ENERGY CONUNDRUM IN INDIA: A CASE OF COAL SECTOR

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ABSTRACT

Coal being one of the most polluting fuel is being abandoned by various nations that are establishing their renewable energy base rapidly. The countries of the world are moving away from coal in the light of meeting global commitments of reducing carbon emissions and controlling the temperature rise However, in India more than half of the electricity is still generated by coal fired plants. At present, the coal sector in India is monopolised by Coal India Limited, the largest government coal producing company in the world. Though commercialisation has been introduced the sector is still plagued several internal as well as external issues. There is a need for a comprehensive regulatory regime in the Indian coal sector. While examining the structural, environmental and social challenges the sector has been facing, the author recommends changes in the regulatory apparatus of the sector.

Keywords: *Energy, Coal, Challenges, Independent regulator*

I. Introduction

THE GROWTH and development of any nation is measured by its ability to provide energy security to maximum population at affordable prices. With a constant increase in the population of the country, the energy demand is also rising. One of the most important energy components in

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any nation is electricity, which is generated majorly by coal especially in a country like India where it is abundantly available at a viable cost.[1] Around 75% of the power needs are met by coal in our country.[2] When it comes to energy security in terms of energy availability at an affordable cost then coal, no doubt fits perfectly in the frame due to its abundant resources available in India.[3] In the current scenario, when renewables energy resources are being welcomed all over the world, coal sector even today meets at least half of the basic energy needs in India and will continue to do so for few decades to come. The Integrated Energy Policy which was prepared by planning commission has projected that coal shall continue to meet 40% of the primary energy requirements even beyond 2030s.[4] Coal sector in India, is a contentious industry facing a number of challenges and concerns. The sector is swamped with plethora of structural and regulatory issues.**[5]** Apart from various competition issues, the coal sector in India faces regulatory challenges that defeat the purpose of good governance. The sector has been in lime light especially after the coal allocation scam, which was famously tagged as "The Coalgate Scam". The Comptroller and Auditor General of India in 2012[6] questioned the allocation process of coal mines to captive players. In 2014, the apex court delivered a judgement in *Manohar Lal Sharma* v. *Principal Secretary*[7] cancelling 218 coal blocks were (discussed further). Post this judgement, a number of legislative and policy reforms have been brought about in the sector to cure the deficiencies which shall be elaborated in the coming segment of the paper.

With reference to coal sector, countries like UK, Australia, Germany, Canada, Poland, Vietnam, Chile are already in the transformation stage and their coal sector is at present going through a

[1] Government of India, "Coal- Indian Energy Choice", (Ministry of Coal), *available at:* https://coal.nic.in/en/major-statistics/coal-indian-energy-choice (last visited on March 1, 2022).
[2] Government of India, "Generation of Thermal Power from Raw Coal", (Ministry of Coal), *available at:* https://coal.nic.in/en/major-statistics/generation-of-thermal-power-from-raw-coal#:~:text=%E0%A4%95%E0%A5%8B%E0%A4%AF%E0%A4%B2%E0%A4%BE%20%E0%A4%AE%E0%A4%82%E0%A4%A4%E0%A5%8D%E0%A4%B0%E0%A4%BE%E0%A4%B2%E0%A4%AF%20Ministry%20of%20Coal&text=However%2C%20Major%20production%20of%20Electricity,by%20the%20Central%20Electricity%20Authority (last visited on January 12,2022).
[3] *Ibid.*
[4] Government of India, "Integrated Energy Policy, Report of the Expert Committee", (Planning Commission 2006).
[5] Radheshyam Jadhav, "Structural Problems That Fuel The Coal Crisis", *Business Line, The Hindu*, October 17, 2021, *available at:* https://www.thehindubusinessline.com/data-stories/deep-dive/structural-problems-that-fuel-the-coal-crisis/article37037244.ece (last visited on March 2, 2022).
[6] Government of India, "Report of Controller and Auditor General of India on allocation of Coal Blocks and Augmentation of coal Production for the Year Ended March 2012", (Ministry of Coal, 2012).
[7] *Manohar Lal Sharma* v. *Principal Secretary & Ors.*, [Writ Petition (CRL.) No. 120 of 2012] [Writ Petition [C] No. 463 of 2012] [Writ Petition [C] No. 515 of 2012] [Writ Petition [C] No. 283 of 2013].

downfall.[8] In fact 40 countries have pledged to phase out coal either by 2030 or 2040.[9] Even India has started moving towards renewable energy resources investing excessively in it and plans to install renewable energy capacity of 523 Giga Watt (GW) (including 73 GW from Hydro) by 2030.[10] But the importance of coal cannot be ignored especially after witnessing the instances of coal crisis that the country faced in the past few months. Firstly in October 2021, various parts of the nation were facing the possibility of blackouts due to lack of coal inventory with power plants.[11] Another situation where the possibility of catastrophe could have arisen when Indonesia banned the export of coal. India being one of the major importers of Indonesian coal could have suffered a huge crisis.[12] But we were able to sail through as the ban was partially lifted soon. These instances shows that even though in the coming decades, production of coal is going to decline and will be taken over by the renewables yet the coal is going to be the major source of power generation until the demand supply gap of renewables along with the advancement in the appropriate technology is available for developing the same.[13] This has been verified by Brookings report as well.

Most of the mining in our country happens in the coal sector, thus a glut of concerns that the sector is facing needs to be analysed. On one hand coal sector is shadowed by ineffective coordination and improper planning and on the other hand it carries the burden of being one of the most polluting industry as its combustion and mining generates excessive carbon. Conflicts over land causing social distress amongst the tribes and delayed environment clearances are other concern bothering coal mining sector. Though at present the legal and regulatory framework governing the coal sector

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[8] Fiona Harvey, Jillian Ambrose and Patrick Greenfield, "More than 40 countries agree to phase out coal-fired power", *The Guardian*, November 3, 2021, *available at:* https://www.theguardian.com/environment/2021/nov/03/more-than-40-countries-agree-to-phase-out-coal-fired-power#:~:text=Major%20coal%2Dusing%20countries%2C%20including,doing%20so%20in%20the%202040s , (last visited on March 1,2022).

[9] *Ibid.*

[10] India Brand Equity Foundation, "Renewable Energy Industry in India" (Dec 17, 2021), *available at:* https://www.ibef.org/industry/renewable-energy.aspxL (last visited on March 2, 2022).

[11] Nidhi Srivastava, "Opinion: Coal strikes back - Lessons from a crisis", *ET Energy World*, October 13, 2021, *available at:* coal crisis: OPINION: Coal strikes back - Lessons from a crisis, Energy News, *ET Energy World* (indiatimes.com) (Last visited on December 7, 2021).

[12] Vibhuti Garg, "How Indonesia's coal export ban could impact India*" Institute of Energy Economics and Financial Analysis*, January 13, 2022, *available at:* https://ieefa.org/indonesia-coal-export-india/ (last visited on February 4, 2022).

[13] Rahul Tongia and Samantha Gross, "Coal in India Adjusting to transition", Paper 7 *Brookings* (2019), *available at*:https://www.brookings.edu/wp-content/uploads/2019/03/Tongia_and_Gross_2019_Coal_In_India_Adjusting_To_Transition.pdf (last visited on March 2, 2022).

in India is in a much better position in terms of transparency and accountability. The introduction of competitive bidding[14] in the auction process in 2014 and now commercialising the sector with a common e-auction window for allocation of mines shows a progressive move towards an attempt to eliminate governance issues.[15] Yet, at this juncture, it becomes imperative to analyse the internal concerns pertaining to coal sector in India not only due to the fact that it is one of most important source of non –renewable energy in India but also because the coal sector in India is going to witness a revolutionary change while fulfilling the commitments of the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP) 26 in November 2021.

At present, when the coal sector in India is entering a revolutionary phase, there is a dire need to examine the above mentioned issues in an efficient manner through change in policies and legislations and improvising the overall implementation mechanism. In order to analyse and understand the concerns that the coal sector is facing we must throw some light on the history of this black fuel in India especially focusing on the reasons and outcome of its nationalisation.

II. Nationalisation of the Coal Sector

Prior to nationalisation, the coal industry in India was twofold in its structure with public sector companies categorised as a planned and organised one and small mines as unorganised. The three major consumers of coal were the railways, steel and power industry which dominated the market price of coal. Railways being the chief bargained as producers were totally dependent on it for transportation.

The nationalisation of coal happened in fragments. Firstly the government took control over the coking coal mines in 1971 through the Coking Coal Mines (Emergency Provisions) Act of 1971. This was followed by nationalisation of non-coking coal by passing of Coal Mines (Nationalisation) Act, 1973 (CMN Act, 1973).

The Coal (Nationalisation)Act 1973, was enacted with the objective "to ensure the rational, co-ordinated and scientific development and utilisation of coal resources consistent with the growing

[14] Government of India, "Auction of Coal Blocks" (Ministry of Coal), *available at*: https://coal.nic.in/en/nominated-authority/auction-portal (last visited on May 24, 2022).
[15] Press Trust of India, "Cabinet Approves Offering of Coal Via Common E-Auction Window", *The Hindu*, Feb 26, 2022.

requirements of the country" (MOC, 1973)[16]. Section 3 of the old act[17] vested in the central government, the right to own, control and manage the coal mines within the country . It withdrew the title, hold or any encumbrances on the mines by private companies. The act of 1973 was amended in 1976, to enlarge the scope of section 3 by empowering the government to allow the private companies engaged in iron and steel to produce captive coal. It also allowed the government to sub–lease coal mines located in isolated small areas which do not require the use of rail to transport the coal. The act was again amended in 1993 with the objective to meet the rising demand of coal by opening the doors for certain other companies to produce captive coal with end use restriction. These companies included those engaged in electricity generation, washing of mined coal, and any other companies as declared by the government through the notification.[18]

However, in case of coal, it seems that the idea of nationalisation has failed considerably due to the following reasons: non-revival of old mines which had the potential to produce, huge investments were made in new projects and technologies which increased the cost of production that brought down the production, many technologies failed to suit the geographical locations incurring heavy losses, failure on the part of the government to fix the selling price of coal.[19] Post nationalisation, coal was handed over to a government company with the objective of sorting out the problems that occurred in the pre nationalisation era. Gradually it led to the emergence of a monopolistic market structure which gradually got webbed into a number of issues and defiance, some of which are discussed below.

III. Structural Issues in the Coal Sector

[16] Sun-Joo Ahn and Dagmar Graczyk,*"Understanding Energy Challenges in India Policies, Players and Issues"*, International Energy Agency 47, (Organisation for Economic Co-operation and Development, 2012).
[17] The Coal Mines (Nationalisation) Act, 1973 (Act 26 of 1973).
[18] Government of India, Ministry of Coal , *available at*: (https://coal.gov.in/en/major-statistics/coal-mining-blocks/captive-mining-block-previous/caplegal) (last visited on May 24, 2022).
[19] Udyog, "Privatisation of Coal Industry: A Review" X *Revolution Democracy Journal, Special Number* (2004), *available at*: http://www.revolutionarydemocracy.org/rdv10n1/coal.htm (last visited on January 14, 2022).

Coal being the primary source of energy is an important fuel at present, which feeds maximum population (64.19 percent)[20]with energy needs. A sudden increase in the demand for electricity during the current times when the economy is recovering from the pandemic has led to a rise in the demand for coal as well.[21] Despite of huge reserves of coal in the country which is estimated to be three thousand forty four hundred (approx.) billion tonnes in 2020, the coal supply still lacks.[22] This is evident through a few instances of coal crisis in the past few months that we have witnessed which are discussed in the next segment of the paper. The Indian coal structure suffers from various anomalies both within the sector and outside it. The challenges within the sector has been humongous. However, the researcher highlights some of the major internal concerns of the sector.

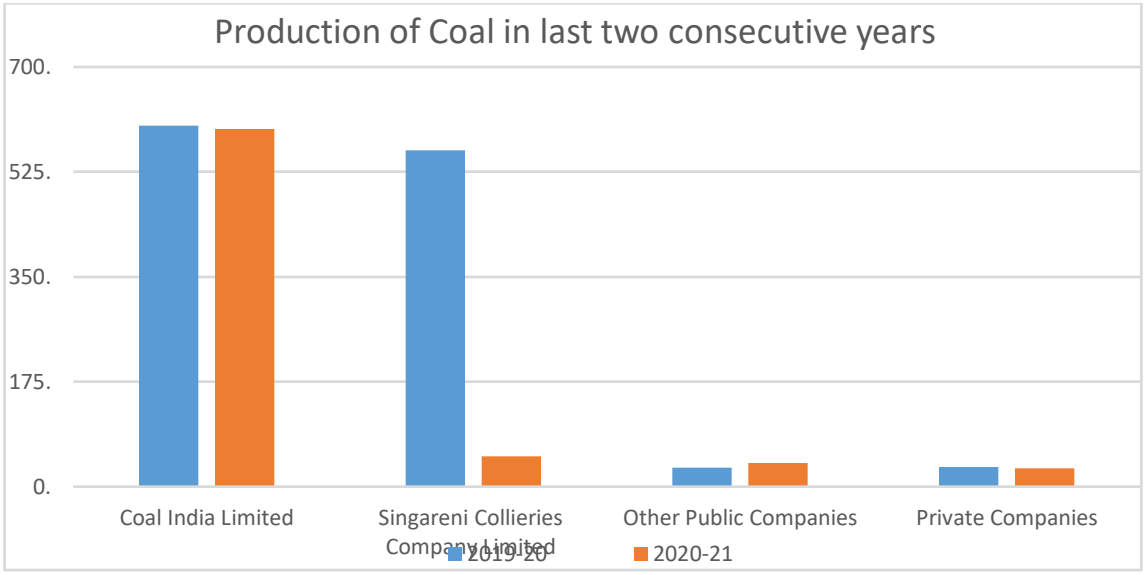
Emergence of Coal India Limited (CIL) and Monopolistic Market Structure of Coal Sector in India

With the objective of maximising coal production in the wake of rapidly rising demand. Government nationalised the coal sector in 1973. Coal Mines Authority Pvt. Limited, a private company was vested with the right to manage and control all the coal mines in India. It was converted to government company, under the aegis of Ministry of coal, it has assumed the position of world's largest coal and was named as CIL. Since then, CIL has assumed the position of world's largest coal producing company with 7 subsidiaries, namely Eastern Coalfields Limited (ECL), Bharat Coking Coal Limited (BCCL), Central Coalfields Limited (CCL), Western Coalfields Limited (WCL), South Eastern Coalfields Limited (SECL), Northern Coalfields Limited (NCL)and Mahanadi Coalfields Limited (MCL) and one mine planning and consultancy company that is Central Mine Planning & Design Institute(CMPDI).[23]

CIL which is a natural monopoly, dominates the coal production as well as coal sector in India. This can be asserted by a graphical presentation given below which demonstrated that CIL has

[20] *Supra* note 5 at 2.
[21] Press Trust of India, "Coal Demand To Rise In Post-Covid Era, Must Scale Up Production: CIL Chief" *Business Standard*, January 9, 2021.
[22] *Supra* note 5 at 2.
[23] Government of India, Ministry of Coal, Coal India Limited, *available at*: http://archive.coalindia.in/en-us/company/aboutus.aspx (last visited on March 3, 2022).

been the chief producer of coal followed by other captive miners according to the latest data that is available.



Source :- Government of India Ministry of Coal Controller's Organisation, Provisional Coal Statistics 2020-21.

In cases like *Hindustan Zinc Limited* v. *Western Coalfields Limited and Coal India Limited*[24] and *M/s Sai Wardha Power Company Ltd.* v. *M/s Western Coalfields Ltd. and M/s Coal India Ltd*[25], CIL has been alleged of abusing its dominant position by Competition Commission of India. Many power companies have complained against CIL of misusing its dominant position while entering into Fuel Supply Agreements (FSAs).

Even though the sector was nationalised but it was soon realised that the government company alone cannot meet the rising demand for coal demand and also cannot fulfil the output crisis already the market is facing. Thus while private mining leases were terminated, some of them were kept held in reserve as that of iron, steel and power, which were given a red flag to carry on captive mining via amendment of Coal Mines (Nationalisation) Act 1976. The scope of the this act was inflated by another amendment in 1993 with the formulation of New Mineral Policy, 1993 to allow

[24] Case No. 46 of 2018 of Competition Commission of India.
[25] Case No. 88 of 2013 of Competition Commission of India.

captive mining to private investors including the foreign players in cement and coal washing which was later extended to coal gasification and liquefaction in 2007.[26]

This was practically the first step taken to de-monopolise and embolden competition after nationalisation of coal sector. Captive mining was introduced with the stated objective of increasing the coal production to satisfy the rapidly increasing demand which was resulting in rising imports of coal and spending precious foreign exchange. Nonetheless this policy was not successful in its application.[27] The data shows that out of two hundred allocated coal blocks for captive purpose, only thirty mines began their mining operations.[28]

The very purpose of introducing captive mining in the coal sector was to instil competition and increase the production of coal to meet the demands of various industries. But both of these seem defeated. There have been several lacunas in the captive coal mining policy. Until 1993, the coal blocks were not allocated on the basis of any determined criteria. The private miners which were mostly from power, steel or cement industry may not be as good or specialised as their own industry or may have financial limitations in excavating coal mines which involves huge amount of capital investment and delayed returns. These factors were completely ignored while allocating coal blocks, the procedure of which was ultimately quashed by the supreme court in 2014. From 43 coal blocks that were allocated to power, iron and steel captive companies including Adani, Hindalco, Jindal & Essar, none of them have been able to meet the annual targets since past few years. In fact, most of them have become operational very recently. A warning have been issued to these miners to speed up the production of coal.[29] However, even after the refurbishing of the allocation process, it did not bring much difference to the captive industry. This clearly shows the lack of coherence in the application of captive mining policy.[30]

[26] Sun-Joo Ahn and Dagmar Graczyk, "Understanding Energy Challenges in India Policies, Players and Issues", International Energy Agency 47, (Organization for Economic Co-operation and Development, 2012).
[27] Government of India, "Commercial Mining of Coal ,Big Boost To Aatmanirbhar Bharat", (Ministry of Information and Broadcasting, 2020).
[28] Molshree Bhatnagar, "Competition and Regulatory Issues in the Coal Sector in India" CIRC Working Paper No.11, *CUTS Institute for Regulation & Competition* (February, 2015).
[29] Shreya Jai, "Produce More Coal Or No Supply From CIL: Govt Warns Captive Mine Owners", *Business Standard*, September 8, 2021, *available at*: https://www.business-standard.com/article/economy-policy/produce-more-coal-or-no-supply-from-cil-govt-warns-captive-mine-owners-121090801093_1.html (last visited on March 3, 2022).
[30] *Ibid.*

The factual analysis clears out that Indian coal sector has been working in a monopolistic market structure, which is now expected to end since commercialisation is introduced for bringing more private players and mitigating the competition issues in the sector.[31]

Transparency and Governance issues in coal allocation

In order to activate the captive mining policy in 1993, the coal mines were allocated to miners majorly through three methods: -

- Captive dispensation through screening committee
- Government company dispensation
- Tariff Based Competitive Bidding

The allotments done through the above discussed procedures were monitored by the Coal Controller's Office (CCO) in sync with the government. CCO had no say in the allotment process but was responsible to produce periodic development reports of the allocated mines to the ministry.

Until 2001, the allocations were through the inter-ministerial committee with the help of the above methods. However, it was only in September 2010, the Mines and Mineral (Development and Regulation) Act, 1957 was amended to empower the central government to allocate coal blocks through competitive bidding. But this reform in the allocation method came later than expected. It brought with it the famous Colgate scam. *Manohar Lal Sharma* v. *Principal Secretary* (The Coalgate Scam case)[32] presents a clearer picture of allocation process in the coal sector of India, as it was one of biggest racket of the economy. In this case, the power of the central government to allocate coal blocks under the Coal Mines (Nationalisation) Act ,1973 and Mines and Minerals (Development and Regulation) Act, 1957 was challenged. The allotment process that was followed by the government between 1993 to 2011 to allocate coal blocks was alleged to be illegitimate and arbitrary lacking application of mind and objectivity. There was a complete absence of any determined criteria on the basis of which the applications for the allotment were scrutinised and shortlisted, thereby making the entire allocation process non transparent and biased. The

[31] *Manohar Lal Sharma* v. *Principal Secretary* [Writ Petition (CRL.) No. 120 of 2012]
[Writ Petition [C] No. 463 of 2012] [Writ Petition [C] No. 515 of 2012] [Writ Petition [C] No. 283 of 2013].

[32] *Supra* note 7 at 2.

judgement of the case exposed the failure of executive in fulfilling its duty to distribute natural resources in accordance with due process of law. The judgment that was delivered in 2014 has highlighted the gravity of the action taken by the apex court against executive failure to accomplish its responsibility as a custodian of natural reserves of the country and its duty of equitable and just distribution of resources. The whistle was first time blown by a member of parliament from opposition party asserting the allocation of coal blocks to be illegal. Thereafter, performance audit conducted by Comptroller and Auditor General (CAG) in 2012 further intensified the matter. The report of CAG declared losses suffered by the state exchequer of Rs. 1.86 lakh crore and huge undue gains to the private companies involved in the allotment.[33] In 2012, the Controller and Auditor General of India conducted an audit of the coal allocation and production. The findings of the report[34] were non fulfilment of supply commitments under FSAs by CIL, increasing imports of non-coking coal, absence of a review mechanism on the supply of coal by various subsidiaries of CIL, illegal sale of coal, non-commencement of production in captive coal blocks, lack of transparency in allocation of blocks by screening committee, huge financial gains to private sector by not following competitive bidding.

IV. External Issues of the Coal Sector: Its Impact on Environment and Society

The journey of development of coal sector has been escalating after nationalisation. Specially with the advent of renewable sources being introduced as an alternative source of energy in different countries of the world.

The proceedings of the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP)26 in November 2021 also makes it clear that most of the countries of the world are on their way to phase out coal[35] from their energy mix for the reason that the burning of coal generates huge carbon emissions.[36] Moreover mining of coal also affects the environment negatively. Coal is a favourable fuel for India since its available in abundance and is affordable, but at the same time it is more pollutive at regional as well as global level than other fuels. It directly or indirectly affects all the natural resources like water, air, and soil and overall

[33] Dr. Pooja Dasgupta and Tushar Kumrawat, "Coal is Gold: The 'Coalgate' Scam" 5 *Global Journal of Commerce and Management Perspective* 16 (2016).
[34] *Supra* note 6 at 2.
[35] *Supra* note 5 at 2.
[36] Energy Information Administration, "Quarterly Coal Report" (Washington, DC, August 1994).

environment in and around the area where coal mines are excavated. Thus, environment distress has become one of the major impediments for the growth of coal industry in times to come.

Undoubtedly, more than half of the electricity of country is produced by coal[37] and in the absence of any other viable alternative source of energy, the transition from coal to other source would be difficult. Moreover, India has pledged to generate around 50% of the power by 2030.[38] The targets are expected to revamped in the light of achieving net zero emissions that is promised to be achieved by 2070 in UNFCCC.[39]. This leads to a conclusion that the country will have to reduce the coal production and dependence.

Effect of Coal Mining on Environment and Society

Though coal mining not only contributes to nation's economy but it also greatly affects the entire ecological system. The researchers has questioned the viability of the coal mines in achieving sustainability and is often called as dirty fuel. It becomes challenging for coal industry to achieve it because it generates excessive carbon. Some pollution is bound to occur because of the inherent nature of the industry but maximum pollution occurs due to the inability and carelessness of the industry to deal with it.

There are a number of environmental defies that confront the coal sector like fires in the mines, dust control specially haul road dust consolidation, control and treatment of polluted water, contamination due to metal and other discharge from mines, reparation of water table that is altered due to mining operations, change in the land use pattern, soil erosion etc. This brings out the fact that there is dire need to improve the environment management techniques whereby the harm caused is mitigated. This is very much required for the coal industry to survive. From all the issues concerned with environment, increase in greenhouse gases and acid rain are the ones need to be addressed immediately.[40]

[37] Government of India, "Generation of Thermal Power from Raw Coal" (Ministry of Coal),
[38] *Supra* note 10 at 1.
[39] Government of India, "National Statement made by Prime Minister Shri Narender Modi at COP-26 Summit at Glasgow" (Ministry of External Affairs, November 2, 2021), *available at*: National Statement by Prime Minister Shri Narendra Modi at COP26 Summit in Glasgow (mea.gov.in). (Last visited on March 03, 2022).
[40] Dr. Gurdeep Singh, "Environmental Issues with Best Management Practice of Coal Mining in India", 61 *Journal of Mines, Metals and Fuels* 152 (2013).

Depending upon the geographical conditions, the method of coal mining is decided which are mainly of two types that is surface or opencast mining and underground mining. But both of these techniques have their own environmental problems. The former type of mining deteriorates the environment as it releases a lot of dust, small particulate and gases into the atmosphere. It causes drastic changes to the landscape and leads to creation of huge overburden, deposing off of which is a major problem. These overburdened overburden landfills are the cause of manifold environment concerns like increased sediment deposits in the nearby water bodies, erosion, disturbing the habitat, air pollution due to dust emission, and overall harm to the ecology. This not only pollutes the surroundings of mines but badly affects the air quality of the nearby residential area. However, in the underground mining technique, though produces less pollution and dust but creates lots of health issues for the mine workers as they inhale all the particulate that is generated during the operations. In India, maximum coal is produced through opencast mining, thereby causing unalterable harm to the environment.

One of the important economic activities of the country, the mining operations of all kinds intrinsically perilous to the environment, which cannot be reversed. The people living in the mining area suffers a lot due to untreated waste and dust that is discharged and the improper rehabilitation measures taken by coal companies are not appropriate enough to improve the plight of locals. The regions having weak ecosystem are the ones where environmental impact of mining activities is the maximum.

Coal mining to a great extent affects all the aspects of environment. Combustion of coal releases a huge amount of carbon dioxide and other harmful gases which brings about major changes in the global climate. Also, coal mining activities like movement of heavy machinery, blasting and explosion in mines, and pilling up of overburden are a few reasons due to which excessive dust particles are generated which is carried to the nearby residential areas. This causes deterioration of air quality. In one of the studies, air pollution around the mines is noted to be twice than the permitted limits.[41] The challenges related to the environment in the coal industry are attributed to both coal mining and use of coal which lead to three major concerns, i.e., emission of greenhouse gases, acid rain and ground level ozone.

[41] Ashok Sreenivas and Krutuja Bhosale, *Black And Dirty: The Real Challenges Facing India's Coal Sector* (Prayas Energy Group, January 2013).

The coal mining industry releases a lot of water which contains harmful chemicals and metals, that flows to the surrounding water bodies. The localities consume this contaminated water for drinking and other domestic purposes, which is one of the reasons for causing fatal medical conditions amongst the people in mining areas.

The most prominent effect on land or soil that coal mining cause is soil erosion or degradation of land, mainly in the form of gully erosion. The run off is settled down in the surface waters and in the flood plains of a stream or valley by the process of sedimentation. Eventually, the upper layer of soil that contains humus and other important nutrients that actual defines the quality of soil, and are important for cultivation of vegetation is washed away. Once the top soil is eroded, it becomes vulnerable to the entry of chemical pollutants that may now penetrate into the sub layers of soil, thus causing pollution and destroying the aesthetic value of soil. Due to movement of huge machines, lot of dust is generated which get deposited in agricultural crops and spoils the soil that is prepared and cultivated for crop production. The slit that is there in the dust coming from mines covers the crops and forms a layer. High silt content decreases the water retention ability of the soil which affects the soil fertility and crop production. Also, the overburden that piles on the soil affects the ventilation mechanism of soil. Bacteria and other microbes play a very important role in activating pores in the soil and creating a possible medium for plant and crops growth. Many micro-organisms are sensitive to changes in the locale, slight change in the ph level can lead to their extermination.

Summary of the challenges that sector faces

- Insufficient Coal Supply.
- Dependency on Imports.
- Lack of Transparency and Accountability.
- Inefficient Inter-Ministerial Coordination.
- Monopolistic Market.
- Lack of Level Playing Field.
- Instability of Law and Regulations Governing the Sector.

- Increased Carbon Emissions and Environment Damage.
- Impact On the Livelihood of the Tribals Living In and Around Mines.

V. Regulatory Landscape of Coal in India

The coal sector in India is headed by Ministry of Coal (MoC), which shoulders the overall responsibility of formulating and implementing various policies and strategies for development of coal reserves and mines and other ancillary matters. MoC discharges its function through its PSUs namely CIL (a state run enterprise), NLC India limited (a Navratna Government Corporation), and Singareni Collieries Company Limited (SCCL), which is a joint venture between government of Telangana and Government of India, The prime objective of coal ministry is the fulfilment of coal demand by securing the availability of required quantity of coal by different sectors of the country. Another correlated objective of MoC is to produce required coal with minimum harm to the environment and society. At present, achieving sustainability in the coal sector is one of the thrust area to be worked on by the government. For this purpose, MoC is trying to incorporate clean coal technologies in the system along with putting efforts in improvising exploration mechanism and use of innovative and scientific methods of coal mining.[42]

Other prime concerns of the ministry are to maintain the coal quality, achieve customer satisfaction with effective grievance mechanism in place, to bring attractive private and long-term investments, ensure transparency in the allotment process, effective resolution of land and environment clearance issues and lastly improving inter-ministerial coordination. Meeting the annual targets, proper washing of coal along with working on research and development plans, while improving overall efficiency of CIL are also some of the central focus of MoC.[43]

Coal Controller's Office established under the aegis of MoC while acting as an advisory body is primarily responsible for establishment and monitoring of the coal mines, along with quality and quantity checks. It also looks after the grievances and disputes under the Coal Bearing Areas (Acquisition and Development) Act, 1957 relating to procurement of land bearing coal. CIL is the

[42] Government of India, "Annual Report 2018-19" (Ministry of Coal, 2020).
[43] *Ibid.*

wholly owned government company with seven subsidises that also comes within the purview of MoC.

The coal sector has faced many legislative and policy reforms. A number of laws form part of the regulatory apparatus of the coal sector. A tabular presentation of these laws and their objectives is given below:

Coal Nationalization Act, 1973	It was enacted to de-privatise the coal mines. In 1993, it was amended to allow captive mining of coal.
The Coal Bearing Areas (Acquisition and Development) Act, 1957	This law was enacted in the favour of government to acquire virgin coal bearing lands along with other related rights. It grants the power to the government to declare its intention through a notification in the official gazette to prospect land from which coal can be likely obtained.
Mines and Mineral (Development and Regulation) [MMDR] Act, 1957, which is amended by the virtue of The Mineral Laws (Amendment) Act, 2020 and is called Mines and Mineral (Development and Regulation) Amendment Act, 2021.	Sovereign law for governing mining activities in India. It was amended in 2021 with the objective to facilitate the growth of exploration and harness the potential of the mineral sector.
The Coal Mines (Conservation and Development) Act, 1974.	Deals with preservation and conservation and development of coal mines.
The Coal Mines (Special Provisions) Act, 2015.	It was enacted majorly to reallocate the mines that were cancelled by the Supreme Court in 2014 in order to ensure continuity of production.

Mineral Concession (Amendment) Rules, 2021.	It is enacted for ease of doing business to increase investment and employment opportunities in the mining sector as the end use restrictions are removed.
Coal Blocks Allocation (Amendment) Rules, 2020.	Created scope for exploring unexplored coal blocks and paved way for injecting competition in the sector.

Though the above mentioned laws forms an intricate part of the coal governance in India and have been time and again modified to incorporate the various policy changes, yet to facilitate the execution of these laws and suffice the need for a comprehensive legislation, The Mineral Laws (Amendment) Act, 2020 was brought on March 12, 2020. A paradigmatic shift took place in the regulatory regime of the Indian coal sector in 2018, whereby commercialisation was introduced attempting to break the shackles of captive mining policy and end the monopoly of coal behemoth CIL. To implement this policy The Mineral (Amendment) Act 2020 was introduced. The main objective of this law is to expand the production base of coal by removing end use restriction on coal mining and allow even the not so experienced people to come forward and take up coal mining activities.

The purpose of introducing the above-mentioned law is to provide a comfortable and flexible environment to the players for doing business, especially now when implementation of merchant mining has become one of the significant step for rescuing the drowning of the coal sector. This umbrella law amends two legislations governing the coal sector, one The Mines and Mineral (Development and Regulation) Act, 1957 [MMDRA] and other The Coal Mines (Special Provisions) Act,2015 [CMPSA]. The former is the principal law for governing the mining sector in India and the later provides for allocation of coal blocks whose allotments was cancelled by the Supreme Court of India in the famous judgment of *Manohar Lal Sharma* v. *Principal Secretary*.

The amendment to these acts were called for the reasons that certain provisions of these acts restricted commercialisation of coal mining. For instance, the coal from the mines mentioned under the Schedule II and III of the CMSPA, 2015, could be use only for self-consumption by

power and steel companies. Thus, the acts where the end use restrictions on coal mining were allowed had to be amended, which was done by Mineral Amendment Act 2020.

MMDRA Act 1957, the prime law for regulating the minerals including coal, had been amended several times to meet to changing needs of the sector in 2015, 2016 and then lately in 2021. Some of the sweeping changes made to the MMDR Amendment Act 2021 are as follows.

- ➢ Removal of end use restrictions: Section 7 of the MMDR Amendment Act, 2021 expands the scope of private mining by removing the cap of captive mining. The miners are now allowed to sell the 50% of the mineral so produced after consuming it in captive Manner.[44] It now treats captive as well as merchant mines in the same manner, which was not the case in the earlier act.

- ➢ Grant and Extension of lease period by State Government: The amended act gives power to the state government to decide the mining lease period and to give extension to leases (other than those allotted through auction), which have not commenced or discontinued the mining operations within the stipulated period of 2 years of granting lease.[45]

- ➢ As per section 9 of Amended Act, 2021, the requirement of obtaining fresh statutory clearances on transfer of mining lease is done away with. Now the licenses and clearances remains effective till the lease gets over and post closure period. Thus, the new miner does not require to go through the cumbersome process of obtaining a plethora of clearances and approvals. They shall be transferred from the former lessee to the successful bidder after the auction process ends .

- ➢ Enactment of the Mineral Act 2020 and thereafter reforms in the legislative regime of the coal sector have been incorporated with the idea and aim for the execution of commercialisation policy specifically in case of coal sector. According to the new MMDR Amendment Act 2021, the companies which are participating in the auction process need

[44] The Mines and Minerals And Minerals (Development and Regulation) Amendment Act, 2021 (Act 16 of 2021), s.7.
[45] *Ibid.*

not possess coal mining experience. This shows that the policy makers this time are keen to bring a revolution in the sector by instilling liberalisation and privatisation in the sector.

From the analysis of the regulatory regime of mining sector vis-à-vis coal industry, it's evident that these reforms were long awaited. To have efficient and consistent governance mechanism for any sector, policies are made first and then they are produced in the form of regulations and legislations. The objectives for which such policies and laws should be unambiguous. Once the policies get the legal backing for its implementation in the form of laws incorporating the purpose of that particular policy, the next step is to chalk out a plan of action and strategy to achieve the objectives. What happened in this sector is that the policies were there in the document but the regulations that we had in place were contrary and inconsistent with the objectives mentioned in the policy document. And thus the path to achieve the laid objectives was also unclear. The attempt to bring private participation in the sector has been made since years, as soon after the emergence of CIL, it was realised that the government behemoth alone cannot meet the ever increasing demand of the black fuel and there is a need to bring in more merchants that can invest and mine in order to meet the accelerating demand.

CIL along with SCCL accounts for about 83% [46] of country's coal production and thus captures the sector in a monopolistic environment with a plethora of competition issues webbing the coal sector. The primary objective of introducing captive mining by amending Coal Nationalisation Act, 1973 was to increase coal production to meet the rapid demands and to increase the competition within the sector. But the captive policy was unsuccessfully implemented and had many discrepancies which is evident through the report of CAG in 2012[47] and thereafter, the cancelling of the allocation of coal blocks. Thus, CIL continued to enjoy monopoly position and derive the incumbent benefits out of it. However, at present, the end use restrictions are removed, after the major policy change of commercialising the sector and inviting private players to mine coal. With the advent of privatisation, the monopoly of CIL is expected to dilute. At this point, it becomes imperative for the sector to have an autonomous, non-statutory body to regulate not only the quality and quantity of coal produced and supplied but also to act as a mediator who shall be able to create an authentic regulatory regime guarantying equal footing and level playing field to

[46] Government of India, "Annual Report & Accounts 2020-2021" (Coal India Limited, Ministry of Coal, 2022).
[47] *Supra* note 6 at 1.

all players and be able to take decisions without undue influence and interference of the government and ministries.

While putting forward as one the recommendation as introduction of a separate coal regulator for improvising the coal governance regime, it is important to understand what does an independent regulator mean along with its scope and importance, what should be its nature and function. It is also important to do a comparative analysis of successful regulators from various sectors of the country and world.

VI. Coal Conundrum: Introduction of an Independent Regulator, an answer to the Problem

On a prima facie analysis of governance regime of the coal sector, it seems compendious but the ball game changes when we see through the insights of one of the landmark judgement of the apex court in 2014, which brought to the front, allocation scam in the coal sector. The Supreme Court ordered the cancellation of nearly 218 coal blocks that were allocated by the government since 1993 till 2010, to different coal producing companies on the grounds of being arbitrary and non-transparent.[48] This shook the entire country and of course the coal sector was left into bits and pieces. Some of the allottees had already commenced coal production and some were at final stages to begin mining. All of it was paused which affected the coal supply to great extent. This has brought to the front an ineffective administrative set up which now requires a restructuring especially in the light of privatisation of the sector. An autonomous body is required to ensure the implementation of various acts enacted and amended for expediting commercialisation.

The coal sector is very soon going to enter or rather have entered into a transitional phase, where it shall be substituted by green energy sources. The pace of growth in renewable energy especially wind and solar is surging rapidly in the light of achieving target of limiting the increase in global temperature by 1.5 degree Celsius.[49] At present, we are in a situation where both renewables as well as the domestic coal production is increasing.[50] Regardless of having abundance of coal reserves, the industry faces a lot of pressure from renewable resources. Moreover, the phase down

[48] *Supra* note 7 at 2.
[49] The Paris Agreement, 2015, Art 2.
[50] Rahul Tongia, Anurag Sehgal, and Puneet Kamboj (eds.), *Future of Coal in India: Smooth Transition or Bumpy Road Ahead?* (Brookings, India, 2020).

approach that India stood for rather than phasing out approach (that other countries inclined to) in the UNFCC conference[51] has clearly projected that coal is going to stay for few more decades to come. The Draft Energy Policy by Niti Aayog projects that the coal based power shall expand from 70 to 130% by 2040 along with the increase in investment in coal mining.[52] Another report corroborates the rising need of coal for electricity generation in times to come.[53] Despite of facing the international pressure to move away from coal, the introduction of commercialisation policy in the cold sector shows that India shall remain a coal based economy for a near future. However, these prognoses might delay the commitments of Paris Agreement as well as net zero emissions. But the fact that many power companies and investors has closed the door for coal as it seems no longer profitable cannot be ignored. The investments are being diverted towards renewable sources whose price is 30-40 percent less than the domestic coal capacity and the imported coal capacity.[54]

Coal is engrained in a complex network abandoning coal is not as easy as it sounds. It is going to impact a number of sectors and people. Apart from being is one of the major source of revenue for the country, millions of people are also dependent upon coal industry as a whole for their livelihood. The country is going to witness tremendous falling rates of employment during this energy transition. A road map is required to accommodate 13 million people who are expected to be affected with this energy transition.[55]

A proper planned closure of mines should be formulated and executed to avoid a situation where the people dependent on coal mines are abandoned with no alternatives.
For a country like India, with the second highest population in the world[56] and ever increasing need for energy unlike other countries, shifting from coal will not be an easy journey.

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[51] IISD, "Glasgow Climate Change Conference: 31 October – 13 November 2021" 12 *Earth Negotiation Bulletin* (Nov 16, 2021), *available at:* https://enb.iisd.org/sites/default/files/2021-11/enb12793e_1.pdf (last visited on March 3, 2022).

[52] Government of India, "Draft National Energy Policy", (Niti Ayog, 2017), *available at:* https://www.niti.gov.in/writereaddata/files/document_publication/NEP-ID_27.06.2017.pdf (last visited on March 03, 2022).

[53] International Energy Agency, World Outlook 2020 (Oct 2020).

[54] IANS, "India Reaches Halfway Mark Of No New Coal: Analysis", *ET Energy World.Com*, April 21, 2021, *available at:* https://energy.economictimes.indiatimes.com/news/coal/india-reaches-halfway-mark-of-no-new-coal-analysis/82176395 (last visited on March 3,2022).

[55] IANS "Coal Transition Can Impact Over 13 Mn People's Livelihood In India: Study", *Business Standard*, November 23, 2021, *available at:* https://www.business-standard.com/article/current-affairs/coal-transition-can-impact-over-13-mn-people-s-livelihood-in-india-study-121112201472_1.html (last visited on March 03, 2022).

[56] U.S.Census Bureau Current Population (March 03, 2022), *available at:* https://www.census.gov/popclock/print.php?component=counter (last visited on March 03, 2022).

Before giving up on coal completely, coal energy should be cleaned first. Different methods of converting coal into clean energy should be adopted along with introduction of carbon capture methods. Very soon the country will witness a situation where on one side energy transition from coal to green resources could be at its peak, rise in renewable will be happening rapidly, domestic supply of coal will be needed to fill the gaps of energy demand along with washing up of coal emissions. The task in hand would be to handle all these events together and achieve a coordination amongst them. Introduction of a coal-cum-energy regulator could be a solution for this energy conundrum, which shall aid in working out these activities in a harmonised and synced manner.

Independent Regulator: Importance and Scope

In India, setting up of independent regulator for governing specific sectors is not a very old development. Post liberalisation, Independent Regulatory Authorities (IRAs) were aggressively introduced to the political system for various sectors with the vision to substitute monopolies with that of a competitive market. The Indian legal system has been characterised by a sudden proliferation in the birth of regulatory authorities. One of the first regulatory authorities in India, consequent upon securities scandal was the Securities and Exchange Board of India ("SEBI") through the Securities and Exchange Board of India Act, 1992 ("SEBI Act"). Odisha State Electricity Regulatory Commission (OERC), another regulator formed by Orissa marking as the pioneer state to bring into existence the very first regulator of electricity in the state of Orissa, set up in August 1996. Another example is that of the Telecommunication Regulatory Authority of India (TRAI), a statutory body established by central government to facilitate the telecom sector with an independent regulatory body was established in 1997. It was followed by the setting up of Insurance Regulatory and Development Authority (IRDA) in 1999 to undertake licensing and policy implementation in the insurance sector.

Initially when IRAs were introduced to the political system, it was expected that once the competition is infused in the market and monopoly impact is diminished, the job of these regulators shall be over and they might not be required to further regulating the sector. But over the period of time, it was observed that these IRAs stayed in the market and played an indispensable role in

safeguarding through interest of public at large and encourages the investments by ensuring a well-structured market atmosphere.

Most of the times it's seen that the laws have some gaps which creates problems in implementing the same as can be very well demonstrated in the case of coal sector in India. Sometimes, also there is an ambiguity in these legislations, which calls for a need to provide clarity and interpret it, which may be the role of the regulator, since it's a mediator between the two parties.

An autonomous regulatory body acts as a network of interaction between the competition regulator, government, regulatees, co- regulators of related sectors and courts.[57] Independent Regulators sometimes act as mediators between the statesmen and the players or regulatees. Thus, they perform the role of an intermediary who regulates the differing interests of the stakeholders. It's also important to have a separate regulator in the sector from that of the political system, so that the decisions that the ministers and politicians are unable to take due to their political stakes because of the fear of electoral permissions[58], which can delay the implementation of significant pronouncements, can be transferred to the regulator.

With respect to the coal sector, an initiative was taken in 2013 to set up one such independent regulatory body. The Coal Regulatory Authority Bill, 2013 was drafted and introduced by the then coal minister Sri Prakash Jaiswal. This bill mainly aimed at setting up of an independent regulatory body for effective governance of the coal sector which is under the shadow of behemoth company[59] and forms natural monopoly. After the approval of the proficient authority CRAI Bill was introduced in Lok Sabha in December 2013, but lapsed in 2014 for having a number of lacunas in the same. Even though, at present the sector is undergoing major reformatory stage, yet the government is silent is in this regard. It was alleged that the proposed CRAI was not really independent in nature, actually defeating the very basic purpose behind its introduction.

However, at present, one such mega energy regulator is required to be formulated which can help in absorption and implementation of the coal reforms along with aiding in a smoother transition.

[57] Maher M.Dabbah, "The Relationship Between Competition Authorities And Sector Regulators", 70(1) *Cambridge Law Journal* 113,(2011).
[58] *Ibid.*
[59] Coal India Limited.

Independent regulation has been described by the author as one of the "most striking innovations in the body of sector specific energy law." [60]

In sectors where monopoly of a company captures the market and hampers the competition, an exhaustive regulatory regime helps in protecting the interest of the investors and stakeholders against the arbitrary exercise of powers as perfectly understood through the case of Coalgate Scam[61] that actually perturbed the entire coal sector in India. Moreover, the energy sector of India dominated by coal, needs a regulator who while looking into the coal sector and its issues could aid in a smoother transition from coal to other alternatives.

VII. Conclusion

As discussed in earlier part of the paper, the coal sector is swamped with a number issues within as well as outside the sector. Right from the issues stemming out of the monopolistic structure of CIL to calling for private players, from transparency issues to environment concerns, the sector is reflecting the incompetent governance with which it is being dealt with since years now. The policy changes that have lately been introduced should have been done decades before when coal demand was at its peak, without any other source of energy to depend on. At present, the country faces international pressure to reduce the production as well as consumption of coal thereby reducing the overall dependence on coal and substituting it with other green energy sources.

In the backdrop of above circumstances, the sector seems to be in a state of a complete conundrum, and is required to be guided by an authority who can look beyond the horizon and aid in smoother transition of energy in India.

It is an indispensable step which should be taken soon especially when the government on one side is calling for investment in coal mining by launching commercialisation. On the other hand, there is going to be a paradigm shift in the energy mix in the light of commitments made in United Nations Climate Change Conference in 2021 at Glasgow, where the prime minister promised to achieve the target of "net zero emissions" by 2070.

[60] P.D. Cameron, *Competition in Energy Markets: Law and Regulation in the European Union* 96 (Oxford University Press, 2nd edn., 2007).
[61] *Supra* note 7 at 2.

A regulator is required which shall be able to see from all perspectives while recognising the opinions and interest of all stakeholders in the coal sector. This shall in turn help the regulatory body to form diplomatic rules and regulations. Getting into the shoes of another and thinking like them enlarges the vision of the regulator and develop emotional intelligence.[62] This helps in incorporating favourable changes while balancing the national and global interests .

Such a regulator which has enough autonomy is required to understand not only the coal sector isolation but also other sectors which are expected to replace coal. Thus, rather than setting up just another office within the coal sector would be nothing but an add on to the hierarchical set up. A neutral, unbiased and liberated body with expertise not only on coal but on all energy resources is required who can manage the commercialisation lately introduced in the sector along with shifting from coal based economy to a green economy.

[62] Mark A. Jamison, "Leadership and the Independent Regulator", *Public Utility Research Center University of Florida* (July 2005).