

## TECHNOLOGICAL ADVANCEMENTS & LEGAL REGIME MAKING MINING SUSTAINABLE: A BRIEF COMMENT

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### INTRODUCTION

Minerals are the substances occurring naturally having a specific composition usually crystalline and abiogenic in origin (not obtained from life processes). Minerals constitute the backbone for economic growth and India has been eminently and enormously endowed with this gift of nature. Indian mining industry has contributed to Asia and globally as a major mineral producing state. Currently, it is a global producer of chromites, coal, iron ore and bauxite. Mining in India is over 6000 years old. The first recorded history of mining in India dates back to 1774, coal mining at Raniganj.

The GDP contribution of the mining industry varies from 2.2% to 2.5% only but going by the GDP of total industrial sector, it contributes around 10-11%. Mining industry provides job opportunities to around 0.7 million individuals.

The former Norwegian Prime Minister defined Sustainable Development as the development which meets the needs of the present without compromising the ability of the future generation to meet their demands.<sup>1</sup>

The first proposal for regulation of mining in India came in 1890, which was introduced by Lord Cross, who at that time was the Secretary of State of India, later in 1894 for the first time Inspector of Mines was appointed for the purpose of management and supervision.<sup>2</sup> The initiation of National Mineral Policy in 1993 gave a boost to foreign investments in mining sector with appreciable incentives; the policy was revised in 1994 which resulted in private investments both foreign and domestic. Since then, the mining industry in India along with its technological support and advancements, it is achieving major highs globally.

In the year 1952, The Mines Act was introduced in India. Since then the Act has been guiding and regulating the mining activity in India, though the Act is open to necessary amendment and it has been amended from time to time. It has also been witnessed that every State is guided by different State mining laws, as every state differs from one another.

Present scenario of mining industry in India: Mineral production was reported from different States/Union Territories of which the major contribution of mineral production of about 90.03% was confined to 11 States (including offshore areas) only. Offshore areas continued to be in leading position, in terms of value of mineral production in the country and had the share of 25.64% in the national output. Next in the queue stands Odisha with a share of 10.62% followed by Rajasthan (8.58%), Andhra Pradesh (7.81%), Jharkhand (7.72%),

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<sup>1</sup> Available at: <<http://www.legalserviceindia.com/articles/jud.html>> Accessed on: 15 October, 2017

<sup>2</sup> Available at: <<https://blog.ipleaders.in/mining-laws-in-india/>> Accessed on: 14 October, 2017

Chhattisgarh (6.65%), Gujarat (6.33%), Madhya Pradesh (5.28%), Assam (4.64%), Goa (3.49%) and Karnataka (3.27%) and in the total value of mineral production. Remaining 21 States/Union Territories having individual share of 3% or less than 3% all together accounted for 9.97% of total value as a whole.<sup>3</sup>

Mineral and mines industry adds to the national income of a country and at the same time results in employment generation on one hand and on the other hand it acts as catalyst for the depletion, over utilization and exploitation of non-renewable resources, which add up to the ultimate exploitation of this earth.

Role of technological advancements: Emphasis should be given on exploration to continuously augment the resource / reserve base of the country and harness the existing resources through scientific and sustainable mining including the continually upgrading and advanced technologies and focusing on zero waste mining in order to maximise the pleasure we enjoy through our mineral resources and hand in hand sustainably developing. This is possible only through a properly monitoring regulatory regime that encourages investment in exploration and critical infrastructure for development of the mineral and mining industry.

We have some ongoing projects in India which are successfully trying to achieve the aim of sustainable development in mining sector. Some such techniques are as follows-

Use of surface miners: Our technologies have recently introduced environmentally sound production technology to minimise pollution generation at site to minimise the dust generation as well as zero discharge from the washeries. India being a major producer of coal, its extraction from the surface miners is nowadays major technologies used in mining operations to minimise dust generation. Some of the advantages of using surface miners are:

- a) Less coal loss and dilution
- b) Improved coal recovery
- c) No use of blasting the mineral seam
- d) Less noise pollution
- e) No danger to human life
- f) Selection of alternative or less biodiversity mining area as much as possible.
- g) Increased back filling in open cast voids.
- h) Improved transportation system includes conveyor belts covering maximum distance.

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<sup>3</sup> Available at: <[http://www.mines.nic.in/writereaddata/UploadFile/Statewise\\_Mineral\\_Scenario.pdf](http://www.mines.nic.in/writereaddata/UploadFile/Statewise_Mineral_Scenario.pdf)> Accessed on: 15 October, 2017

One such advancement comes from IIT Madras the Ecofriendly cement which is being tested for use in industry. The material and process of manufacturing contribute to reduced carbon dioxide emissions. This was witnessed through the research collaboration between India and Switzerland on a new cement material that can reduce carbon dioxide emissions in the manufacturing process. The construction sector has one of the major contribution to global carbon dioxide emissions even after acknowledging this we are unable to reduce the scale of such environment harming emissions from the construction sites. All these examples witness a major change in the country in the direction of getting developed with the approach of maintaining our natural environment. Sustainable development is of major concern and attracts stringent actions if violations are found. The mining activities also involve digging of land which again is something which harms the land but it becomes inevitable as to obtain various precious minerals or metals. These activities not only harm the land but also are detrimental to the interests of humans, wildlife and the environment. Excessive mining lead to erosions, which requires immediate attention and therefore methods for conservation of the environment, becomes the need of hour.

Even it affects the pattern of rainfall, sedimentations, local climates, depleting forests and hence adding up in the destruction of the environment. Since the effects of the erosions are adverse and the flora and fauna of the concerned place is affects the environment by this since it fades away the natural ecological balance which very much necessary for a sustainable living. When the natural ecological balance is disturbed, it displaces the niche of the beings affected by the cause. Thus, a single mining activity which is done to obtain minerals and gain benefits from it, results in such destructions adversely one by one to each and every individual strata of the biome. An example of this kind of damaged suffered is from the mining company in India at the Western Ghats mountain range in the Karnataka. The operations of the concerned company caused a large scale destruction of the hills, pollution of the ground water nearby .But these mining activities even after the acknowledgment of its treats and detrimental effects, we herein are unable to shift ourselves to a living where minerals are not a part of life. The thing which can be done to at least suffer from fewer damages is having certain checks and balances and safety measures for adequate monitoring purpose of the mining industry. This aim is ensured by having certain provisions in our Indian laws. The governments make policies regarding the concerned issue for the uprising threats and its implementation is seen by the legal department. Here in India, we have well framed policies and laws for the purpose of this which as a result ensures the implication of penalties on the wrong doer. One such legal regime is the '*Sustainable Development Framework*' for the mining sector. The SDF committee constitutes to implement principles and framing a good guideline for the development. The SDF accounts for issued which the mining sector is facing due to the existing laws and principles and demarcates a set of principle that collectively heads towards sustainable development. It incorporates not only regulatory provisions but also goes beyond that and recommends practices and best possible solutions to address the problems being faced in the sustainable development of the country. It provides guidance steps, measurable outcomes and assurance of which continual improvement is the key.

In the Constitution of India, Article 21<sup>4</sup> it is about prevention of encroachment of personal liberty and deprivation of life except according to the procedure established by law. It means that if any act of a person amounts to encroachment of the personal liberty of the other person may it be anyone or deprivation of life of the other person. Such act of any person having done intentionally or unintentionally will not fall under the parameters set for article 21. The article 21 of the Indian constitution assures the right to live with human dignity and which is free from exploitation. Now, exploitation under this article also involves the exploitation of environment which serves as the major basic necessity for living. As in this paper it describes the various aspects of mining which is nowadays causing a major threat to the environment, it is relatable to this article 21 of protection of life and personal liberty. Other than this there are even the environmental laws of India which provides for the checks and balances for the concerned cause. Conservation and protection of the environment have been an inseparable part of Indian heritage and culture. Realizing its importance, the Indian State has also enshrined it in the Constitution which requires both the state and the citizen to “protect and improve the environment”.<sup>5</sup>

## CONCLUSION

The Protection of Environment and Mining are two such inseparable elements in the contemporary times that it can never be thought of complete doing away with mining and on the same time any negligence on the part of the protection of environment will definitely have drastic results not for any economic enterprise but for the human existence itself. The various provisions of the Indian constitution as well as the legal regimes regulating mining and related to the protection of environment should be construed in tandem and with a view of harmonisation among them if any such issue comes forth. The conservation of environment is something which is a doable task and the only constraint remains is of political and social willingness. The concept of sustainable development may only be realised when there is no competitive interests of the stakeholders but an approach of reconciliation with the nature and surely an effort to minimise the harming of natural resources. Further, if the understanding is premised over two distinctive approaches the losses may surely be minimised, one being that the machineries used for mining should be causing least pollution and secondly the legal regimes should be so drafted as to take care of a holistic view of the functions of not only providing employment but also restricting losses with an approach of identifying the renewable resources.

Thus, ensuring proper monitoring of every sphere of mining activity may it be technical or geological, we can achieve the goal of ‘SUSTAINABLE DEVELOPMENT’ with a better and more effective legal regime.

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<sup>4</sup> Available at: <<http://www.legalserviceindia.com/articles/art222.html>> Accessed on: 15 October, 2017

<sup>5</sup> Available at: <<http://www.environmentallawsofindia.com/>> Accessed on: 15 October, 2017