



Indian Mining Industry

A Different Perspective



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Recommendations of
**UNDER 40 AGE GROUP FOR
INDIAN MINING INDUSTRY**



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Background



India is a country blessed with abundant mineral resources and the country's regulatory policies recognize these minerals as a key resource for development of the nation. These mineral resources play an important role in giving a competitive edge to the Indian industries. Hence, there is a need to integrate the extraction management of these minerals aligned with the country's economic development and long term national goals.

India is uniquely poised in terms of availability of resources, skilled manpower and demand for commodities. Considering these factors, Value Addition in the country should be promoted for creation of employment, increasing contribution of manufacturing in GDP and increasing revenues for states. End user industries provide benefits both in terms of job creation and revenue generation.

The Mineral sector has undergone a paradigm change with the promulgation of MMDR Amendment Act, 2015. The auction methodology for allocation of resources, extending the tenure of leases to 50 years, creation of District Mineral Fund & National Mineral Exploration trust etc. are some of the notable changes brought in through the amendment.

Also, India has set up ambitious development targets which are in line with the internationally declared commitments of the country. These targets need to be taken into account for holistic development of mineral sector on a sustainable basis. With these, the share of manufacturing is to



rise to 25% of GDP in the decade ahead, thereby increasing the share of mineral production to support the downstream activities.

However, the Indian mining sector has witnessed negative growth in past few years. The contribution of mining to India's GDP has fallen from 3.4% in 1992-93 to less than 1% (non-fuel, non-atomic) in 2016. This de-growth is having its repercussions on the economy as a whole. India needs an evolving and growth oriented mineral development and a mining sector that can foster systematic and sustainable growth in the economy.

Indian mining industry is characterized by limited mechanization and relatively lower maturity from the perspective of technology adoption, sustainability and business processes. One of the measures of the same is limited scale of mining operations as evident from the number of operating mines.

FICCI believes that it is time for mineral development and mining to be given its long over-due push and make it a major contributor to the economy as is the case in developed countries such as Australia and Canada. Emphasis should be given on exploration to continuously augment the resource / reserve base of the country and harness existing resources through scientific and sustainable mining including beneficiation.

At this critical juncture, the FICCI Mining Committee members unanimously felt the need of creating "FICCI Under 40 Age Group" to brainstorm innovative ideas / recommendations regarding the growth of Indian mining industry to increase its contribution to Indian GDP and up the employment in the sector.

To its agenda, the group clubbed the objectives into six sub-groups namely:

1. Regulatory Compliance
2. Societal & Environmental Development
3. Expediting Exploration
4. Business Model
5. Financial Attractiveness
6. Enabling Supportive Infrastructure

Sub-Group 1: Regulatory Compliance

Agenda I: Analyzing the reasons (& remedies thereof) for long gestation period between mine auction and actual production

Agenda II: Governance and regulatory compliance with emphasis on environment and forest clearances



- I. To exempt levy of charges on transfer of Mining Lease within a group: Minerals (Transfer of Mining Lease Granted Otherwise than through Auction for Captive Purpose) Rules, 2016, which inter-alia provides for payment of transfer charges in case of transfer of captive mining lease granted otherwise than through auction within a group. Such leases are sometimes transferred within group companies to further spur industrial growth and development for greater synergy of operations, diversification of resources, and leverage capital & operating expertise. Hence, such transfers should be free from levy of transfer charges on transfer of Mining Lease within a group.
- II. Stamp Duty should be made uniform across the country to bring parity and transparency: The stamp duty calculations made by some states are exorbitantly high and varies state wise which makes the projects unviable. Government must identify and obviate such levies and rationalize the duties. A steady tax regime is an imperative for fostering growth of mining sector in India.

- III. A policy should be formulated with respect to land acquisition for mineral blocks. Land acquisition is the biggest road block to kick off mining activities even after it has been auctioned by the government. Hence, it is suggested that the mining lease that government is planning to auction should be free from all sorts of encumbrances so that the successful bidder can quickly take up the mining activities, which is in the best interest of the country. Government should provide clear status of land in tender documents such as encroachment, PAF/PAP details, Tribal land, Forest density etc. so that Bidder can assess the associated cost and risk of delay in start of mining operations.

It is also desirable to review the Land Acquisition process to one of taking the land on lease. Mining has a distinct advantage in this regard since mine has a limited life and land is therefore, required for a limited period. If land is taken on lease and the Mine owner makes sure that after the Mineral is extracted the land is reclaimed and brought as close to its original status as technically feasible and then it is returned to the land owners, it will become easier to get the land for mining. It has of course to be ensured that while the mine is operational the land owner is also compensated accordingly.

- IV. With regard to allocation and regulation of minerals, it is suggested that a 'SPV' at State level should be created to process the application. It may consist of representatives from Ministry of Mines, IBM, MoEF&CC and Central Pollution Control Board. It is highly time consuming in obtaining EC, FC for a Mining lease in India. The average lead time to get a ML is 4 years which is significantly higher than in countries like Brazil, USA, Canada & others, where it is only 1 year. Therefore, Ministry should focus to obtain an in-principle approval on these clearances before auctioning the mineral block.

An integrated single window clearance up to certain level of mining capacity needs to be initiated. Also at present, all related subjects such as land, water, mineral, environment and forest, etc., are administered by different independent departments and ministries at the State and Central levels. Since, functions of the different Departments / Ministries are dependent and complimentary to each other with regard to allocation and regulation of minerals; there should be single nodal agency to take care of all such clearances. This will obviate inter-departmental references and reduce delays in process of granting mineral concession. This would

help to streamline the entire approvals process and bring speed & consistency in decision-making.

- V. It is recommended to constitute two Committees; one for granting of EC only where no forest is involved and the other Committee for granting of EC & FC together for those projects where forest is involved to explore the possibility of simultaneously granting of Environment Clearance and Forest Clearance.
- VI. Government may plan to earmark area equivalent to forest area being part of the project for carrying out compensatory afforestation and furnish the details of the same in Tender Document to save time and expedite the process for compensatory afforestation: Though the State Governments have been repeatedly asked to maintain land bank for allocating land for compensatory afforestation against diversion proposals, securing land has remained a challenge for proponents especially for the eastern states like Jharkhand and Odisha. On the contrary, the PSUs have been allowed a simple proposition wherein in case of shortages of compensatory afforestation land they have to simply remit charge for compensatory afforestation over degraded forest land. In the interest of industrial development, all players should be given this benefit to eliminate chances of enormous delays mostly attributable to problems in securing compensatory afforestation land.

The Ajay Shankar Committee on improving the Ease of Doing Business has also recommended that the project proponents should be exempted from the burden of locating land for Compensatory Afforestation and their applications for the Forest Clearance should be processed after ensuring payment for Compensatory Afforestation. The work of securing land and ensuring compensatory afforestation may rest with the State Governments.

- VII. As per the RFCTLARR Act, 2013, acquisition of land for use by private entities requires consent of 80% of displaced people. This may lead to uncertainty as for every track of land 10-15% of land owners are untraceable. It will be difficult for a company to get consent from 80% of the people and project costs will go up.

It is also suggested that the existing practice of public hearing should be amended to ensure that only people who are genuinely impacted by the project are allowed to participate in these hearings. Currently, all types of vested interests crop up when a public

hearing is announced, with most of them having no relationship whatsoever with the project area and they utilize it as an opportunity for blackmailing the project proponents. It is also desired to reduce the consent percentage.

- VIII. The FAC has now mandated identification of additional degraded forest land for CA in cases where the identified CA land cannot accommodate 1000 trees per hectare due to pre-existing tree growth. Such recommendation of FAC requiring additional degraded forest land for CA over and above the land proposed for CA should be done away with.
- IX. Gram Sabha for compliance to FRA was made mandatory for grant of FC in 2009 as the State Governments had not completed identifying and settling Forest Rights post promulgation of the Forest Rights Act 2008. The MoEFCC has also modified the FC Rules and included a clause for seeking consent of the Gram Sabha for the project. Now, since most of the states have completed this process, the need of compulsory gram sabha for FRA as part of FC, ceased to exist. This mandate may therefore be removed.

Sub-Group 2: Societal & Environmental Development

Agenda I: Skill upgradation for workers (& improving working conditions for women laborers)

Agenda II: Energy, environment and sustainable mining practices



- I. It is suggested to design a Technical and Vocational Education and Training (TVET) framework to meet emerging challenges in mining sector and skill development programs in the fields of beneficiation, maintenance and advanced technologies. Not only is the number of workforce in the sector increasing, there is also advent of new technologies in mineral exploration, exploitation and beneficiation. This undoubtedly requires adequate training to adapt to new, advanced and state-of-art technologies & equipment. Hence, bridging the skill gap becomes exceedingly important to enhance productivity, efficiency and safety at workplace. This would entail increasing investments in building institutional capacity for various categories of human resources required such as geologists, engineers and workers.
- II. No mines should be allowed to operate without compliance of notice of opening under section 16 of Mines 1952 to reduce the exposure to hazardous areas without affecting employment as well as relevant & appropriate accountability of labors in mining.

- III. Representatives of Mining leases which contribute to DMF should be closely associated with identification and execution of projects on which the funds raised through DMF are utilized. As per MMDR Amendment Act 2015 Section 9B, District Mineral Foundation was formed to take care of people and areas affected by mining. It provides for the utilization of at least 60% of funds for high priority areas – drinking water, environmental protection and health care etc. Representation of project proponent on DMF board will expedite the utilization of funds in a transparent manner.
- IV. Institutes are recommended to update mining course that majorly includes problem-solving techniques to prepare a mining graduate for global opportunities and future scenarios. Also, the Mining course should be updated regularly.
- V. There is a need of Carrying Capacity Analysis to manage environmental and energy consumables for establishing regional assimilative capacity with respect to air, noise, water, land, biological and socio-economic components of environment. There are several cases pending with the MoEF&CC for outcome of studies conducted in states like Odisha and Jharkhand. Final decisions on the carrying capacity studies may be taken at the earliest towards clearance of pending cases.

Sub-Group 3: Expediting Exploration

Agenda I: Expediting exploration activities

Agenda II: Ensuring mineral security for the nation with both domestic exploration as well as international assets acquisition



- I. Exploration is need of the hour. We need to discover minerals for which India depends on imports and identify new strategic minerals from future perspective as the minerals we are using today, may not be needed in future. It is advisable to constitute a committee comprising of Government and Industry membership to focus on mapping the exploration needs of the country along identifying new strategic minerals from future perspective.
- II. Private participation in Exploration should be encouraged. Despite having huge resources, there has been abysmally low exploration activity and minimal private sector participation, particularly in exploration of strategic and deep-seated mineral deposits requiring state-of-the-art technologies and risk capital. Because of lack of exploration, the incremental growth in mineral commodities in the country has been negligible.
- III. Government should encourage the acquisition of promising international assets, as India has its own limitation regarding the availability and accessibility of various minerals. It is recommended to create a common portal where details of all international assets

available for acquisition / investment can be placed and continuously updated; to facilitate international acquisition of mineral assets.

- IV. It is recommended to use reliable geological data and information along with digitized maps and plans while auctioning the mines. It is understood that the state governments have also faced constraints due to non-availability of specified exploration data and its interpretation for estimation of reserves / resources. Although auction as a process for allotment of mining leases has increased transparency in the process of asset allocation, policy interventions are still required. It is suggested that blocks should be auctioned only with reliable geological data and information along with digitized maps & plans. Also, the tender document should have land ownership data along with in-principle clearances.
- V. At present, there are two ways for participation of a private company in mineral exploration, i.e. either through obtaining a NERP (Non-exclusive Reconnaissance Permit) or get empaneled as an explorer with NMET (National Mineral Exploration Trust). NERP fails to incentivize private participation due to its “non-exclusive” nature. Incentivization to the “Explorers” has been taken care of under NMET. However, it does not allow any claim for allocation of ML/PL-cum-ML to the explorer upon successful exploration of the block. Therefore, there is a need to have a policy under which an exploring agency that infuses money and time in search of minerals be recognized.

A policy similar to (Open Acreage Licensing Policy) OALP should be incorporated in the Mineral Concession Rules and Mineral Auction Rules. These include introduction of suo moto Expression of Interest (EoI) through an exclusive RP where after G3 level exploration the block is put up for auction. The explorer (RP holder) is given certain incentive during technical and financial evaluation of bids. Additionally the explorers be given first right of refusal for the exploration of mineral blocks. The auction process should be concluded even if there is a single bid and in case of explorer remaining unsuccessful in the bidding, the successful bidder should reimburse the cost of exploration to the explorer. This will attract private investments in the exploration and the mining sector.

- VI. Focus should be on maximum / optimal production of minerals and not only on revenue maximization (as it is currently). Mineral production will automatically lead to revenue maximization for states.
- VII. An auction calendar should be developed for 2-3 years; so as to enable potential bidders for effective planning. The same process should also apply for merchant mines to go for auctioning in 2020.

Sub-Group 4: Business Model

Agenda I: Business model innovation focusing upon productivity and value addition (mining in India to make in India)

Agenda II: Asset management life cycle for mines and machinery (including mine closure & rehabilitation)



- I. Promotion of large-scale scientific mining so as to achieve economies of scale, use of state-of-the-art technology for exploration & exploitation for efficient mining and scientific exploration. Cluster mining approach should be the norm of the day. Attempt may be made to amalgamate small size leases and auction as bigger single lease. Small leases lead to blocking of mineral in the lease boundaries due to technical challenges to mine minerals at depth. Small lease area are not amenable to deployment of high-end machinery and work on deep-seated mineral deposits. Therefore, it is recommended that block size should be suited to deployment of latest technology and machinery.
- II. Ministry of Mines & the Industry should device mechanism to control excessively high and unrealistic bid price. While the auctions have seen aggressive bids, the challenge now lies in how to control the mining cost and ensure maximum recovery of resources. It is recommended that Ministry should device mechanism to control excessively high and unrealistic bid price to avoid “winner’s curse”. Else, the auctioned blocks cannot come in production as scheduled and may end up in litigation.

- III. A bidder assumes current rates of Statutory Levies (Rate of royalty, DMF, NMET, NPV for Forest land, Stamp Duty etc) for arriving at the bid premium. These levy rates should be frozen for the term of mining lease as any upward revision in these rates will adversely affect viability of the project.
- IV. In India, in recent years, stressed assets are highest in public sector banks (PSBs), mainly emerging in selected sectors like mining, iron and steel. Presently, mining lease by itself is non-bankable in India. Therefore, it is suggested that a system of certification of mineral resource base through an internationally recognized reporting standard may be adopted as is the case in major mining countries. It is felt that such a system will lead to Indian Financial Institutions and Banks funding the mining projects in future and risk of NPAs will be reduced.
- V. Flexibility for variation in production particularly on the lower side to align with the demand and supply fluctuations of end product market. Currently mining leases are granted through auction / saved cases where it is converted from Lol to ML or PL to ML (under Section 10 A 2(b) & 10 A 2(c) saved cases). Subsequent to ML grant, Mine Development and Production Agreement (MDPA) is executed and there is a clause for Minimum Production requirement, which is linked with production given in the Mining Plan. In the MDPA, there is no flexibility for variation in production particularly on the lower side. In many cases particularly in captive mining, mineral production largely depends upon demand & supply of end product market; and these leases cannot produce additional quantity which would be of no use in the market. Hence, flexibility to vary production on lower side should be provided.
- VI. Similar is the challenge with the Land Use Plan. With changing market scenario, production capacity changes, infrastructural needs changes and concurrently exploration is being done. But, the change in Land Use as per the approved Land Use Plan of Diversion Proposal is not being considered and hence not approved. It requires a fresh diversion proposal to change the Approved Land Use Plan. It is recommended that the Land Use change within the approved diverted forest land should not to be considered as violation as long as the actual land use is matching with the IBM approved proposed Plan for Future Land Use.

- VII. Implement a centralized asset management program, leveraging international asset management practices and tools / technologies. It is recommended to implement a centralized asset management program for better utilization of assets to increase business value and productivity.
- VIII. Similar to coal washery requirement of beneficiation before transporting beyond 500 km, beneficiation should be promoted in other minerals.

E.g. beneficiation of low and sub grade iron ore will

- Reduce environmental hazard
- Increase supply and price stability
- Enrich the mineral content of low grade and reduce logistic cost per mineral content
- Enhance plant efficiency

Sub-Group 5: Financial Attractiveness

Agenda I: Increasing attractiveness of investments in the sector

Agenda II: High Taxation



- I. Identifying untapped potential in Indian mining equipment sector to contribute to “Make in India” campaign and to the country’s economic growth. Interventions to incentivize investments in the mining equipment sector and encourage domestic manufacturing of mining equipment & heavy machineries so that cost competitive equipment and spares are available without any risk of foreign exchange fluctuation.
- II. Ministry may consider tax holidays as incentives / tax reform for exploration and production of minerals during initial years. The reform of tax system still remains an unfinished task. To be competitive globally, the Indian mining industry needs to be unburdened from the high levels of taxes and distortive exemptions. It is also suggested to remove / lower royalty for mines allotted through auction.
- III. Transferability of mineral concessions: Amended MMDR Act allowed transferability of concessions which are auctioned. Existing concessions holder should also be allowed to transfer the concessions with applicable transfer fees. This will result into development of mines which are either closed or not operating at optimum capacity

- IV. Government may consider a single Mining Tax (on the lines of GST) wherein all the taxes, cess, levies and royalties etc. get subsumed and encourage uniform tax structure in the mining industry: At present, there is a practice of charging extra taxes by the State Governments over & above Royalty, DMF & NMET, which needs to be removed immediately. For example: Karnataka State government charges an extra 12% Forest Development Fees (over the sale proceeds) addition to Royalty, DMF & NMET. Such taxation leads to a disequilibrium in the country's economy. Tax Structure for the mining industry should be uniform all across the country, there shouldn't be any state government imposed taxation in particular states.
- V. Similar to TSX of Canada, government should assist venture capitalists and private companies to raise funds for exploration: There should be assist in creating a platform where venture capitalists and private companies who wish to take exploration in that area can interact.
- VI. Government may remove any additional reservation except for national interest or for value addition by PSUs to develop unutilized / underutilized blocks: PSUs should compete on same terms as large / medium and small enterprises. Large number of blocks are lying unutilized / underutilized with PSUs and State Mining Corporations which are yet to be developed. Ministry should either develop such blocks on fast track or auction after cancelling their reservation for PSUs.
- VII. Effective Tax Rate (without auction commitment) to be matched with global average. Effective Tax Rate is defined as the division of value of all amounts paid to government and the value of profits before taxes are paid. It would be an impetus for Indian mining industry if the overall taxation is reduced to around 40% (global average) vis-à-vis the current taxation of around 65%.
- VIII. To have graded royalty system for iron ore as follows:
 - i. Iron ore of 55% and above to attract royalty at 15%
 - ii. Iron ore of 45% to 55% grade to attract royalty at 5%
 - iii. Iron ore of below 45% grade to attract zero royalty

Sub-Group 6: Enabling Supportive Infrastructure

Agenda I: Strengthening of state mining & geology administrations

Agenda II: Strengthening infrastructure / logistics for evacuation & transportation of minerals



- I. It is recommended to strengthen DMG, to avoid gaps in the resource analysis for different blocks which are auctioned. Due to lack of exploration team, state departments appoint MECL or GSI for exploration process but again these agencies are not well equipped with different modern equipments for in-depth exploration resulting in big gaps in resource analysis for different blocks which are to be auctioned. Shortage of mining engineers & proper resources in the state mining & geology administration is also a concern which needs to be addressed urgently.
- II. Project proponent to construct the black top road, which can be adjusted from the DMF contribution to be made by him. Existing mining lease holders are required to pay 30% of the applicable royalty to the DMF while those who win the mining leases in auctions are required to pay 10% of the applicable royalty. It is recommended to utilize DMF fund for development of infrastructure like roads in the mining areas. Thus, we recommend for provision to allow project proponent to construct the black top road and undertake other infrastructure developmental activities which can then be adjusted from his DMF contribution accordingly.

- III. To include iron & steel in LTTC policy of the Railways: Most products like coal, iron ore, automobiles, and containers have been excluded from the Long Term Tariff Contract (LTTC) policy in the Railway Budget. Without these freight items, the LTTC perhaps will have very little impact on the goal of 10% increase in throughput in next three years. There is a need to strengthen various railway routes and develop dedicated freight corridors for easy and cost efficient transportation of minerals.
- IV. Innovative models in logistics infrastructure should be encouraged e.g. conveyor facilities, slurry pipelines, etc. Also, technological advancements like GPS tracking of vehicles for mineral movement should be promoted.
- V. To strengthen the state mining and geology administrations, skill upgradation with refresher course on latest mining techniques / changes in rules and regulations should be provided to the staff alongside the field knowledge of best practices being adopted in mining globally.

Role of Youth in Growth of Indian Mining Sector



Background

Youth of today is the driving force of tomorrow. Amidst this fast changing scenario, a country is defined by its youth and India is no different. It has the world's largest youth population with creative minds full of innovation and enthusiasm serving as boom for any industry and the same goes for mining as well.

As a member of youth force present in the industry one has to be involved in every process, from policy to sustainable development and future growth of the industry. The youth can help develop the industry by leading new ventures, bringing in innovative ideas, tapping the resources in an efficient way and much more. The new talent can be counted upon for developing new ideas and technologies to deal with the real life problems in the mining sector of India. The involvement of young people in mining is a solution to many bottlenecks residing within the industry.

In order to enhance the mining sector in India, meaningful opportunities should be given to talented young people. Encouraging and permitting youth to take initiatives should be the focus of the miners in the country; they should synergize youth with the available experience to get the best for the industry.

Role of Youth in Mining

- I. **Ideas and Innovations:** The involvement of young talent who are in the pursuit of ambitious careers can lead to development of new mining methods, equipments and skills which will increase the production and safety in mines
- II. **Ease of Mechanization:** The mechanization will become easy to adopt in mines where a high number of young people are employed as it is easy for young people to learn and acquire new skills
- III. **Increase in OMS:** Youths employed in the mines reduces the operational inconvenience and can work effectively without fatigue which will lead to increase in output per man shift (OMS)
- IV. **Adaptability to Technology:** Young people have a craving for new technology and get acquainted to it faster. Therefore the use of new technologies like internet of things, traffic dispatch system, business analytics and 3D mine planning softwares will be more fruitful once the youth lays their hands on them
- V. **Development of R&D Centre:** The increased participation of the young generation in research programs can provide a strong R&D which will lead to the expansion of existing operational efficiencies

**Youth employed in mines
can remove the operational
inconvenience resulting in
higher productivity**



Startups in Indian Mining



Background

Startup is a newly formed company, the purpose of which is to develop new, usually innovative products or services in uncertain circumstances. It satisfies the new need, present in a broader area or even globally it has a great growth potential. Startup entrepreneurship is crucial because of innovations, new jobs and for bringing competitive dynamics into the business environment.

The capex in mining industry is very high making it difficult for the startups with limited funds to invest into the sector. However, there still are areas where a startup can succeed. A startup can range from manufacturing a rock bolt to providing analytics solution and development of mobile applications for mining activities. A startup based on third party services provider to a core mining company will reduce the burden on mining companies currently carrying out the mining operations.

Also, increase in the number of startups in the mining sector will lead to new job opportunities, economic growth, promote research innovation and will bring additional value to the society.

Some areas / alternatives for startups:

1. **Mobile Testing Laboratory:** A startup providing mobile testing laboratory which determines the physical, geotechnical and

chemical characteristics of rock and mineral is beneficial for quick and easy onsite analysis during the exploration

- II. **Drones for Survey:** A company performing an aerial survey using drones can be established. The company can work as a third party service provider for mine monitoring and surveying using drones
- III. **Wireless Communication:** In India most of the underground mines do not have robust communication system. A startup wholly based on establishing wireless communication in an underground mine can be evolutionary for Indian mining industry
- IV. **Survival Chambers:** A startup based on manufacturing of survival chambers to be placed in every underground mine, so that in case of any calamity the workers entrapped can use it until the help comes, is the need of the hour. These chambers should have adequate oxygen supply and food reserves with adequate lighting
- V. **Tele Robotics:** Some ores are not easily accessible, such as the uranium rich ores, which are radioactive and cannot be handled directly by the miners. Technological solution to extract these kinds of ores and other ores which are present in hazardous conditions can be mined using robots due to their high value. A startup based on designing and testing tele operated robots can be established to augment the mining sector
- VI. **Mine Safety Services:** A consulting firm for safety and health standards can also be looked upon. These firms can conduct workshops, safety drills and ensure nothing goes wrong during a mining operation

Brainstorming Session of *Under 40 Age Group*





Abbreviations

1.	CA	Compensatory Afforestation
2.	DMF	District Mineral Foundation
3.	DMG	Department of Mines & Geology
4.	EC	Environment Clearance
5.	EoI	Expression of Interest
6.	FAC	Forest Advisory Committee
7.	FC	Forest Clearance
8.	FRA	Forest Rights Act
9.	GDP	Gross Domestic Product
10.	GPS	Global Positioning System
11.	GSI	Geological Survey of India
12.	GST	Goods and Services Tax
13.	IBM	Indian Bureau of Mines
14.	LoI	Letter Of Intent
15.	LTTC	Long Term Tariff Contract
16.	MDPA	Mine Development and Production Agreement
17.	MECL	Mineral Exploration Corporation Limited
18.	ML	Mining Lease
19.	MMDR	Mines and Minerals (Development and Regulation)
20.	MoEF&CC	Ministry of Environment, Forest and Climate Change
21.	NERP	Non-Exclusive Reconnaissance Permits
22.	NMET	National Mineral Exploration Trust
23.	NPAs	Non-Performing Assets
24.	NPV	Net Present Value
25.	OALP	Open Acreage Licensing Policy
26.	OMS	Output per Man Shift
27.	PAF	Project Affected Family
28.	PAP	Permit Application Package
29.	PL	Prospecting License
30.	PSBs	Public Sector Banks
31.	PSUs	Public Sector Undertakings



32.	RFCTLARR	Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement
33.	RP	Reconnaissance Permit
34.	SPV	Special Purpose Vehicle
35.	TSX	Toronto Stock Exchange
36.	TVET	Technical and Vocational Education and Training



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