



Sustainable Development Goals and The Indian Coal Mining Industry: A Case Study

Authors:

Dr. Ravindra Kumar*, Bishwambhar Lal**

***Associate Professor, Commerce, Yogada Satsanga Mahavidyalaya, Ranchi, Ranchi University**

****Corresponding author: Bishwambhar Lal , Research Scholar, Department of Commerce and Business Management, Ranchi University**

Abstract

Sustainable Development Goals (SDGs) were incorporated by the UN member states in 2015 to represent the global agenda for equitable, socially inclusive, and environmentally sustainable economic development until 2030. It is seen as a vision statement towards a better world. On the other hand, coal industry has been seen as a major contributor towards environmental degradation and hence has been expected to have higher sensitivity towards the SDGs. In the context of India where coal continues to be the main source of electricity generation for propelling the growth of the nation and it is expected to retain the majority share in the energy portfolio in foreseeable future, it becomes interesting to assess how the Indian Coal Mining Industry remains committed to the global sustainability expectations. This paper attempts to examine the aspects of UN SDGs connected with the coal mining industry and goes ahead to assess the performance of the coal industry in India in meeting the expectations of SDGs.

Key words: Indian Coal Industry, UN Sustainable Development Goals

Introduction

The dominance of coal-fired power generation is predicted to continue in the coming decades (even with the recent focus on renewables) in order to provide energy security and affordable power in India. Coal forms the main support to the energy sector in India. The share of coal is approximately three-fourths of the country's electricity generation (Bhattacharyya, 2018). India coal reserves have been prophesied to last for several decades even at double the current rate of production, and coal-based power is likely to remain as one of the cheaper options among different energy alternatives for electricity generation in India in the near future (EIA, 2020). However, the coal industry has drawn criticism globally for its deleterious environmental impact, being labeled as a "DIRTY" fuel, and is thus expected to be more responsive to the Sustainable Development Goals (SDGs) (International Energy Agency, 2019). Considering the importance of the Coal Industry in the economy and the direct correlation of many mining activities to people and natural environments, the coal mining industry has a major role to play in contributing to the realization of the SDGs (Smith & Sonnenberg, 2017). At the same time, mining operations present potential risks to the accomplishment of the SDGs. The mining sector is a major driver of economic activities but it also negatively impacts the environment, degrades land, displaces communities, and leads to conflicts (Hilson, 2012). Years before the United Nations Sustainable Development Goals (SDGs) were adopted by countries in 2015, India had come with a national framework called National Sustainable Mining Framework to address sustainability issues in the mining sector in 2011 (Government of India, 2011). As per available literature, individual goals have been mapped with the mining activities with the purpose to establish correlation. The current study uses the existing mapping in the context of the Indian Coal Mining Industry and tries to

assess how leading companies in the Indian Coal Industry have fared towards accomplishment of SDGs (Sahoo et al., 2020).

Sustainable Development Goals (SDGs)

Sustainable development is a guiding principle for long-term development which balances economic and social development and environmental sustainability. In its landmark 1987 report, the World Commission on Environment and Development defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. The paramount importance of sustainable development was firmly recognized by adoption of the 2030 Agenda for Sustainable Development and 17 global Sustainable Development Goals (SDGs) by 193 United Nations Member States in 2015. The SDGs came into effect on 1st January 2016 while the year 2030 has been taken as the deadline towards achievement of these goals. Spread across 17 verticals, the SDGs encompass key spheres of global wellbeing across different social-economical, cultural, geographical divisions along with the interdisciplinary relations amongst these dimensions aimed towards making lives better.

India and Sustainable Development Goals:

India is reckoned as one of the fastest growing economies of the world. It being a country of more than 1.3 billion people and having above 8% of world’s biodiversity, India’s approach towards SDGs has been considered as an important parameter towards success in achievement of SDGs. Several initiatives have been taken focussing on good governance, sustainable livelihood and cleaner environment to bring forth the resolve of India towards achievement of SDGs. In order to provide a matrix to capture progress on SDGs, a SDG India Index was conceptualized by the NITI Ayog (Government Think tank engaged in Policy Making) to provide a holistic view on the social, economic and environmental status of the country and its States and UTs. The index has

been devised to track the performance of all the states and UTs on a set of 62 national indicators, measuring their achievements on realisation of SDGs

Coal Mining Industry in India

Coal in India has been mined since 1774, and India is the second largest producer and consumer of coal, mining 777.31 million metric tons (856.84 million short tons) in FY 2022. India has the fourth largest coal reserves in the world. Coal deposits are primarily found in eastern and south-central India.

Major Players in Coal Industry in India: Coal India Limited (CIL) comprising of its subsidiaries holds majority share in India Coal Industry. Coal production of CIL during 2021-22 was 622.6 Million Tonnes with a positive growth of 4.43%. While annual turnover for same period was Rs. 1,52,667.14 Crores. On the other hand, Singareni Collieries Company Limited (SCCL) is the main source for supply of coal to the southern region. The company produced 50.580 million tonnes of coal during 2020-21 as against 64.044 million tonnes during the corresponding period last year. SCCL production of coal during 2021-22 was 65.022 MT(Provisional) with a positive growth of 28.55%. From above it is seen that out of total 778 MT coal produced in India in FY 22, Coal India accounts for 80% of total production and thus holds the lion's share in the Indian Coal Industry and is a considerable representative of the coal industry. With ambitious target of crossing 1 Billion Tonne of coal production for making India self-reliant in terms of coal-based energy, CIL has been entrusted with responsibility to enhance capacity and augment production in coming years. Remaining share of coal mining in India belongs primarily to captive mines mainly owned and operated by Thermal Power Plants like NTPC, State Generating Companies through their respective subsidiaries

Mapping the SDGs with Coal Min/ing Activities

Mining is relevant for all Sustainable Development Goals and has been associated strongly in particular to 11 of the 17 goals as per UN Report in 2018 "United Nations System, Joint SDG Fund (2018). The current study uses the findings of report to identify the SDGs that are strongly related to coal mining industry and which are as follows: SDG 1 (no poverty), SDG 5 (gender equality), SDG 6 (clean water and sanitation), SDG 7 (affordable and clean energy), SDG 8 (decent work and economic growth), SDG 9 (industry, innovation and infrastructure), SDG 12 (responsible consumption and production), SDG 13 (climate action), SDG 15 (life on land) and SDG 16 (peace, justice and strong institutions). Reports of Coal Mining Companies were analysed for the period 2015-2022 with the purpose to map the Sustainable Development Initiatives undertaken by the coal mining companies with respective Sustainable Development Goals. The findings are as follows:

SDG 1: No Poverty

On the global context, the rate of the reduction of extreme poverty has increased. However, even with declining poverty rates, it is estimated that in 2030, almost 6 per cent of the world's population would be still living in poverty. In context of India, elimination of poverty has always been at the core of the national development agenda with 6.7 % of its population below the official poverty line as per Government estimates in 2019.

Mining sector is estimated to contribute around 2.5% to GDP of India as per data of 2020-21. Coal Industry happens to be a major employer in the country and happens to rank within the top 10 employers of the country. Estimated workforce directly employed in coal mining industry stands

at around 3,50,000 while figure of indirect employment is estimated to match with directly employed manpower considering the wide social interface of coal industry and the drive of outsourcing of mining activities as is being followed by major players of coal industry.

SDG 5: Gender Equality

A sizeable population of women still suffer with the trauma of sexual assault, domestic violence and gender bias. In the area of employment, women held a share of 39 per cent in 2018, their presence in managerial positions inching up to only 27 per cent from 26 per cent in 2015 while the gender pay gap has been reported at 22 per cent.

In context of India, the principles of gender equality and objectives of gender justice are embedded in the Constitution of India and are sought to be actualised through various legislation, policies, programmes, and government initiatives.

In the context of coal mining industry in India, around 20,000 women workforce is directly employed in Coal India and across coal mining industry the figure is estimated to be around 25,000 which is less than the national share of 33% of women in the national workforce.

A major initiative has been the amendment in the year 2019 in the Mines Act 1952 whereby restrictions over deployment of women in opencast and underground mines was removed and relaxation was provided in engagement of women manpower round the clock. This initiative is considered to be a major step in bridging the gender gap in terms of employment share of women. No anomaly of pay gap was reported on grounds of gender bias.

Compliance of statutes pertaining to safety and well being of women at workplace as per the relevant acts like the Mines Act, Factories Act and the Industrial Disputes Act have been reported to be complied.

SDG 6: Clean Water and Sanitation:

In the global context, Water and sanitation is the most cost-effective health intervention available. Though there is sufficient fresh water on the planet to achieve regular and clean water supply for all, 785 million people still lack access to basic drinking water service. One-half of all under-nutrition is caused by lack of access to safe drinking water, sanitation and hygiene.

World's second-largest population of India has access to just 4 per cent of potable water. Nearly 600 million Indians face high to extreme water stress; and by 2030, the country's water demand is projected to be twice the available supply, implying severe water scarcity. There is an imminent need to continuously evolve sustainable policies and practices, especially in the current context of adverse climate change, rising demand and environmental degradation and to put in place interventions that make our water use efficient and sustainable.

In context of Coal industry in India, a lot of initiatives have been reported to be undertaken to ensure clean water and sanitation as per SDG 6. Water has been reported to be an integral part of the sustainability vision. Coal companies are ensuring effective water management and conservation and it is in line with their business strategy and has been implemented at all the operating locations with objective of maximizing the utilization of treated Mine Water for community purpose.

SDG 7: Affordable and Clean Energy

On the global context, the objective of SDG 7 is to attain energy security and efficiency by increasing sustainable per capita energy consumption, while also ensuring a reduction in emissions and pollution as per global and national targets. About 840 Million people across the globe lacked access to electricity in 2020 while access to clean cooking fuel presents a different picture: it has reached only 61 per cent of the global population.

In the Indian context, Equitable and universal access to affordable, reliable and clean energy has been mandated as a prerequisite for socio-economic development in India. The Goal has three key components: universal access to electricity and clean cooking fuel, increasing share of renewable energy in the country's energy mix and improving energy efficiency. The country's energy mix is being diversified by widening the renewable energy choices (solar, wind, small hydropower, waste-to-energy, among others), augmenting installed capacity and increasing access.

In the context of coal mining industry in India, coal is credited as being the cheapest source of energy and thus happens to be the major fuel driving the energy needs of the nation by helping thermal power plants generate affordable energy.

The challenge lies in advancement of technology favouring cleaner (or to be more realistic - less dirty) usage of coal in thermal power production which includes the entire supply chain of coal right from mines to plants to ash ponds.

On one side coal continues to be the preferred energy fuel in India due to its abundance, availability and affordability, however, in line with India's commitment at COP to achieve net-zero emissions by 2070, increasing the share of renewable energy is the focus area of coal industry also to enable in managing energy needs sustainably and improving energy efficiency.

SDG 8: Decent Work and Economic growth

In the global context, SDG 8 seeks to achieve higher economic productivity and job creation through diversification and innovations in technology, while at the same time protecting labour rights and promoting a safe and secure working environment. Challenges, such as improving access to financial services and resource efficiency in consumption, increasing employment opportunities, especially for the young workforce, reducing informal employment, labour market

inequalities, gender discrimination, and promoting safe and secure working environment; persist across countries.

In context of India, it has been projected to have the potential to be the engine of global economic progress. India, with a growth rate of 8.2 per cent in 2015-16 and 8.7 in 2021-22, is recognised as one of the fastest-growing large economies in the world. It aspires to become a US\$ 5 trillion economy by 2025 which is within the SDG period.

In context of coal industry in India, factors like contribution to GDP, high payout to Government in terms of dividend, royalty and levies etc have been considered as factors promoting economic growth of the nation. In terms of having a decent workplace, companies were found to be promoting employee Inclusion and diversity, Employee Development & well-being / Training & Education, Occupational Health & Safety, and compliance of Labour Conditions / Human Rights Assessment.

SDG 9: Industry, Innovation and Infrastructure

In the global context, industrialisation, innovation and infrastructure are deeply interconnected not only among themselves but with all other SDGs. SDG 9 has been taken as a prerequisite for maximising the efficiency and effectiveness of all the other SDGs. Innovation is a way of implementing nationally appropriate social protection systems that ensure equal rights thereby favouring industrialisation and development of appropriate infrastructure which further promotes innovation and industrialisation.

In the context of India, it is implementing reforms to trigger manufacturing, spur industrialisation, promote investment and foster innovation. Major structural reforms; such as the implementation of Goods & Services Tax (GST), FDI regime liberalisation, Ease of Doing Business Reforms and introduction of the Insolvency and Bankruptcy Code, have been made in the last few years. Focus

on the digital revolution, internet penetration and financial inclusion are contributing to fueling growth and investment.

In the context of the Indian Coal Mining Industry, change from small pocket mines to large mining projects has been a development of the last two decades. Still a large scale automation needs to be set in to make the mining operations overall sustainable. Mechanization of mines has been reported to be a key material aspect which aims to develop new capabilities and improve safety, profitability and sustainability in mine design, operation and closure activities. Pursuance of environment friendly mechanized coal transportation and loading under FMC projects to the tune of 415 MTs by FY'24 is considered as a major development in Infrastructure in Coal Mining Industry.

SDG 12: Responsible Consumption and Production:

In the global context, Sustainable consumption and production is about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all. Its implementation helps to achieve overall development plans, reduce future economic, environmental and social costs, strengthen economic competitive - ness and reduce poverty.

In the Indian Context, Key areas involved in working on targets associated with SDG 12 include efficient management of natural resources like land, water, and air; limiting the generation of toxic waste and pollutants and their safe disposal; and adoption of sustainable consumption practices in public as well as private spheres. Thus, stakeholders like industries, businesses and consumers were found to play a large part in achieving SDG 12, while the government was considered to be having pre-eminently an enabling and facilitative role.

In the context of coal mining industry in India, stringent policies for waste and effluent management were reported amongst key materiality parameters. Blast free technology for extraction of coal from opencast mines, blasting with delay detonators, regular maintenance of HEMMs, massive plantation in and around mines were reported as best practices being undertaken for responsible consumption of natural resources and production of coal.

SDG 13: Climate Action

In the global context, SDG 13 aims to integrate climate action into national policies and strategies and promote mechanisms for raising capacity for effective climate change planning and management. The focus on the "urgent action" to "combat climate change and its impacts" requires incorporation of both climate change mitigation and climate change adaptation.

In the Indian Context, India has been projected as one of the most vulnerable countries in the world to global warming, which will face the challenge of climate change in the coming years as per reports of IPCC. The report states that agricultural economies such as India will be adversely affected due to the ramifications of global warming—including intense heatwaves, floods and droughts, water stress, and reduced food production. A comprehensive strategy is required to combat the effects of climate change, in all its dimensions.

Coal industries being labelled as one of the most dirty industries in the world which is held accountable for the damages done to climate has a major role to play in achieving SDG 13. The impact of coal mining activities on climate change has increased in frequency and severity over the years and has become an emerging global risk. Coal companies were reported to be focusing on the importance of GHG reduction and effective utilization of energy by selecting appropriate environmentally friendly technologies. In line with commitments to achieve a carbon offset of over 60,000 Tons, commendable work is in progress.

SDG 15: Life on land

In the global context, SDG 15 reiterates that Life on Earth is crucially contingent on its land systems. While agriculture is the source for a large part of the human diet, forests provide habitat to most of the world's flora and fauna species. Positive global trends on the protection of terrestrial ecosystems and biodiversity are discernible with a progressive reduction in forest loss, increasing protection of key biodiversity areas and augmented financial flow for biodiversity protection.

In context of India, with 2.4 per cent of the world's land area, but a sixth of the global human population and approximately 8 per cent of all recorded species,⁹⁰ India has made sustainable management of the terrain ecosystem a priority by Managing Forests, Preserving Wetlands and Waterbodies and protecting wildlife.

Although the coal mining industry paradoxically stands at crossroads with SDG 15, coal companies have reported activities promoting life on land by promoting unique steps like promoting paddy cultivation on overburden, land reclamation, projects for conversion of overburden to sand, recruitment of designated environment engineers to foster biodiversity management amongst others.

SDG 16: Peace, Justice and Strong Institutions.

In the global context, Goal 16 lays down the basic principles which enable the achievement of all the other goals mainly by building the foundations for peaceful and inclusive societies, robust system of justice for all, and inclusive and accountable institutions.

India's approach towards fostering peaceful and inclusive societies and ensuring justice and security for all revolves around enabling a sustainable development framework that is substantive

and reflective of the needs and aspirations of the most vulnerable and marginalized sections of society.

Coal mining companies in India were found to be compliant of statutes related to dimensions of sustainable development i.e. Environmental, Social and Governance. (ESG) . AlthoughnNo specific material items related to SDG 16 were found to be reported, coal companies were supposed to have an impact on the SDG 16 by virtue of compliance of other mapped SDGs.

Findings:

The mapping between the SDGs associated with mining industry as per UNDP report and the Sustainable Development Initiatives of Coal Mining Industry in India was analyzed based upon the statutory filing and reports of coal companies in India (Coal India limited and its subsidiaries). It was found that the SDG India Index as devised by NITI Ayog has a very well laid down description of SDGs and the associated targets under each SDG. Coal companies on the other hand have taken up initiatives across all dimensions of the business operations ranging from land acquisition, obtaining of statutory clearances, adoption of latest technology for safe and sound mining activity, sustainable supply chain of coal, mine closure activities. Key material issues given relevance were Waste Management, Water Management, Energy Efficiency, Renewable Energy, Biodiversity and Land Management, Mechanisation of Mines and Socio Economic Compliance. Mapping of Material Aspects and Sustainable Development Initiatives with the 11 SDGs relevant to mining industry revealed that all the 11 SDGs were being impacted by the sustainable development initiatives undertaken by coal companies. However, complexities arising out of diverse business operations and ever increasing push on coal fired electricity generation in India, the strength of impact on the SDGs was not seen to be uniform. SDG 1: No Poverty and SDG 16: Peace, Justice and Strong Institutions were found to be having weak

correlations with sustainable development initiatives and impact on these SDGs were derived in nature as such positive impact on any SDG was expected to have a bearing on these SDGs. SDG 5: Gender Equality was found to have weak correlation with Sustainable Development Initiatives and unlike SDG 1 and SDG 16, stronger impact on other SDGs were not expected to directly impact SDG 5.

SDG 6 (clean water and sanitation), SDG 7 (affordable and clean energy), SDG 8 (decent work and economic growth), SDG 9 (industry, innovation and infrastructure), SDG 12 (responsible consumption and production), SDG 13 (climate action), SDG 15 (life on land) were found to have strong correlation with the sustainable development initiatives represented through the material aspects.

Conclusion:

The Sustainable Development Goals are considered as an opportunity for all to improve our world collectively. The 17 goals and 169 targets that constitute the SDGs address virtually all the development challenges – whether economic, social, environmental or governance. On the other hand, coal is the world's number one source of carbon dioxide emissions and India amongst other major coal producing countries are considered as major pollutants of the world. Historically, the extraction of mineral reserves has always resulted in varying degrees of environmental resource degradation and social impacts, including displacement, all across the globe. The Indian coal mining sector has been facing severe criticism on several issues relating to its performance vis-à-vis Sustainable Development. In such a scenario, where the coal industry is expected to be irreplaceable, at least completely in the foreseeable future, it becomes even more challenging for companies in the coal industry to prove themselves to be sustainable. Aligning the sustainable

development initiatives with the SDGs can be a helpful tool in proving to be sustainably relevant in the current context for coal industry in India.

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