisory personnel did not end there, but extended to elements of the middle-class literati, with whom unionists as well as workers had ideological and social links. Appeals for public support by strikers and exhortations by managements took place within the ethical matrix of the national movement, linking those making them with broader socio-political interests. Thus, the labour movement was a dynamic totality, and the mode by which a labour 'interest' was expressed was not purely a class articulation even when it was represented as such by its leaders.[253]

Early mobilization of labour in the coal belt happened in factories rather than mines, primarily because of their more stable, permanent workforce. Some of the most significant

[252] The Chota Nagpur plateau is a geological feature in eastern India which covers the majority of Jharkhand, and parts of Orissa, West Bengal, Bihar and Chhattisgarh. It is one of the most mineral rich areas in India.
[253] Simeon, Dilip. The Politics of Labour Under Late Colonialism: Workers, Unions, and the State in Chota Nagpur, 1928-1939. Manohar Publishers, 1995. Pg. 322-323.

early strikes occurred at TISCO (1928) and Golmuri Tinplate (1929), which brought the Chota Nagpur industrial labour force into the national limelight; both Subhash Chandra Bose and V. V. Giri, luminaries of the Indian nationalist movement, served as mediators in these conflicts. The grafting of the local, industrial labour movement with the larger Indian nationalist movement was one of the main reasons coordination across the region improved. Congress-affiliated unions, primarily through the All-India Trade Union Congress (AITUC) started asserting themselves on smaller labour outfits in industrial towns in an effort to coordinate labour mobilization, but with an eye towards the nationalist movement and civil disobedience as well. But the coal industry was notoriously difficult to coordinate on labour practices because of the myriad different owners and mines. For example, in 1935 there were 397 collieries, of which 157 were run by limited companies (larger managing agency mines) and 226 run by private owners (primarily smaller Indian-owned mines). In these mines, there were only three large unions: The Indian Colliery Labour Union (7,975 members), the Tata Collieries Labour Association (1,979 members), and the Indian Miners' Association (3,200 members). Considering that the totality of the coal workforce this year was 159,254, these unions represented only 8.2% of the workforce, primarily concentrated in large, managing agency mines.[254] But by 1947, there were seven unions spread among all the coal mining regions. Some of these unions were being led by MLAs, India's mining ILO representatives, and former army officers. While collectively their membership still only represented 10.1% of the mining workforce, it was clear that collective action among coal workers had become more politically powerful and relevant.[255]

Since the nationalist movement had collaborated closely with coal workers, coal unions became a natural home for many local political figures after Independence had been achieved.

[254] Annual Report of the Chief Inspector of Mines, 1935.

[255] Annual Report of the Chief Inspector of Mines, 1947.

As the unity of purpose that brought people together in the nationalist movement slowly dissolved and the logic of democracy, regional identity and territoriality slowly kicked in, coal unions became a natural place for broader political mobilization in those regions. The government of newly Independent India was theoretically committed to a more favourable deal for industrial labour, but as Vivek Chibber points out, they were also under immense pressure from private capital to avoid nationalization as a core developmental strategy.[256] Consequently, in the first five years of Independence there was a flurry of legislation passed. For coal, this included the creation of insurance, pension, and bonus schemes, a new framework for industrial dispute resolution (Industrial Disputes Act 1947), and a minimum wage law. But during the same period, the Socialist wing of the Congress party had major disagreements with the party's non-responsiveness to labour demands, and decided to split with the Congress to form the Socialist party in 1948.[257] As a result, it was not clear how much unions were actually consulted before passing these laws. And ultimately, they still only applied to the small minority which was industrial labour.

The majority of coal labour was still in the employ of private companies, so it was often very difficult to enforce these laws, despite their intent. The Coal Mine Labour Welfare Fund was still the primary vehicle for providing public goods in coal-bearing areas, and many of the labour practices which existed before Independence continued. The de facto separation of public goods provision by the government and the relative neglect of labour by private employers was still the norm. The CRO, in particular, became problematic. The intent behind the CRO had been to fill the wartime void of labour in coal mines, and also provide a more reliable, consistent flow of labour to distant mines. But what it eventually evolved into was a

[256] Locked in Place, Pg.134-135

[257] Ibid, pg. 134

system which approximated bonded labour where labour contractors began to dominate the labour supply process. In the words of Mohan Kumaramangalam:

> In many cases, particularly in Madhya Pradesh and Maharashtra coalfields, mine owners maintained the notorious 'CRO' camps. These were forced labour camps started during the Second World War with the active connivance of the British Government for increasing the coal production so urgently required for war purposes. The Coalfield Recruiting Organisation (CRO) was set up by the employers in coal industry as their indenting agency for Gorakhpuri labour. The CRO indented on the Gorakhpur Labour Depot, a Government organisation for the recruitment of labour. The recruited workers were then despatched to various collieries by the CRO under escort by its own employees. The workers were kept in camps near the coalfields under the surveillance of the supervisors and commanding officers of the CRO and were repatriated after completion of a period of twelve months in the camps. Wages were not paid at the workspot but at Gorakhpur on repatriation. Thus the Gorakhpuri workers virtually led a prison life with even their private life being watched by the supervisors and the group officers of the CRO.[258]

While CRO labour probably accounted for only 10-15% of the coal workforce, since the majority of coal production was still concentrated in Jharia and Raniganj, the situation with CRO labour did show the relative impunity that coal companies could operate with, particularly in less dense parts of the country. From the late 1950s onwards, various representations were made to the Labour Ministry about the deplorable conditions created by the CRO. In 1963, there was even a formal meeting between the Labour Minister, employee and worker representatives, and UP government officials (representing the interests of its Gorakhpuri residents) which formally recommended abolishing the CRO.[259] But as Ghosh observes, "Continuation of the system in face of the decision of December 1963 is explained by its advantages to colliery owners. It provided the management with non-local captive labour (not allowed to join a trade union or to mingle with local labour) that could be used to break strikes. Annual repatriation provided owners with a steady supply of younger workers. Uncertainty of

[258] Kumaramangalam, Mohan. Coal Industry in India: Nationalisation and Tasks Ahead. New Delhi: Oxford & IBH Publishing Company, 1973. Print. Pg. 59-60.

[259] "The Curse of the CRO." Economic and Political Weekly 8.45 (1973): 2000–2002. Print.

continuous employment provided workers with an incentive for maximising earnings and thus reducing their absenteeism.[260]" Ultimately, it took almost two decades of opposition by both labour unions, and the UP government to finally abolish the system in 1973, during nationalisation.

However, Jharia and Raniganj were the real locus of coal employment during this period (about 80-85% of all coal employment before nationalisation), and their trajectory was quite different. The long history of mining in these regions had resulted in a job magnetism and population growth which made them dense and diverse. Of the unions that existed prior to Independence, the majority of them were concentrated in the Chota Nagpur region. And their interactions with the nationalist movement, their accumulated knowledge of labour law and their acquisition of capable local leaders in the aftermath of Independence emboldened them considerably. In the flurry of legislation after Independence, various boards and tribunals were created to adjudicate labour disputes and set standards. Engaging with these institutions resulted in small victories for the subset of workers who were unionized. The All-India Industrial Tribunal awarded the industry an increase in real wages in 1957, and then the Wage Board revised this further upwards in 1968.[261] While these were small victories, mainly compensating for changes in the cost of living, it did show that engagement with the state planning system could result in gains for labour. By 1965, almost 255,000 workers were now enrolled in unions; this accounted for 60% of the coal workforce.[262] Coal unions had clearly gained momentum and legitimacy after Independence.

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[260] Ghosh, Amiya B. Coal Industry in India (An Historical and Analytical Account): Part II (1947-1982). Calcutta: Coal India Ltd., 1990. Pg. 125.

[261] Chakrabarti, Prabhas Kumar. Coal Industry in West Bengal. Northern Book Centre, 1989. Print. Pg. 18-19.

[262] Unionisation figures from
"Report of the Study Group for Coal." National Commission on Labour, 1967. *Government of India*, 1968.
Employment figures from
Annual Report of the Chief Inspector of Mines, 1966.

By the early 1960s, coal unions had a social presence which was eminently visible in coal-bearing areas. They were able to organise conferences which had Union ministers in attendance.[263] Their coordinated strikes could result in hundreds of thousands of lost mandays.[264] Unions in different coalfields tended to have their own relationships with Regional Labour Commissioners, which led to waves of strikes in Bihar and Bengal throughout the 1960s. But now there was an established point of contact for labour disputes outside of owners and management; Labour Commissioners were meant to mediate between management and labour on behalf of the state. And as coal production grew, the Coal Mine Welfare Fund spending also increased. Centralized, modern hospitals were established in many coal bearing districts which were among the first in the region.[265] Mining hostels were constructed in larger coal-fields which provided better public health, water supplies, and standards of living for temporary or migrating workers. The close association with public goods provision and union leadership began during this post-Independence period.

But as these gains accrued, differentiation among coal labourers became an increasingly polarizing issue. Mine labour and officers had always had different associations/unions and divergent interests. But these differences became even more pronounced as the shortage of mining engineers inflated their salaries. *Sardars* and shot-firers, who were among the more skilled workers underground, started making their own approaches to the government in an attempt to get benefits beyond those given to unskilled labour.[266] To move upward in the hierarchy beyond coal loading, carrying, and other unskilled jobs, there was a certification process which required passing various tests. Given the lack of mobility in low-skilled mining

[263] The New Sketch. May 9, 1966. Pg. 16.

[264] Annual Report of the Chief Inspector of Mines, 1966.

[265] Ministry of Labour. Report on the activities of the Coal Mines Labour Welfare Fund 1957-58. Govt. of India Press: Faridabad, 1958.

[266] The New Sketch. July 18, 1966. Pg. 15-18.

jobs, unions also start making demands regarding diluting these requirements and giving more opportunities for career progression to long-time mine workers.

Another major source of differentiation that emerged during this period was public versus private sector employment. In 1956, the government created the National Coal Development Corporation (NCDC), primarily to supply coal to Railways. But NCDC was also supposed to be the face of coal growth in India, the new public sector corporation which would take a more scientific approach to mining. Mining engineers were in extremely short supply during this period. The high profitability of mines, combined with the statutory requirements of having a second or first class mining engineer running a mine, meant that even fresh graduates were able to command phenomenal salaries. One coal industry veteran who started working in the industry in 1960 revealed that his salary working in private mines right after graduation was Rs. 1300/month compared to his colleagues at NCDC, who earned Rs. 575/month (this corresponds to roughly Rs. 78,000/month vs. Rs. 35,000/month in 2016 Rupees). [267] Naturally, public sector employment came with all kinds of other benefits: housing, pension, education for children, medical care etc. As a consequence, many of the best students opted to join private companies during this period, rather than NCDC. While this was not immediately problematic, it would have consequences after nationalisation.

Finally, the legacy of the *zamindari* system was still relatively strong during this period. Dominant social groups in different regions were still able to assert themselves over mine workers. For example, in Dhanbad the most famous labour leader and coal strongman during this period was B P Sinha, a *bhumihar* leader who had strong connections within government. Within the coal industry, many considered Sinha to be more influential than even the Bihar

[267] Former CMD of CIL. Personal Communication. 6 April 2016.

Chief Minister.[268] In Asansol, it was Haradhan Roy, who would later become the CPI(M) affiliated MP from the region. Physical control over coal was generally consistent with state-level political trends. Consequently, the diversity of the mining labour force, particularly its tribal origins, was not at all represented in the labour leadership. Caste and identity still mattered much more than any kind of broad-based class mobilization.

Despite the gains described above, unionism did not grow unabated and without reaction. This was also the period when Indian owners and *zamindars* started asserting their coercive power even more. As the prices of coal were revised upwards, some portion of the considerable revenues of the owners, particularly in smaller mines, was put into worker suppression. As mentioned before, the letter of the law was often very distant from reality. The local presence and visibility of the newly formed Indian state in remote, hard to reach mining regions was still low and infrequent, which allowed many owners to be forcefully react to labour demands with impunity. In Mohan Kumaramangalam's monograph on coal nationalisation he gave a particularly dismal account of the situation.

> Workers were cheated of their legitimate dues. Slaughter mining, lack of conservation and unscientific methods remained characteristic of large areas of the industry. The mine owners successfully prevented any further progress towards implementation of the numerous recommendations of the different committees made over the years. 'Lathials' or musclemen protected the interests of the mine owners. Rampant corruption, forced labour, dubious and duplicated records, under reporting of production, non-payment of full wages, extended hours of shift without payment of lead and lift, lack of safety and welfare measures, robbing of pillars of coal, selective seasonal and shallow depth mining in a haphazard manner etc. seemed to be the guiding principles of a large number of the private colliers.[269]

Owners of small, private mines were the guiltiest of these transgressions. But it was also true that the larger mines of Andrew Yule, Bird & Co., and other large managing agencies were

[268] Former Political Fixer in Bihar/Jharkhand. Personal Communication. 21 April 2016.

[269] Coal Industry in India: Nationalisation and Tasks Ahead, pg. 58.

operated closer to the norms set out by legislation. This kind of muscular mobilization around coal became quite typical in coal-bearing areas. Both unions and owners were becoming cognizant of not just the economic value of the commodity, but also the ability to influence the state apparatus that was committed to keeping the industry active and unimpeded. The police, labour regulators[270], the district collector and his subordinates were all part of an ecosystem which needed to maintain a certain amount of order for coal production to roughly match national planning goals. But these institutions were also far more pliant and willing to accommodate deviations than Kumaramanglam would admit at the time. The real political power of unions after nationalisation would come from managing these institutions.

Nationalisation on the Ground

The high-level political motivations behind nationalisation have been discussed in earlier chapters, but how did the sudden rollout of nationalisation affected local and state politics in coal-bearing areas? As described earlier, nationalisation upended many of the existing political relationships which existed in the coal belt. Landlords and *zamindars*, mine-owners, and coal merchants lost power, whereas union leaders and employees, the newly formed state-owned companies and their bureaucracies, and government-allied merchants, or merchants who handled larger volumes gained power. But nationalisation also noticeably amplified criminal activity in the coal industry.

There were two main reasons for the increased criminalization of the coal industry after nationalisation. The first was the definitional shift in the Coal Mines Nationalisation Act, 1973 (CMN) which officially made many uses of coal illegal. The legislation that nationalized the industry also narrowly circumscribed the "notified end uses" of coal to a handful of industries: power, cement, steel, sponge iron and a few others which could be additionally notified by the

[270] The Chief Inspectorate of Mines was relabelled into the Directorate General of Mine Safety in the 1960s and formally subordinated to the Ministry of Labour.

Central government. Unfortunately, this definition completely (and perhaps intentionally) ignored the extensive dependence of small and medium enterprises (SME) on the coal industry: brick kilns, glass factories and many other small industrial units scattered around West Bengal, Bihar and Uttar Pradesh in particular all became illegal users of coal overnight. While the exact intentions behind this definitional change are not well understood, the result was clear; there was no longer an open coal market and resource allocation had transitioned from market to administrative processes. If central planners did not officially allocate an industry coal, it inevitably would have to find extra-legal ways of obtaining fuel, or face bankruptcy.

To get a sense of the magnitude of alienation of SME coal consumers consider the following. In 1972 there were about 70 large glass factories in India, only 13 of which were fully automated.[271] The total production capacity of these plants was about 215,000 tonnes of glass per year. Assuming the fully automated plants are running on electricity, it is likely that most of the others had less regular sources of electricity, and hence depended on coal as their primary energy source. Glass as an industry is incredibly energy intensive, because of the sustained high temperatures needed to melt the silica in sand and shape it. If we conservatively assume that about two-thirds of the plants are using coal, and that about seven tonnes of coal are needed to produce one tonne of glass[272], then the industrial requirement just for the glass industry is about one million tonnes of coal.[273] If we double this value to consider all other SME industries, then we get to about two million tonnes of coal, out of an annual production

[271] "A Matter of Raw Materials?" Economic and Political Weekly 7.8 (1972): 441–442. Web.

[272] Recent estimates in the EU place the specific energy demand of glass at about 5 GJ/Mg in the late 1990s. Coal has a specific energy of about 24 MJ/kg. If we assume thermal conversion is 70% efficient, then the ratio of coal input to glass output is about 7:1 (with very conservative estimates).

[273] This is not a heroic assumption given how much of the industrial base at the time was still not connected to the electrical grid.

of about 75 million tonnes in the early 1970s. This is about 2.5% of India's overall coal production at the time.

While Coal India's planning process did account for brick-burning and other industries in their projections, most people, even within Coal India were cognizant of the mismatch between the amount of coal available for un-notified end users, and the existing demand from those industries. [274] In fact, this fact was so well understood that small scale coal theft and the existence of large coal black markets, like the one formed in Chandasi near Varanasi were often ignored.[275] This black market would eventually become the locus of the infamous coal mafia. The long-term political implications of this criminalization will be discussed a little later.

Other than the overnight relegation of many SMEs to informal coal supply, the other major, immediate effect of nationalisation was the sudden benefits that came to government coal employees. One of the primary, public motivations behind nationalisation was to improve labour standards in the coal industry, which had a dismal record of worker safety and protections. This was despite fairly wide ranging legislation and existing regulatory institutions that had been established earlier.

However, behind the labour standards improvements was a larger, more instrumental political motive. As described in earlier chapters, Indira Gandhi and the INC(R) were working towards building a new political base to supplant the opposition from the Syndicate (INC(O)). One huge piece of this was the patronage that came along with creating new public sector companies. In articulating a vision of a fairer, more redistributive public sector, the INC(R) was directly committing more financial resources to public sector jobs, housing, services like

[274] Coal India. Project Black Diamond: 10 Year Perspective Coal Plan (1976-77 to 1985-86). Ranchi: Coal India Press, 1976. Print.

[275] Rajshekhar, M. "Chandasi: Close to PM Narendra Modi's Varanasi's Constituency, Thrives Illegal Coal Market." The Economic Times. Web. Published 15 Oct. 2014. Accessed 26 Sept. 2016. <http://economictimes.indiatimes.com/news/politics-and-nation/chandasi-close-to-pm-narendra-modis-varanasis-constituency-thrives-illegal-coal-market/articleshow/44818649.cms>.

electricity and water, pensions and more. But most of these benefits would only be available to those who could manage to corner the small number of government jobs that were available.

Unlike the higher bureaucracy, whose selection was based on difficult, merit-based exams, the basic qualifications for being inducted as a mine worker were relatively low. More importantly, because of the labour contracting practices described earlier, particularly the *badli* system, it was not always clear how many employees worked at a particular mine. There were perpetual discrepancies between the attendance rolls and actual employment. It was this discrepancy which became the locus of political mobilization in the lead up to nationalisation.

Most SOEs are understood to have a redistributive, welfare character which motivates them parallel to the profit motive. In CIL, this motive was encoded in the DNA of the organisation at birth, through its labour force. When nationalisation occurred, first in coking coal in 1971, and then in all coal mines in 1973, one of the intentional political interventions was to inflate the attendance rolls so that politicians could maximize the number of employees who would benefit from government employment. It was understood that some of these people would never work, and also that some of these people did not exist (*benami* employment). Under the guise of public sector employment, a support structure for political financing had been established which would take decades to even partially dismantle.[276]

However, CIL took a different angle on this issue in their annual report for 1974-75.

> The initial period after the take over and nationalisation faced innumerable difficulties in identifying the workmen who were actually working with the erstwhile owners. The Custodians initiated the process for screening in accordance with the principles evolved by the Late Hon'ble Minister, Shri Mohan Kumaramangalam, in consultation with the organisation of Trade Union; and those found to be genuine employees were brought into the employment of the Coal Mines Authority Ltd. with the full protection of their service terms and conditions as stipulated in Section 14 of the Coal Mines (Nationalisation) Act, 1973. Your Directors are happy to state that in this gigantic task the leaders of

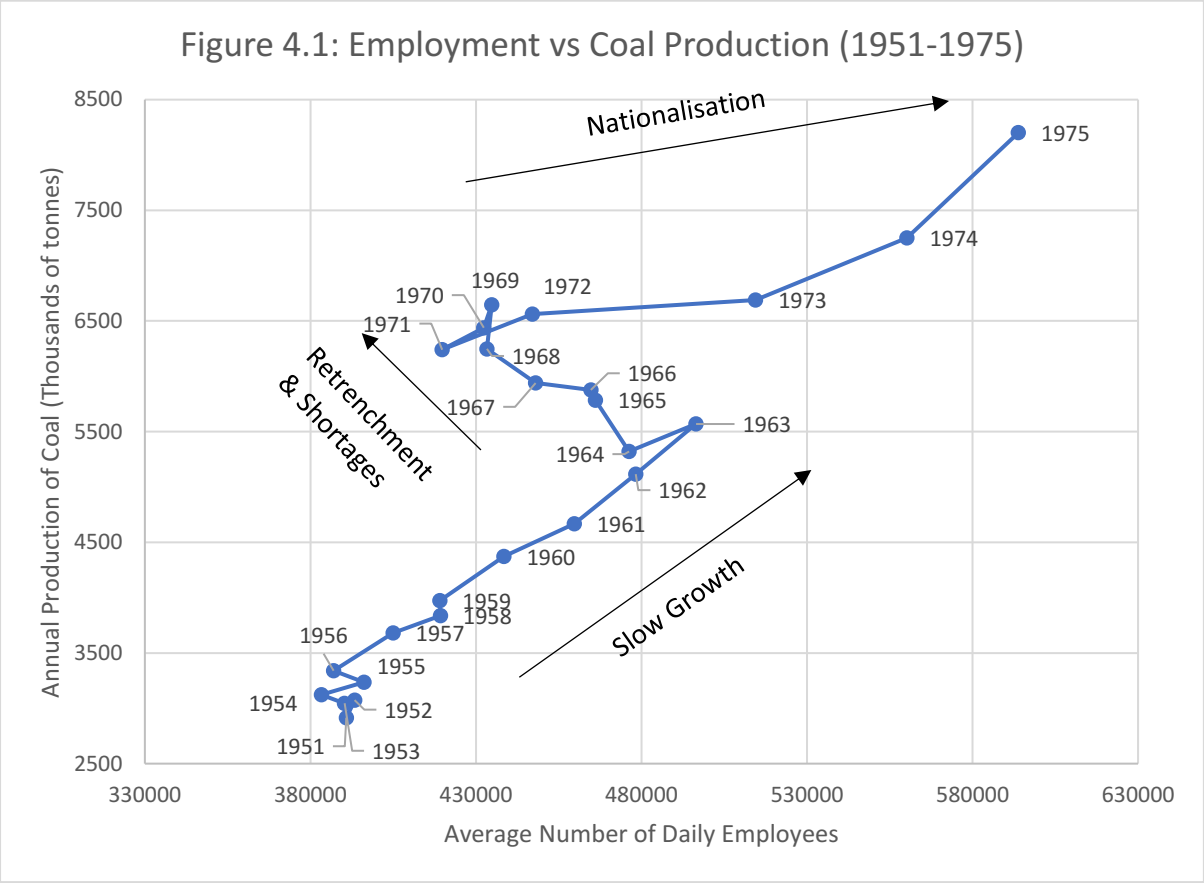
[276] This employment inflation story has been narrated to me in interviews by at least 30-40 senior bureaucrats and CIL officers when explaining the history of industrial relations at CIL.

> all the representative unions played a significantly constructive role and the large absorption of genuine workers was done painlessly and without causing industrial relations problem.
>
> …
>
> It would be necessary for the shareholders to know that manpower figures reported by the erstwhile owners were in many respects defective. The men on roll were under-reported with the result that the productivity reports and returns showed an inflated performance. These errors had to be corrected by us and consequently the number of men on roll which were to be officially reported went up considerably after nationalisation (16-17).[277]

While it is factually correct that some mine owners, especially those of smaller mines tended to skirt employment rules to avoid Coal Mines Welfare Fund payments and the statutory provision of public goods (housing, toilets, water supply etc.), it does not explain the employment explosion that happened between 1971-1976 in CIL. Using data from the Monthly Coal Bulletin, shown in Figure 1, we can see the twenty-five-year relationship between employment and raisings in the Indian coal industry. [278] Broadly speaking, there are three phases. The first phase, from 1951-1963, could be considered a steady continuation of the pre-independence managing agency mode of operation. From 1963-1970 comes the destabilisation; production continues to grow slowly, but employment is decreasing. This is also the period when coal shortages start becoming more frequent around the country, despite production growth. Finally, from 1971-1975 the industry is nationalised and the employment boom ensues. More than 160,000 additional employees become active at coal mines during this period; put another way, the coal industry increased its employment by 37.2% over a period of four years, when mining was already becoming more capital intensive.

[277] Coal India Ltd. Annual Reports and Accounts for 1974-75. Calcutta, 1975.

[278] The Monthly Coal Bulletin was a monthly statistical periodical published by the Director General of Mine Safety's office with detailed tables on employment, manshifts, wages, production, accidents and other labour-relevant data. It seems to have been discontinued in the late 1970s, in favour of annual statistical publications.



So which political actors benefited from this burst in employment? The one national-level politician whose name came up repeatedly in my interviews was Jagjivan Ram. As a Bihari leader and former Labour Minister and Railways Minister, he had been intimately connected to the coal industry and had visited Dhanbad multiple times during labour negotiations and conferences. But more importantly, it was under his early tenure as Labour Minister (1946-1952) that many of the formal employment and pro-labour legislations was passed. The most important of these was the Employee State Insurance Act, 1948 and the Provident Fund Act, 1952, which created government run financial vehicles for state employee insurance and pensions.

The initial decision to nationalise was made in confidence between four people: Mohan Kumaramangalam (the minister), JG Kumaramangalam (his brother, former chairman of

Neyveli Lignite Corporation and the future chairman of the Coal Mines Authority Ltd.[279]), KSR Chari (the first chairman of CMAL), and RN Sharma (the chief mining engineer of TISCO who became the first chairman of BCCL and later on CIL). Even the minister of state, Shah Nawaz Khan was kept out of the loop.[280] In the lead up to nationalisation, private mine owners and their representatives were constantly being assured about the unlikelihood of nationalisation by government officials. This was for two reasons. Primarily, this was that to prevent them from selling off their coal stocks, removing valuable equipment and altering their records. But it was also unclear whether Indira Gandhi would approve the measure.[281] Mine owners and *zamindars* in control of mines had been anticipating some form of government intervention in the industry after bank nationalisation in 1969. The fact that a former Communist leader, Mohan Kumaramangalam had become coal minister had done little to reassure them. The nationalisation decision was intimated to the cabinet meeting a few days before the actual raids took place. Clearly this information leaked out during that short period, which is why Jagjivan Ram has often been considered one of the main beneficiaries.

While some resistance was anticipated from mine owners, most of the actual takeovers went through relatively painlessly. Appointed custodians, who were usually NCDC officers, raided various mines with the assistance of district collectors, the local police, and CISF assistance. Their main targets were company ledgers, attendance rolls, and inventories of equipment. This information would be critical in the labour force's transition to public employment and the calculation of compensation to owners. While mine owners generally had

[279] The Coal Mines Authority Ltd. (CMAL) was the intermediate organisation that was formed in 1971 to temporarily act as caretaker of the nationalised mines before the formal corporatisation of Coal India Ltd. In 1975.

[280] Sharma, R N. Personal Communication. 23 April 2016.

[281] Ibid. In my interview with R N Sharma, one of the early CMDs of CIL, he told me the following: "The day we decided on nationalisation, were still unsure whether Mrs. Gandhi would approve the measure. On Jan. 30, Mohan called and told me to listen closely to the news tomorrow morning. Either we would hear news of nationalisation, or of his resignation."

some muscle with them at the mines, it did not compare to the mobilized physical power of the state. Custodians took over the management of mines in the interim. This is where the public versus private sector differentiation mentioned earlier became significant.

Since NCDC engineers had authority over mines, they were also higher up in the hierarchy than their private colliery counterparts, who had become government employees overnight. This was despite experience, seniority or any other considerations. What exacerbated the rivalry was that almost all of these mining engineers were educated from the same 4-5 institutions, which meant that they were all closely socialized as well.[282] Eventually CMAL figured out a pay scale and title equivalence for private sector engineers to integrate both groups into the same, unified workforce. NCDC engineers thought that private colliery engineers had sold out, had run after fat paychecks without any sense of public service or nation building. Private colliery engineers, rightfully, balked at the inefficiency of public sector employees and their relative inability to deal with complex engineering and social contexts while delivering outcomes.[283]

One of the unambiguous consequences of nationalisation was the increasing assertiveness of labour. Within a year of nationalisation, various promises were made: permanent housing for workers, modern healthcare benefits, a five-yearly mandatory bipartite wage negotiation between management and unions, and more. Riding the wave, there were a series of walkouts, *gheraos*, mass casual leave which intensified some of the coal shortages at the time. Unfortunately, assault on management and officers was also at an all-time high during this period. A short news time captures the mood of the times:

> The Managers…had been observing with concern the deteriorating law and order situation in the collieries. Mine managers were being subjected to harassment, intimidations, assault etc. the successive events of which

[282] Primarily, the Indian School of Mines, Banaras Hindu University, IIT Kharagpur, and a few other regional colleges which had mining engineering programs.

[283] Even forty years later, many of my interviewees would react dismissively when I mentioned other engineers' names by invoking their NCDC/private employment history.

> had greatly agitated the community of managers. And if the authorities failed to mitigate their genuine grievances, the managers would have no other option but to have recourse to direction actions like stop work, mass casual leave, etc.
>
> Many managers, although qualified, were not being taken into confidence by authorities simply because they had none to pull them up to the desired level. The managers were unanimous in declaring that they considered the industry as their own and they were prepared to do everything possible to make the coal mining industry a viable organisation.[284]

While the central government had made its intentions clear through nationalisation, the suddenness of the decision and the short-term managerial improvisation that followed under CMAL severely disrupted the social order of coal-bearing areas. This rebalancing towards labour was necessary, given the poor working conditions, but with most of the coal industry's labour now covered by the Industrial Disputes Act, dismissing an employee became exponentially more difficult. Every electoral and managerial promise which was unfulfilled was now met by strikes, which made the job more difficult for management. Sequentially, almost every set of officers and managerial employees also demonstrated during this period. Bringing Dhanbad, and then later the rest of the coal belt back to a steady state took more than a few years, which was reflected in the coal production numbers for the next few years.

Local Alliances

While the coal industry had historically received considerable support from the state both before and after Independence, what nationalisation fundamentally changed was that it brought the coal industry *within* the state. Rather than being an external, market-driven entity, which required oversight and regulation, it now became part of the state machinery. This created an environment where complex interdependencies developed between CIL, and both the local bureaucracy and the political class.

[284] The New Sketch. May 7, 1973. Pg. 24.

In CIL, the Area General Managers (GM) and subsidiary Chairman & Managing Director (CMD)[285] became key actors in the political life of the districts and states they worked in, respective. The Area GMs, in particular, were the frontline officers who had decentralized decision-making power over public goods creation, hiring, spares purchases, contractor selection, mine site selection, land acquisition, relocation & rehabilitation (R&R) and more. Area GMs were usually senior officers who had considerable time and experience in the industry. In my visits to over twenty Areas across all subsidiaries of CIL, the one thing which was very clear was that every Area GM had a complete map of the local political establishment. While their posting in any given Area may only last 2-3 years, they were familiar with all the union leaders, local MLAs, and sometimes even the regional MP. The extent of interaction with these political actors depended on the management style of the GM but buy-in from these actors was absolutely required to ensure that mine operations continued smoothly, and without interruption.

Among the most important effects of coal nationalisation was the amount of public spending that occurred through Coal India and other SOEs. In most coal-bearing districts in the mid-1970s, coal was among the most valuable economic activities in the district. As one political broker in Ranchi told me, around nationalisation, Dhanbad's annual coal production alone could be valued at between 20-30% of the Bihar's state budget (at black market rates). And with at least 25% of coal production in Dhanbad being diverted towards the black market, whoever could control coal and coal movement in Dhanbad could become powerful through the sheer accumulation. In coal-bearing districts, the fiscal power of coal became one of the key assets which any local political actor would try to control.

[285] Look at Appendix A for an overview of the structure of CIL and a brief explanation of roles and responsibilities.

This was not always through illegitimate means. During the early days of CIL, an enormous amount of financial resources went into the construction of public goods. Historically, contributions to the Coal Mine Labour Welfare Fund were used to build a limited number of hospitals and hostels, but they could not provide for the entire coal workforce. With the budgetary heft of a newly formed, well-financed public sector corporation, CIL set about on a construction spree which was perhaps the largest construction of durable, residential housing at the time. Over a period of 5-7 years, it constructed housing, colonies, schools and public facilities for over 700,000 employees spread over all of CIL's regional subsidiaries.[286]

The nature of this development has been highly contested. While CIL has contributed significantly to the development of public goods in the coal belt, many have noted how the creation of "coal enclaves" tends to separate urban, organized labour from the rural population and create fractured markets which rarely feed into each other.[287] In fact, this characteristic is representative of a larger trend that anthropologists have noted about the creation of a "organized sector citadel," which consists of the small group of labourers who tend to accrue the majority of the benefits from government employment.[288] With better wages, job security, access to public services (healthcare, education, power, water), this class can almost be considered more of an "aristocracy of labour," far from the typical image of the proletariat or oppressed worker.[289] In the most critical version of this argument, Lahiri-Dutt argues that "the entirety of the coal bearing tracts of India is seen as a resource hinterland that exists in order to

[286] Coal India Ltd. Annual Report & Accounts for 1979-1980. Calcutta: 1980.

[287] Rothermund, Dietmar. "Introduction" in Dietmar Rothermund, and DC Wadhwa (eds). Zamindars, Mines and Peasants: Studies in the History of an Indian Coalfield. Manohar Book Service, 1978.

[288] Holmström, Mark. Industry and Inequality: The Social Anthropology of Indian Labour. Cambridge University Press, 1984. Pg. 7.

[289] Ibid. pg. 17.

serve the primary metropolitan demands created by the urban-industrial nexus.[290]" While this is a decidedly cynical reading of the situation, the coal belt does coincide with some of the poorest parts of India.

Regardless, it was clear that CIL had some advantages in the coal belt when compared to the developmental state in eastern India. Looking back, eastern India had some of the worst growth rates in the country for the first 3-4 decades after Independence. One of the big problems was that state governments and district officials were simply unable to provide many of the public goods that were supposed to part of India's march to modernity. Regular electricity, piped water, regularly serviced roads were hard enough to come by, especially in states like Bihar. And fortunately, Coal India was much more capable of supplying these public goods in the short-run when compared to other arms of state government. Consequently, any population or village which was even remotely affected by coal mines knew that it would be easier to extract developmental goods from coal mine managers than from district collectors, who may have had the fiscal resources but not the engineering capacity to get those projects done in a timely fashion. As a result, a peculiar kind of opportunistic social contract developed in coal bearing areas, particularly in West Bengal and Jharkhand where the population density around coalfields was highest due to almost half a decade of labour migration into the region.

This social contract had the following characteristics. Local political leaders would often be elected for their closeness to CIL management and their ability to extract concessions from them. In turn, the political leaders would make sure that coal mining activity could continue unimpeded. If the terms of the agreements fell apart, then roads would be blocked, Area offices surrounded, mine managers harassed and general threats to the productivity of the firm. Often, these local politicians would also have strong connections to the labour in the

[290] Lahiri-Dutt, Kuntala. "Introduction to Coal in India: Energising the Nation." Lahiri-Dutt, K (ed.). The Coal Nation: Histories, Ecologies and Politics of Coal in India. Taylor & Francis, 2016.

collieries, which meant that mining work would also stop. This would be the worst possible outcome for an ambitious officer or manager, whose career prospects and performance reviews were largely dependent on his ability to ensure continued, uninterrupted production of coal.

As a result, mine and Area managers started giving all kinds of public goods concessions to local populations to ensure that the mines remained open and the coal kept moving. Villages were connected to the electrical grid of collieries. The water pumped out of mines was cleaned and supplied to nearby villages. Road building meant primarily for coal transportation would often be extended or take extended detours through nearby villages. Hospitals and clinics constructed primarily for coal workers would often take other local patients. During local festivals and celebrations, the mine manager or company would make sizeable contributions to the voluntary public collections funding these events. Naturally, this social spending reached urban areas as well; the majority of Dhanbad's main roads were built by BCCL. Next to the Morabadi *maidan* (field) in Ranchi, you can still find bus stands which were constructed by CCL decades earlier.

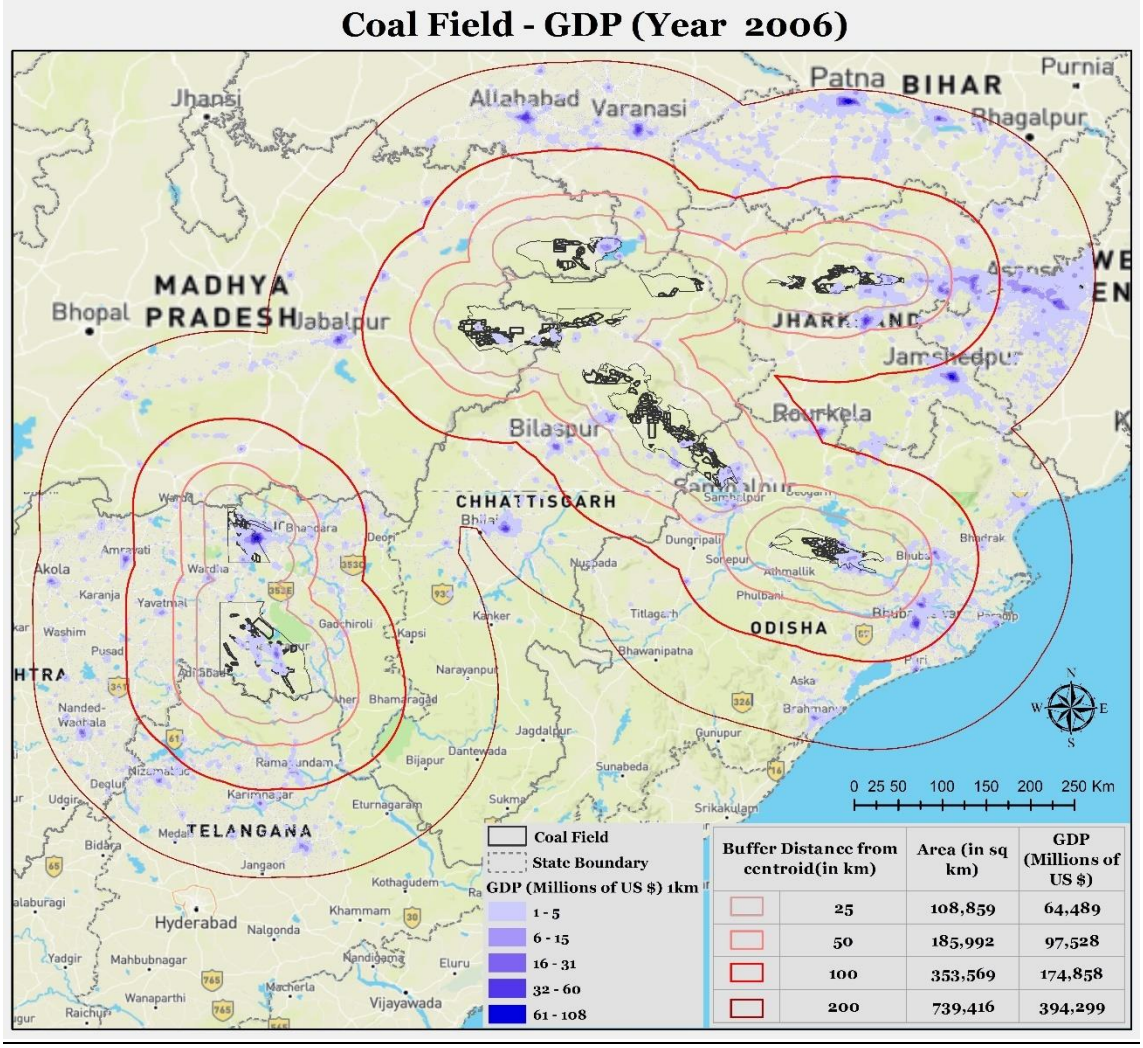
While the formal employment of CIL at its peak may have been around 650,000, its social spending had multiplier effects which extended much further. Each CIL employee was allowed to add five people to their medical cards. In addition, since the *badli* system was still very much in place, at least one-fourth of all CIL jobs probably supported two families rather than one. The agglomeration effects of coal mining created all kinds of short-term employment for drivers, mechanics, and other professionals. And then the surrounding villages who were supported with electricity, water, roads and coal theft are probably larger than the workforce itself. Adding this all together, an estimated 10-15 million people were probably directly affected by the spending of coal companies (Figure 4.2 shows populations and Figure 4.3 shows economic activity in the vicinity of coalfields in India). Naturally this became a large constituency.

Figure 4.2: Population Growth Around Coal Belt (1975 to 2015)



Buffer Distance from centroid(in km)	Area (in sq km)	Population 1975	Population 1990	Population 2000	Population 2015
25	108,859	12,969,138	18,242,243	21,840,497	26,377,286
50	185,992	22,820,404	32,027,342	39,209,780	47,911,154
100	353,569	47,775,336	67,218,403	81,039,659	100,699,113
200	739,416	122,083,684	172,189,860	209,147,506	261,178,470

Figure 4.3: Economic Activity Near Coal Belt (2006)



These public goods were still only reaching a small portion of each district's population. But in public imagination, these companies became the fastest route to advancement and job security. Middle class parents with young, educated, unemployed sons or daughters would often make representations to senior officers at CIL to try to get them clerical jobs, which would ensure government employment and future security. Countless retired CIL officers narrated stories of how they helped their friends' children get jobs in CIL in the first 5-10 years of its formation. And naturally, because of the generally upper-class nature of mining engineering graduates during the 1950s-1970s, this generation of CIL officers were usually upper caste Biharis and Bengalis. They tended to help people similar to them as well.

As a consequence, CIL officers were engaging in a highly complicated constrained optimization, particularly at the Area GM level. Their primary role, at least in theory, was that of the mining engineer. They were technical experts ensuring proper, scientific, sustainable production from existing mines and planning new mines for future expansion. They were responsible for ensuring that their mines produced continuously without interruption. But they were also social and political actors, mediating between the thirst for coal in the national economy and the desire for political and material advancement of local populations. Nationalisation and its promises had given local political figures a glimpse of the material and the modern, and anyone who could was making their claim on this public sector company. This was not an easy task.

Often, CIL officials had to engage state bureaucracies to help them with resolving contentious issues. Probably, the most contested issue was land acquisition. The Coal Bearing Areas Act, 1957 gave government companies the right to acquire any land which had coal on or beneath its surface. As coal exploration expanded between the 1960s-1980s, and opencast mining techniques were adopted, the set of viable coalfields expanded considerably from the limited locations which were concentrated near Dhanbad, Asansol and Chandrapur (Maharashtra): Singrauli in Madhya Pradesh, Talcher and IB Valley in Orissa, Korba and Bilaspur in Chhattisgarh. In addition to resolving the tangled skein of leases inherited from private ownership, CIL's subsidiaries had to go out and acquire vast amounts of new land which would become India's opencast mining base. Not having the authority or administrative capacity to compel citizens to give up their land, this is where the coercive power of the Indian state would be most necessary; district collectors and their subordinates would often facilitate this land acquisition process.

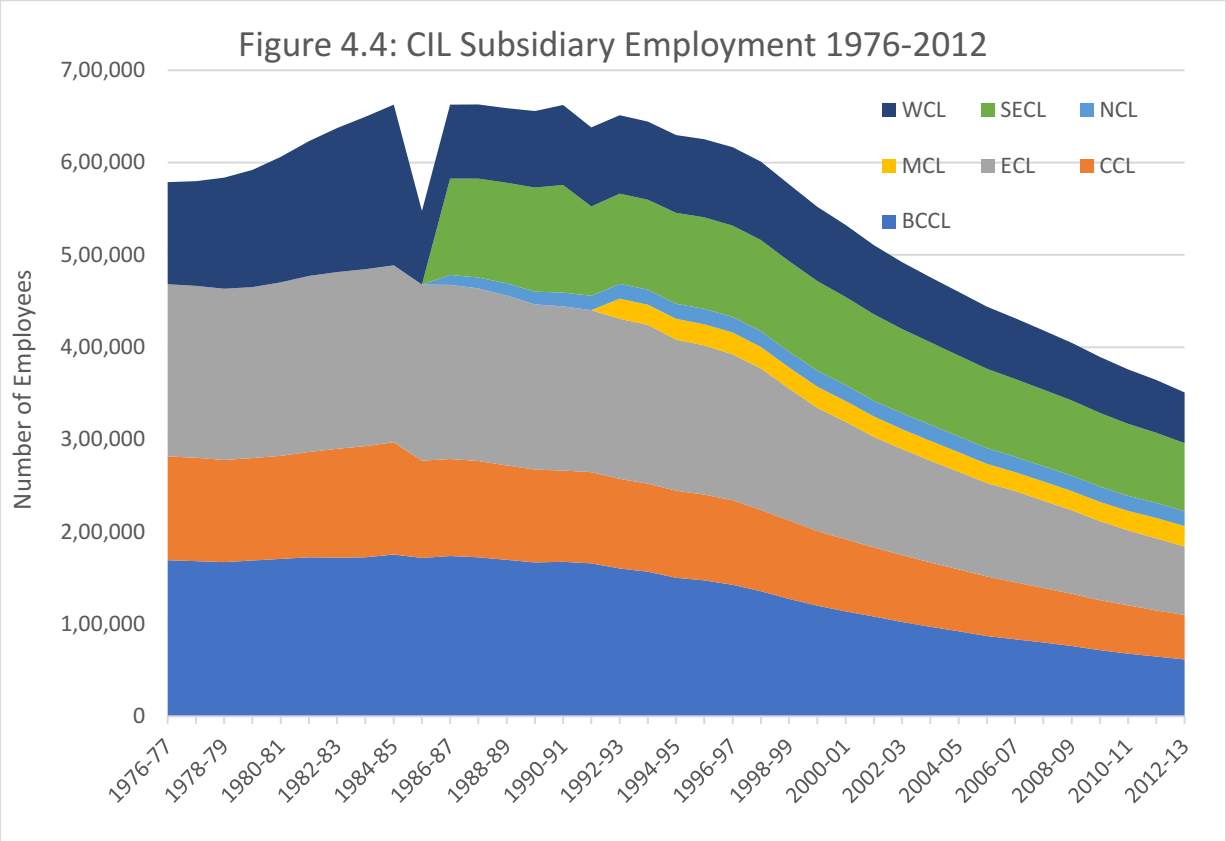
CIL and its subsidiaries would evolve policies over time to compensate Project Affected People (PAP). Depending on the size of the acquisition and the displacement involved

PAP were entitled to relocation payments, housing allocations in CIL constructed colonies, and CIL jobs for a certain number of family members. But marginal landholdings, or landless labourers whose farms were acquired often received no compensation or consideration. Common property resources are rarely acknowledged in such policies.

CIL officers also developed an interdependent relationship with local bureaucracies. While district collectors were far more powerful than Area GMs in terms of their authority, coercive power, and statutory responsibilities, they often were limited in their amount of short-term discretionary spending. New projects had to run through state bureaucracies, and generally took a long time. By contrast, the discretionary spending power of most Area GMs, particularly for social welfare, was quite high. Most collectors of coal-bearing districts would evolve a symbiotic relationship with Area GMs, where the Area GM would do small favours for the collector, and in return would get assistance from the collector as and when necessary. If a collector needed an extra car for a subordinate, and his budget did not allow for it, he would get a car from the Area's car pool. If it was a particularly cold winter, and the collector wanted to set up heating facilities in populated areas, the Area GM would provide the coal. If part of a town or city was particularly dirty, and the collector did not have the manpower, he would arrange for CIL to hire contractors. These kinds of small favours generally kept CIL officers aligned with IAS officers' interests. As a result, CIL was able to take advantage of the Indian state in ways which no private company possibly could.

While CIL was becoming further embedded and politics in the state, labour unions were also consolidating their position in West Bengal and Jharkhand. As Coal India's employment increased from nationalisation to the mid-late 1980s, union influence grew as well (see Figure 4.4). The generation of Congress-bred leaders who had co-opted the coal unions after Independence to remain politically relevant were now being supplanted by politicians with local origins. And increasingly these politicians were making it into political life as legislators.

Surajdeo Singh and A K Roy from Dhanbad, Haradhan Roy from Asansol, Rajender Prasad Singh from Bermo all made their forays into political life from the early 1980s onwards. While their ideological roots and dispositions were quite different, they were definitely more representative of the mining population than the previous generation of labour leaders. Some of these leaders were indistinguishable from the coal mafia whereas others were career Communists or labour activists driven primarily by a drive for social justice.



It was during the 1980s when the divergence in political culture between the older (ECL, BCCL, WCL and CCL) and the newer subsidiaries (NCL, SECL and MCL) became noticeable. Because of the pre-existing population density around Raniganj, Dhanbad and Nagpur/Chandrapur from almost a century of in-migration, local employment and developmental concessions had become an in-built part of political bargaining in those areas. But the newer subsidiaries were often formed in relatively remote locations, but more importantly in areas which were politically inexperienced in dealing with industrial enterprises.

All of the politicians mentioned earlier came from these older regions, very few national labour leaders emerged from the coal and mining in Chhattisgarh, Madhya Pradesh, or Orissa to legislative power.

Liberalisation and the Rise of Outsourcing

The heyday of coal unions was challenged by the reforms precipitated by the India's balance of payments crisis. As described earlier, the sudden orientation towards the profit motive, and the cuts in social welfare spending by public sector companies had a major impact on the currency of union leaders: rent extraction from public sector companies. As one former subsidiary chairman put it, "As mine managers our new modus operandi was to minimize long-term liabilities. I would provide water and electricity, but now I would charge for it. Too many people were taking advantage of our largesse. Before electricity was being used for lightbulbs and fans. After 10-15 years, you would walk into a village near a coal-field and they also had electric *atta chakkis* (flour grinders) and welding equipment. It simply wasn't sustainable.[291]"

What this meant in practice was that the extractive capability of local political leaders had to move to a new source. And the natural target became CIL's largest new expenditures: outsourcing. From the mid-1990s onwards, CIL started hiring more and more private mining companies to run parts of its mines. This was a direct threat to the unions, whose membership was already being threatened by various cost-cutting measures: CIL had reduced recruitment, was offering aging workers voluntary retirement packages, and was opening mainly new opencast mines which were more capital intensive. As Figure 4.4 shows, declining membership was a real threat to the unions.

[291] Varma, S K. Personal Communication. 2 April 2016.

While many union leaders may have had their origins in coal mines, they had constituencies much larger than just their union members.[292] This characteristic became most obvious when union leaders started dealing with outsourcing companies, rather than challenging them. The Contract Labour Act specifically banned subcontracting, but in 1997, a Solicitor General opinion allowing the hiring of machines paved the way for the outsourcing revolution.[293] This technicality, which could easily be challenged in court, was brought up repeatedly by various CPI(M) leaders in in national fora, without much response from the Central government. But for many of these leaders, political survival was more important than maintaining the support of labour; the union had become a platform for broader social mobilization. Labour needed the union leaders and their relationship with management more than the leaders needed the labourers. As a consequence, the shrinking group of formal CIL employees continued to receive great benefits, while an entire class of outsourced labour were subjected to conditions not much better than what existed pre-nationalisation. In the words of one Ranchi journalist, "*Pehle union-waale sirf vasooli karte the, ab dhandha bhi karte hain" (Before union leaders used to just extract rents, now they're getting into business as well)*.[294] Many older union leaders used their gains to buy stakes in large businesses.

[292] In the larger anthropology of labour, this has been called "social movement unionism." "[I]t represents a more fundamental philosophical shift of 'labour' as a category. It seeks to redefine the meaning of labour, expanding the concept to include the process of 'collective action of working people. to trans-form workspaces as well as communities, and reduce inequality (Webster and Mumme 2002: 259). In this process, struggles over wages and working conditions went hand in hand with struggles for better living conditions in working-class areas. Not just the factory owner and the industrial management, but the local state machinery and the government were then challenged by [social movement unionism].
Krishnan, Radhika. "The Industrial Project and Organised Labour." Economic & Political Weekly, vol. 52, no. 31, 2017, p. 63.
Webster, Edward, and Carla Lipsig-Mumme. "Recasting Labour Studies in the New Millennium." Society in Transition, vol. 33, no. 2, 2002, pp. 258–65.

[293] Multiple industry veterans, including J N Singh and Dr. Raman Srikanth have repeatedly made this point to CIL.

[294] Senior Correspondent for Prabhat Khabar. Personal Communication. 18 July 2016.

As a response to this, at least in Jharkhand there has been a new generation of union leaders who have emerged, more representative of local populations, rather than mining labour. Among the most well-known is Dhullu Mahto, who operates out of Dhanbad and is an MLA as well. While Dhullu Mahto may be a union leader, his main income comes from controlling key coal depots of BCCL, and requiring hefty commissions to allow consumers to evacuate coal from these depots. From the mid-2000s onwards he has been part of a new generation of tribal strongmen who have been asserting themselves to wrest Dhanbad away from its dominance by traditional upper cases, primarily *bhumihars* or Rajputs. In the words of one Jharkhand IPS officer, "There has been a Mandalisation of the coal mafia.[295]"

On the other hand, states like Chhattisgarh and Orissa have not seen such successful forms of local resistance and claim making. Partly because of the lack of coal mining history, and partly because of the incursion of outside contractors, local political resistance has struggled to extract concessions from the state. In Chhattisgarh, the majority of the mining contracts in SECL have been dominated by one company, ACB[296] (India) Ltd and its associates, led by Capt. Abhimanyu Sindhu. Sindhu is currently the Finance Minister of Haryana, but made his start in the coal industry in the early 1980s. After completing his Short Service Commission in the Army, he managed to win some nominated coal transport contracts reserved for ex-servicemen. Using these ex-servicemen cooperatives, he has managed to turn a small coal transport business into one of the largest private coal mining companies in India.[297] In Korba and other SECL areas, everyone in the coal belt has heard of Sindhu, his companies, and his newspaper. Local NGOs have tried to mobilize against ACB and their operations. But

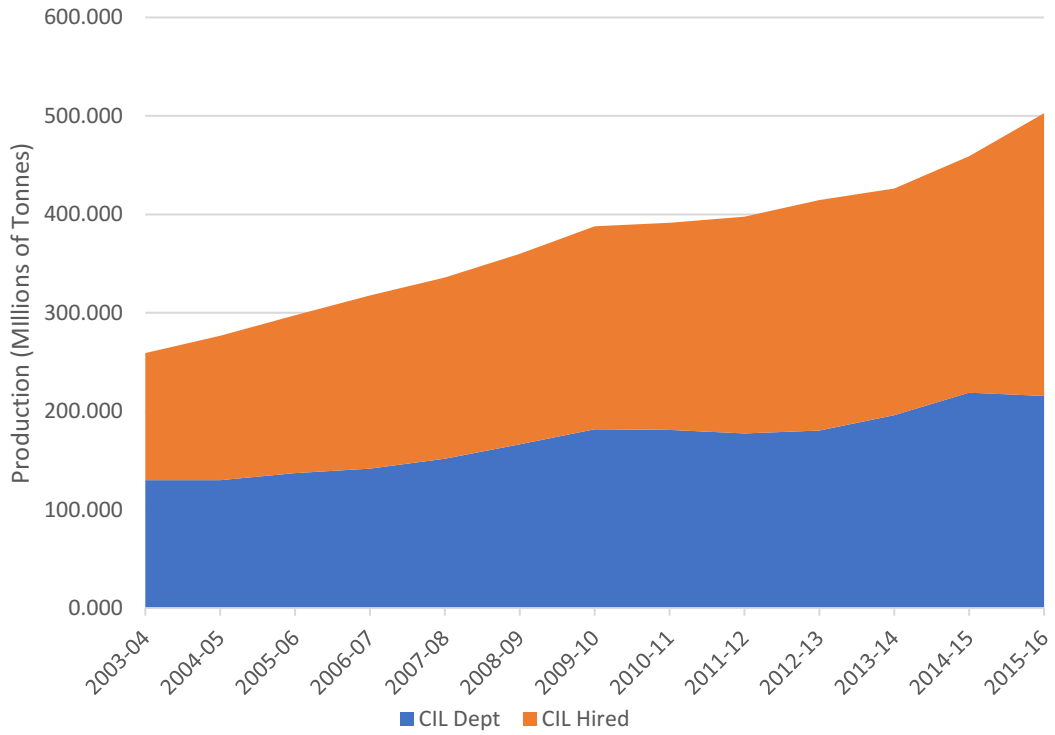
[295] ADG Level IPS Officer in Jharkhand. Personal Communication. 22 April 2016.

[296] This used to stand for Aryan Coal Beneficiation, but as the company has expanded its footprint beyond coal washing, it changed is official name to ACB (India) Limited.

[297] Pandey, Brijesh. "Coal on its face." Tehelka. 14 November 2009. Issue 45. Volume 6. http://www.tehelka.com/2009/11/coal-on-its-face/

SECL has become the largest coal producing subsidiary of CIL.[298] As we see in Figure 4.5, outsourcing has grown considerably in the last decade and a half and has completely changed the labour landscape as well.

Figure 4.5 : CIL Departmental vs. Contracted Coal Production



While the government may have owned the mines and allocated their resources since nationalisation, there were some areas where the private sector had historically contributed to the coal mining process. For example, the removal of overburden (the non-coal portions of earth excavated during opencast mining) had usually been assigned to private raising contractors. Since earth moving was not part of CIL's core competence, it was deemed appropriate to contract out these operations. But outsourcing operations by CIL were usually limited to overburden removal until the mid-1990s when CIL started facing its major financial problems.

[298] Senior Journalist Covering Mining in Chhattisgarh. Personal Interview. 6 July 2016.

As outsourcing grew from the mid-1990s onwards, there was serious contestation on who would actually receive these massive contracts. Much of the regional political economy around coal from this period onwards shifted towards the private sector contracting around CIL contracts, rather than cornering jobs and benefits within CIL. State politicians were reengaging with the coal sector operationally by having within state companies or cooperatives bid for CIL's mining and transport contracts. Naturally, these companies had to compete with larger national players, but with greater local assets and relationships, within state companies were much better equipped to handle unruly unions, criminal gangs, and Maoist insurgents who were active in large portions of India's coal mining belt. CIL's engagement with states was changing from being a welfare provider after nationalisation to business creator through subcontracting after liberalization. Naturally this transition took some time, largely a product of the last fifteen years of CIL's profitability after financial restructuring.

One of the methods CIL used to reduce costs was to increase its outsourcing operations beyond overburden removal to the operation of entire mines. This was an extremely contentious practice, because it went against both the spirit, and even potentially the letter of India's nationalisation laws. A K Roy, arguably India's most eloquent coal union leader, expressed it best:

> But what is outsourcing? The outsourcing is nothing but use of private contractors or companies in raising and loading of coal along with overburden removal. This is nothing but partial privatisation of coal industry through the backdoor.
> …
> The major ground for working outsourcing is the cheaper cost of production under a contractor compared to operations. This only means less payment to workers, much below the official rate, flouting the law taking advantage of the large army of unemployed. One of the reasons for floating the public sector was to provide fair wage to the workers who used to be given bare or minimum wage in the private sector….But in the name of globalisation and free competition in increasing unemployment with bargaining powers of labour sharply falling, public sector is to emulate private sector and bare wage is to replace fair wage and outsourcing to replace departmental operations.
> …

> So the spirit of the Coal Nationalisation Act is not adopting outsourcing, but fraud is being committed not by private owners but the management of the public sector. After the Nationalisation Act the government issued a notification in 1975 prohibiting contractual system in raising loading of coal and also overburden removal. The same rule still continues but now the government has started a contractual system without changing the rule, prohibiting it and creating a ridiculous situation where the Regional Labour Commissioner (Central), a government servant, is prosecuting the government without effect.[299]

Roy's concerns about backdoor privatisation were not without merit. As HEMM subcontracting expanded, one of the common expectations of subcontractors was to deal with any occupation and or squatting issues that emerged. From the early 1980s onwards, CIL had acquired considerable amount of land using the Coal Bearing Areas Act. However, many of these areas had not been developed into mines, and over decades had been occupied both as the country's population increased, and as people migrated closer to the urban centres in the coal belt (Figure 2 shows the more than two-fold expansion in populations close to coal fields over forty years). As the principal, CIL and its subsidiaries had to go through official processes to resettle and rehabilitate people, but its subcontractors were not always so rule-bound. Over the last few decades, local newspapers have been littered with stories about intimidation and misuse of government authority by private contractors to forcibly relocate families, and sometimes entire villages against their will. Not infrequently, the local state assists in these operations. And tribal populations have been disproportionately affected by such activities in Chhattisgarh, Jharkhand, and Orissa.[300] Unfortunately, the displaced populations are often a very small proportion of the larger populations in these areas. In private, CIL managers often

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[299] Roy, A. K. "Disinvestment and Outsourcing in Coal." Economic and Political Weekly 38.49 (2003): 5153–5154. Web.

[300] There has been extensive documentation of this. For good examples consult,
Amnesty International. "When Land is Lost Do We Eat Coal? Coal Mining and Violations of Adivasi Rights in India." Bangalore: Amnesty International, 2016.
Kapila, Lois and Sam Tranum (eds). Lat Does Not Exist: Oral Histories of Development-Induced Displacement in India. Kolkata: Earthcare Books, 2014.
Lahiri-Dutt, Kuntala, et al. "Land Acquisition and Dispossession: Private Coal Companies in Jharkhand." Economic and Political Weekly, 2012, pp. 39–45.

acknowledge the injustice of these situations, but sometimes justify the company's actions by arguing that there just as many people lining up for the subcontracting jobs at new mines as there are displaced.

This is easily the most controversial part of the turnaround of CIL. The expansion of subcontracting throughout CIL's operational area has drastically changed the politics of many of the regions it operates. In an interview, one Member of Parliament (MP) from Orissa bluntly denounced the "thuggish" culture that mining had brought to the state over the last two decades.[301] Such muscular contestation is common to mining generally, not just the coal industry, but as a company which is both owned by the government and publicly listed, CIL's role in promoting such a culture, or at the very least consistently looking the other way has been regularly brought into question.

[301] Member of Parliament from Orissa. Personal Interview. 27 June 2016.

Conclusion

Prior to nationalisation of the industry in 1971-1973, coal unions existed but were relatively fragmented. The multiplicity of mine owners made it quite difficult for the disparate regional unions to collectively act in any meaningful way; consequently, many labour leaders were known to be politically powerful in particular coalfields, but very few coal union leaders graduated to higher levels of representative politics, particularly at the national level. In fact, as Dilip Simeon describes, political actors from outside the coalfields often came in claiming to better represent coal workers and more effectively channel their collective action.[302]

What this meant practically was that unions remained relatively weak after Independence in 1947, but gained a massive discontinuous jump in power after nationalisation in the early 1970s. Nationalisation was less a product of union activism (as it was in the West), and more a product of top-down political manoeuvring, particularly by Indira Gandhi, as the Central government tried to gain more operational and political power over the industry. As has been argued earlier, the Central government had very little leverage over the industry after Independence; there was a strong regional network of power in coalfield areas, and buyers and sellers of coal used to manage their mutual relationships with relatively little government intervention or oversight. The process of inserting the state into this relationship meant upending the existing power structure; giving more rights to labour was one possible way of accomplishing this, and gaining a strong, parallel political base in one fell swoop.

Nationalisation vitalized the coal unions in a way that nothing else had ever before. Coal labourers lives improved in almost every possible way: better wages, guaranteed *pukka* housing during their time as labourers, improved healthcare, more provisions for family care, the potential of children's employment, better schools and more. Statutory responsibilities

[302] Simeon, Dilip. The Politics of Labour Under Late Colonialism: Workers, Unions, and the State in Chota Nagpur, 1928-1939. Manohar Publishers, 1995. Pg. 45.

about the welfare of coal workers that were ignored or bypassed earlier were now being implemented. But there was more. Now that regional unions were more consolidated, they could bargain directly with the newly formed regional subsidiaries of Coal India Ltd. (CIL). Instead of six hundred disparate owners, there was one big owner with five regional companies. They collectively had physical access to the most important fuel resource in the country, the resource that was expected to drive the majority of India's power and steel projects for the foreseeable future.

Initially, locally powerful leaders close to the Congress captured much of this power. But over time, coal unions became an important site for broader political movements in India to plug into; caste networks in Bihar, class mobilization in Bengal, tribal mobilization in Jharkhand are but a few of these. Because of the unique history of labour recruitment in the coal industry, many different groups were represented in the industry's labour force, and some started asserting themselves much more than others as lower caste identity politics, India's "silent revolution," gained momentum in India.[303]

After liberalization in the early 1990s, the redistributive capacity of the regional subsidiaries was severely curtailed because of the withdrawal of public subsidies to state-owned enterprises (SOEs) more broadly. The unions and state-level politics that had mobilized around the benefits provided by coal companies over the last twenty years now had to find a new source of power and influence. Not surprisingly, the politics followed the money; Coal India started moving away from doing its own mining towards hiring subcontractors as part of its financial restructuring plan. And the unions and state level politics associated with mining also moved to the sub-contractors, either entering the business explicitly (in the case of major

[303] Jaffrelot, Christophe. India's Silent Revolution: The Rise of the Lower Castes in North India. Orient Blackswan, 2003. Print.

politicians) or extracting rents for allowing operations in their controlled areas (in the case of unions).This transition had major consequences; new entrants had an opportunity to overturn many of the older political incumbents, particularly in states like Jharkhand and Chhattisgarh, where new state politics dovetailed with the reorientation that was happening within the coal industry.

From an organizational perspective, the way Coal India and the wider coal-allied state bureaucracy dealt with local populations and political representative (unions or otherwise) also changed considerably (see Table 4.1). The attitude towards redistributive functions and social activities changed, the benefits available to the shrinking "departmental" workforce increased, and relationship management with subcontractors became an important part of being a successful mining company. The profit motive became more important than ever before, which led to a major preference for capital-intensive mining. The local populace and its political representation became much more important as stakeholders than the declining formal labour force. Thus, far from being a static organization, Coal India and its subsidiaries had to change their frontline management of mines considerably.

While CIL may have struggled to become politically influential at the federal level, this chapter has shown that the company has been quite influential locally since its inception. Without the precondition of local political influence, accomplishing anything operationally in the coal belt would have been impossible. CIL has historically played a major redistributive role in the coal belt, but in the last few decades after its welfarism has been reined in, the concentration of benefits in coal enclaves seems to have worsened, not improved. As state and local governments have improved their fiscal situation, and populations have grown, it may be worth reconsidering whether large SOEs like CIL are still the right vehicle for local welfarism.

Table 4.1: Local Political Adaptation by CIL

	Pre-Nationalization (Before 1971)	Post-Nationalization (1971-1991)	Post-Liberalization (1991 – 2000)	Profit-Making Era (2000 – Present)
Bureaucratic Discretion	N/A	N/A	N/A	N/A
Organizational Capacity	**NCDC**: Establishing local footprint, connections with local bureaucracy, but expensive greenfield projects and low market share lead to difficulties	Moderate, ability to complete projects frequently impeded by increased labour activism after nationalisation	Moderate, with forced reduction in social expenditures, CIL forced to focus primarily on operational improvement, and concentrated R&R on World Bank projects, rather than diffuse spending in region	High, subcontractors take on both operational and social risks, alliances with local union leaders helps maintain organized sector citadel, need to deal with new claimants in eastern India
Resource Self-Sufficiency	N/A	N/A	N/A	N/A
Political Influence	**NCDC**: Limited influence with local politicians, but ability to offer employment and acquire land necessitates political engagement	High, large jump in social overheads result in major expenditures on local public goods, give considerable leverage with unions and local politicians, better capacity than most of infrastructural state	Moderate, with fewer redistributive carrots to offer, and the introduction of outsourcing, increasingly reliant on the other arms of the state to prevent unrest and disruptions	High, CIL management able to shape local politics strongly, particularly through the selection of outsourcing contractors, shrinking labour force makes unions less relevant
Rule-Shaping	**NCDC**: Limited	Moderate, networks among local bureaucracies allow increasing influence in local implementation	High, able to use conditionality associated with World Bank loans to extract concessions from local state and politicians	High, able to use newfound profitability to shape arrangements with local state gain favour with local politcians

Chapter 5: Technological and Organizational Evolution of the Indian Coal Industry



Figure 5.1: *A Stamp Issued in 1984 when India first hosted the World Mining Congress (Source: istampgallery.com)*

Introduction

Acquiring technical capability has always been a troublesome problem for developing countries. Given the fiscal constraints of early development, the international relations constraints of early Independence, and the simultaneous domestic goals of state-led industrial growth and economic inclusion, India was forced into an experimental mode of industrial collaboration during the development of its coal industry. Multiple parallel technical relationships, some of which were complete failures, and a few which were more successful, resulted in the technical orientation of the Indian coal industry that exists today. Functioning in such a constrained environment, and unable to create a commercially viable ecosystem for domestic manufacturing of mining machinery, India has pursued primarily opencast mining in pursuit of cost efficiency. This technological trajectory has had major implications for the nature of private participation in the industry and has partially prevented large-scale underground mining in the country.

CIL's role in India's erstwhile planning system was extremely constrained by its lack of independence (most of its capital expenditure came from the government's budget). The company worked with a variety of international technology partners throughout its early years, and from this experimental mode emerged two clear winners: Poland in underground mining and the Soviet Union in opencast mining. These partnerships established much of the technical capacity in CIL during its first decade of existence. After liberalisation and the incidence of the World Bank's loans, CIL's agency expanded considerably as the constraints on foreign

exchange were substantially lifted, and CIL's own profitability allowed it to procure technology from an internationally competitive environment.

Early Technology Transfer

On August 11, 1774, a mining engineer named John Sumner wrote to Warren Hastings, President of the East India Company, including a proposal for new coal mines in Burdwan, West Bengal. "…I assure you, Gentlemen, that in case you will be pleased to grant us the indulgences we request, that we will endeavour to prevent all disputes with the country people, and in general to render the execution of what we undertake, subservient to every good purpose the nature of the work will admit. [304]" Sumner may not have known it at the time, but he had set into motion a chain of events which would fundamentally transform the coal industry, the coal-bearing countryside, and determine the geography of industrial growth in India over the next few centuries.

While natural coal outcrops had been used in India for smelting, fuel and other purposes, this was the first proposal to bring British-style industrial-scale underground coal mining to India. Sumner's experiment was eventually commercially unsuccessful, but this initial foray sparked an interest in the resource which would gradually come to dominate the Indian energy economy. By the mid-1800s the Geological Survey of India had been established, and surveying of coal mines and India's coal potential had begun on a national scale. Various private managing agencies, including most notably Carr, Tagore & Co., opened their own mines from the 1820s onwards. By 1881, 91 coal mines were in operation.[305] The first phase of industrial coal mining in India had arrived.

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[304] Central Mine Planning and Design Institute. Coal Mining in India: History and Perspectives. Ranchi: CMPDI, 1984.
This source is colloquially known as the "the green book" in CIL circles, and was prepared for the 12th World Mining Congress which was being held in New Delhi in November 1984.

[305] Chakrabarti, Prabhas Kumar. Coal Industry in West Bengal. Northern Book Centre, 1989.

After Independence, there was considerable anxiety among the Indian political class about foreign corporations, their interests and the power they could exert on a new, inexperienced nation. Given that there was still a significant amount of British capital deployed in India through managing agencies, it was not surprising that the newly formed Indian government moved to consolidate government control over various industries. Between the Industrial Policy Resolution of 1948 and the decisions made in the Constituent Assembly in 1949, it was clear that foreign capital would be "carefully regulated in the national interest by ensuring that major interest in ownership and effective control should, save in exceptional cases, always be in Indian hands and that the training of suitable Indian personnel for the purpose of eventually replacing foreign experts will be insisted upon in all such cases.[306]" Despite this wariness, however, India's industrial ambitions were strongly constrained by its limited foreign exchange and fiscal capacity. Import substitution was certainly the ultimate goal, but in the short-run it was impossible to establish an industrial base without considerable foreign collaboration. Fortunately, the Indian coal industry had a long history of international cooperation within the British Empire prior to Independence.

For the first half of the 20th century, British colonial institutions dominated the Indian coal industry. Coal production in India really accelerated in the early 1900s when many managing agencies started bringing industrial scale mining technology to India to supply coal to their expanding downstream manufacturing interests: jute mills, paper mills, glass factories, and steamships to name a few. This was a period of industrial expansion in India, largely built on the back of the coal industry.[307] The steam engine drove the bulk of early mechanisation in factories and was also the key technology involved in revolutionizing land-based transport

[306] "Policy and Procedures." Foreign Collaboration: Report and Proceedings of the Seminar Held by The Centre of Advanced Studies. Ed. R K Hazari. Bombay: University of Bombay, 1967.

[307] Gadgil, D R . The Industrial Evolution of India in Recent Times, 1860-1939. Oxford University Press, 1971. Pg. 108

through railways.[308] Animal power may have been the prime mover in rural India, but industrial India embraced coal wholeheartedly, leading to a huge surge in coal demand in both transportation and factory settings.

While Carr, Tagore and Co. (which went bankrupt and was eventually absorbed into Bengal Coal Company) had started coal mining in India as early as the 1830s, most of the early mines were not electrified or mechanized and relied primarily on explosive blasting followed by manual mining methods which were slow and difficult to scale. High quality coal deposits had been identified in Raniganj and Dhanbad by the Geological Survey as early as the 1800s, but the developing factory clusters of India were located primarily in urban India, scattered all over the country.[309] The concurrent development of mining and railway capacity was what allowed the matching of producers and consumers of coal.[310] These modern developments in coal mining which were adopted in India between 1890-1920 in India, when Bengal Coal Company and its four major rivals[311] were responsible for almost 80% of all private coal production.[312] "In some ways, the years between the end of the nineteenth century and the beginning of the First World war were the most hopeful ones for the growth of the Indian industry in the colonial context. This period was marked by a substantial reinvestment of profits made by British residents in India in Indian business and industry: The government's interest in industrialization was fitful and undirected…But for the most part the government was

[308] Roy, Tirthankar. The Economic History of India, 1857-1947 (Third Edition). Oxford University Press: New Delhi, 2010. Ch. 9

[309] Lokanathan, Palamadai Samu. Industrial Organization in India. Allen and Unwin, London, 1935.
[310] Railways as an industry was also the largest consumer of coal in India until the 1970s, when thermal power plants started spreading in major cities.

[311] New Beerbhoom Coal Company (1861), Equitable Coal Company (1864), Raneegunge Coal Association (1873) and Burrakar Coal Company (1875)

[312] Papendieck, Henner. "British Managing Agencies in the Indian Coalfield." Zamindars, Mines and Peasants. Ed. Rothermund, Dietmar and D. C. Wadhwa. New Delhi: Manohar Publications, 1978. Pg. 174.

prepared to let things alone …".[313] One of the major consequences of the rapidly expanding British business interests in India was an influx of British engineering professionals into India.

The coal mining industry was one of the largest beneficiaries of this influx. British mining engineers embedded in India the standards, norms, technical approaches, and organizational hierarchy of British underground mines. Regulatory institutions like the Chief Inspectorate of Mines (which eventually became today's Director General of Mine Safety) were established during this period; these institutions and their backing legislation put in place a strong, prescriptive safety regime and also included significant reporting requirements for each mine which helped maintain accurate statistics regarding production, employment, mechanization and more.[314]

During this period of industrial expansion in the early 1900s, many Indian engineers went to Glasgow, Birmingham and other British universities, often on Government of India scholarships, to receive instruction in mining engineering. [315] While the top management in most collieries and agencies tended to be British, the requirements for junior mining engineers, surveyors, planners and agents far outstripped the services that less than a hundred British mining engineers could provide. This shortage was exacerbated by the explosive growth of small mines and mining companies. Between 1895 and 1914 the number of registered coal mines in India grew from 174 to 610.[316] Consequently, training Indian engineers became imperative. However, training Indian engineers abroad was an expensive and lengthy process,

[313] Bagchi, Amiya Kumar. Private Investment in India 1900-1939. Cambridge: Cambridge University Press, 1972. Pg. 77.

[314] Production statistics were only reported by mines which functioned formally under the Mines Act. Illegal mining expanded slowly during this period as well, particularly because of the perpetual shortage of coal and the subsequent formation of black markets.

[315] 22 British and American universities had been approved by the Chief Inspector of Mines to train mining engineers.

[316] Annual Reports of the Chief Inspectorate of Mines, 1895 and 1914.

which was severely mismatched with the urgency of mineral extraction required by industrial growth at the time.

Initially, this shortage was resolved through more impromptu educational measures. As early as 1905, a few British instructors had started a mining engineering degree program at Sibpur Engineering College, which is where the first batch of India educated first and second-class mining engineers graduated.[317] With more or less guaranteed employment due to shortage of personnel in the industry, a few electrical and mechanical engineering students turned towards this program, but at the outset this program barely turned out 3-4 students annually. These were the students who would go on to supervise mine operations and planning for various managing agencies. In parallel, mining education centres were set up in various coalfields in Bihar and Bengal to train mining surveyors and sirdars in vernacular languages.[318]

During WWI, India faced a major coal shortage as wartime demands exceeded the expansion capacity of the Indian coal industry. The McPherson Committee report of 1920 highlighted this manpower problem, and suggested the establishment of a technical institution in India to train mining engineers in both coal and metalliferous mining techniques.[319] Consequently the Indian School of Mines (ISM) was established in Dhanbad in 1926 as the first Indian institution focused exclusively on training mining and petroleum engineers.

[317] The Chief Inspector of Mines generously noted in his annual report in 1905 that "[t]his seems to show that Indian-trained mining students will be able to obtain employment when they have become qualified" (14). Interestingly, both Indian and British students were enrolled in this program. The second and first class mine manager exams required passing multiple papers in rock mechanics, mine planning, equipment design, mine safety, and laws and regulation.

[318] Surveyors were involved in planning mines, while sirdars supervised labour, and ran the physical operation of mines. Both positions required certification.

[319] Pg. 17, The Pioneer Mail. 17 September 1920.

The period from 1920-1950, after the conclusion of World War I, was a time of incredible flux and invention in mining technology, particularly in the direction of mechanization. There were three main areas of innovation: explosives, electrification, and engines. After its invention in the 1860s, dynamite had become the mainstay of the mining industry; it became the standard explosive used in the bord and pillar method, which dominated most British and Indian coal mines in the early 1900s. However, making dynamite was an expensive and dangerous process; consequently, much of the innovation was focused on lowering costs and improving safety, which eventually led to much more sophisticated ammonium nitrate (AN) based explosives.[320] It was the advent of these AN explosives, and its spiritual successors (ANFO, AN base water gels, liquid oxygen) which allowed the gradual expansion of opencast mining that began in the 1950s and eventually came to take over the industry over the next fifty years.

Most early underground mines which were opened in the second half of the 1800s in India were manual mines; there was little mechanization, and consequently human and animal power was used not only for picking at deposits, but also transporting them long distances. All of this changed with the introduction of the steam engine. Initially steam engines were used for two main purposes; to pump water away from underground mining galleries and to ventilate them using large fans so dangerous gases would not build up underground and that workers could breathe fresh air. These two activities were essential to underground mining. In these activities, the steam engines were often directly connected to the pumps or fans, so that the energy was transmitted mechanically. However, as mechanization technologies progressed, it

[320] Meyers, Sydney and Edward S. Shanley, "Industrial explosives - a brief history of their development and use." Journal of Hazardous Materials. Volume 23, Issue 2, 1990, Pages 183-201, ISSN 0304-3894, (http://www.sciencedirect.com/science/article/pii/030438949085027Z)

was clear that long distance transmission of mechanical energy would be very inefficient. This is where electrification became important.

In the shallow, manually run mines that dominated in India prior to 1900, production was directly proportional to the number of labourers working in a mine. But scaling up these methods was difficult for multiple reasons: the widths of underground galleries was limited, limited air circulation prevented large numbers of employees from working underground simultaneously, and most importantly, convincing large groups of people to work underground for a long time was very difficult. Most mine labourers had exit options in agriculture (which they frequently exercised), and consequently keeping a regular, trained, disciplined workforce was not easy.

After Independence

In the first decade after Independence, there was naturally strong suspicion in the Indian government regarding the motives behind foreign aid. Given the USA's dominant role in world politics in the aftermath of World War II, Indian leaders observed the Marshall Plan, the Korean War, and the difficult and often humiliating legislative proceedings leading to Public Law 480 food aid in quick succession in the early 1950s. Such an assertion of both soft and hard power made India particularly wary of American motives accompanying technical and financial aid (both directly from the USA and through the World Bank). Jawaharlal Nehru and P C Mahalanobis, the architects of India's planned economy, had made no secret of their admiration of the "socialist pattern of society" and the rapid industrial expansion that the Soviet Union had managed to accomplish in the preceding decades.[321]

[321] Datar, Asha L. India's Economic Relations with the USSR and Eastern Europe 1953 to 1969. Cambridge University Press, 1972. Pg. 6-8.

Yet, as a country starved of both foreign exchange and technical know-how, India was not in a position to be refusing technical assistance purely on principle. In fact, the Cold War dynamic that settled in the first few decades after Independence put India in an advantageous position. Rivalry among donors, primarily the US and USSR (and their proxies), made funds available for long-term planning, rather than single project grants or loans. As a consequence, the Indian government "changed its attitudes towards external finance and resigned itself to the fact that substantial and continuing external support would be necessary to implement the programme for industrialisation.[322]" Until India's liberalisation moment in 1991, these attitudes would dominate the Indian industrial space, and shape the country's decision making in the space of heavy industry.

Large private companies and conglomerates like the Tatas and Birlas historically had some flexibility to import industrial technologies because of their relationships with the colonial government. But between the strict trade regime and British control over the majority of managing agencies, most technological choice was restricted to imitating British trends or indigenizing British technologies. After Independence, both the public and private sector gained slightly more agency. Companies could now access the international market, but were still subject to varying import controls over time dependent on India's macroeconomic situation.[323]

The expansion of coal production was an acknowledged priority for the government during this period, but the main constraint for most companies was financing. Heavy industrial technologies tended to be expensive and technology costs sometimes constituted more than half of the entire project cost. While private mining companies did have access to domestic

[322] Datar, *India's Economic Relations*, pg. 13

[323] Joshi, Vijay, and IMD Little. *India: Macroeconomics and Political Economy, 1964-1991.* World Bank Publications, 1994. Pg. 38.

capital, foreign exchange was much harder to come by because of India's strong regulations. India had experienced a foreign exchange crisis as recently as 1957 and was still very conservative in allocating foreign exchange for imports.[324] In fact, in 1961 the International Bank for Reconstruction and Development (IBRD) extended a $35 million loan to the Indian government specifically to help fund the foreign exchange requirements of the private sector for both spare parts, and for new machinery.[325] An IBRD appraisal report for this project observed that, "The government has become acutely aware of the failure of the public sector to reach its goal [referring to the underproduction through NCDC from 1956-1961] and of the need to stimulate the private sector if the economic development of the country is not to be impeded by a shortage of coal.[326]"

The 1960s was the first decade in which foreign technology partners outside of Britain started getting seriously involved in Indian coal mining. As part of the public sector's expansion plan through NCDC, various international mining experts were invited to India as part of a larger effort to collaborate with both the public and private sectors. During the early 1960s, mining consultants from Poland, France, West Germany, the USSR, and the USA visited India with an eye towards collaboration and opening new mines with NCDC.[327] Inviting mining experts to assess India's coal resource was the first step in convincing foreign governments to provide trade financing for mining machinery.

As Padma Desai observed in her study on Bokaro Steel Plant, India's plans for industrial expansion often originated at the level of Planning Commission, keeping in mind the

[324] Rao, VKRV. "The Foreign Exchange Crisis and India's Second Five Year Plan." The Economic Weekly. 6 July 1957.
[325] World Bank. 1961. *India - Coal Production Project.* Washington, DC: World Bank. http://documents.worldbank.org/curated/en/150741468267027981/India-Coal-Production-Project

[326] World Bank, 1961. Pg. 4.

[327] Central Mine Planning and Design Institute. Coal Mining in India: History and Perspectives. Chapter IX.

possibility of aid from different countries. This high-level template was then adapted to different contexts, considering the financial and technical capabilities of different countries.[328] Naturally, then, the pitch made to Poland and France (leaders in underground mining) was different from the pitch made to the USSR and USA (who had much more competency in opencast mining). India's heavy engineering capabilities were extremely limited during this period, so import substitution was simply not realistic in the short run.

The main problem during this period was coordination in technology deployment across various private sector companies. As part of the Third Plan, 20 managing agencies with 115 companies across 173 mines were expected to expand their mining efforts to accomplish the Plan's targets.[329] As described earlier, there was already a raging debate going on during this period on the role of the private sector in mining. On one hand, the majority of production clearly lay in the hands of private mining companies. But it was clear from the Indian government's policies that it preferred expansion of the industry through NCDC; only after NCDC's relative failure was the private sector brought back in as a serious collaborator. This ambiguity in the government's intent towards the private sector in the early decades after Independence made private investors in India's coal industry seriously risk averse. The IBRD put it best,

> "In one way or another the government has controlled the prices of coal, the level of production, the distribution, the import of equipment, the methods of mining and the location of mines. The Industrial Policy Resolution of 1956 declared coal to be a basic industry in which the future development was to be the exclusive responsibility of the state. The result has been the entry of the government into coal mining on a large scale, and strict control and suppression of the private industry. The industry has considered for some years that it was living on borrowed time and would be eventually nationalized. In these circumstances it is not surprising to find that the

[328] Desai, Padma. The Bokaro Steel Plant: A Study of Soviet Economic Assistance. North-Holland Publishing Company, 1972. Pg. 19.

[329] World Bank, 1961. Annex J.

> industry has done little to modernize or to equip its mines to keep pace with the rising demand.[330]

Even a decade before nationalization, the outlook of the private sector in the coal industry was clear. Through various control mechanisms, they were being regulated into irrelevance. Private coal companies were not completely blameless during this period. As described in earlier chapters, there were clearly various labour and safety norms being flouted by these companies, but their motive for continued operation, profitss, was also being systematically denied. Probability of appropriation of their assets was unusually high given the looming threat of nationalization. And as a consequence, major capital investment by private companies was highly unlikely, unless it was facilitated by the state. Thus, because of its persistent commodity control system, the Indian state became de facto the primary agent of technology choice throughout the industry, rather than private companies.[331] This would have major implications for the kinds of technologies that eventually came to dominate the Indian coal industry.

The Indian government was quite bullish about the future of underground mining in the few decades after Independence. Mechanization through the use of coal cutters (which replaced manual picking at the coal face), mechanical loaders (which replaced the manual movement of coal from the face to wagons), and mechanical conveyors (which pulled wagons on tracks to the surface) expanded considerably in the first few decades after Independence. Consequently, many of the early international collaborations India pursued were with a view of improving the productivity of a largely manual underground mining industry.

[330] World Bank, 1961. Pg. 6-7.

[331] Some significant exceptions existed; TISCO, Andrew Yule & Co., Karamchand Thapar and a few other larger coal companies had managed to bring in newer technologies to their mines. But generally, the proliferation of many small mines had made it difficult to use technologies which mined at scale.

International collaboration took many forms during this period. Countries with mining expertise were eager not only to sell technology, but also training and consulting services to India. Most mining equipment was not simple plug and play technology. India could not buy equipment and immediately expect its inexperienced engineers to deploy and operate them. Usually, investing in new equipment required either Indian engineers to spend time in foreign mines, or foreign engineers had to come to India to deploy the technology and train Indian engineers. During this period, the latter was far more common. Consequently, over this twenty-year period, Hungarian experts worked in Singareni, Polish engineers worked in Dhanbad, Soviet engineers worked in Korba, Singrauli, and Neyveli, and French engineers in Kothadih.

By the end of the 1960s, India had established foreign technical cooperation across many heavy industries, including coal. There had emerged clear differentiation between the sources of aid and the purposes it was used for. The Aid India Consortium, a World Bank led group of Western countries, were far more likely to aid private sector companies, and in the American case, also provided large amounts of food aid.[332] This Consortium's aggregate aid impact was much larger than the USSR and Eastern bloc between 1950-1970. However, since India's industrial expansion strategy was rooted in the public sector, the USSR and Eastern Europe had much more of a lasting impact in this space. "The USSR learnt from the mistakes of Western donors and was guided by three principles: to give loans rather than grants; to charge lower interest rates; and to accept repayment in kind.[333]" The introduction of the USSR as a major donor did not displace Western aid, and in fact made India a more attractive destination for aid because of the Cold War competitive dynamic. However, much of the aid

[332] A group of Western governments, led by the World Bank, which collectively financed developmental projects in India during this period. Participating countries included the USA, Canada, West Germany, France, Italy, Japan, and Great Britain.

[333] Datar, *India's Economic Relations*, pg. 66

from the USSR and Eastern Europe was tied aid, something which would later have major implications for mining technology choice in India.[334]

Poland emerged as India's primary partner in underground mining technology from the early 1960s onwards. In May 1960, India and Poland had signed an economic cooperation agreement which extended lines of credit to India. In 1961, Poland formed KOPEX, a state-owned enterprise with the explicit goal of exporting mining technology and services. And through KOPEX, began a decades long collaboration which ended up defining technological trends in underground mining in India until the early 1990s. The Sudamdih and Moonidih mines in Dhanbad were two of the earliest longwall mines in India.[335] Constructed with Polish cooperation, these mines hold a special place in the technological imagination of Indian mining engineers in the coal industry even today. Many future chairmen of both regional subsidiaries and Coal India would have managerial stints in these mines. But as we will see, the success of these mines, and the underground project more generally, was questionable.

Similarly, for opencast mining, it was clear the Soviet Union had captured Indian mining imagination. Collaborations in Korba, Singareni, Neyveli and other locations built some of the largest opencast mines in India at the time. In fact, many mining engineers have remarked that "we could not have imagined a 1 million tonne per annum (MTPA) mine until the Russians showed us how.[336]" But perhaps more importantly, the USSR was not just selling technology to India, it was also helping set up manufacturing units, so India could potentially make its own machinery and spare parts. The two most well-known collaborations on this front in mining were the Mining and Allied Machinery Corporation (MAMC) in Durgapur and the Heavy Engineering Corporation (HEC) in Ranchi.

[334] Ibid. Ch. 2.

[335] Singareni had opened the first longwall mine in India in the 1950s with Hungarian collaboration.
[336] Former Regional Subsidiary CMD. Personal Communication. 7 April 2016.

The twenty years between Independence and nationalization were India's phase of "industrializing by learning".[337] Amsden differentiates between countries that *invented* (early industrial Britain), countries that *innovated* (US and Germany improving upon many British inventions), and countries that *learned* (most East Asian late industrializing countries) during their industrial transitions. India's learning in the coal industry, as in many heavy industries, was substantively different from the East Asian examples because of the strong role of SOEs in the industrialization process. Coal was no exception. After the nationalization of the industry in the early 1970s, the state's approach to technology acquisition and learning became slightly more coordinated.

Nationalisation[338]

As mentioned discussed earlier, much of the difficulty of coordination and micromanagement across the private sector was obviated through the nationalization of coking coal mines in 1971 and non-coking coal mines in 1973. This was no different for technology choice. By 1975, Coal India Ltd. (CIL) had been formed, with four regional subsidiaries, and almost all technological choices were now being made through a centralized decision-making structure. Smaller expenditures could be approved by CIL or its subsidiaries, but for the most part, any large procurement happened directly through the Public Investment Board (PIB) in the Central government.

The formation of CIL's technical core was a non-trivial task. Given the multiplicity of advisory/regulatory bodies (Coal Controller, Coal Board, Indian Bureau of Mines, Director General of Mine Safety etc.) and private companies that existed in the pre-nationalisation era,

[337] Amsden, Alice. Asia's Next Giant. Oxford University Press, 1981.

[338] The majority of the Nationalisation and Post-Liberalisation Sections are based on knowledge collated from 120+ interviews with coal and industry professionals (available in Appendix C at the end).

they all had to be merged and personnel had to be regularized. Complex rules were developed to merge the technical cadres of these various public and private entities.[339] While NCDC had a small Planning & Development and Geology & Drilling departments, what CIL needed was a central core of mine planners, geologists, technology specialists and engineers. Over 600 mines were being brought under one planning umbrella, and they had all been historically developed with varying degrees of sophistication. Some mines had elaborate mine plans and updated technical drawings and others were slash and grab operations where engineers barely knew what was happening under the surface. To bring all nationalised mines up to the same planning, safety, and engineering standards was a Herculean task.

To facilitate this transition, NCDC commissioned what is now known colloquially as the "Polish report.[340]" This report laid out initial details and budgeting of what became the Central Mine Planning and Design Institute (CMPDI). Among its most important contributions was to separate the three parts of the mining process, planning & design, construction, and production. While there were engineers who specialized in these different components, most private mining companies had mining engineers who worked across all three areas. Because of their small scale, few companies ever had to engage in coalfield level planning, which would span multiple mines and arguably tens to hundreds of square kilometres. Nationalisation had fundamentally changed the scale of operations, and the technical fraternity in mining would have to adapt accordingly. The implementation of the Polish report and the creation of CMPDI created institutional bureaucracies around each of the functions: CMPDI embodied planning & design, and the regional subsidiaries controlled construction and production. Connecting the two were Regional Institutes (RI), which were extensions of CMPDI embedded within regional subsidiaries of CIL. These RIs would collect local data, provide planning and technical support

[339] Coal India. "Common Coal Cadre." 1975.

[340] KOPEX. "Report on the Establishment of The Central Mine Planning and Design Institute." Ranchi, 1973.

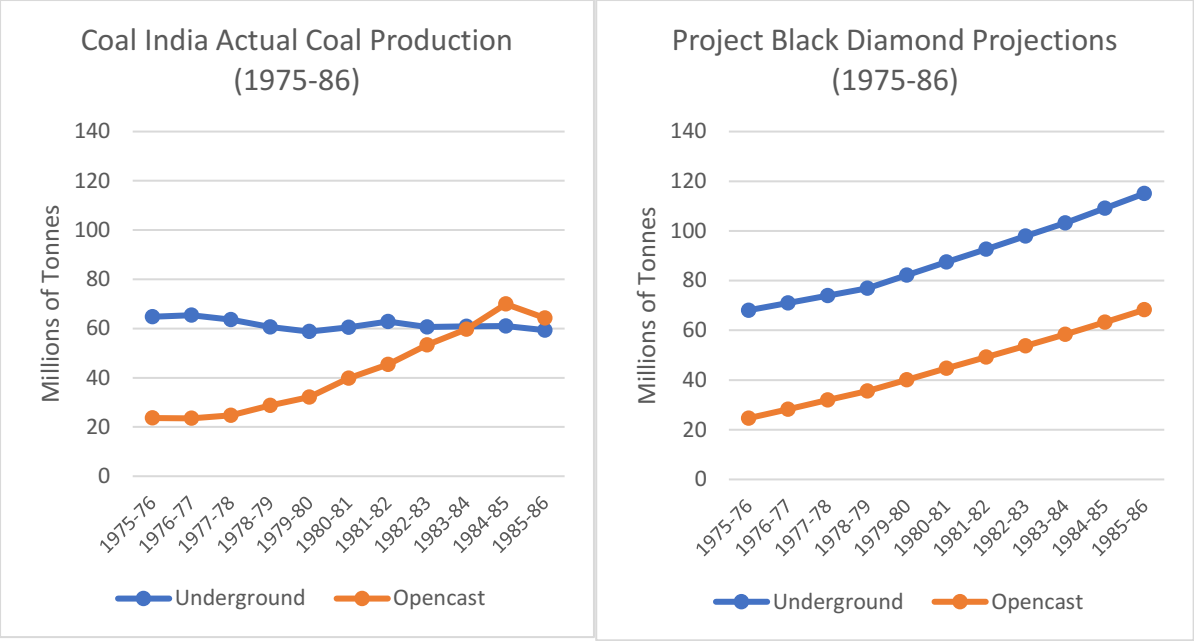
to regional subsidiaries, and help establish a pipeline of potential future mining projects. Initially RIs were established in Dhanbad, Ranchi Asansol and Nagpur, and as later subsidiaries were formed in the 1980s and 1990s, RIs were formed in their headquarters as well. The separation of responsibilities was now clear; regional subsidiaries for the most part would not be concerned with the minutiae of planning future mines. Their primary focus would now be to construct and run mines. This separation would have major consequences in the future.

In parallel to the formation of CMPDI, CIL was creating a production plan for coal over the next ten years. Published in November 1976, Project Black Diamond, was CIL's comprehensive plan for expanding coal production in India. Framed against the backdrop of the 1973 oil crises, it imagined multiple states of Indian coal demand based on the amount of substitution away from oil towards coal. Using the Fuel Policy Committee of 1974 industrial expansion projections as a benchmark for coal demand, it then proposed an elaborate expansion strategy for each subsidiary down to the mine level. Among the more notable components of this projection was the distribution between underground and opencast mines.[341]

As the graphs on Figure 5.2 show, the projections in Project Black Diamond grossly overestimated India's ability to expand underground mining. Much of this expansion was expected to have come from longwall mining, which was assumed to reach almost 46% of overall production by 1985-86. This never happened. Why did India's best mining professionals and planners completely botch this projection? Some of it was beyond their control, but this divergence also demonstrates some of the systemic problems which were embedded in the coal technocracy from the very beginning.

[341] Coal India Ltd. Project Black Diamond – 10-Year Perspective Plan Coal Plan (1976-77 to 1985-86). Ranchi, 1976.

Figure 5.2: Project Black Diamond Projections vs. CIL Actual Coal Production (1975-86)



The exponential growth in longwall mining in India imagined by Project Black Diamond was predicated on India's ability to domestically manufacture longwall mining machinery, and possibly indigenize it for Indian mining conditions. To this end, from the early 1960s onwards India had sought Soviet assistance to set up a company, Mining & Allied Machinery Corporation (MAMC) in Durgapur. MAMC was at the heart of the import substitution strategy in the coal industry. India imported advanced technologies in the early years after Independence, but the assumption was that in the long run, it would be able to wean itself off expensive foreign machinery through indigenization. The problem was that MAMC as a project failed spectacularly. And its woes started as early as the mid-1960s.

> If what a Delhi paper has recently reported is true, then the condition in the coal industry is indeed more chaotic than is generally imagined. According to this report, another vital national project is in serious trouble – but for no fault of the builders or management of the plant. It is the Mining and Machinery Manufacturing Plant at Durgapur. The plant was built up with Soviet assistance to supply the coal industry with the machinery it requires. The purpose was to make the country self-sufficient in mining machinery. But it is now learnt that the plant is without adequate orders, while many coal mines in the private sector are using machines imported from the United States. The plant was designed to reach a productive capacity of 10,000 tonnes by 1966-

> 67, but the orders would hardly reach 4,500 tonnes by that time. By the end of the Fourth Plan the plant's capacity would be 45,000 tonnes but the Planning Commission, it is learnt, does not expect that the orders for mining machines would exceed 32,000 tonnes by 1970-71. The plant manufactures pumps, booster fans and conveyor belts. It has produced a hauling machine for the National Coal Development Corporation according to specification by the Corporation itself. Besides, the plant is ready to manufacture battery locomotives. Conveyor belts produced by this plant are being used in establishments other than coal mines. But the pumps and booster fans can be used only in mines. Booster fans are used in the mines for safety purposes. Now, if the collieries do no buy such fans from the Durgapur plant, where are they getting them from? According to the paper on whose report we are commenting, many collieries do not use these fans at all. They effect economy, regardless of the fact that such economy may any time endanger the lives of the miners. There are some private collieries who have received the World Bank loan and have imported the machines from the US, spending scarce foreign exchange where such expenditure was not at all necessary. But surely there are authorities in this land to see to it that safety measures are strictly observed and also that foreign exchange is not used to purchase things that are manufactured in the country. Would they take note of the report?[342]

As the above quote illustrates, the pre-nationalisation era was a problematic one for MAMC, because of the limited uptake of its products by private companies. But the formation of CIL was supposed to fix this problem. With access to funds, longer time-horizons, abundant technical expertise, and operations at much larger scales, CIL had all the initial conditions to make longwall technologies successful in India. Despite this, not a single longwall face was operated profitably by CIL between nationalization and liberalization in 1991.

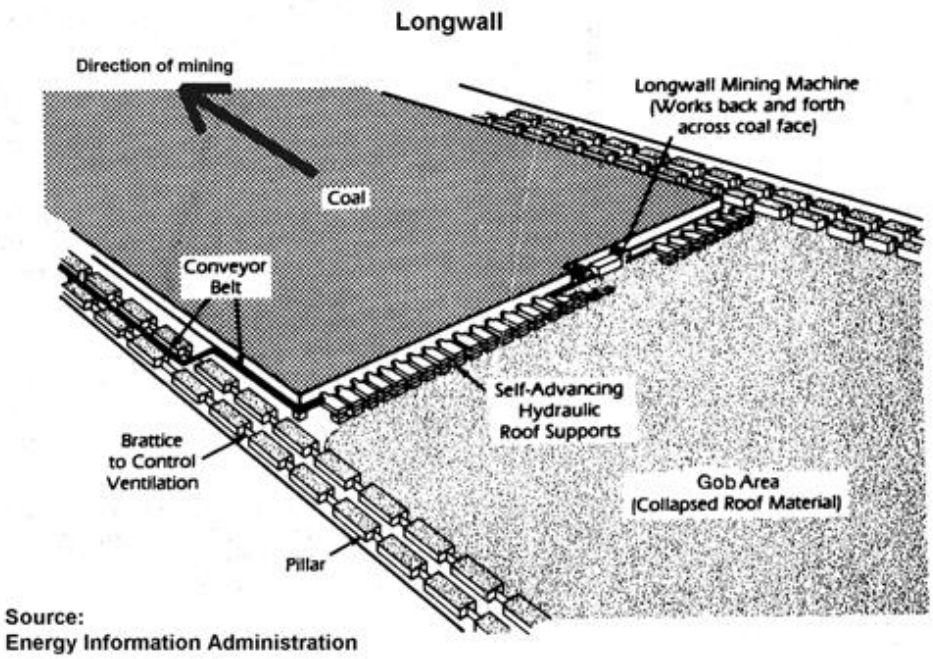
Asking CIL personnel to diagnose the reasons behind the failure of longwall mining in India elicits a gamut of responses. Some reject the proposition outright while others indict CIL's bureaucratic culture. This range of responses reflects the polarization around the topic within CIL; much of the company's top leadership (in regional subsidiaries and the umbrella SOE) in the 1980s and 1990s were mine managers at failed longwall mines earlier in their career. Consequently, excessive criticism of the technology is usually directly associated with an individual's failure as well. But the more recent generation, or those who have managed to

[342] "Mining Machinery." The New Sketch. 11 July 1966.

maintain some impartiality list four main reasons for the failure of longwall technologies in India.[343]

The most frequent critique of longwall technologies is their inherent unsuitability for Indian geology. This is an argument that almost every executive at CIL in the last twenty years has had at the tip of their tongues. The economies of scale in longwall mining come from long underground galleries, where mechanical shearers can continuously cut a coal face (see Figure 5.3). Since the shearing inherently destabilises the roof of the gallery, powered supports are needed to hold up the roof while the shearing occurs. As the shear moves back and forth, the supports are also advanced, and the roofs behind are allowed to collapse. In many Indian coalfields, geological disturbances over millennia have caused fractures, or geological discontinuities, which force operators to disassemble and reassemble the machinery for the new alignment. This is a tedious and expensive process, which usually has major impacts on the efficiency and utilization of the machinery.

Figure 5.3: Longwall Mining Schematic



[343] Khadia, KK. Personal Communication. 28 April 2016.

But despite this critique, many former CIL executives believe that longwalls could have become much more successful in India if CIL did not botch the site selection and implementation of early projects. The precise geological conditions needed for a successful longwall operation meant that a lot of time should have been spent up front to identify appropriate sites which were fault-free, and had appropriate caving and rock mechanics. However, there was a sense that at the time, in the 1970s, there was a haste amongst CIL management to demonstrate the technology. And in their haste, many mistakes were made.

Besides geological arguments, there are a host of bureaucratic and organizational reasons for the failure of longwall mining in CIL. For example, in the Kothadih mine, which was expanded with French collaboration, India purchased refurbished longwall machinery rather than new machinery from Charbonnages de France (the state-owned coal company in France at the time). While that certainly made the machinery cheaper, it also made it less durable. And at the time, there was an assumption that India would be able to reverse engineer and manufacture its own spare parts, rather than import them. Hence, maintenance contracts and spare parts were not included as part of the purchase. Inevitably, the machinery broke down, and remained underutilized for inordinately long periods. Kothadih became another name in the list of catastrophic failures of longwall mining, which included Churcha (1990) and Dhemomain (1983) as well. Even longwall mines which did not have major failures or collapses were generally unproductive and unprofitable. Interestingly, Singareni Coal Collieries Ltd. (SCCL), a separate smaller state-owned mining company run by the Andhra Pradesh government, has had a far better track record of longwall based production than CIL.[344]

[344] Deb, Debashish and A K Verma. "Ground Control Problems in Indian Longwall Mines – A Perspective and Future Research Outlook." Journal of Mines, Metals and Fuels. September 2004.

Why is this the case? Much of this comes down to the kind of bureaucratic culture that was created within CMPDI and the Indian coal technocracy more broadly. While CMPDI was certainly a repository of planning and engineering expertise in the Indian coal industry, it also gradually became one of the biggest institutional obstacles to new innovations or risk-taking in the industry from the late 1980s onwards.

With the formation of CMPDI, there was a formal division of labour that emerged. CMPDI undertook early drilling and exploration in new potential coalfields, and worked with its RIs, which were embedded within regional subsidiaries, to come up with mine plans for these new coalfields. The idea was that each regional subsidiary should have at least 5-10 mine plans in the pipeline. This would ensure that coal production could keep scaling up despite the natural cycle of coal mines closing intermittently because of coal seam exhaustion. The regional subsidiaries worked with CMPDI to ensure that the mine plans were realistic, that the appropriate land could be acquired, that evacuation infrastructure could be constructed, and that local political factors were fully considered. While this division of labour was great in theory, it started becoming a problem in practice.

In the first few decades of CMPDI's existence, its core personnel were primarily more academic engineers, who had relatively little mining experience. Thus, one source of conflict between subsidiaries and CMPDI was the "bookish" mine plans they would put together. [345] Subsidiaries had the power to originate project proposals, but CMPDI was responsible for the majority of the mine planning work, in which subsidiaries could suggest modifications and changes based on real world constraints they experienced. In this pre-liberalisation period (1971-1991), all capital expenditure for large projects came from the PIB, and the CMPDI draft project report (DPR) was ultimately what was sent to the PIB for approval. Consequently,

[345] Khadia, KK. Personal Communication. 28 April 2016.

CMPDI became the de facto gatekeeper for technology choice; if CMPDI supported or backed a technology, it would make it to the project report, and get sent to the PIB.[346]

CMPDI's gatekeeping role created major risk-aversion within the organization. Because the PIB was notoriously difficult to please, most project reports erred on the side of caution. The first few failures of longwall mines in the 1970s served as a massive demonstration effect, which essentially put the technology on the back burner.[347] A few times a decade, when favourable financing terms were available from other countries, a joint longwall project would be proposed. This obviated the need for PIB funding. But CMPDI rarely ever proposed projects which would use domestically manufactured longwalls. As a consequence, one of the main goals behind the formation of MAMC remained perpetually unfulfilled; it became a classically underutilised SOE where capacity raced ahead of demand, only later realizing that demand was much more muted than expected. While CMPDI may have been the main vehicle for this technological conservatism, the mine safety establishment probably shared responsibility here as well. Any modifications on existing technologies, or new technologies required approval from the Director General of Mine Safety (DGMS), the labour regulator. Getting this approval was notoriously difficult, even after nationalisation when the state controlled both arms. For any enterprising mining engineer who wanted to experiment, or test out new technologies, getting their proposals and ideas past DGMS and CMPDI became a serious hurdle. By the late 1980s, subsidiaries sometimes avoided consulting CMPDI unless absolutely necessary, annoyed at their continual stonewalling of potentially promising underground technologies.[348]

[346] Former Senior CMPDI Engineer. Personal Communication. 11 April 2016.

[347] Former Regional Subsidiary Chairman. Personal Communication. 28 April 2016.

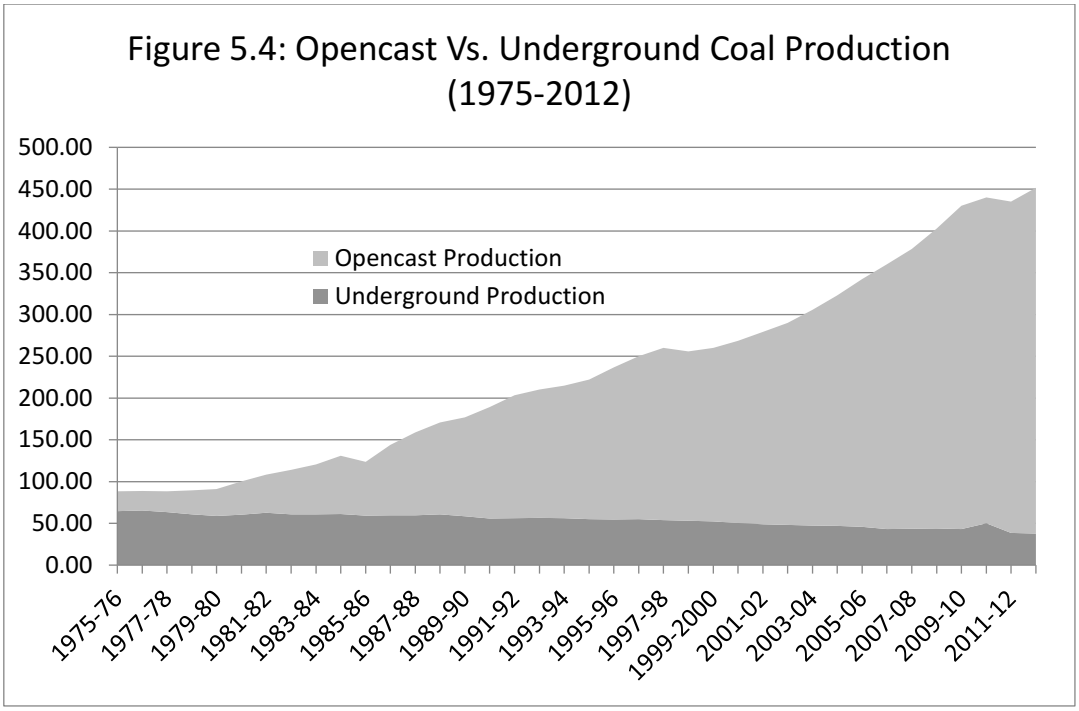
[348] Khadia, KK. Personal Communication. 28 April 2016.

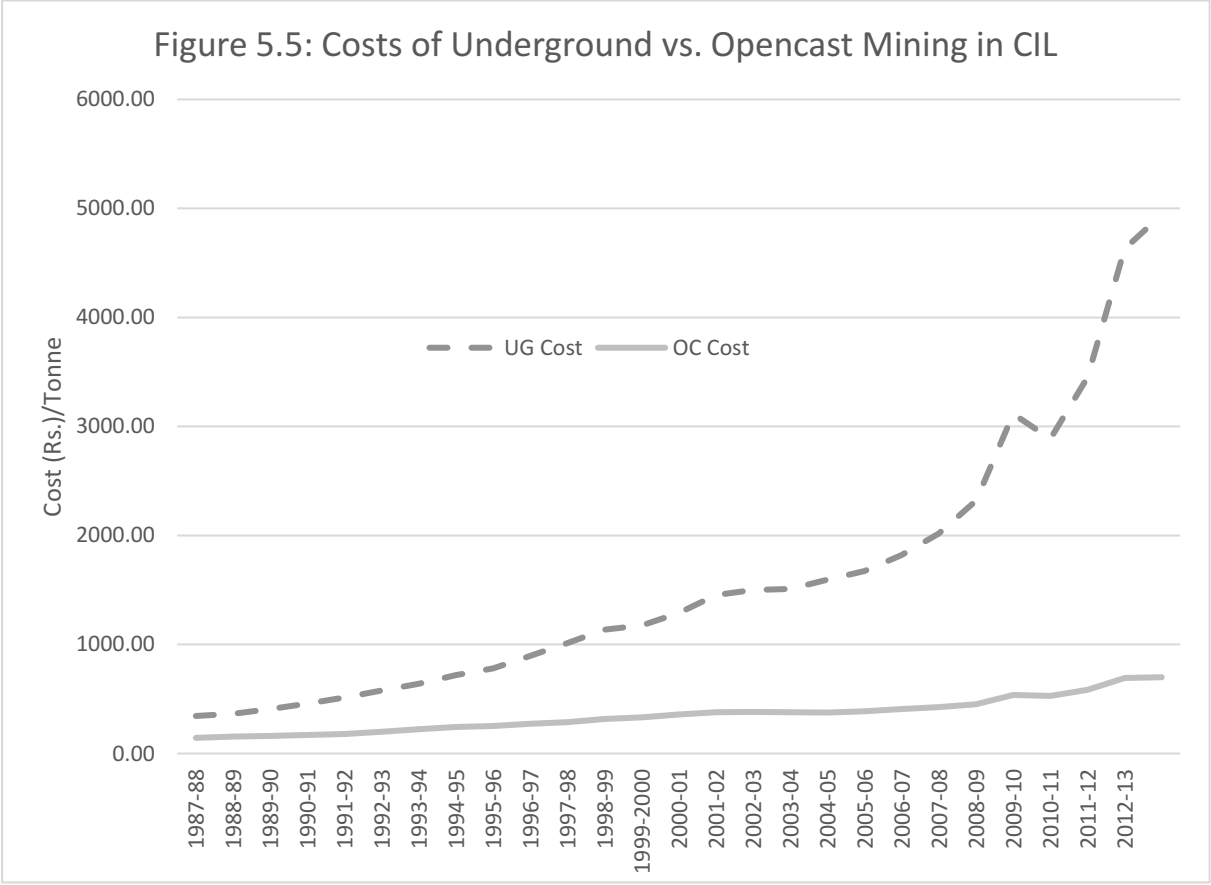
CMPDI's risk aversion was the institutional manifestation of two prevailing trends in the industry. The first was the persistent depressed price environment created by the Bureau of Industrial Controls and Prices (BICP). Even prior to nationalisation, a perennial complaint of private mining companies was the razor-thin margins they had given the artificially low prices set by the planning establishment. Between 1960 and 1964, gross profits in the industry had fallen from 8.9% to 5.7%.[349] After nationalization, CIL's net profits were essentially zero for almost two decades (see Figure 3.3 in finance chapter). While individual subsidiaries of India may have been profitable, clearly in aggregate the company was being priced for almost zero profits. In fact, many executives who ran CIL this period agree that the fundamental motive driving the corporation was loss minimization, rather than profit maximization. CIL's capital expenditure was almost entirely provided through the PIB or aid agencies, so CMPDI clearly had a motive to propose less risky projects which had a higher chance of being approved.[350]

The second prevailing trend was the financial attractiveness of opencast mining technology (cultivated primarily through Soviet cooperation). NCDC had started experimenting with opencast mining technologies from the late 1950s onwards. But as Figure 5.4 shows, the real take-off in opencast productions started in the early 1980s. This was driven primarily by cost considerations. Figure 5.5 demonstrates how much per tonne costs have diverged between underground and opencast mining. In the early 1980s, underground mining was already twice as expensive as opencast mining per tonne of coal produced. Not surprisingly, there was a preference for this mode of mining because of its cost efficiency. But it took a while given the strong technical orthodoxies of underground mining that were embedded among mining engineers.

[349] Bhagwati, Jagdish and Padma Desai. India; Planning for Industrialization; Industrialization and Trade Policies Since 1951. 1970.

[350] Former Regional Subsidiary Chairman. Personal Communication. 31 July 2017.





Many CIL former executives have intimated that opencast mining is not a particularly technically respected mode of mining. Part of this came from the established curriculum taught

at the time. A mining engineer graduating from ISM and other top programs would be educated primarily in underground mining methods. To receive a first-class mine manager certification, the majority of the required papers during this period were related to underground, not opencast mining. Oftentimes, trained mining engineers looked down upon opencast mining as more of a "civil engineering" approach to mining; opencast mining was considered a low-skill, brute force approach to mineral extraction which used none of the sophisticated techniques most mining engineers were trained in. Mechanized underground mining (particularly longwall methods) were considered the frontier of the profession, the approach that would improve productivity and make India's coal mining industry world class, the field where all respected mining engineering academics were doing research. And yet the economics of it made very little sense in India. This tension between what is considered good mining, and what is considered good economics explains much of the initial reluctance to scale up opencast mining in India.

The inexorable economics of opencast mining, the restrictive pricing regime, and the initial failure of most longwall projects all contributed to the demise of MAMC. Without a pipeline of orders that could sustain such an industrial engineering venture, the company slowly degenerated, and became more or less defunct in the early 1990s. India's ambitions for a domestically manufactured and adapted longwall were over. There is a stylized story that many Indian mining engineers tell about India's quest for acquiring longwall technologies, which goes as follows:

> India and China were in roughly the same position in the early 1970s. Both countries had major industrial ambitions and needed to scale up their coal mining quickly to reach these targets. But they went about learning the technologies very differently. Initially, manufacturing longwalls was simply not realistic, so we would send people to foreign underground mines to train in their technologies. These people would then help implement that technology in India once they returned. China sent their engineers, we sent our bureaucrats and managers. They paid attention to details, whereas our guys didn't bother. After we bought machinery, and

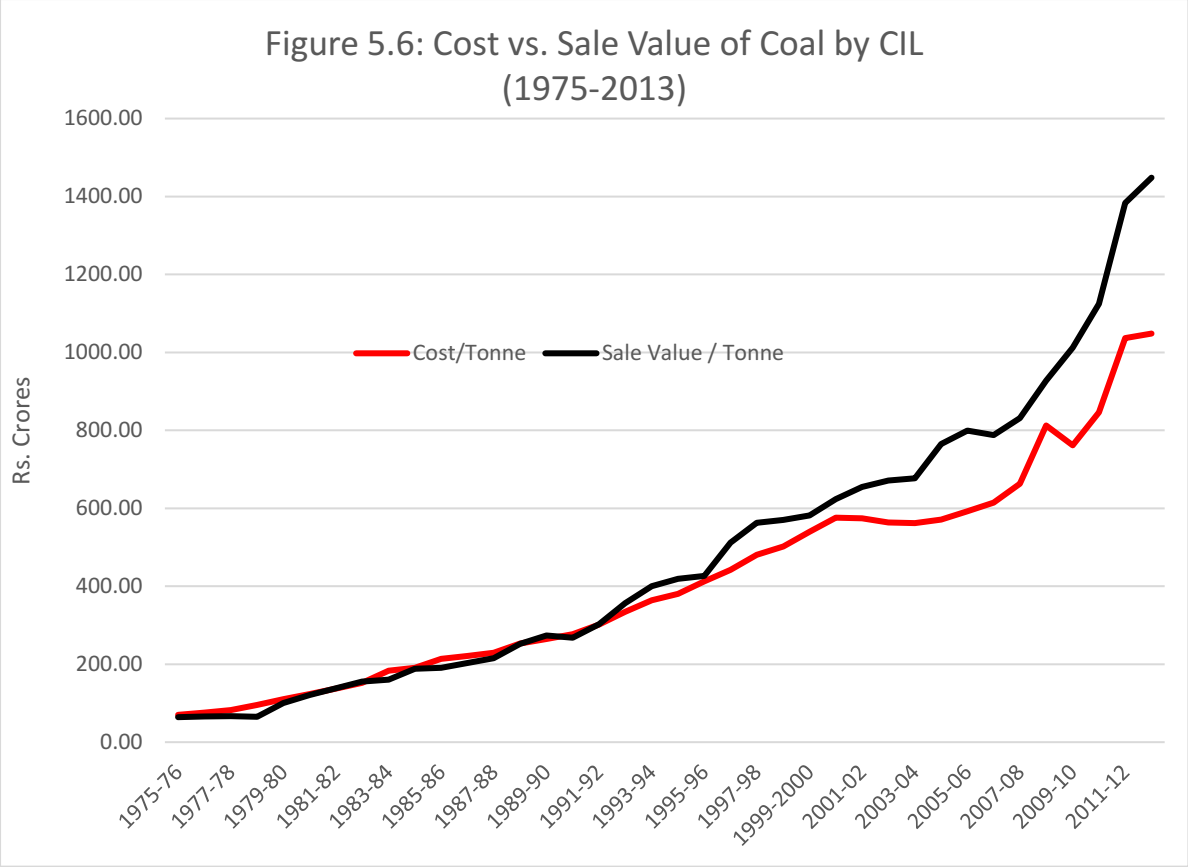
> our people came back, they didn't know what kinds of spares we needed, how to debug machinery malfunctions or even do small things like change the lubricant oils. Consequently, we often did not even sign the necessary maintenance contracts or keep up spare parts supplies in the early years. Is it any wonder that longwall mining failed in India?

Thus, the path dependence towards opencast mining was established. However, this is not to discount the immense progress made in opencast mining methods. As described earlier, the scale of mines changed drastically during this period. Collaboration with Giproshakht, a Soviet mining consultancy, reached new heights. In fact, for Northern Coalfields Limited in Singrauli, Soviet planners were involved not just in planning an individual mine, but also the entire coalfield and associated workshop.[351]

Post-Liberalisation

The reforms after 1991 put CIL in a difficult situation. For the last twenty years, most of the capital outlays on mining machinery had come from the Central government's budget. Now that this was not possible, this money had to come from the company's own coffers. And as Figure 6 shows, CIL was basically selling coal at cost until the mid-1990s. Price controls prevented CIL from making any real profits. To say nothing of the extensive welfare spending of the company which was described earlier.[352] For the first half of the 1990s, before the World Bank loans kicked in, there was little change in technology at CIL. If anything, the constraint was even stronger because subsidiaries had to choose between wages and reinvestment of meagre profits into technology. Liquidity constraints were dire.

[351] Giproshakht. "Singrauli Mining and Central Workshop Plan." Prepared for CMPDI. 1980.
[352] See Labour Chapter



As the World Bank stepped in in the mid-1990s with its massive loans to the industry, many structural changes were made in the industry. Among the most significant was the willingness of CIL to subcontract work on its core competencies: mining and mine construction. Historically, CIL had subcontracted small amounts of overburden removal and transportation of coal, but because of the strict rules prescribed by the Contract Labour Act, 1970 and the compromise with unions after nationalisation, widespread subcontracting did not exist in the industries. However, the financial crunch of the early 1990s forced drastic measures. On murky legal grounds[353], but clear top-down authorization, CIL expanded its subcontracting (known colloquially as outsourcing[354]) of mining and non-mining activities

[353] For a cogent argument against the ills of outsourcing read,
Roy, A. K. "Disinvestment and Outsourcing in Coal." Economic and Political Weekly 38.49 (2003): 5153–5154. Web.

[354] One of the main issues in measuring outsourcing is to figure out what activities are actually outsourced at a given mine. Some mines outsource construction, some outsource overburden removal, some outsource the entire mining process, and some outsource transportation. Unfortunately, even CIL could not provide me with such a

considerably from the mid-1990s onwards. By the early 2010s, almost 60% of all coal production in India was conducted by outsourcing companies.

How did this devolution of operational responsibility to the private sector affect technology choice? In many ways, the technology process remained the same. CMPDI would create mine plans, and then subsidiaries would be responsibility for their construction and eventual mining. However, now especially for newer mines, subsidiaries would often subcontract responsibilities of construction and mineral extraction through Heavy Earth Moving Machinery (HEMM) contracts.

This approach to mining was possible post-liberalisation for a few reasons. Firstly, between the World Bank loans of the mid-1990s and the subsequent profitability of CIL from the early 2000s onwards, the umbrella corporation and the regional subsidiaries had far more liquidity than ever before. Gradually, the Ministry of Coal had also devolved the power of discretionary expenditure the subsidiaries in the form of miniratna, Navratna and Maharatna certifications throughout the 2000s.[355] These certifications allowed subsidiaries to float tenders for technology with approval of their own boards, rather than always waiting for CIL or a ministry to approve their costs.

The second major development was the growth of a competent private mining sector in India. From the mid-1980s onwards, mining subcontractors had been used in non-core activities, like overburden removal. But especially from the mid-1990s onwards, many of these overburden subcontractors started acquiring their own trucks, shovels, and other machinery for opencast mining. Non-coal mining was far more open to private sector mining, so many of

detailed roster of mine-level outsourcing. Many of the ultimate decisions are in the hands of regional subsidiaries, or even area managers.

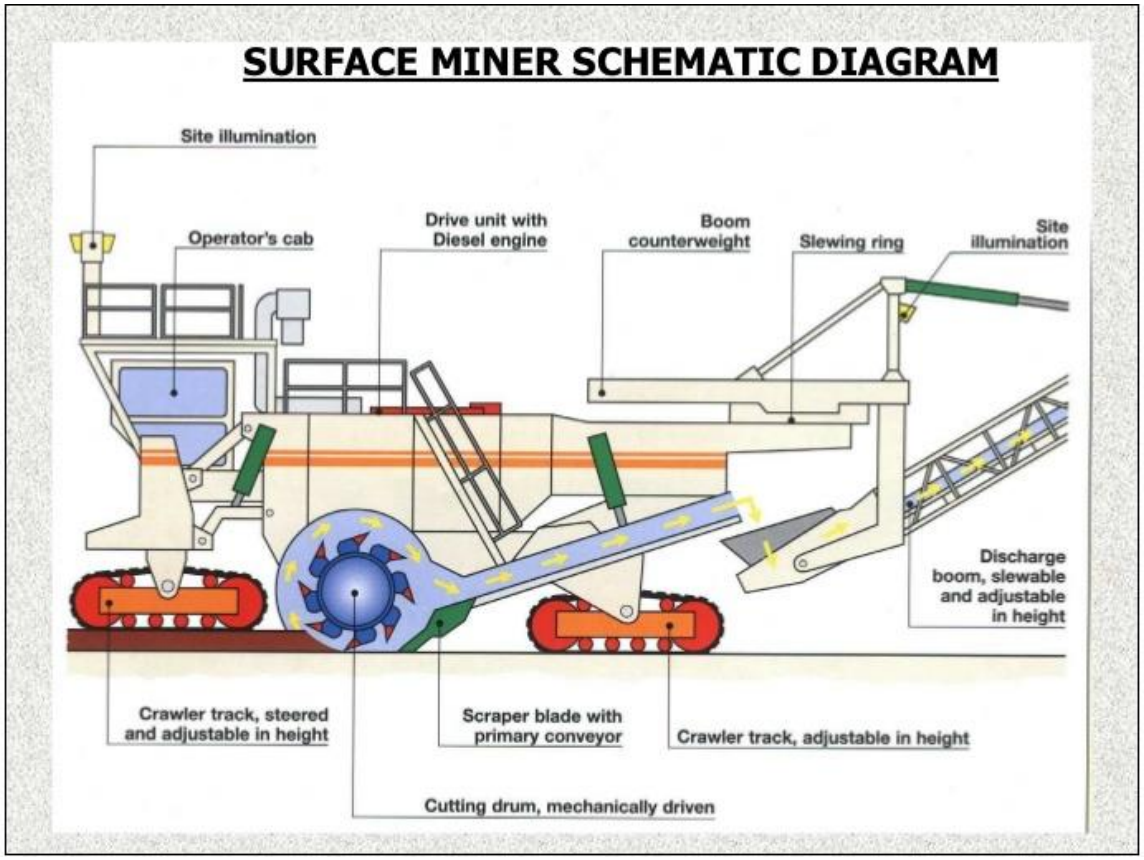
[355] Coal India Limited. "Major Events and Milestones." Online. < https://www.coalindia.in/en-us/company/history.aspx >. Accessed 10 October 2017.

these companies honed their skills in that domain. But when CIL hit its cash crunch between 1991-1995, these companies were perfectly positioned to step in as subcontractors. They had the machinery, they had enough skilled personnel and most importantly they had enough experience to manage local politics. Companies like ACB, Thriveni Earth Movers, Sainik Mining, Mahalaxmi Mining and BKB all grew tremendously during this period.

These outsourcing companies were major contributors to the reversal of fortunes experienced by CIL. CIL as a corporate entity would simply have gone bankrupt if it had continued in the pre-liberalisation mode of operations without the GOI covering the company's capital expenditure. The World Bank bailout and restructuring plan had identified 24 specific mines for expansion and greenfield investment. Almost all these mines included heavy outsourcing. Because of the conditionality imposed by the World Bank, most of this money was invested in Orissa, Chhattisgarh and Madhya Pradesh, states with profit-making subsidiaries. Hence the growth of outsourcing in the early 1990s was concentrated primarily in these states; Jharkhand and West Bengal were able to hold out much longer from this trend.

Figure 5.7: Surface Miner at Gevra Mine (Source: Wirtgen.de)[356]

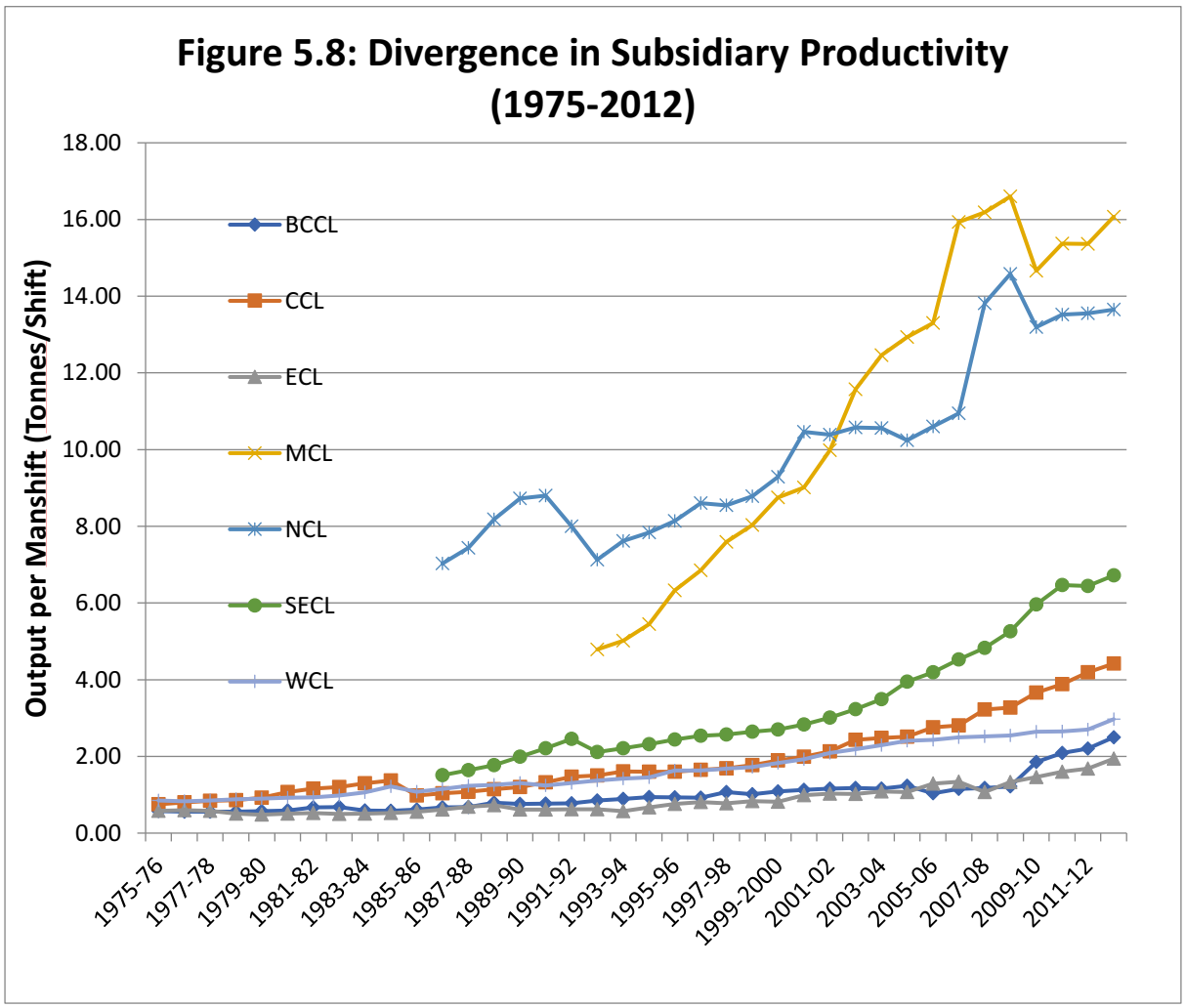




[356] These images are available at https://www.wirtgen.de/en/news-media/press-releases/article_detail.45769.php and https://www.slideshare.net/isnindian/surface-miner-11998161

One of the few big innovations in the post-liberalisation period was the introduction of surface miners (Figure 5.7). Surface miners were sophisticated machines which introduced mechanization and automation to opencast mining. Once overburden was removed, and the coal seam was accessible, surface miners could travel along the top of the revealed seam, crush coal, and convey it into a transportation vehicle in one continuous operation. Such an automated machine obviated the need for two kinds of existing machinery: mechanized shovels for putting coal in trucks, and out of pit crushers for reducing the size of coal prior to transportation. German suppliers like Wirtgen had been selling this technology from the early 1990s onwards, and SCCL had experimented with this technology. However, adopting it within CIL was much more difficult. Multiple subsidiaries of CIL had seen SCCL's machine in action, and were convinced about its utility. Two regional chairmen, S N Sharma (MCL) and B N Pan (ECL), were instrumental in the introduction of this technology into CIL. But they had to fight an uphill battle against both DGMS and CMPDI in the mid-1990s. CMPDI, in particular, was unwilling to sanction this technology in a mine plan. But the balance of power between subsidiaries and CMDPI had now changed. CMPDI's gatekeeping role had been substantially weakened. Companies like MCL were profitable by the mid-late 1990s, and could now afford to buy technology on their own, rather than waiting for PIB decisions or international collaboration. Their bargaining power within the coal technocracy had increased dramatically as a result. Thus, S N Sharma managed to convince the MCL board about the utility of surface mining technology and purchased CIL's first surface miner at a huge personal risk, with major dissent from CMPDI. Within a year, the productivity gains and cost effectiveness of the technology proved its value. Surface miner use proliferated and now almost every large opencast coal mine of CIL uses surface miners. In fact, this technology is one of the main reasons behind the huge productivity gains of MCL, SECL, and NCL (see Figure 5.8). Other

than the introduction of surface miners, however, there have been few transformative technological changes in the area of mechanization.[357]



One of the most underappreciated non-technological changes in CIL has been its creation of a competitive subcontracting ecosystem. While CIL and its subsidiaries do maintain control over the mines, the selection of outsourcing operators has become a hugely contested process. In the early days of overburden subcontracting, nominated contracts were often given to ex-servicemen collectives as part of the CIL's arrangement with the Directorate General of Resettlement in the military. This is where companies like Sainik Aryan and Solanki Mining and Transport got their start. But from the mid-1990s onwards, as outsourcing grew, a range

[357] Former Regional Subsidiary Chairman. Personal Communication. 7 June 2016.

of entrepreneurs emerged who were willing to undertake both overburden and mining responsibilities. And the contestation of HEMM tenders increased considerably. While some companies did manage to exercise considerable market power regionally (eg. Sainik Aryan and Solanki in Chhattisgarh and Orissa respectively), for the most part the tenders were competitive, which is the major way CIL managed to keep its costs low.[358]

Digitisation only enhanced this competitive dynamic. Up to the mid-2000s, most tendering was done through physical collection and depositing of forms. This process was prone to physical intimidation, especially in subsidiaries which had muscular unions and contractors (BCCL was notorious for these activities in Dhanbad). But as the tendering process was digitised, any competent organisation which met the technical criteria could now submit bids for a tender. And this increased competition consistently. Any local entrepreneur with sufficient capital for a few trucks and a few mechanized shovels could now potentially become a subcontractor for CIL. Today, it is common to see companies from other states bidding on HEMM contracts

Interestingly, the largest outsourcing companies often subcontracted their work as well. The largest HEMM contracts were usually large multiyear contracts which required huge amounts of working capital and machinery. Companies that won these contracts would often divide the contract up piecemeal and hire smaller local operators. This multilevel contracting led to huge amounts of churn; many smaller, local operators entered and exited this business in the two decades after liberalisation. But one of the necessary consequences of this mode of mining was the persistence of a relatively low technological equilibrium. Surface miners may have operated at larger opencast mines, but the sizes of the trucks and mechanized shovels used throughout the industry increased only marginally from the late 1990s to 2015. A large chunk

[358] Former Tata Steel Mining Engineer. Personal Communication. 29 July 2015.

of the gains made in through subcontracting were the consequence of labour arbitrage and the ability of the private sector to better manage labour costs than the public sector.

However, the sheer volume of increased coal mining (and profits) in India since liberalisation brought many global mining machinery companies to India. Companies like Komatsu, Joy Mining, Caterpillar, Volvo, Terex and Sandvik have all opened not only marketing, but also manufacturing units in India, often with local joint venture partners. These international players have been competing with domestic companies like Bharat Earth Movers Ltd. (BEML), Heavy Engineering Corporation (HEC), Hindustan Motors and Tata Motors for local equipment contracts. This market has been the spiritual successor to Soviet technical cooperation. Preferential lending and technological cooperation in the post-nationalisation period was eventually replaced by logic of markets in the post-liberalisation period once CIL and its subcontractors actually had the financial wherewithal to purchase technology. MAMC may have failed in bringing underground mining technology to India, but the creation of a competitive subcontracting environment succeeded in attracting investment into opencast mine machinery manufacturing.[359]

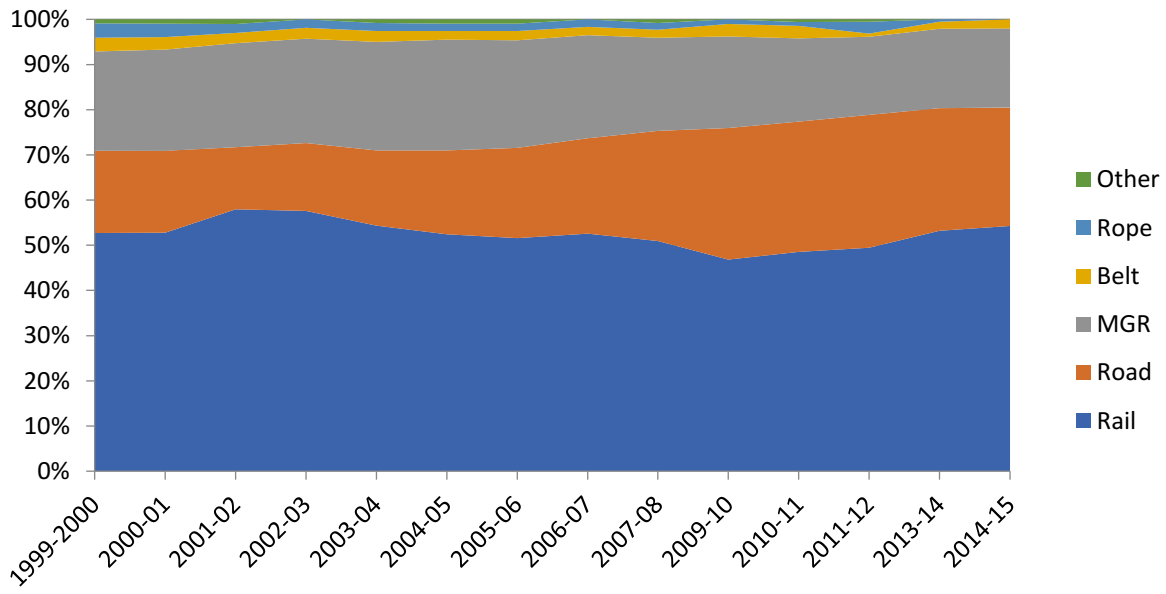
On the transportation side, it could be said that the coal industry actually regressed technologically as road based transport became more prevalent (see Figure 5.9). In an ideal coal transport system, railway based transport and merry-go-rounds (MGR)[360] should dominate. Short distance of truck based transport from the mine to the railway siding are often necessary, but long-distance truck transport is highly inefficient from both an energy and a cost

[359] Nova Mining. "Overview of Indian Mining Machinery Industry." http://www.novamining.com/knowledgebase/mining-machinery/overview-of-indian-mining-machinery-industry/ . Online. Accessed 11 October 2017.

[360] A merry-go-round is a dedicated railway line between a coal mine and a pithead power plant. Taking advantage of the small distance between the mine and the power plant, MGRs were constructed primarily between CIL mines and NTPC power plants to maximize the latter's plant load factors and minimize any fuel shortage problems. Very few MGRs have been constructed in the last few decades, which explains the temporal consistency of the MGR wedge in Figure 9.

perspective. However, the massive congestion in India's railway system due to the concurrent movement of freight and passenger traffic has made railway transport to power plants unreliable and expensive. Consequently, many power companies have preferred to incur the higher costs of truck based coal transport simply because such a flow of coal was far more reliable than railway based truck transport.

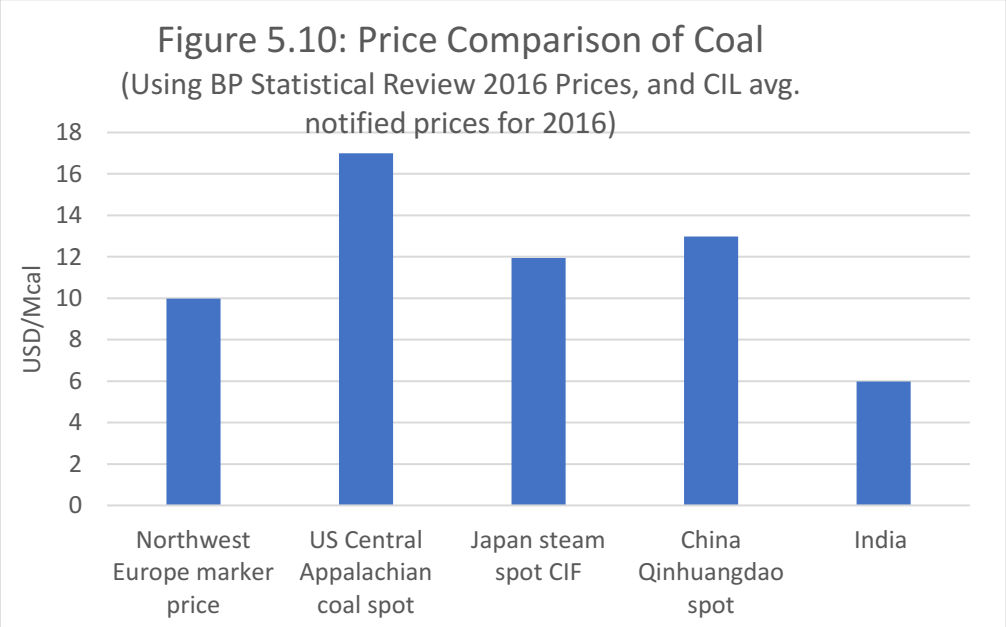
Figure 5.9: Dominance of Road-based Transport in Coal (1999-2015)



Underground mining has remained a small fraction of overall production, but CIL has still maintained underground mines for strategic reasons. Given that the majority of India's coal still lies in deep seams, industry experts believe that eventually CIL will have no choice but to return underground. Continuous miners, new longwall faces, and even highwall mining have all been introduced in India in from the mid-1990s onwards. Maintaining a minimum level of underground mining expertise is considered important by the mining engineering fraternity, so that India is not totally dependent on international expertise. But the production from these mines has obviously remained limited.

Conclusion

Given these trends, it is clear that the early technological optimism of the Indian coal establishment after nationalisation, particularly through the creation of MAMC, failed miserably. As one CMPDI official, responsible for underground mining, told me, "India may not use the most sophisticated mining technology, it may not manufacture them, it may not have cutting edge mining research, but we do have the cheapest coal in the world[361]" (see Figure 5.10). By and large, this is what CIL executives pride themselves on. They provided cheap coal as an input to the rest of the Indian economy. In some ways, this is what the de facto primary objective of the company has become.



Using Amsden's categorization, India certainly did not invent any technologies, or innovate on existing technologies. But in the learning process, it adapted technologies to the Indian context. Given the extensive financial constraints on CIL and the failure of the underground experiment, the economic preference for Soviet-based opencast mining processes was obvious. This drove the majority of technological acquisition prior to liberalisation. But

[361] Former GM (Underground) at CMPDI. Personal Communication. 22 April 2016.

once the World Bank loans and reasonable price revisions afforded CIL some financial power, it created an extremely efficient subcontracting system which used existing technologies. *While there may not have been much technological innovation in the Indian coal industry, there was extensive procedural and logistical innovation.* Given the web of vested interests built up in the industry, competitive tendering of HEMM contracts offered a way to let external private actors enter the system and acquire operational control.

In many ways, CIL as an organisation gained real technological agency only in the post-liberalisation era (summarized in Table 5.1), at which point it was already locked into an opencast mode of mining. Given these constraints, it seems to have done surprisingly well at maintaining a low technology, but high productivity commercially viable coal mining ecosystem. Defaulting to opencast mining has had many other social and environmental implications. But as one former Coal Secretary put it, "The Centre has created space for us domestically and internationally to mine coal and not worry about much else. That is what we have been doing well.[362]"

[362] Former Coal Secretary. Personal Communication. 21 June 2016.

Table 5.1: Technological Adaptation by CIL

	Pre-Nationalization (Before 1971)	Post-Nationalization (1971-1991)	Post-Liberalization (1991 – 2000)	Profit-Making Era (2000 – Present)
Bureaucratic Discretion	**NCDC**: Some innovation in new opencast mines, but strongly constrained by foreign exchange availability	Technology choice strongly constrained by aid and foreign exchange relationships, some discretion on project siting but often politicized, project reports often created to pass PIB scrutiny	Technology choice expands considerably, partially due to the new World Bank mines which require competitive tendering for machines in new opencast mines, major internal reforms in tendering processes	High, newfound profitability attracts international mine machinery firms, technology experimentation now possible, subsidiary boards empowered to make large decisions on procurement
Organizational Capacity	**NCDC**: Nascent planning and operational capacity, but govt. expectations far outstrip the limited capabilities of the company, antecedents of CIL's managerial structure	Increasing, primarily through multiple foreign collaborations which expose CIL engineers to new forms of mining and new technologies, formation of CMPDI establishes in-house planning wing, separated from operations	Increasing, World Bank loans allow a de-linking of major procurement decisions and central government approval, small amounts of experimentation initiated by regional subsidiary CMDs, outsourcing takes non-technical jobs away from mining engineers	Moderate, CIL not in a high technology equilibrium, but capable of independently executing large opencast projects with private contractor, movement towards becoming a mine management company
Resource Self-Sufficiency	**NCDC**: No, heavily subsidized	No, completely dependent on government for capital expenditure, which majorly affects technology choice, lowest cost typically the goal	No, highly dependent on government and external loans. But massive expansion of opencast, outsourced mining after World Bank loans period improves CIL's financial efficiency considerably	Yes, profitable and able to borrow money from banks and government on commercial terms. New technological experimentation
Political Influence	N/A	N/A	N/A	N/A
Rule-Shaping	Extremely limited, technology choice largely dictated by PIB and Planning Commission	Limited, gatekeeping by CMPDI allows some choice, but financial and geopolitical considerations still override, bad demonstration effects in longwall have major consequences	Moderate, tendering massively changes approach to technology, foreign exchange constraints lessen, international collaboration becomes easier	Moderate, opencast mining more or less locked in at this point, however experimentation by subsidiary CMDs against CMPDI suggestion now possible, private subcontractors can supply equipment even if CIL does not buy it directly

Chapter 6: Conclusion

Through these chapters, what emerges is a portrait of an SOE which had to struggle immensely against adverse political and financial circumstances to accomplish its goals. Interacting with the managerial class at CIL, both current and retired, rarely did I encounter managers who were indifferent, lazy, or unmotivated. Through their jobs, most of them had been forced to quickly understand not only their own organisation, but also the larger bureaucratic and social environment they operated in. And within this frame, they were constantly looking to make space to accomplish the one unaltered part of CIL's mission: produce cheap coal for the country. CIL developed technical competence and organisational capacity when it was severely lacking in India.

In the process however, the nature of CIL's social mission changed dramatically. Far from being burdened with the unrealistic expectations of being both a model employer and an axis of the developmental state, CIL's goals have now narrowed considerably in an attempt to accomplish its mission. With the increased emphasis the profit motive from the mid-1990s onwards through the World Bank's conditionality, the organisation was able to use its considerable bureaucratic capital at various levels of government to shape a new mine management system, where private subcontractors gradually became essential to the efficient operation of the industry. However, this transition has had major implications for local politics; as the locus of political power in the coal belt shifted from making claims on CIL's developmental spending to dominating subcontracting, both corporations and local politicians have often made deals which have adversely impacted many residents of the coal belt. The resulting resource politics around coal from the early 1990s onwards has progressed very differently in older versus new coal areas. In states like Jharkhand and West Bengal, new social groups have learned how to stake their claims on the subcontracting ecosystem; in Chhattisgarh

and Orissa, local claim making has been much more muted, allowing external agents to dominate.

Looking through the tables at the ends of each chapter, a few patterns emerge across the different verticals of adaptation. Firstly, it is very clear that CIL was gradually building capability from its very beginnings. CIL's networks in the federal bureaucracy, its long engagement with local politicians and expanding technical corps all gave the SOE legitimacy within the Indian state. As the failure of MAMC demonstrates, not all SOEs were capable of establishing such a footprint within the Indian state. Socializing an organisation within the Indian state seems to be just as important as having smart engineers who can carry out a company's vision. Across almost all functional areas, CIL was a well-networked and technically competent organisation, even when it was struggling financially. Whether it was with their parent ministry or local politicians, CIL managers planted their roots extremely early. Initiating relationships, gaining a positive reputation and establishing favours with both bureaucrats and politicians was clearly an important part of managing such a distributed SOE. In fact, generalizing conceptually, it is fair to say that being well-networked within the state and having a strong technical corps are preconditions for the success of an SOE. While this seems relatively obvious, there are clearly SOEs which have been founded with good intentions, but staffed with the wrong people, thereby having very weak organisational capability.

Another pattern that emerges from the chapters is that financial self-sufficiency tends to unlock political influence. If SOEs are to resist political pressure, they must not be dependent on those same actors for their budgets. Again, this is relatively straightforward. However, not all SOEs and government agencies necessarily have this luxury. A few years ago, a former chairman of the Andhra Pradesh Electricity Regulatory Commission (APERC) narrated to me how the APERC managed to maintain some degree of independence from its state government

(electricity regulators are notoriously politicized in India). Because he used to work in the state's Ministry of Finance, he was able to convince his former colleagues to push through an exclusive budget for the APERC through policy measures rather than legislation, thereby avoiding the potential for political veto. Securing these funds cut many of the strings that hobbled other state electricity regulators across India, which allowed the APERC to issue some relatively progressive orders for its time.[363] Partha Bhattacharya's push for fair prices and increased subcontracting autonomy was motivated by similar goals, to wean CIL off external funding. But as CIL's cash reserves grew after reforms, and its contributions both in terms of royalties and its CSR spending expanded, it gained leverage over competing bureaucracies, state governments and its own ministry. It was able to push for rule changes, resist political pressure, and not worry excessively about retaliatory punitive consequences. If a problem could not be solved by working with the state, CIL had the resources to seek a private alternative. Perhaps the best example of this is today is CIL's approach to healthcare provisionining, where almost all CIL employees requiring major procedures are now immediately referred to private hospitals (with CIL footing the bill) rather than subjecting employees to frequently understaffed and resource-deficient public hospitals. CIL's return to financial well-being has helped its own employees exit the public health system. Not surprisingly this move was also welcomed by employees, since many of these healthcare benefits extend to their entire family.

Is there an Indian flavour of state capitalism that emerges from this narrative? There are a few patterns which seem to emerge. Firstly, inter-bureaucratic competition or coordination is a strong characteristic of the system. In some ways this is problematic, because it exponentially increases the amount of socializing and networking required to keep an organisation well-situated and stable. However, what it also means is that there are multiple ways to solve problems due to the repeated negotiations between actors. For example, an Area

[363] Bhaskar, Dr V. Personal Communication. 8 July 2014.

Manager facing mine blockades has multiple ways of resolving the situation. He can negotiate directly with the protestors offering them short-term carrots (assuming he has the fiscal means at his disposal). If he wants to take a more disciplinarian approach, he can enlist the help of the district Superintendent of Police in breaking the blockade. Depending on his relationship with local unions, he can talk to local leaders and get them to call off the strike in return for future favours. If he is willing to wait, he can also play the long game, and try to get local media on his side, trying to shame the protestors into submission. In this kind of interorganisational field, especially enabled by financial agency, the choice set of the local managers expands considerably. Solving problems is often limited by the creativity of the manager, not the unavailability of options, as it was in earlier periods.

Secondly, it is very clear that that industrial SOEs like CIL in India are operationally converging with private companies. Whether it is the prevalence of subcontracting, the development of internal financial norms, or the engagement with financial markets and banks, Indian SOEs behave like private companies in many spheres. The few spheres which have been exempt from this influence have been labour (where a shrinking permanent labour force has a sweetheart deal) and strategic spending (where the government, through the board, forces SOEs to spend reserves on non-core activities). In the last few years, CIL has started spending its considerable cash reserves on railway projects, fertilizer plants, solar power plants, and electric vehicle charging stations. Many of these areas are far from CIL's core mission, or in the company's strategic interest. But guided by government-nominated board members, these expenditures proceed nonetheless. If such practices continue, it is possible that CIL may become more of a diversified energy company than just a coal miner. Given that the long-term future of the coal industry looks bleak, this might actually be a good strategic move. Private sector companies often strategically reorient operations when certain parts of their business become unviable; can SOEs pursue a similar strategy if the government supports their

diversification? Many European national champions in the energy space (Eg. Eni, Engie, Total, BP) have transitioned to becoming multinational energy holding companies with diverse assets. CIL has rarely looked abroad, but it could easily diversify domestically.

Returning to the matrix in the first chapter, what CIL does provide is some hope for struggling SOEs. If these organisations can hold on to their technical corps and maintain their networks within government, it is possible to resuscitate SOEs in financial doldrums. The problem is that over the last thirty years, the exit options for competent professionals have now improved dramatically. Thirty years ago, even if an SOE was in dire circumstances few would consider leaving a government job because opportunities in the Indian private sector were limited. But now, circulation between the private sector and SOEs is not uncommon. SOEs offer long-term job security and benefits, but usually their base salaries are significantly lower than those offered by the private sector. As a consequence, very few graduates from India's top engineering schools are willing to join CIL today; CIL has been forced start recruiting from a much wider set of college and universities.

Bigger Picture

Adaptive state capitalism is not unique to CIL; most Maharatna display elements of the five crucial characteristics for an adaptive SOE. But a cursory comparison of a few major SOEs (see Table 6.1) shows that CIL's constraints were tougher than most. The massive footprint of the coal industry, combined with its labour intensity and easily stolen product meant that claim-making on CIL was much more direct, confrontational, and assertive when compared to other industrial SOEs.

Table 6.1: CIL's Exceptional Constraints

	CIL	NTPC[364]	ONGC[365]	SAIL[366]
Local Embeddedness	High	Moderate	Low	Moderate
Labour Intensity	High	Low	Low	Moderate
Spatial Spread	High	High	High	Moderate
Result of Nationalisation	Yes	No	Yes	Yes
Significant Market Power	Yes (Quasi-Monopoly)	Yes	Yes	Yes
Product Easily Sold on Open Market	Yes	No	Yes	Moderately

Can this rubric of adaptation be applied to other agencies within and outside the Indian government? Let us consider a few different entities see whether they fit into this framework.

Table 6.2: Can Other Organisations be Adaptive?

	Ministry of Coal	State Electricity Regulators	Director General of Mine Safety	Tata Steel
Bureaucratic Discretion	High	High	High	High
Organisational Capacity	Medium	Low-Medium (Varies by state)	Medium	High
Resource Self-Sufficiency	Medium	Low-High (Varies by state)	Medium	High
Political Influence	High	Low-High (Strongly dependent on officers in regulator)	Low	High
Rule Shaping	High	High	High	Medium

[364] National Thermal Power Corporation – India's largest state-owned power generator
[365] Oil & Natural Gas Corporation – India's largest state-owned oil & gas producer
[366] Steel Authority of India Limited – India's state-owned steel producer

The Ministry of Coal is the apex body in the Indian coal industry, that takes all high-level policy decisions about exploration, mining, and distribution of coal and has the power to propose legislation in these areas. It is led by a politically appointed minister, but the majority of its staff are career bureaucrats from the IAS. Compared to companies like CIL, the Ministry of Coal actually has much less organisational capacity; it has a few hundred staff at most, but less than twenty senior IAS officers, and only one position (Advisor (Projects)) which goes to an industry veteran rather than an administrative generalist. The Ministry of Coal's budget comes directly from the annual budget of the Government of India, but is naturally much smaller than CIL's budget because it is not an operational organisation. However, since Ministry officials dominate the CIL board, they have the ability to direct the expenditure of CIL to some degree, although they typically avoid getting too involved in operational decision-making. Because the Ministry is responsible for determining royalty policy and coal distribution, its has a fair amount of political influence vis a vis state governments, who are constantly lobbying the Ministry to give them a better deal (higher royalties, more coal allocations).

So then is the Ministry of Coal (MoC) an adaptive organisation? Considering that the MoC is more of an executive organisation, rather than operational (it does not implement policy, but monitors outcomes) or commercial (does not have any profit motive), it can be compared far more easily to Carpenter's executive agencies than SOEs. The Ministry of Coal has rarely displayed characteristics of bureaucratic autonomy historically; the bureaucrats at the Ministry of Coal have rarely had the power to pursue their own legislative or policy agendas independent of their minister. Perhaps the one major exception was the tenure of P C Parakh, discussed in earlier chapters, who actively opposed the unreasonable demands of his Minister, and provided space for CIL to pursue its mission. But this kind of open defiance is rarely observed; most civil servants at the end of their careers are loathe to take such large risks

against the political class. Therefore, despite scoring relatively highly on the rubric, it would be inappropriate to call MoC an adaptive organisation; since it is already at the top of the hierarchy, and rarely has to struggle for financial resources or discretionary power, the initial conditions were already in the organisation's favour, it did not need to change much over time to adapt to its external environment.

On the other hand, state electricity regulators seem far more appropriate for this rubric of adaptation. Even though regulators do not have a profit motive, their interorganisational field is much more complicated (compared to a Ministry) because of their interaction with the state, multiple private actors, and their quasi-judicial powers which can appealed to higher authorities. In constructing notions of a "fair price," and mediating between the state and private actors to reach pricing decisions which reasonable for all parties, Indian electricity regulators have faced numerous challenges to their official legal authority. As the Mapping Power project has pointed out, there is enormous state-level variation in the effectiveness and independence of state electricity regulators in India.[367] Some are effectively captured and subservient to politicians; others are much further along in establishing their independence by attaining financial self-sufficiency and passing orders which force the state and private actors to respect their authority. Some state regulators have enough staff economists and engineers that they can process regulatory filings internally. Others are so starved that they essentially have to subcontract all their work to private consulting firms. In the space of state electricity regulators, states like Gujarat and Maharashtra have regulators which could be considered adaptive, but states like Jharkhand and Rajasthan are far from this categorisation, because of their continuing financial problems.

[367] The Mapping Power project is a is a multi-author project on state level electricity governance in India out of the Centre for Policy Research in New Delhi. The project's findings will be coming out in a forthcoming volume by Oxford University Press. Further details of the project can be found at http://www.cprindia.org/projects/mapping-power .

The Director General of Mine Safety (DGMS) is the labour regulator in the mining industry (not just coal but all minerals) and exists as a regulatory agency under the Ministry of Labour. The Director General is usually a former mining engineer or administrator from a mining SOE. The organisation is responsible for enforcing labour standards in the industry, conducting periodic compliance checks on public sector and private mines, collecting data on mine accidents, certifying new technologies and acting as a labour tribunal in accident-related cases. Located in Dhanbad, with satellite branches all over India, the organisation has the power to shut down any mine not in compliance with safety and labour standards. Because of its budgetary independence from the mining industry, DGMS has managed to exercise its regulatory role without too much interference from mining companies themselves.

However, DGMS has been under constant pressure from the Central government to work "collaboratively" with mining companies; this often entails being generous with non-compliant companies and suggesting remedial measures rather than unilaterally shutting down a mine. While the DGMS has had to upgrade its capacity to deal with the entry of new technologies and the massive expansion of mining in India over the last two decades, its modes of operation do not seem to have changed significantly in the last few decades. There are plenty in the mining industry who view DGMS' approvals as more of a procedural rubber stamp than a veto; unless there are truly egregious violations, DGMS tends to give out its approvals relatively easily. As accident rates have fallen with the increase in mechanized opencast mining, many of the historical regulatory responsibilities that accompanied widespread underground mining have diminished over time. In this context, it would be inappropriate to call DGMS an adaptive organisation; the organisation scores well cross-sectionally on most of the characteristics of adaption today, but has not actually changed much over time (especially in comparison to state electricity regulatory commissions and other Maharatna SOEs).

Finally, let us consider a major private company in the mining space, Tata Steel. As mentioned in earlier chapters, Tata Steel's coal mines were among the few that avoided nationalisation. With iron ore mines in both Jharkhand and Orissa, and coal mines in Jharkhand, Tata Steel has a long history with the mining industry.[368] Despite considerable competition in the steel industry over the last forty years (from both SOEs and private companies), it still produces roughly ten percent of all steel in India. As its operations have grown well beyond its first steel plant (and associated industries) in Jamshedpur (another steel plant in Orissa, multiple power plants across the country), the company's connections with local bureaucracies and politicians has expanded proportionally as well. Being one of the best reputed corporate houses in India, Tata Steel and the Tata Group more broadly tends to have a high rates of employee retention and strong company loyalty, leading to a well-defined internal bureaucratic culture. Not surprisingly, company heads are often given considerable short-medium term operational discretion, although Tata Sons, the parent holding company does exercise significant strategic control through boards and interlocking directorships. In Seraikela Kharsawan district in Jharkhand (which contains Jamshedpur), the Tata Group often exercises quasi-state characteristics.

Through Jamshedpur Utilities and Services Company (JUSCO) it provides many of the critical public services to the city of Jamshedpur and surrounding areas (power, water, roads/infrastructure, even public transit), arguably more successfully than many arms of the Jharkhand state government.[369] More importantly, the continued financial success of many of

[368] In addition to Dilip Simeon's work cited earlier, this history is well covered in Mircea Raianu's doctoral dissertation.
Raianu, Mircea. "The Incorporation of India: The Tata Business Firm between Empire and Nation, ca. 1860-1970." Dissertation. Harvard University, 2016. Forthcoming.

[369] There are divided narratives around the propriety of this arrangement and the Tata's role in the district more broadly. For critiques of the Tata's governance of Jamshedpur consider the following.
Sanchez, Andrew. Criminal Capital: Violence, Corruption and Class in Industrial India. Routledge, 2016.
Gupta, Divya. "Moral Minefield." The Caravan. 1 November 2011.

Tata Steel (in spite of a major hiccup due to one foreign acquisition[370]), has been relatively robust. The Tata Group's networks among national and local bureaucracies and parties, its considerable policy experience in Jharkhand and other states[371], and its continued participation in many regulatory and policy-making forums has made the company incredibly influential, both operationally and intellectually. While its rule-making influence is not at the level of a company like CIL, the Tata Group's voice on steel, coal, and power policy in India is a loud and prominent one and the group is well represented in almost all industry associations. In the typology laid out in Table 1.1 in the introduction, it would be fair to say that Tata Steel has remained an adaptive private enterprise for quite some time.

From these cases, what emerges is that the context of adaptation (the interorganisational field) matters just as much as the five characteristics. Adaptation can be likened to the geological formation of precious gems; it is the product of long periods of pressure from multiple directions and the outcome is not always successful. An organisation like the Ministry of Coal may be competing against parallel ministries, but being at the apex of an industry, it had not had to change its internal operations much to react to external events. Similarly, a regulatory organisation like DGMS may score well on adaptive characteristics, but it has not had to struggle to maintain its independence. The multiple iterative changes over time in response to political and financial pressures are simply less likely for longstanding administrative organisations who have well-defined missions and relatively few incursions on

[370] Gopalkrishnan, Adarsh. "What happened after Tata Steel met Corus." The Hindu Business Line. 8 September 2011. Online. < https://www.thehindubusinessline.com/companies/what-happened-after-tata-steel-met-corus/article20336353.ece >.

[371] In the State Advisory Committee of the Jharkhand Electricity Regulatory Commission, JUSCO is regularly invited to make public presentations to the committee. In addition, JUSCO is one of the only companies in India to have a parallel electricity distribution license in India in the Seraikela Kharsawan district. For more details, read:
Chandra, Rohit. "Extractive States and Layered Conflict: The Case of Jharkhand's Electricity Sector." Working Paper. June 2017. Mapping Power Project. Centre for Policy Research and Regulatory Assistance Project. http://www.cprindia.org/research/papers/extractive-states-and-layered-conflict-case-jharkhand%E2%80%99s-electricity-sector

their power. On the other hand, state electricity regulators are very recent organisations; since they were only formed after the Electricity Act, 2003, they have had to perpetually fight for both financial independence and operational space in a field populated with many other actors eyeing the same powers. Commercial operation and a strong profit motive are powerful motivators for adaptation since the threat of bankruptcy is existential. Private companies that are not adaptive either face bankruptcy or remain small niche players in their respective industries. However, SOEs often face soft budget constraints and are sometimes guaranteed market share through government procurement policies. To be adaptive in this space requires much more effort because of the relative ease of lapsing into complacency and operational inertia, something CIL managed to accomplish over decades.

By making CIL the unit of analysis in this study, it is overwhelmingly apparent how SOEs can operate as both commercial and political entities. Whether they like it or not, large Indian SOEs have become an inextricable part of India's polycentric governance today. While these companies may not have explicit roles in the political system, they have had to mould their roles in response to the various pressures placed on them over the last four decades. India's SOEs are political entities, and the characteristics of adaptive state capitalism are politically forged.[372] Using this lens to understand SOEs can demystify many of the concerns that bewildered market analysts express when they try to view these companies as purely commercial organisations. But being politically involved is a far cry from being politically captured; this entire narrative illustrates how CIL created operational, financial and political space for itself.

This study is not pining for the return of dirgisme or the heavy-handed state capitalism of the past; if anything, the preceding chapters illustrate that CIL gained many of the

[372] This phrase is borrowed from Daniel Carpenter's conclusion in Forging Bureaucratic Autonomy, "Bureaucratic autonomy is politically forged (353)."

characteristics of competent private companies (resource self-sufficiency, organisational capacity) which is one of the main reasons for its continuing success. While these characteristics were certainly necessary for the company's success, being able to resist political influence, and sometimes even shape the local political environment was crucial as well. And lobbying within the bureaucratic system for partial deregulation of prices, auction systems, and more opened the door towards the market mechanisms that we see today with the introduction of commercial coal mining. In many ways, for the Indian coal market, CIL can be considered the older sibling, who had to endure and fight against rigid rules and discipline, only to see it melt away for the younger sibling (private sector coal companies). But in the process, it has arguably become a more callous and close-fisted as well, its welfarism is more precise and rule-bound, and sometimes the company's pursuit of profitability has made it complicit in the excesses of its agents.

Yet, for those who leap to criticise CIL for being a socially irresponsible company, the private sector mining scenario in India has so far not offered a better, more inclusive model. Between the financial scandals that have been observed in iron ore, the persistent criminality in illegal sand mining, and the trampling of traditional tribal rights in the bauxite industry, CIL's approach seems almost sympathetic by comparison. For all its flaws, CIL still observes some kind of base social contract in its areas of operation. With private companies, the range of possible outcomes seems to be much larger.

One of the big questions that emerges from CIL's story is whether any company should be able to wield such financial and political power simultaneously. Building national champions and having capable domestic organisations is a laudable goal for a newly independent country, but sixty years on, should such a company be able to affect domestic politics so strongly? Put differently, is it better for Indian democracy to have one-large state-owned company (resilient against political pressure, but also capable of exerting major political

influence) dominating the industry, or would fractured private competition be more appropriate? At the level of the SOE, this study has characterized the complicated interorganisational field of the coal industry and CIL's adaptations within this field. But it has not questioned the fundamental "commodity control complex" that the paternalistic Indian state has displayed from World War II onwards across various commodities, not just coal.[373] Particularly in the last 10-15 years, the Indian state has subcontracted away large parts of its operational responsibility across sectors (mining, power generation, banking, heavy engineering to name a few), but often in risk averse ways which still allow SOEs to keep much of the financial benefits of private productivity. Has this piecemeal approach has hampered sectoral progress, rather than encourage it? In the coal sector, this proposition is being actively tested with the new commercial coal mining policies which have been recently implemented. Either way, one thing is clear, for such large locally embedded industries being apolitical is not an option.

[373] For a historical articulation of this concept, refer to,
De, Rohit. "'Commodities Must Be Controlled': Economic Crimes and Market Discipline in India (1939–1955)." International Journal of Law in Context, vol. 10, no. 3, 2014, pp. 277–94.

Notes on Sources

As the references to the preceding text indicates, part of the research of this book was built on wide-ranging archival sources from a variety of libraries throughout India. For the reader's reference, I list these archives, and the types of documents found in each of them.

List of Archives

Central Secretariat Library, Shastri Bhawan, New Delhi
- Reports about NCDC

CMPDI Library, Ranchi
- Internal planning documents of CIL
- Records of collaboration with foreign technology partners
- Records of foreign trips by CIL employees
- Industrial Relations Manuals
- Official Histories of CIL

Coal India HQ, Kolkata
- Historical Annual Reports and Financial Statements of CIL 1973 – 1993
- CIL Prospectus

Director General of Mine Safety Library, Dhanbad
- Historical documents of the Chief Inspector of Mines' office from 1890s to 1940s
- Historical statistics of coal production in India
- Various technical documents about Jharia and its restoration
- Historical documents of various mining associations (pre-nationalisation)

Indian School of Mines Library, Dhanbad
- Various historical periodicals 1950-1990
- The New Sketch, 1950 – 1990

Lamont Library Government Documents Collection, Harvard University, Cambridge
- Special Reports of the Standing Committee on Public Enterprise (SCOPE) 1960-1990

Russi Modi Centre for Excellence, Tata Library, Jamshedpur
- Assorted documents on Tata Steel's coal mines

V V Giri National Labour Institute, Noida, NCR
- Collection of Oral Histories of Coal Workers
- Accidents and Work – The Everyday Lives of Jharia Coalfield

Widener Library Stacks, Harvard University, Cambridge
- Historical statistics on Indian mining industries 1960-2000

Appendix A – Organisational Structure of Coal India Limited



(Image from CIL Website)[374]

Coal India Limited is a state-owned enterprise majority owned by the Government of India. The company in it current form consists of seven operational subsidiaries (listed above) and one planning and research subsidiary (Central Mine Planning and Design Institute). CIL's subsidiaries are divided roughly by state ECL (West Bengal), BCCL and CCL (Jharkhand), NCL (Madhya Pradesh), SECL (Chhattisgarh), WCL (Maharashtra) and MCL (Orissa). Each of these subsidiaries is further divided into 15-20 Areas, which are the main managerial unit in the organisation which oversees the operation of multiple smaller mines, or one large mine. During nationalisation, only four subsidiaries existed, ECL, CCL, BCCL and WCL. CCL and WCL had much larger areas of operation across multiple states during their first decade of operation. In 1985, SECL and NCL were spun off as new subsidiaries, reducing the operational areas of CCL and WCL. In 1992, MCL was formed from CCL. In the last ten years, SECL and MCL have started subsidiaries running thermal power plants and railway construction companies (as shown in the above figure). Also, in 2009, CIL forayed into the acquisition of foreign coal assets, primarily in Mozambique, through Coal India Africana Ltd. This venture has since been progressing slowly as CIL has renewed its focus on domestic coal development.

[374] "Structure." Coal India Limited. < https://www.coalindia.in/en-us/company/structure.aspx >. Accessed March 15, 2018.

Appendix B – The New Sketch

The New Sketch was a weekly pamphlet which summarized developments in the coal industry in Dhanbad, and broader trends in the industry. It was published out of a small office (appropriately called The New Sketch Press) adjacent to the Indian School of Mines. In Dhanbad, the Director General of Mines Safety, the Indian School of Mines, and the main offices for Bharat Coking Coal Limited (one of the largest coal companies in the region), are within five kilometres of each other. There is also an unusual concentration of private companies who provide machinery, tools, safety equipment and other goods necessary for the mining of coal.

The Indian School of Mines, Dhanbad, has about forty years of this document available in its library (1965-2005), with some small gaps in between. Many of the older generation of coal mining professionals I have spoken to, who have worked in the industry both before and after nationalization have vouched for the credibility of The New Sketch. They characterize it as being a must read for anyone involved in the industry before the mid-1990s, when specialized trade journals start coming out displacing this periodical.

The New Sketch is an interesting combination of material. As you can see from the picture on the next page which summarizes its front page material, it is clearly financed primarily by advertisements from two kinds of businesses; local businesses in Jharia and Dhanbad, and businesses that hope to supply machinery and specialized goods to mining companies. The first few pages after the advertisements and job postings are always an opinionated commentary on some issue of contemporary relevance to the coal industry. Obviously, there is a pro-industry bias in this writing, but there is a fairly measured consideration of facts before the authors, generally former professionals from the industry, jump into their analysis. At one point, the journal hires a correspondent specifically reporting from Delhi on Parliament debates and legislative issues which pertain directly to the industry.

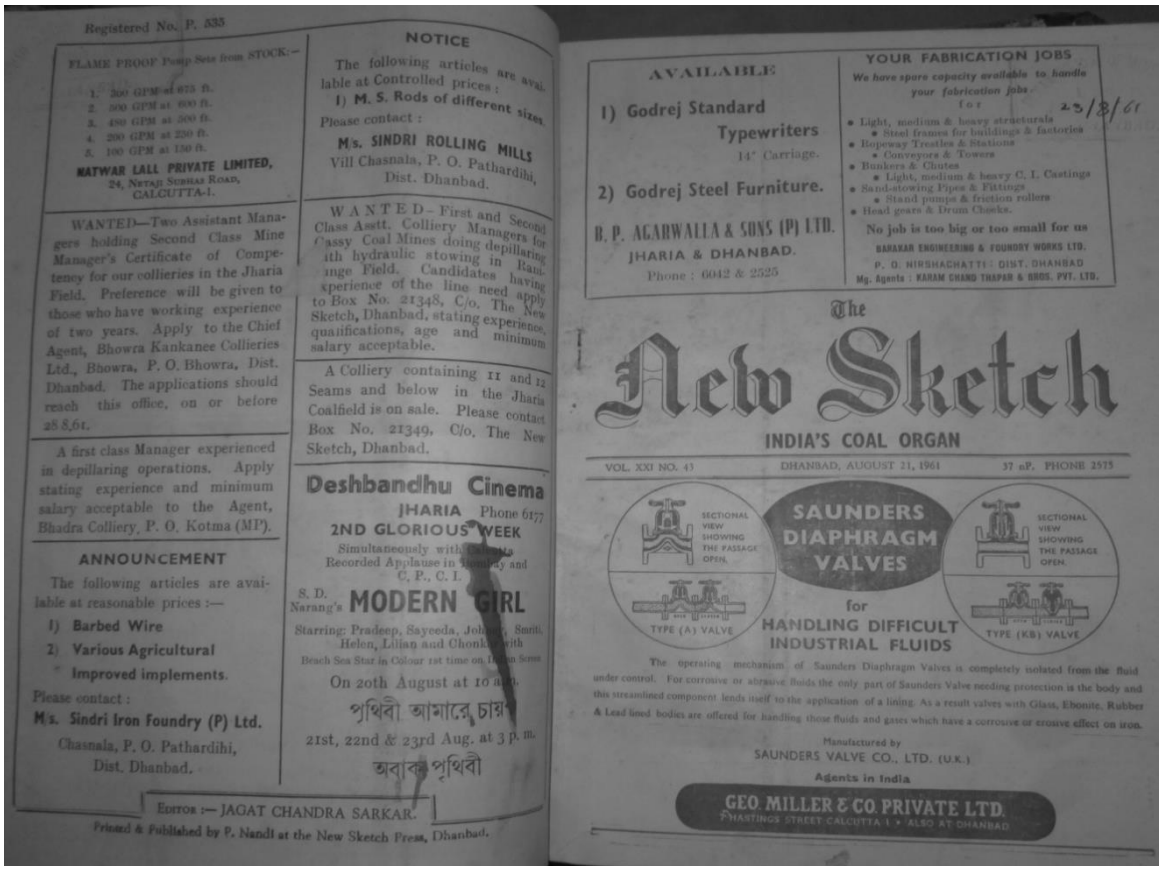
After the opening 3-4 page essay, the journal usually covers smaller news related to regional developments in various mining areas or collieries. These news items are usually half a page in length, and cover everything from merchants, labourers, local Dhanbad politics, technological improvements occurring in certain mines, and the transfer and appointment of various important positions in the industry. Although the focus certainly is on Dhanbad, usually there are at least a few stories about other regions as well. In particular, the coverage of interactions of high level officials with politicians is quite well covered, so the policy angles are quite well covered.

The quality of this publication remains quite high even after nationalization, until the 1990s, where it is clear that the publication quality decreases with deteriorating quality of writing, much less care put into basic layout, and fewer advertisements. This is also the period in which commercial magazines start taking off in India, so there are likely new trade journals coming up in the coal sector, based out of Kolkata and Delhi which made The New Sketch less relevant. Also, with the nationalization of the sector, manufacturers of mining products did not require as much advertising of their goods because they had to appease their one main customer: the Government of India through its various Coal India subsidiaries.

One of the unique aspects of The New Sketch was that almost every week, it would publish one abbreviated academic paper at the end of the pamphlet, which was relevant to the coal mining industry. I am not sure how it chose which papers to publish, but one would imagine

with the Indian School of Mines nearby, it would tend to pick articles which were of practical importance to those in the industry.

For understanding the dynamics of the industry before and after nationalization in 1971 and 1973, this source is invaluable, and it will be one of the main primary sources I use for my analysis of the period between 1947-1991.



Registered No. P. 535

FLAME PROOF Pump Sets from STOCK:—
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2. 300 GPM at 600 ft.
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WANTED—Two Assistant Managers holding Second Class Mine Manager's Certificate of Competency for our collieries in the Jharia Field. Preference will be given to those who have working experience of two years. Apply to the Chief Agent, Bhowra Kankanee Collieries Ltd., Bhowra, P. O. Bhowra, Dist. Dhanbad. The applications should reach this office, on or before 28.8.61.

A first class Manager experienced in depillaring operations. Apply stating experience and minimum salary acceptable to the Agent, Bhadra Colliery, P. O. Kotma (MP).

ANNOUNCEMENT
The following articles are available at reasonable prices :—
1) Barbed Wire
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NOTICE
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M/s. SINDRI ROLLING MILLS
Vill Chasnala, P. O. Pathardihi,
Dist. Dhanbad.

WANTED—First and Second Class Asstt. Colliery Managers for Gassy Coal Mines doing depillaring with hydraulic stowing in Raniganj Field. Candidates having experience of the line need apply to Box No. 21348, C/o. The New Sketch, Dhanbad, stating experience, qualifications, age and minimum salary acceptable.

A Colliery containing 11 and 12 Seams and below in the Jharia Coalfield is on sale. Please contact Box No. 21349, C/o. The New Sketch, Dhanbad.

Deshbandhu Cinema
JHARIA Phone 6177
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S. D. Narang's MODERN GIRL
Starring: Pradeep, Sayeeda, Johnny, Smriti, Helen, Lilian and Chonkhani with Beach Sea Star in Colour 1st time on Indian Screen
On 20th August at 10 a.m.
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21st, 22nd & 23rd Aug. at 3 p. m.
অবাক পৃথিবী

EDITOR :— JAGAT CHANDRA SARKAR.
Printed & Published by P. Nandi at the New Sketch Press, Dhanbad.

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The New Sketch
INDIA'S COAL ORGAN
VOL. XXI NO. 43 DHANBAD, AUGUST 21, 1961 37 nP. PHONE 2575

SECTIONAL VIEW SHOWING THE PASSAGE OPEN.
SAUNDERS DIAPHRAGM VALVES
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GEO. MILLER & CO. PRIVATE LTD.
7 HASTINGS STREET CALCUTTA 1 • ALSO AT DHANBAD

First pages of The New Sketch

Appendix C – Interviews

Serial No.	Anonymized Title	Date	City
1	Senior Power Sector Consultant	01-Apr-11	
2	Senior Banker in Mumbai	20-Jun-12	Mumbai
3	Senior Journalist at National Newspaper	27-Jun-12	New Delhi
4	Senior Planning Commission Bureaucrat	13-Jul-12	New Delhi
5	Senior Coal Executive	19-Jul-12	Gurgaon
6	Journalist	29-Jul-12	Patna
7	Retired CIL Executive, Private Consultant	01-Aug-12	Ranchi
8	Senior CMPDI Officer	01-Aug-12	Ranchi
9	Private mining consultant	01-Aug-12	Ranchi
10	Private mining consultant	01-Aug-12	Ranchi
11	Professor	02-Aug-12	Dhanbad
12	Senior DGMS Official	02-Aug-12	Dhanbad
13	CIMFR Researcher	04-Aug-12	Dhanbad
14	Local Stringer	04-Aug-12	Dhanbad
15	Senior Researcher	08-Aug-12	New Delhi
16	Former CIL Executive	10-Jul-13	New Delhi
17	Senior Tata Executive	16-Jul-13	New Delhi
18	Senior Professor	17-Jul-13	New Delhi
19	Private Mining Executive	24-Jul-13	Kolkata
20	Senior bureaucrat in CCO	25-Jul-13	Kolkata
21	Former CIL Executive	26-Jul-13	Kolkata
22	CESC Executive	29-Jul-13	Kolkata
23	WBERC Senior Officer	29-Jul-13	Kolkata
24	Area GM	01-Aug-13	Asansol
25	Area Security Officer ECL	01-Aug-13	Asansol
26	Senior DGMS Official	01-Aug-13	Dhanbad
27	Senior CCL Official	06-Aug-13	Ranchi
28	Senior CMPDI Official	07-Aug-13	Ranchi
29	IICM Official	07-Aug-13	Ranchi
30	Senior Ministry of Mines Bureacrat	23-Jun-14	New Delhi
31	Senior SCCL Official	04-Jul-14	Hyderabad
32	Energy Researcher	07-Jul-14	Hyderabad
33	Energy Researcher	07-Jul-14	Hyderabad
34	Power Sector Consultants	08-Jul-14	Hyderabad
35	Former MoC Bureaucrat	08-Jul-14	Hyderabad
36	APERC Official	08-Jul-14	Hyderabad
37	Former Power Sector Bureaucrat	09-Jul-14	Hyderabad
38	Senior Infrastructure Banker	10-Jul-14	Mumbai
39	Senior Infrastructure Banker	11-Jul-14	Mumbai
40	Senior Infrastructure Banker	11-Jul-14	Mumbai
41	Senior Infrastructure Banker	11-Jul-14	Mumbai
42	Senior Infrastructure Banker	11-Jul-14	Mumbai
43	Senior Infrastructure Banker	11-Jul-14	Mumbai

44	Power Sector Executive	25-Jul-14	Gurgaon
45	BCCL Executive	30-Jul-14	Dhanbad
46	Former CIL Executive	31-Jul-14	Dhanbad
47	Local Dhanbad Journalist	01-Aug-14	Dhanbad
48	Senior IAS Officer	12-Aug-14	New Delhi
49	Senior Jharkhand IAS Officer	24-Aug-14	New Delhi
50	Former MoC Bureaucrat	25-Aug-14	New Delhi
51	Former CIL Executive	26-Aug-14	New Delhi
52	Former CIL Executive	14-Mar-15	New Delhi
53	IAS Officer	16-Mar-15	Washington, DC
54	Former Deputy Sec., Congressman	17-Mar-15	Washington, DC
55	World Bank Expert	18-Mar-15	Washington, DC
56	World Bank Expert	18-Mar-15	Washington, DC
57	Administered Coal Indian WB Loans	18-Mar-15	Washington, DC
58	Private Sector Consultant	18-Mar-15	Washington, DC
59	Former NTPC Official	19-Mar-15	Washington, DC
60	Brookings Expert	19-Mar-15	Washington, DC
61	Senior Infrastructure Banker	04-Jul-15	Mumbai
62	Senior Energy Executive	06-Jul-15	Mumbai
63		19-Jul-15	Kolkata
64	Senior Power Sector Official	27-Jul-15	New Delhi
65	Senior Coal Executive	29-Jul-15	Kolkata
66	Former CIL Executive	30-Jul-15	Kolkata
67	Senior Coal Transport Executive	30-Jul-15	Kolkata
68	Private Mining Executive	30-Jul-15	Kolkata
69	Private Mining Executive	31-Jul-15	Kolkata
70	Former CIL Executive	31-Jul-15	Kolkata
71	Former Mining Executive (managing agency)	01-Aug-15	Kolkata
72	Former Tata Mining Engineer	04-Aug-15	Dhanbad
73	Former CIMFR Executive	05-Aug-15	Dhanbad
74	Senior DGMS Official	05-Aug-15	Dhanbad
75	Local Dhanbad Journalist	06-Aug-15	Dhanbad
76	BCCL Executive	06-Aug-15	Dhanbad
77	Jharkhand IAS Officer	07-Aug-15	Ranchi
78	Former Dhanbad DC	08-Aug-15	Ranchi
79	Former Dhanbad DC	08-Aug-15	Ranchi
80	CIL Officer	09-Aug-15	Ranchi
81	Bihar Political Fixer	15-Aug-15	New Delhi
82	Former Coal Secretary	17-Aug-15	New Delhi
83	Former MoC Bureaucrat	18-Aug-15	New Delhi
84	Former Coal Secretary	19-Aug-15	New Delhi
85	Former MoS Coal	19-Aug-15	New Delhi
86	Former MoC Bureaucrat	20-Aug-15	New Delhi
87	Former MoC Bureaucrat	26-Dec-15	New Delhi
88	Former Coal Sector Expert	14-Mar-16	New Delhi
89	Former Coal Sector Expert	22-Mar-16	New Delhi

90	Former Regional Subsidiary Chairman	02-Apr-16	Ranchi
91	Former CIL CMD	06-Apr-16	Ranchi
92	Former Regional Subsidiary Chairman	07-Apr-16	Ranchi
93	Senior CMPDI Official	08-Apr-16	Ranchi
94	Jharkhand IPS Officer	11-Apr-16	Ranchi
95	Former CMPDI Engineer	11-Apr-16	Ranchi
96	Former Dhanbad Police Officer	12-Apr-16	Ranchi
97	CCL Area GM	13-Apr-16	Bokaro
98	CCL Area GM	13-Apr-16	Bokaro
99	IT Professional CCL	13-Apr-16	Bokaro
100	Major Coal Contractor Jharkhand	13-Apr-16	Bokaro
101	Former Regional Subsidiary Chairman	18-Apr-16	Ranchi
102	Senior Academic, Activist	20-Apr-16	Ranchi
103	Political Fixer in Bihar/Jharkhand	21-Apr-16	Ranchi
104	Senior Jharkhand IPS Officer	22-Apr-16	Ranchi
105	CMPDI Officer	22-Apr-16	Ranchi
106	CMPDI Officer	22-Apr-16	Ranchi
107	Former CMD CIL	23-Apr-16	Jamshedpur
108	Regional Subsidiary Chairman	26-Apr-16	Ranchi
109	CIL Medical Officer	25-Apr-16	Ranchi
110	CIL Medical Officer	27-Apr-16	Ranchi
111	Former Regional Subsidiary Chairman	28-Apr-16	Ranchi
112	Retire CIL Officer	28-Apr-16	Ranchi
113	CIL Medical Officer	29-Apr-16	Ranchi
114	Former CIL Executive	29-Apr-16	Ranchi
115	Leading Union Leader	30-Apr-16	Ranchi
116	Regional Subsidiary Chairman	30-Apr-16	Ranchi
117	Political Fixer in Bihar/Jharkhand	02-May-16	Patna
118	Former CIL Executive	04-May-16	New Delhi
119	Retired Railway Board Member	10-May-16	New Delhi
120	Senior Environmentalist	11-May-16	New Delhi
121	Senior Private Mining Executive	12-May-16	Gurgaon
122	MoP Bureaucrat	17-May-16	New Delhi
123	Former Mining Executive (managing agency)	20-May-16	Kolkata
124	Senior CIL Executive	20-May-16	Kolkata
125	Private Transport Contractor	22-May-16	Kolkata
126	CIL Executive	23-May-16	Kolkata
127	CIL Executive	23-May-16	Kolkata
128	CIL Executive	23-May-16	Kolkata
129	CIL Executive	23-May-16	Kolkata
130	Former CIL Engineer	24-May-16	Kolkata
131	CIL Executive	24-May-16	Kolkata
132	CIL Executive	24-May-16	Kolkata
133	Former CIL Executive	24-May-16	Kolkata
134	Senior Coal Executive	25-May-16	Kolkata
135	IIT Professor	26-May-16	Kharagpur

136	Former ISM Professor	27-May-16	Kolkata
137	Senior Finance Ministry Official	06-Jun-16	New Delhi
138	Retired Subsidiary Chairman	07-Jun-16	New Delhi
139	Senior IAS Officer	09-Jun-16	New Delhi
140	Indian Academic	14-Jun-16	New Delhi
141	Indian Academic	20-Jun-16	New Delhi
142	Senior Ministry of Coal Official	21-Jun-16	New Delhi
143	Advisor to a large PE firm	21-Jun-16	London
144	Former Regional Subsidiary Chairman	21-Jun-16	New Delhi
145	Former Chairman CIL	21-Jun-16	New Delhi
146	MP from Orissa	27-Jun-16	New Delhi
147	Senior Banker at SBI	29-Jun-16	New Delhi
148	Former CIL Executive	03-Jul-16	New Delhi
149	Journalist	06-Jul-16	New Delhi
150	Dhanbad Lawyer	25-Jul-16	Dhanbad
151	Senior Ministry of Coal Official	22-Dec-16	New Delhi
152	Private Mining Executive	31-Jul-17	Kolkata
153	Former Regional Subsidiary Chairman	31-Jul-17	Kolkata
153	Chairman of Major Power SOE	01-Aug-17	Kolkata
154	Senior Tata Executive	13-Aug-17	New Delhi
155	Large Private Sector Contractor	22-Aug-17	Navjivan Vihar
156	Former MoC Bureaucrat	19-Sep-17	New Delhi
157	Former Exectuive at Large Mining Co.	20-Sep-17	New Delhi
158	Former JS in Ministry of Coal	31-Oct-17	Boston
159	Nephew of C S Jha	20-Nov-17	Boston
160	Former CGM Level Officer	02-Mar-18	Boston