CREATING THE RIGHT POLICY ENVIRONMENT FOR INDIA'S MINERALS SECTOR

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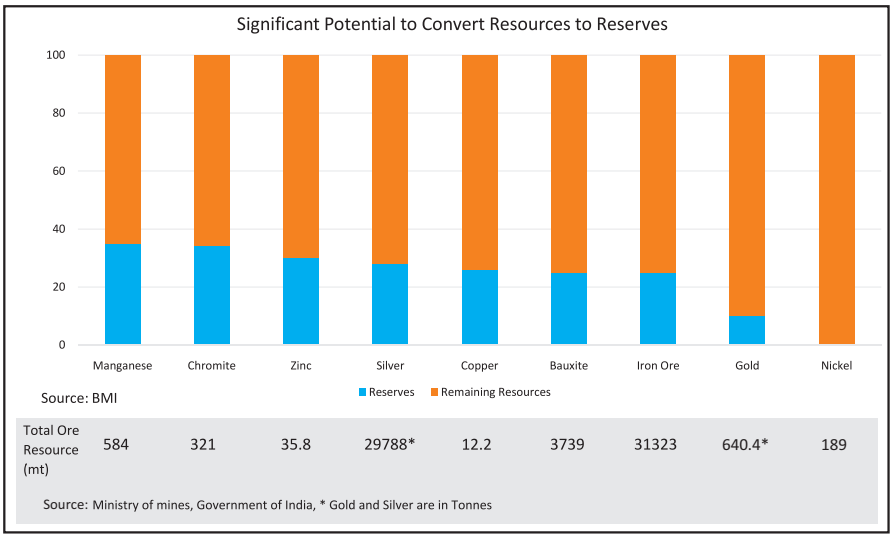
Introduction

In the next few years, India's GDP will continue to grow on the back of economic development, rapid urbanisation, increased infrastructure investment, improved private investment, strong industrial activity, and increasing consumption. These activities will, in turn, boost domestic mineral consumption. Compared to other developing countries, India's use of metals is low across most metals. Therefore, the country must avoid any cap on the annual production of minerals by a miner that can be monitored by the monitoring committee.

India produces around 88 minerals: four fuel-related minerals, 10 metallic minerals, 50 non-metallic minerals and 24 minor minerals. Mineral reserves—by definition a part of mineable resources that can be economically brought to production—form a small portion of the respective resources. Exploration is the foundation of value creation in mining as it broadens the pipeline of bodies for development, replenishing reserves depleted through production. It also replaces resources stranded due to uneconomic commodity prices. The following graph from the Ministry of Mines (GoI) shows the reserves and remaining resources of minerals.



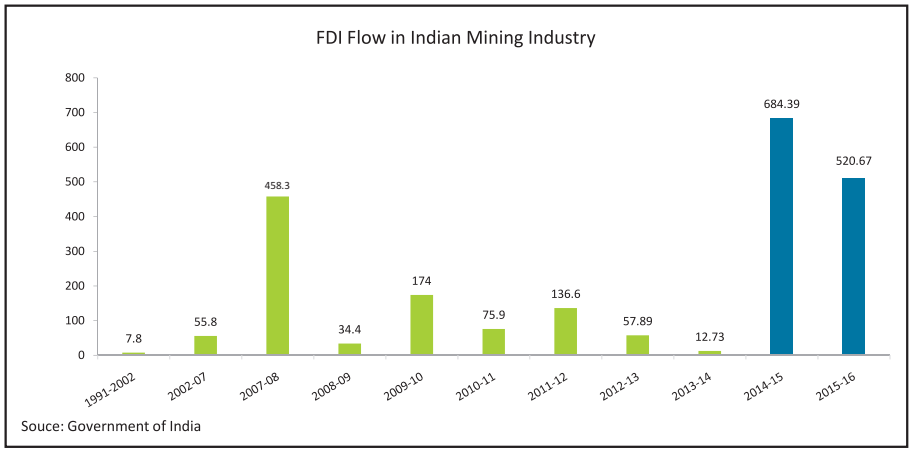
	Manganese	Chromite	Zinc	Silver	Copper	Bauxite	Iron Ore	Gold	Nickel
Total Ore Resource (mt)	584	321	35.8	29788*	12.2	3739	31323	640.4*	189

Source: Ministry of mines, Government of India, * Gold and Silver are in Tonnes

Due to reinvigorated mining-sector regulations and activities, Foreign Direct Investment (FDI) inflow into the Indian mining industry has been subdued, compared to other sectors such as telecommunications, power, machinery and transport equipment in the last ten years, even

though the government allowed 100 percent FDI in the mining sector under the automatic FDI route.

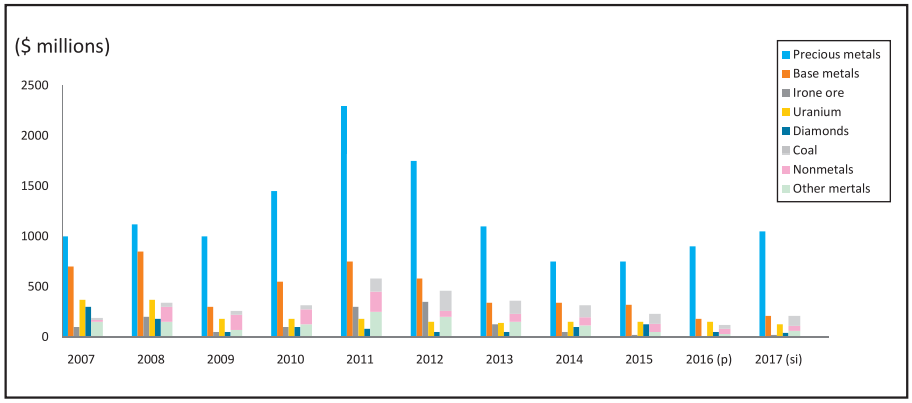
The following graph shows the FDI flow in the Indian mining industry from 1991 to 2015.



A Clear Mining Roadmap

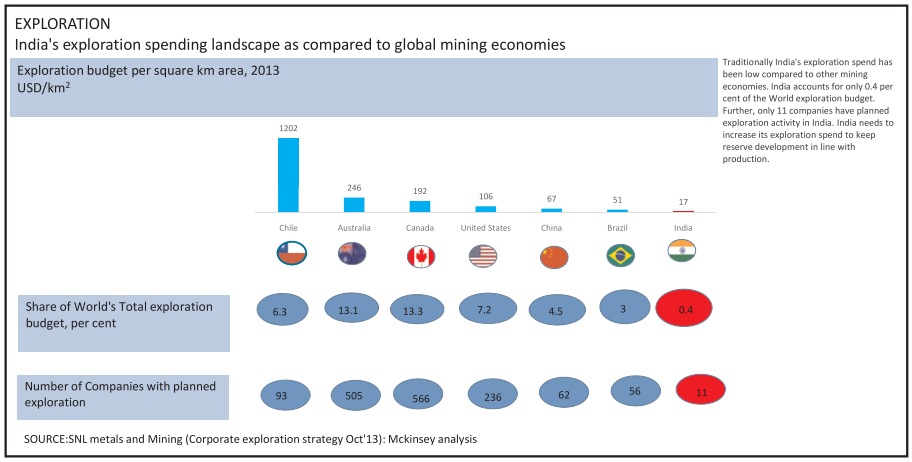
Based on global mining trends and the reactions of various governments, India should adopt progressive policy measures for the minerals sector. Globally, certain trends have emerged in this sector in the recent years.

a. Rising demand and increasing cost of mining has led to an increase in commodity prices. Over the next 10 years, demand for iron ore is likely to grow at two to five percent globally. However, replenishing mineral reserves has become more difficult due to declining ore grades and additional challenges such as inadequate infrastructure and human capital, factors critical for the growth of the sector. The following graph shows growth of minerals in India from 2007 to 2017.



b. Low Exploration Expenditure: Exploring without an estimate of an acceptable discovery cost for the resource being sought can result in a company eventually going bankrupt. Even if it has exceptionally long-life mines, exploration will likely be reduced or curtailed by a company after protracted failure to disclose, because of accumulated exploration expenditure.

Junior companies handle most of the exploration expenditure worldwide, collectively accounting for over half of the expenditure during the 2005–14 exploration boom, which peaked in 2012, followed by a slide in commodity prices. Major companies typically account for about 30 percent of exploration expenditure. The rest is spent by mid-sized companies and the government.



India has not been a favoured mineral exploration destination for global explorers, compared to countries such as Canada and Australia. India's exploration expenditure—estimated at around US$17 per sq. km—compares unfavourably even with its BRIC counterparts such as China and Brazil, who have exploration expenditures of around US$56 per sq. km and US$35 per sq. km respectively.

The table below shows the exploration expenditure breakdown by mineral, stage of development, and the number of companies involved in exploration for various countries.

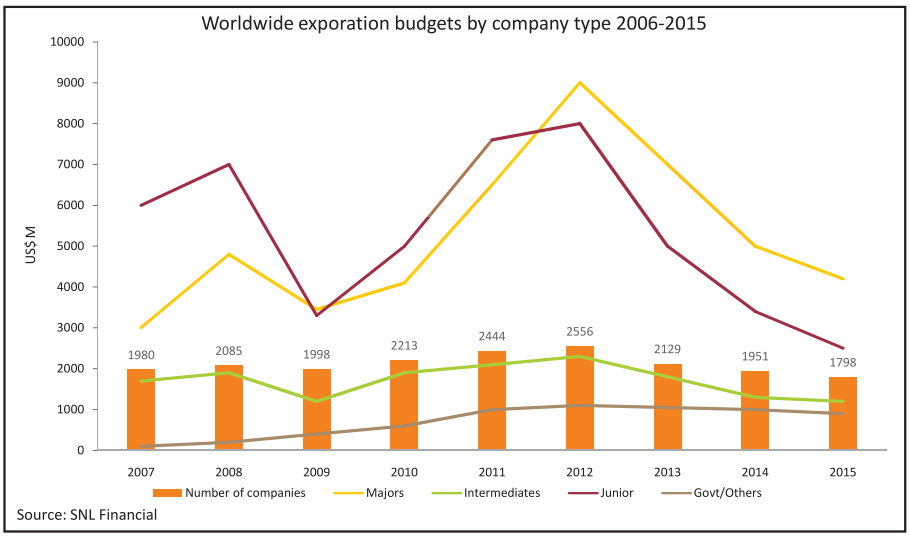
Exploration budgets of various countries, by target and stage of development (US$m)

Country	# of companies	Country Total	Gold	Base Metals	Diamond	Uranium	PGM	Other	Grass roots	Late stage	Mine stage
Canada	464	1185.3	597.8	203.5	95.5	147.3	28.2	113	339.3	446.8	399.2
Australia	450	1068.4	509.2	377.5	7	51.6	1.6	121.5	381.3	317.2	369.9
United States	208	717	414.7	222.2	.	8.3	6.8	65	175.4	250.7	290.9
Chile	77	615	162.3	432	.	.	.	20.7	205.4	210.1	199.5
Peru	96	501.8	149.5	244.5	.	4.3	.	103.5	139.2	157.7	204.9
China	62	540.4	245.6	183.6	3	7	0.8	100.4	177.8	130.3	232.3
South Africa	34	117.1	15.8	10.4	25	0.4	56.3	9.2	16.5	78.6	22
Indonesia	40	106.8	53.7	51.2	.	.	.	1.9	26.2	49.4	31.2
India	8	50.2	1.7	36	1.9	8	0.3	2.3	23	7.2	20

Source: SNL Financial

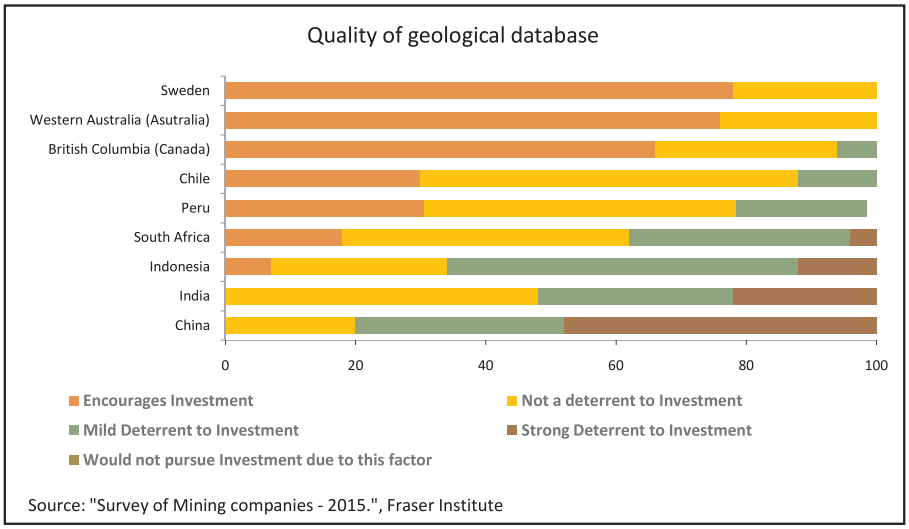
With only eight companies engaged in exploration in India—compared to more than 400 each for Canada and Australia—the number of participants in the exploration sector can indeed be broad based. Out of the exploration expenditure of US$50 million during 2015, Hindustan Zinc spent around US$25 million, Hindustan Copper spent around US$8.5 million and Uranium Corp. spent around US$8 million, with the rest accounting for the balance. In India, (non-ferrous) exploration budget is primarily spent on exploring base metals, whereas at a global level, gold accounts for a majority of the exploration budget.

The graph below shows the contribution of various types of companies to exploration budgets during 2006–15, and highlights the role of junior miners and major miners in the global exploration activity.



Reflecting global macroeconomic uncertainty and weak commodity markets, corporate exploration expenditure has decreased significantly in the last few years, down 30 percent, 26 percent and 18 percent in 2013, 2014 and 2015 respectively. Exploration budget is likely to remain low, since commodity markets are still depressed, making major miners cautious about their expenditures and volatile commodity prices. This creates a challenge for external funding for all types of mining companies.

Generation of baseline data-promotion exploration activity, led by the Geological Survey of India (GSI), is not yet complete. Aeromagnetic survey has covered only 18 percent of India's total area, compared to 90 percent of Australia's total area covered since 1990. Such state-of-the-art technology must be adopted for efficient exploration. The following graph from Fraser Institute shows the quality of the geological database of the countries, as on 2015.



Source: "Survey of Mining companies - 2015.", Fraser Institute

Governments worldwide are adopting progressive policy measures to boost mining in their countries. According to the Fraser Institute Report of 2017, the top-rated countries in terms of "economic freedom" are Hong Kong and Singapore. Other nations in the top 10 include New Zealand, Switzerland, Ireland, the United Kingdom, Mauritius, Georgia, Australia and Estonia. The ranking of the rest of the major countries is as follows: United States tied with Canada (11th), Germany (23rd), South Korea (32nd), Japan (39th), France (52nd), Italy (54th), Mexico (76th), India (95th), Russia (100th), China (112th) and Brazil (137th).

		2015	
100	Summary Ratings (Rank)	6.63	[95]
102	1. Size of Government	7.82	
103	A. Government consumption	7.32	[15.12]
105	B. Transfers and subsidies	8.38	[4.25]
107	C. Government enterprises and investment	7	[24.34]
103	D. Top marginal tax rate	8	
103	(I) Top marginal income tax rate	8	[35]
110	(ii) Top marginal income and payroll tax rate	8	[35]
200	2. Legal System 6 Property Rights	5.1	
201	A. Judicial independence	5.51	
202	B. Impartial courts	5.86	
203	C. Protection of property rights	4.8	
204	D. Military interference in rule of law and politics	6.67	
205	E. Integrity of the legal system	7.5	
206	F. Legal enforcement of contracts	2.59	
207	G. Regulatory restrictions on sale of real property	6.58	
203	H. Reliability of police	6.23	
203	I. Business costs of crime	5.6	
210	Gender Disparity Adjustment	0.73	
300	3. Sound Money	3.1	
301	A. Money growth	3.73	[1.11]
303	B. Standard deviation of inflation	3.3	[3.01]
305	C. Inflation: most recent year	3.33	[5.87]
307	D. Freedom to own foreign currency bank accounts	5	
400	4. Freedom to Trade Internationally	5.56	
401	A. Tariffs	6.26	
402	(i) Revenue from trade taxes (% of trade sector)	7.33	[3.1]
404	(ii) Mean tariff rate	7.32	[13.4]
406	(iii) Standard deviation of tariff rates	3.51	[16.21]
408	B. Regulatory trade barriers	3.92	
409	(i) Non-tariff trade barriers	5.98	
410	(ii) Compliance cost of importing and exporting	1.85	
412	C. Black-market exchange rates	10	
413	D. Controls of the movement of capital and people	2.06	

414	(i) Foreign ownership/inveslment restrictions	5.86
415	(ii) Capital controls	0
416	(iii) Freedom of foreigners to visit	0.33
500	5. Regulation	6.55
501	A. Credit Market requlations	6.59
502	(i) Ownership of banks	2
504	(ii) Private sector credit	7.76
505	(iii) Interest rate controls of negative real interest rates)	10
507	B. Labor Market regulations	6.73
503	(I) Hiring regulations and minimum wage	6.67
508	(ii) Hiring and firing regulations	6.26
510	(iii) Centralized collective bargaining	7.15
511	(iv) Hours regulations	4
512	(v) Mandated cost of worker dismissal	6.3
513	(vi) Conscription	10
514	C. Business regulations	6.34
516	(i) Administrative requirements	5.15
517	(ii) Bureaucracy costs	3.33
518	(iii) Starting a business	9.02
519	(iv) Extra payments of bribes of favoritism	5.46
520	(v) Licensing restrictions	7.77
521	(vi) Cost of Tax compliance	7.3

While geologic and economic considerations are key factors in mineral exploration, a region's policy climate, too, is an important investment consideration. The Policy Perception Index (PPI) is a composite index that measures the overall policy attractiveness of the 104 jurisdictions in the survey. The index is based on survey responses to policy factors that affect investment decisions. Policy factors examined include uncertainty concerning the administration of current regulations, environmental regulations, regulatory duplication, the legal system and taxation regime, uncertainty concerning protected areas and disputed land claims, infrastructure, socioeconomic and community development conditions, trade barriers, political stability, labour regulations, quality of the geological database, security, and labour and skills availability.

Table 1: Investment Attractiveness Index

		Score					Rank				
		2016	2015	2014	2013	2012	2016	2015	2014	2013	2012
CANADA	Alberta	68.55	69.71	74.78	78.49	71.87	47/104	34/109	28/122	14/112	27/96
	British Columbia	74.15	75.71	74.27	79.02	72.32	27/104	18/109	29/122	13/112	26/96
	Manitoba	89.05	75.27	84.14	79.90	73.03	2/104	19/109	5/122	12/112	24/96
	New Brunswick	69.45	66.51	77.34	74.38	74.79	40/104	45/109	19/122	26/112	17/96
	Newfoundland and Labrador	78.94	73.55	83.27	83.93	74.99	16/104	25/109	8/122	3 /112	16/96
	Northwest Territories	75.77	69.48	79.73	76.32	73.62	21/104	35/109	15/122	21/112	21/96
	Nova Scotia	66.80	59.51	66.27	65.25	60.35	52/104	59/109	49/122	46/112	46/96
	Nunavut	72.52	74.37	73.23	75.12	73.38	31/104	23/109	34/122	25/112	23/96
	Ontario	78.65	78.02	76.05	78.13	77.73	18/104	15/109	23/122	16/112	12/96
	Quebec	85.02	80.80	81.51	75.21	77.05	6/104	8/109	10/122	24/112	13/96
	Saskatchewan	89.91	85.73	86.27	82.36	81.70	1/104	2/109	2/122	6/112	5/96
	Yukon	79.61	79.16	83.68	81.39	84.12	15/104	12/109	6/122	8/112	1/96

		Score					Rank				
		2016	2015	2014	2013	2012	2016	2015	2014	2013	2012
AUSTRALIA	New South Wales	61.84	68.83	62.40	68.57	60.57	62/104	38/109	55/122	36/112	45/96
	Northern Territory	77.61	81.90	73.89	76.49	74.48	20/104	7/109	31/122	19/112	19/96
	Queensland	81.40	77.79	76.24	76.33	74.01	10/104	16/109	22/122	20/112	20/96
	South Australia	81.03	79.83	79.71	75.97	74.73	13/104	10/109	16/122	23/112	18/96
	Tasmania	64.27	71.34	66.43	65.71	54.40	56/104	30/109	46/122	44/112	66/96
	Victoria	63.96	59.16	58.04	63.87	54.41	57/104	62/109	69/122	51/112	65/96
	Western Australia	88.88	87.35	84.33	86.88	80.20	3/104	1/109	4/122	2/112	6/96
ASIA	Afghanistan*	33.11	**	**	**	**	100/104	**	**	**	**
	China	65.13	58.49	48.89	58.69	54.50	54/104	64/109	94/122	62/112	63/96
	India*	39.11	55.47	58.26	52.13	58.69	97/104	73/109	68/122	84/112	53/96
	Kazakhstan*	54.08	74.66	50.84	63.45	62.50	73/104	20/109	88/122	53/112	42/96
	Mongolia	49.42	50.03	49.22	53.25	67.04	81/104	85/109	93/122	80/112	31/96
	Myanmar*	44.47	48.92	61.70	53.32	**	91/104	87/109	60/122	79/112	*

Notes:

* Between 5 and 9 responses on one or more questions

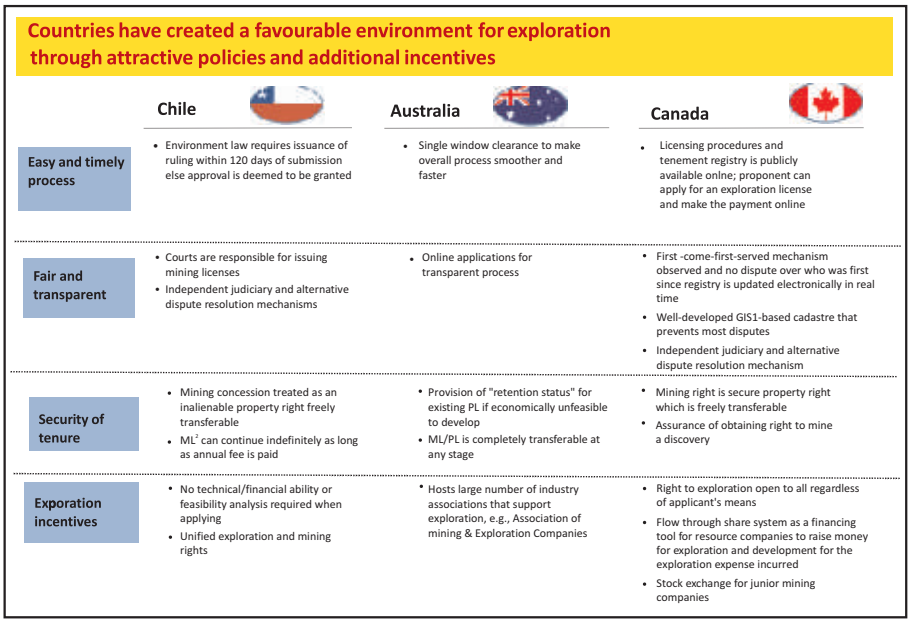
** Not Available

The Indian government, too, has initiated several measures to reform the mining sector, e.g. Mines and Minerals (Regulation and Development) Act (MMDR Act), 1957 for the regulation of mines and development of minerals. Two Rules, viz. Mineral Concession Rules (MCR) and Mineral Concession and Development Rules (MCDR), were framed under the MMDR Act.

Sustainable Development Framework: Exhibit 1.3 shows the policies and incentives used by Australia and Canada to boost their mining sector. In addition, countries such as Brazil, too, have launched policy transformation initiatives.

i. The "First Come First Served" procedure may be flawed if there is no definite mechanism to demarcate who came first. The first-come-first-considered principle is violated by using the discretionary powers given under Section 11(5) of the MMDR Act. Since the "special reasons" are not specified or prescribed under the Act or in the Rules, it is possible for a state authority to discriminate in favour of a company that is not a prior applicant.

Fig. 1: Policies and Incentives Used by Australia and Canada to Boost Their Mining Sector



Source: Unlocking the Potential of the Indian Minerals Sector Strategy Paper for the Ministry of Mines, November 2011.

ii. The holders of a Reconnaissance permit (non-exclusive) should have an automatic right to attain a prospecting licence on a first come-first-served basis, provided they fulfil the requirement for submission of data and satisfy all eligibility conditions.

iii. If a prospecting licence has been granted in respect of a land, then the licensee shall have the exclusive right to obtain a mining lease in respect of that land over any other person subject to the fulfilment of the requisite conditions under the terms and conditions of the lease as may be prescribed under the Act or Rules as applicable from time to time.

iv. In Section 4A (1) of MMDR Act, the phrases "of regulation of mines and mineral development," "or for conservation of mineral resources," and "such other purposes, as the Central government may deem fit" should be deleted and the words "in the interest of national security and public works" added.

v. In Section 31 of MMDR Act, the sweeping powers given to the central government for circumventing any of the provisions of the MCR and MCDR, especially in a non-transparent manner, must be circumscribed. This ensures that the intervention of the central government, affecting the security of tenure of the concessionaire, (if at all necessary) is possible only in narrowly defined circumstances. It is not enough for the central government to record the reasons in writing.

vi. Rule 34 of MCR, authorising the state to reduce or exclude an area from the entitlement of a prospecting-lease holder to a mining lease, should be deleted, except in the case of specified public purposes.

vii. Mineral-concession holders should have the right to renew the concession if they meet the obligations of the concession. Since the term "renewal" means "fresh grant" in judicial parlance, the word "extension" should replace the word "renewal," wherever it occurs in the Act or Rules. Extension of the mining lease should be automatic until the exhaustion of the deposit or voluntary relinquishment of areas by the lessees, whichever is earlier, subject to the fulfilment of the conditions of the lease.

viii. Time-bound disposal of pending applications regarding clearances is necessary to remove bottlenecks in the mining sector. On an average, 60,000 applications are pending, which results in blocked mining operations. Pre-embedding approvals and clearances before auction could prove to be a risk-mitigation factor going forward.

ix. A reverse auction/bidding is a type of auction in which sellers bid for the prices at which they are willing to sell their goods and services, and the seller with the lowest proposed price wins. In a regular auction, a seller puts up an item and buyers place bids until the close of the auction, at which time the item goes to the highest bidder. It follows that instead of asking for a premium for the minerals per tonne (under reverse bidding), linking it with the sales price of the minerals will enable sustainability and business growth of the Indian minerals sector.

For auction processes to become realistic and successful, there is a need to induct additional and different parameters towards increasing competitiveness:

- Conservation
- Recovery
- Safety
- Measures on slaughter mining
- Environment

x. The legal framework in the mining space must be synchronised with other policies and laws. Currently, there are many gaps in the ancillary acts such as FRA, EPA and Land Acquisition Rules. These gaps must be addressed to ensure that wealth and

employment do not come at the cost of local people and rehabilitation schemes. OGP-identified areas must be further demarcated into compulsory mining zones.

xi. Lack of synergy between the various departments is currently a major roadblock. The Cabinet Secretariat should create a single executive committee with representatives from each department, to make it binding on all other departments. This will enable better coordination and facilitate single-window clearances.

xii. Inviolate areas for mining: Go/No-go areas should be notified upfront even before the prospecting commences.

xiii. Entities in the mining business need more tax sops to incentivise prospecting, which is a high-capital and high-technology activity. The incentives of investment in technology are to make it risk free and environmentally sustainable.

xiv. Policy predictability is necessary for investors to be convinced that the government is serious.

xv. There is a need for an Exclusive Regulatory Authority for mining disputes, including in the environment space for stakeholders.

xvi. Mining should have the status of an independent industry with concessions and incentives, and its cottage industry status must be dissolved.

xvii. The government should use the District Mineral Foundation Fund/SPV Fund to meet the costs of infrastructure development in mining areas, since the miner cannot afford the costs for the same individually. The object of the District Mineral Foundation Fund should be to work for the interest and benefit of persons and areas affected by mining-related operations, in a manner prescribed by the state government from time to time.

xviii. Regulation of Pricing of mining commodities should be benchmarked against sustainable pricing models as applicable from time to time.

xix. Policy gaps should be filled to avoid litigation risks relating to the legal framework of mining.

xx. Intergenerational equity needs to be built into the concession system in India.

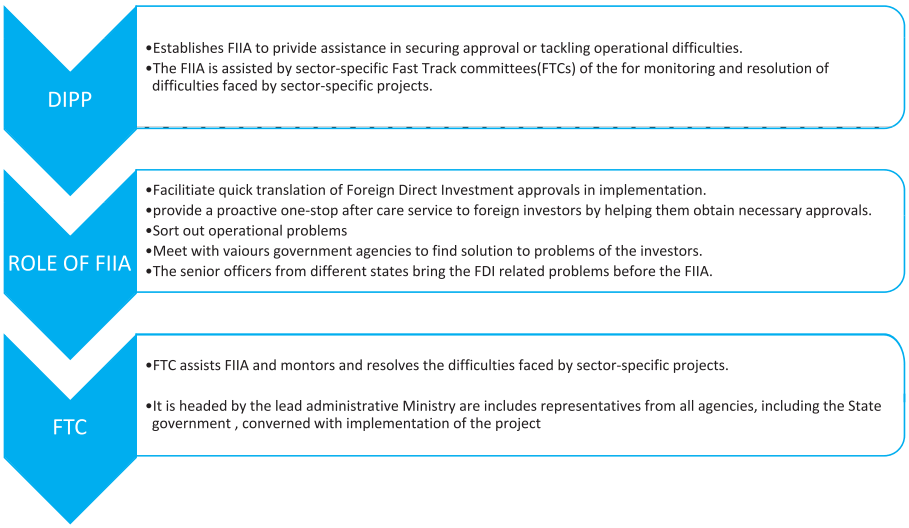
xxi. Tenure must be ingrained in the mining lease to make the mining business sustainable for stakeholders. The tenure should be linked to the exhaustion of the mineral.

Single-Window Clearances

Many agencies deal with clearances at the state level, and there are multiple procedures involved. First, an investor must seek approval and clearances at the central level. Once it gets the centre's approval, it needs to approach the state governments for allotment/acquisition of land, change in land use, approval of building plan, release of water and electricity connections etc.

At the central level, for assisting foreign investors, the Foreign Investment Implementation Authority (FIIA) has been established in the Department of Industrial Policy and Promotion of the Ministry of Commerce and Industries to provide assistance in securing approval or tackling operational difficulties. The FIIA is assisted by sector-specific Fast Track Committees (FTCs) of the government, for monitoring and resolution of difficulties faced by sector-specific projects.

The chart below defines the scope of work of FIITA:



As mentioned earlier, "states compete to be preferred destinations for business investment from domestic as well as foreign entrepreneurs. State governments have taken initiatives to identify and remove avoidable roadblocks in this regard. Most states have set up single-window services and investor-escort services to provide a single point of contact to investors for all regulatory procedures. These help the investor in information collection, identification of project sites, conduct of feasibility studies, clearance of the project by financial institutions etc. However, single-window service often fails during implementation, due to poor political commitment, bureaucratic inefficiency and corruption at all levels."

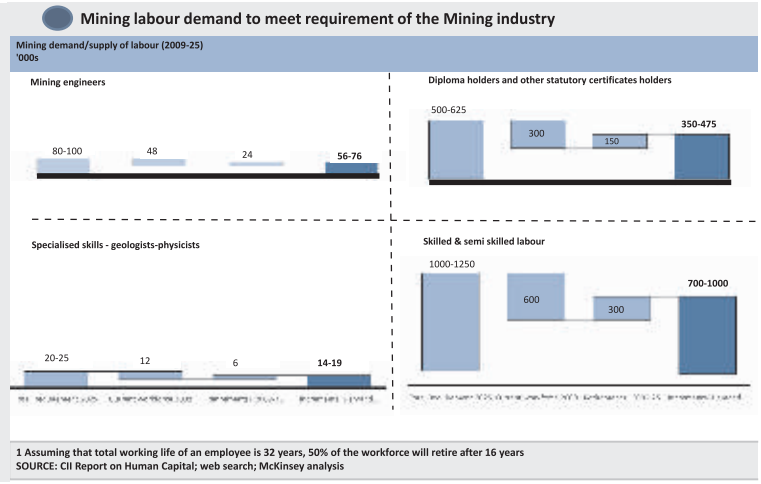
Clearances required should be clubbed, reduced or be brought into a single window. If they are provided through multiple windows, the same should be easily facilitated. Auctions must be allowed to commence for blocks with pre-embedded statutory clearances and approvals.

The system of single window is unlikely to work successfully in India because it often leads to multiple windows emerging out of that the window, given the differences between the various departments and ministries of the government.

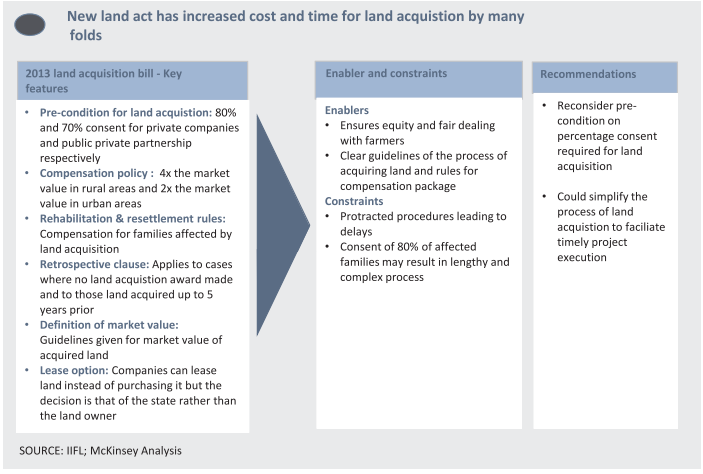
There should be a committee that can grant clearances to miners. All the clearances can then be granted by a single committee, and its decision would be binding on all the concerned departments. A department reluctant to grant clearances may seek time from the committee, after which the department must provide reasons for not granting clearances or, failing to do so, must grant them. The Cabinet Secretariat should create the committee, to make it binding on all other departments to enable better coordination and to facilitate single-window clearances.

The following key initiatives that could be considered to boost the Indian minerals sector:

Mining labour is crucial for sustainable development of the sector, especially as there could an incremental of 1.5 to 2.5 times of current workforce by 2025.

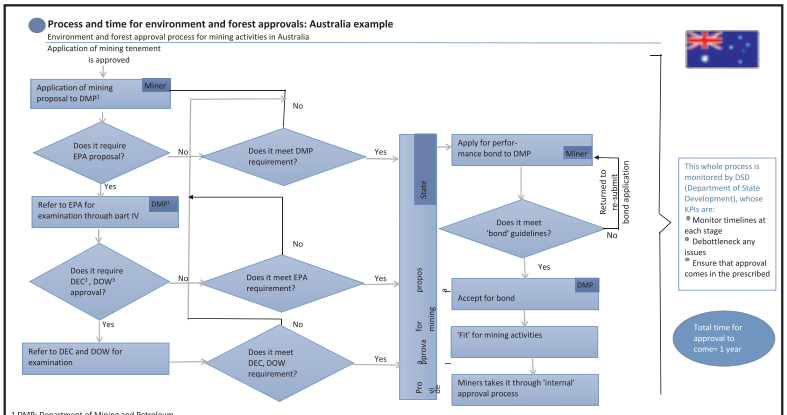


Land acquisition is a major issue faced by mining companies and the current land act has resulted in increased land costs and lengthier processes. The land acquisition bill should be reviewed to streamline the land acquisition process without compromising fairness to affected families.



Process and time for environment and forest approvals: Australia example

Environment and forest approval process for mining activities in Australia



1 DMP: Department of Mining and Petroleum
2 DEC: Department of Environment and Conservation
3 DOW: Department of Water. EPA: Environment Protection Agency
SOURCE: McKinsey analysis

In Australia, it takes about one year to get environment and forest approvals for mining activities, much lesser as compared to India. The Department of State Development (DSD) in Australia is responsible for monitoring the clearance process, debottlenecking issues and ensuring timely approvals. India could implement a similar single window clearance process to streamline environmental clearance and forest clearance.

The country's natural resources should be alloted with the aim to maximise their value to the population of the country. India needs a differential treatment from other mining jurisdictions because of its unique context - existence of known and partially known mineralised areas and suply-demand imbalance. Some of the possible methodology for allotment of resources have been described.

Recommendations for resource allotment in India

	Recommendations
Known mineralisation	• May use revenue share bid to allot mining leases with the right to sell the coal to multiple players • In case of end-use coal projects of critical national importance, bid parameter could be linked to the value of end product
Unknown mineralisation	• For partially explored blockm one may carry out exploration to estimate mineral content. After establishing the extent of mineralisation, the allotment process would follow the approach for known mineralised blocks • Non-exclusive first come first serve (FCFS) with security of tenement and pre-defined right of sale could be the preferred option to allot blocks for exploration • In case of multiple players expressing interest for partially mineralised or non-mineralised block, allotment could be based on a comopiste bid of minimum work programme (exploration work undertaken) and revenue share with the option to return the data and block in case it is found to be uneconomic, post completion of exploration

SOURCE: "Allocation methodology for Coal" CII

Allotment methodology and transferability for major mining economies

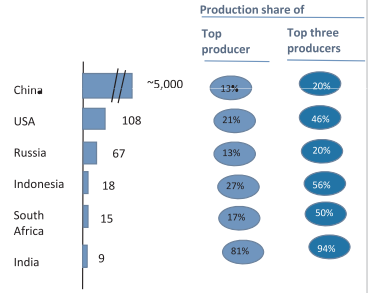
	Exploration rights (Exclusive FCFS/non-exclusive FCFS/action)	Transferability (Automatic/ Conditional)	Mining rights
Western Australia	Non-exclusive FCFS	Automatic	FCFS
Quebec, Canada	Exclusive FCFS	Automatic	FCFS
Western United States	Exclusive FCFS	Automatic	Auction
Queensland, Australia	Exclusive FCFS	Automatic	FCFS
Chile	Exclusive FCFS	Automatic	FCFS
Russia	Exclusive FCFS	Conditional	Auction
Brazil	Exclusive FCFS	Automatic	FCFS
China	Auction	Conditional	Auction

Most of the mining jurisdictions have adopted first-come first-serve (FCFS) methodology for allotting bulk mineral resources. India's context is unique and there is a need to adopt some of the global best practices in the long term.

The Indian coal industry lacks competitiveness with Coal India accounting for more than 80 percent of domestic production. Historical coal production growth rate has been -2 to 3 percent. The country needs a growth rate of 7 to 8 percent to meet future demand. Private and commercial miners could bring in more investment and advanced technology, essential for rapid growth of India's coal mining industry.

Commercial mining as a solution to reduce coal supply gap

Competitiveness in coal Industry across countries



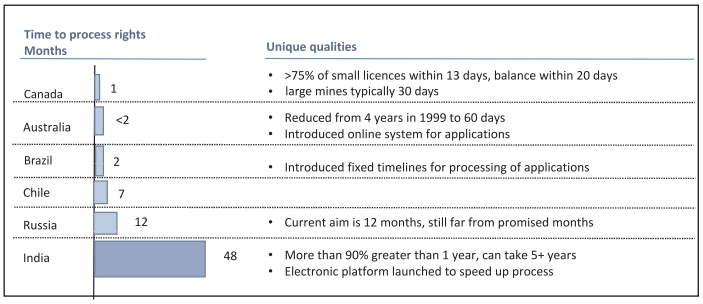
Major operational and fiscal challenges faced due to less competition in the industry

Challenges	Solutions
• India lacks advance technology	• Commercial miners may bring in up-to-date technology and expertise in the field of mining
• A lack of competition inhibits private and foreign investment	• Competition in coal mining may ensure the investment required to boost coal production
• Logistical difficulties are a bottleneck in increasing mine production	• Consider development of private rail tracks to connect mines to major railway corridors and also leveraging sea route

SOURCE: RMG; China coal industry yearbook; press search ; Mckinsey analysis

DEVELOPMENT

India's mining rights processing time compared to other mining countries



SOURCE: INGEMMET; Semageomin; kommerSAt; RenCap; Coldelco; press; Peru Energy Ministry.com; SIMCO-UPME,Mining Weekly; Botswana Department of Mines; Government of India Ministry of Mines; Australian Government; BC Ministry of Energy; BC MPR; Journal of Energy and Natural Resources law

At present, it takes five years or more to obtain mining lease/prospecting-lease permit in India. This is much longer than the processing time in other mining geographies, for e.g., it takes less than two months in Canada and Australia. Long processing times may discourage applications for new rights. Most countries have been reducing their processing times with a target of less than 3 months.

Mine closure is a critical area for sustainable development and needs to be enforced through regulatory measures. Currently, the financial gurantee for mine closure is low in India and does not sufficiently deter defaulters.
Western Australia and Canada require companies to pay a large percentage of the mine closure cost (70 percent in Western Australia) upfront as financial security.

RECLAMATION

Financial guarantee for mine closure across mining

	India	Western Australia	Quebec, Canada
Regulations	• Mine closure plan made mandatory through a 2003 amendment in MCDR 1988 and MCR 1960	• Mine closure made mandatory through amendment in mining act, 1978 and mines safety and inspection regulations, 1995	• Mine closure included in Mining Act, 1979
Guidelines/ policy for mine	• Guidelines are issued by IBM	• At least 3 set of comprehensive guidelines available for reference	• Guidelines issued by Ministry of Natural Resource
Financial guarantee	• For A category mines - INR 25,000/ha • For B category - INR 15,000/ha	• 25% of the cost of mine closure has to be furnished	• 70% of the cost of mine closure has to be furnished
Monitoring and Audit	• Monitoring is done by IBM, plan is reviewed every 5 years	• Monitoring is done by DMP; plan is reviewed every 3 years	• Monitoring is done by mine site rehabilitation department in Ministry of Natural Resource, plan reviewed every 5 years

Key Issues

- Financial guarantee is low and does not serve as a deterrent to default on commitment made in closure plan
- Rigorous and regular checks are not conducted by IBM due to manpower shortage
- Progressive rehabilitation not undertaken by companies due to inadequate monitoring

Source; Department of Minerals & petroleum, Ministry of Natural Resources; IBM

A Simple Mechanism for Settling Differences between Central and State Mining Regulations

The ordinance provides scope for interference by the central government without strengthening institutions and improving governance and regulations at the state level. The ordinance provides scope for interference by the central government Sections 10B and 11 of MMDR Act specifies that the bidding parameters as well as the terms and conditions for auctioning of mine leases and prospecting-cum-mining leases are determined by the central government. Therefore, though the state will be giving out the leases, the centre can effectively dictate the process by setting the rules for auction.

The time has come to create independent mining regulatory authorities for oversight at the central and state level, to restore investor confidence and ensure that the primary regulatory mechanisms for mining plans and closure plans operate transparently and reliably in accordance with globally recognised technical standards.

Resolving Environmental Issues

Mining has always been an industry that significantly, and usually adversely, impacts environment and communities. While there is no debate on the issue that mining is a significant part of every economy, there is a need to emphasise on more responsible mining, particularly in light of the rising public dissatisfaction and resentment against infrastructure projects.

The National Mineral Policy recognises that extraction of minerals closely impacts other natural resources such as land, water, air and forests. The areas in which minerals occur often have other resources, presenting a choice of utilisation of the resources. Some such areas are ecologically fragile, and some are biologically rich. It is necessary to take a comprehensive view to facilitate the choice or order of land use, keeping in mind the needs of development as well as the need of protecting the forests, environment and ecology. Prevention and mitigation of adverse environmental effects due to mining of minerals—and repairing and re-vegetation of the affected forest area and land covered by trees per the latest internationally acceptable norms

and modern afforestation practices—must form an integral part of mine development strategy in every case.

The National Mineral Policy advocates a Sustainable Development Framework (SDF) for the mining sector, with proper compensation to those affected by mining-related operations forming an important aspect of the framework.

The role of communities and the environment is central in the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (Land Acquisition Act) and the environmental laws, namely The Water (Prevention and Control of Pollution) Act, 1974; The Air (Prevention and Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1980. It is also essential to ensure that these laws and procedures thereunder work in harmony and balance the social and environmental issues with those relating to the exploitation of mineral resources for economic growth and poverty reduction. After minerals are exhausted, efforts must be made to return the land to the community, reforesting and restoring the area to the maximum extent possible.

Attempts should also be made to fast-track environment and forest clearances for mining projects. It would be helpful to create a "National Environment Management Authority" at the central level, and a "State Environment Management Authority" at the state level as full-time processing/clearance/monitoring agencies. The fast-track environment and forest clearances for mining projects should be done through a web-based ICT tool that would enable the project proponent to file and track their applications as well as obtain the decision online. Single-window unified, streamlined, purposeful and time-bound procedures should be put in place.

Clear Guidelines for Mineral Funds

The DMF has been legislated under Section 9B (2) of the MMDR Act with a specific object of working for the interest of mining-affected people and areas. On the other hand, the beneficiaries of the "permanent fund" are the people of the entire state, whether mining-affected or not, as well as future generations, considering their status as common owners of the minerals. Given this essential conflict in their objects, the PF and DMF must be kept separate.

With the launch of the National Mineral Exploration Policy (NMEP) in July 2016, the Indian government has continued to take steps to transform the mining sector.

NMEP recognises the need to incentivise private-sector participation and has various provisions for the same. For example, revenue sharing with private explorers in exploration efforts can lead to auction-able resources and cost reimbursement for explorers, if the exploration agency is unsuccessful in discovering any economic reserves. The long-term growth of the mining sector depends heavily on exploration. Advanced technology and best practices must be adopted to ensure optimum exploration.

Subsequently, the National Mineral Exploration Trust (NMET) was established by the Government of India vide Gazette Notification G.S.R.633 (E) of 14 August 2015, in pursuance of subsection (1) of Section 9C of the Mines and Minerals (Development and Regulation) Act, 1957. The Trust supports regional and detailed mineral exploration in the country, and other activities approved by the government, to achieve its objects. These include special studies and projects to identify, explore, extract, beneficiate and refine deep-seated and concealed mineral deposits, studies on mineral development, sustainable mining, mineral extraction and metallurgy adopting advanced scientific and technological practices, detailed and regional exploration for strategic and critical minerals, upgradation of mineral exploration status in an area from G3 to G2/G1 level, exploration leading to grant of mineral concessions, aerial and ground geophysical surveys, geochemical surveys, and capacity-building of personnel engaged in mineral exploration. The funds for the trust will be generated from two percent of royalty paid by the lease holders The Hoda Committee report specifically noted, "… due to lack of resources in terms of manpower, equipment, and technology, the Geological Survey of India has not been able to do either extensive or intensive regional exploration for most minerals other than coal. […] with limited exploration, quantification of any significance has not been possible."

Free Accessibility of Geological Information

Making geological database accessible free of cost is a crucial step to attract exploration, since the geological potential of an area is one of the main considerations for a mineral explorer to engage. The government will make available, free of charge, pre-competitive baseline geoscience data for open dissemination, since there is now a relaxation in restrictions on data-sharing from the Ministry of Defence. This data will be continuously updated and

benchmarked with those of other leading countries such as Australia. The government will implement a National Aero-Geophysical programme to acquire state-of-the-art baseline data for targeting concealed mineral deposits.

National Centre for Mineral Targeting (NCMT) and Exploration of Deep-Seated Deposits Exploration of deep-seated deposits requires modern and sophisticated exploration methods/techniques, which in turn requires additional investments in talent and technology. The government has proposed to establish a not-for-profit autonomous institution (NCMT) as a public–private partnership and will contribute a part of the seed funding for this venture. The GSI will initiate a project on pilot basis for probing deep-seated/concealed mineral deposits.

Availability of Risk Capital for Exploration

Mineral exploration activities (from scoping to feasibility stages) require significant capital outlay, not only for initial equipment investment but also for labour and administrative activities. Since explorers lack certainty of revenue streams to finance debt, they are usually constrained to raise funds through equity, despite its increased costs in comparison to cost of debt. Moreover, debt financing for exploration is difficult to obtain because of lack of an asset as collateral to the lender during times of distress. On the other hand, internal funds are often unavailable due to absence of operating mines.

Reforming Exploration and Mining Rights in Line with Hydrocarbon Auction Process (Open Acreage Licensing Policy: OALP policy)

Open Acreage Licensing Policy (OALP) gives a company looking for exploring hydrocarbons the option to select the exploration blocks on its own, without waiting for the formal bid round from the government. Under OLAP, a bidder intending to explore hydrocarbons such as oil and gas, coal-bed methane, and gas

hydrate may apply to the government seeking exploration of any new block. After examination of the expression of interest, the government would call for competitive bids if suitable for award after obtaining necessary environmental and other clearances as applicable.

OALP was introduced vide a Cabinet decision of the government dated 10 March 2016, as part of the new fiscal regime in the exploration sector, called HELP or Hydrocarbon Exploration and Licensing Policy, so as to enable a faster survey and coverage of the available geographical area, which has potential for oil and gas discovery.

The exploration confined to blocks that have been put on tender by the government. There are situations where exploration companies may themselves have information or interest regarding other areas where they may like to pursue exploration. Currently, these opportunities remain untapped, until and unless the government brings them to bidding at some stage.

What distinguishes OALP from the New Exploration and Licensing Policy (NELP) of 1997 is that under OALP, oil and gas acreages will be available round the year instead of in cyclic bidding rounds. Potential investors need not wait for the bidding rounds to claim acreages. Successful implementation of OALP requires building of National Data Repository on geoscientific data.

OALP ensures compensation to the exploration agency in case it fails to win a block in auction and adequate compensation for injury to persons or damage to the property caused by the effect of petroleum operations. In the same manner, the government should provide for compensation to the miners engaged in the exploration of the minerals.

Key Challenges for the Investor in Mining Sector

1. Regulatory issues

Mining companies are increasingly facing the challenge of new or stricter legislation around resource nationalism, environment compliance, employment and land access. Risks and cost associated with regulatory compliance have increased. Non-compliance with obligation and failure to meet the expectation of regulators can lead to fines, forfeitures, business restriction and reputational damage. In the

last few years, risk and cost associated with regulatory compliance have increased. Companies need to invest a considerable amount of time and capital in maintaining their regulation by adhering to regulatory requirements to build strong government relations, as this is vital for sustained mining operation. There are a number of regulatory and administrative challenges in India that restrict the growth of mining inter alia. Getting all approvals for mining is a long-drawn process with multiple agencies involved. Further, there are substantial delays in the disposal of various applications for clearances and limited incentives for private sector to invest in improvement of technology and equipment in mining projects as the mining industry is the most heavily taxed industry in India.

2. Project schedule

The time spent from initial reconnaissance to commissioning of a mining project can be around five to eight years. Such time frame needs to be built into the overall planning, goal setting, performance measures and the activity cycle. The government can comprehensively develop a project case before auctioning, pre-bundling it with all prerequisite, enabling approvals (e.g. land, access rights and environment issues) to eliminate uncertainty in execution.

3. Restriction in size of lease hold for mining

With reference to the maximum area for which a prospecting licence or mining lease may be granted, no person shall acquire (in respect of any mineral or prescribed group of associated minerals):

- one or more prospecting licences covering a total area of more than 25 sq. km; or one or more reconnaissance permit covering a total area of 10,000 sq. km, provided that the area granted under a single reconnaissance permit shall not exceed 5,000 sq. km.

- Any reconnaissance permit, mining lease or prospecting licence in respect of any area that is not compact or contiguous. Provided the state government is of the opinion that in the interests of the development of any mineral, it is necessary so to do, it may, for reasons recorded in writing, permit any person to acquire a reconnaissance permit, prospecting licence or mining lease in relation to any area that is not compact or contiguous. For the purposes of this section, a person acquiring from, or in the name of, another person a reconnaissance permit, prospecting licence or mining lease that is intended for him shall be deemed to be acquiring it himself.

4. High-level taxation

The principal taxes/payments applicable to mining industry in India are:

a. Direct Taxes: Corporate income tax (IT) or minimum alternative tax (MAT).

b. Indirect Taxes: Custom duty, service tax, value added tax (VAT) etc.

c. Mining Levies: Royalty or dead rent, contribution to the NMET and district mineral foundation (DMF), surface rent (if applicable), application fee (if applicable) etc.

d. Other Levies: In addition to the levies under the MMDR Act and the general taxes listed above, the concessionaire may be required to pay certain other levies and taxes during the course of mining operations depending on specific situations. They are entry tax, forest tax, compensatory afforestation charges, net present value of forest land diverted for mining, stamp duty, water tax, cess etc.

e. The taxes/levies listed above are inclusive and not exhaustive; the actual taxes/levies may vary depending on the states. The table below draws the corporate income tax applicable in mining in different countries:

Country	Corporate Income Tax	Method	Coal	Gold	Copper	Iron ore
Australia	30%	R	2.75%–15%	2.5%–5%	2.5%–5%	5.35%–7.5%
Brazil	25%	R	2%	1%	2%	2%
Canada	25%–31%	P	2%–16%	2%–16%	2%–16%	2%–16%
Chile	20%	P	0–14%	0–14%	0–20%	0–14%
China	25%	R	0.5%–4%	0.5%–4%	0.5%–4%	0.5%–4%
Ghana	25%	R	5.00%	5.00%	5.00%	5.00%
India	30%	R	14%	3-4%	4.62%	15%
Indonesia	25%	R	3–7%	3.75%	4.00%	3.00%
Mexico	30%	P	7.50%	8.00%	7.50%	7.50%
Mongolia	10–25%	R	2.5%–7.5%	5%–7.5%	5%–30%	5%–7.5%
Peru	30%	P	1%–12%	6%–21.5%	6%–21.5%	6%–21.5%
South Africa	28%	R	0.5%–7.0%	0.5%–7.0%	0.5%–7.0%	0.5%–7.0%
US	40%	P/R	8%–12.5%	4%–10%	4%–10%	4%–10%

Global Avg. 2014: 23.57 percent

Relatively higher taxation levels have burdened the industry with a structure that is not globally competitive. As a result, despite the 100 percent FDI route, the mining sector has witnessed restricted FDI inflows and engagement by global mining players. On the other hand, fraud and corruption challenges continue to plague the industry, though

only a few players may be involved. Taxes, royalties, multiple/duplicity in taxation like DMF as well as SPV/GPF are payable by interest holders to the government.

5. State royalties

The holder of a mining lease must pay royalty or dead rent, contribution to the NMET and DMF, permanent fund, surface rent (if applicable), application fee (if applicable) etc. In addition to the levies under the MMDR Act, the concessionaire may be required to pay certain other levies and taxes during the course of mining operations as applicable from time to time. They are entry tax, forest tax, compensatory afforestation charges, net present value of forest land diverted for mining, stamp duty, water tax, cess etc.

6. Corporate income tax

Mining, like any other industrial sector, attracts corporate taxes under the Income Tax Act, 1961. The corporate tax rate for domestic companies is 30 percent and foreign companies (defined as companies that are not registered in India and whose management control is exercised from a foreign country) are taxed at 40 percent. Surcharge and education cess are also applicable in certain situations.

7. Tax on dividends

Indian companies are liable to dividend distribution tax at the time of declaration, distribution or payment of a dividend, whichever is earlier.

The royalty, taxes, multiple/duplicity in taxation such as DMF as well as SPV/GPF must be benchmarked with other countries to make India an attractive investment destination for exploration and mining. The National Mineral Policy should provide a clear roadmap for rationalising the taxation on mineral exploration (average taxes in other countries is 40 percent, as compared to India's at 65 percent).

8. Royalty rates in India and other mining countries

Country	Royalty Rates
Australia	5.35%–7.5%
Brazil	2%
Canada	2%–16%
Chile	0–14%
China	0.5%–4%
Ghana	5.00%

Country	Royalty Rates
India	15%
Indonesia	3.00%
Mexico	7.50%
Mongolia	5%–7.5%
Peru	6%–21.5%
South Africa	0.5%–7.0%
US	4%–10%

Source: Mining Tax Data book, KGS, August 2014.

9. Impact of high taxation level

One Tax Regime or Uniform Tax System such as the GST regime across the country must be put in place, unlike the current situation for the mining industries, where different states impose different rates for stamp duty payments and registration of documents on executing the mining lease deeds etc. A uniform tax system should be implemented for the minerals sector, applicable to all the states in India.

The mining industry is quite different from other industries. There is much uncertainty from prospecting to exploration of deposit. It is a very expensive industry, both technologically and at the service level. Generally, from prospecting to applying for the exploration licence, it takes three to four years. The licence-granting system in India is highly complex with many time delays.

- In India, the government levies direct and indirect taxes on the mining industry. It starts from corporate income tax to the recent Profit Sharing Bill (Government Observation). Taxes are necessary for every country. However, too much taxation harms the investor and decreases the flow of funds into the industry and reduces the FDI into the domestic market.
- Corporate income tax in India is very high compared to those of other countries in the world.
- Mining in India is already one of the most highly taxed sector globally, with an estimated effective tax rate of around 43 percent (for iron ore), as compared to 35–40 percent for most of the major mining countries such as Brazil, South Africa, Australia and Canada. Some of the countries provide attractive and innovative tax incentives as a way to attract exploration companies, for whom such incentives might make or break their decision to engage. Canada provides tax incentive known as "flow-through shares" to these companies. Under this scheme, exploration expenses "flow through" to individual investors in that company, who can then adjust it against their personal income

- Below are few recent examples of how various regions incentivise their mineral exploration sectors as a whole or encourage activity in specific mineral exploration:

  i. The Government of Uganda abolished taxes on mineral exploration to encourage investment in the country. Taxes would only be incurred upon production.

  ii. As part of its 2015 budget, the Canadian government had extended its 15 percent Mineral Exploration Tax Credit through 31 March 2016. The tax credit has been in effect since 2000.

  iii. The Australian senate passed the Exploration Development Incentive (EDI), which will allocate AU$100 million (US$75 million) over the next three years to provide tax breaks to junior miners and investors in early-stage mineral exploration projects.

  iv. Under the Exploration Incentive Scheme (EIS), the Western Australia government refunds up to 50 percent of drilling costs for greenfield projects and provides funding for additional geophysical and geochemical surveys in Western Australia.

  - Greenfield Project Reforms:

    - Making Mineral Auction rules aligned with OALP
    - Allowing Forest Clearance while awarding CL

  - Brownfield Project Reforms:

    - Institutionalising a mechanism for cap determination if required at state level
    - Allowing cluster/co-operative mining
    - Rationalising taxes

- Goods and service tax (GST) is a comprehensive VAT on goods and services. A dual system of GST is being proposed wherein central goods and service tax (CGST) and state goods and service tax (SGST) will be levied on the taxable value of different transactions in mineral exploration. There is still no clarity on octroi, lottery taxes, electricity duty and state excise, which may still be charged separately. This takes away a major chunk of the profits from the company.
- A comprehensive taxation policy should be drawn up to align India's taxation framework with the strategic needs of the mining sector.

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