

Development of Mineral Resources: Role of FDI and Technology

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FEDERATION OF INDIAN MINERAL INDUSTRIES

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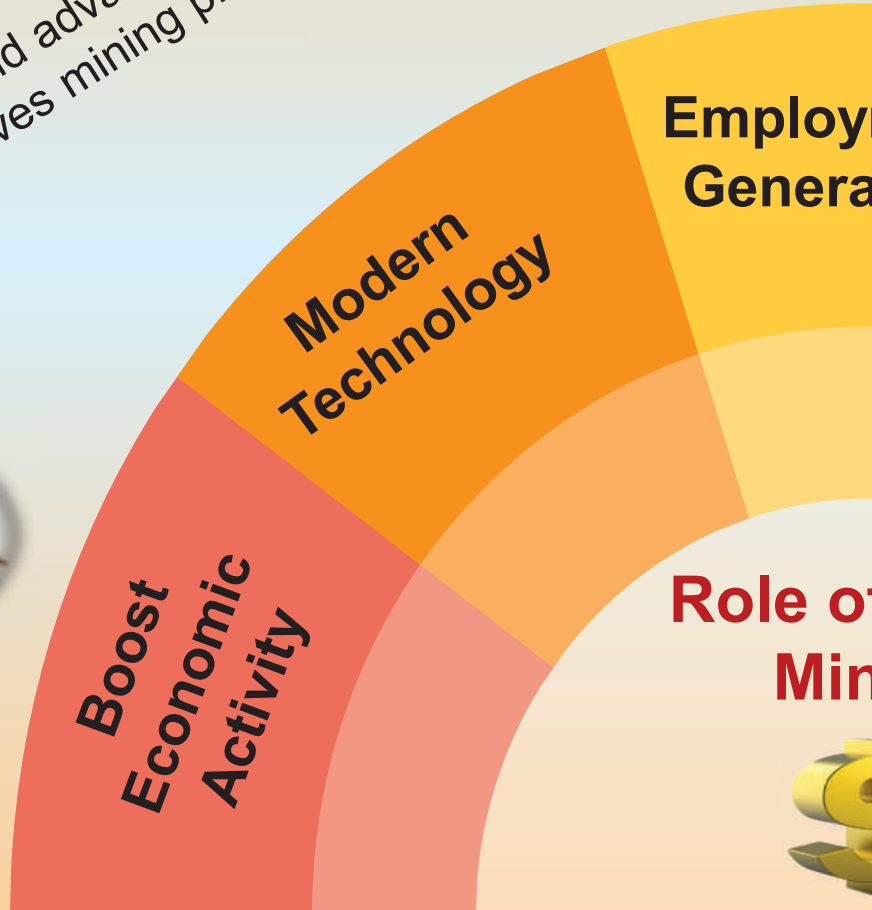
Modern and advanced technology improves mining productivity



Creates new jobs
higher income
standard of living



Accelerates nation's economic growth





jobs, leading to
me and better
d of living



Increased production and
exports boost Government
revenue and balance of trade

oyment
ration

Enhance
Government
Revenue

Socio-
Economic
Development

of FDI in
ining



Improves socio-
economic activity,
especially in
remote mining
regions



PREFACE


Mining, being the source of raw materials for Indian industries and society, is crucial for both Atmanirbhar Bharat as well as for becoming a \$ 5 trillion economy by 2024. For achieving this vision, the Indian mining sector has to be globally competitive, which requires net FDI inflows, world-class technology and most important of all, a stable legislative and fiscal regime – a regime that guarantees assured return on investment (ROI) in mining business.

Having been a part of the ancient Gondwana supercontinent, India, South Africa and Australia share similar geological and mineral potential even today. Yet, despite such mineral potential, India is under-explored and has failed to attract mineral investment unlike its geological siblings. The country has not only missed out on FDI, but also associated modern technologies for exploration which has constrained us to only produce easy-to-find bulk minerals, which are often surficial in nature. Presently, 70% of the mineral production comes from coal and lignite (48%), iron-ore (19%) and limestone (3%), in value terms; whereas India imports minerals like cobalt, platinum, nickel, copper, gold, diamond, rare-earths, etc. which are difficult-to-find and high-value minerals. Consequently, India has become a net mineral importer.

It is therefore necessary that the nation become self-sufficient in minerals which we import. This will help reduce approximately 23% of India's total imports, including coal. Achieving this requires only two simple interventions – (a) enabling entrepreneurs to generate adequate ROI commensurate to the exploration risk, and (b) timely development of high-value mineral discoveries.

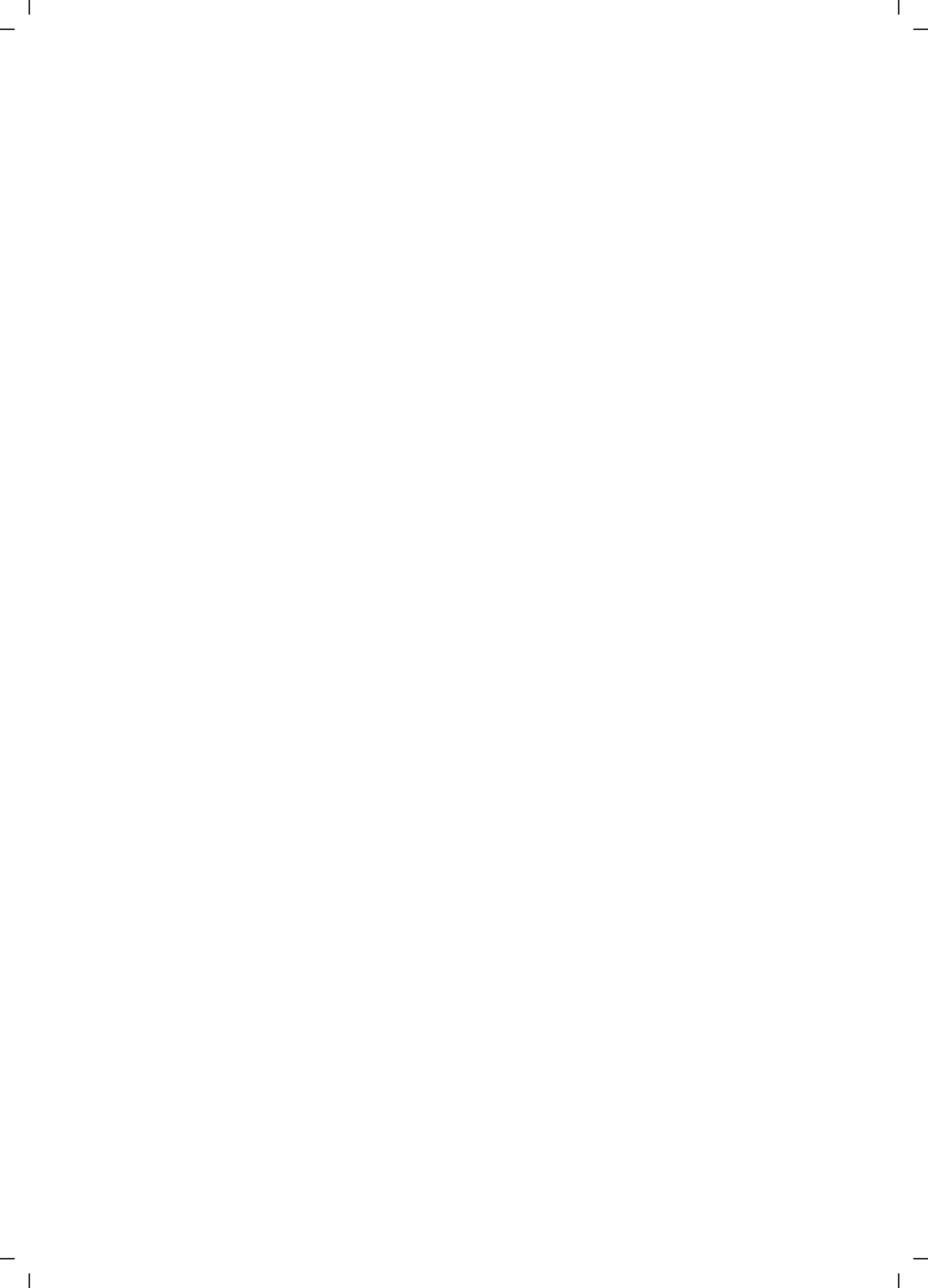
Fuelled with the vision of attracting FDI and become self-reliant, FIMI has brought out this publication titled “*Development of Mineral Resources: Role of FDI and Technology*” to boost India's mineral development particularly for the minerals which we import. Most of these minerals are also of strategic nature and essential for national security and defence technology.

I believe this publication will immensely benefit the readers and decision-makers, both in Government and industry, so as to prioritize focus on import reduction, work together towards self-reliance and attract investment, technology and talent in the mining and metals sector.



(R K SHARMA)
SECRETARY GENERAL

New Delhi
3 September, 2020



Sr. No.	Contents	Page No.
I	STATE OF MINING	1–3
II	PREREQUISITES TO ATTRACT FDI AND TECHNOLOGIES	4–12
	A. Geological Prospectivity	4–5
	B. Political Stability	5–9
	C. Fiscal Regime	9–12
III	FEASIBILITY OF ATTRACTING FDI IN MINING	13–23
	(a) Grant of mineral concessions (as per 2015 amendment)	13–13
	(b) Exploration regime	13–14
	(c) Auction: an analysis	14–19
	(d) Exploration / mining and local area development vs. revenue to State Governments	19–23
IV	OPEN UP EXPLORATION AND MINING TO PRIVATE SECTOR TO GET LATEST TECHNOLOGY AND INVESTMENT	24–31
	(a) Exploration expenditure	24–25
	(b) Thrust areas for exploration	25–26
	(c) How to revive exploration and mining of minerals for which India depends on imports	26–27
	(d) Indian initiative	28–28
	(e) Indian story: missed opportunity	28–31
V	MINING TO BE CONSIDERED AS AN INDEPENDENT ACTIVITY	32–33
VI	TIMELY GRANT OF APPROVALS	34–34
VII	NEED FOR AN ALL-INDIA GEOLOGISTS AND MINING ENGINEERS' SERVICE	35–35
VIII	CONCLUSION	36–36
IX	ANNEXURES	37–42



I - STATE OF MINING

Next to agriculture, mining is the most important economic activity. Apart from generating economic activity in areas where the minerals occur, mining also provides employment in remote and tribal areas. Mining thus provides backward and forward linkages in the economy more than any other sector in making available raw materials for a vast spectrum of industries.

2. Geologically, India has more or less the same prospectivity as other resource-rich countries such as South Africa, Australia, Canada, Brazil, Chile, etc. However, we have been hearing time and again that India is a repository of a wide variety of mineral resources, but we do not find any evidence of it on the ground.

3. We produce mostly minerals widely available surficially in the country and which are much easier to explore. These minerals include coal, iron ore, lignite, limestone, chromite, bauxite, manganese ore, etc. The total value of the production of major and minor minerals for 2018-19 works out to be Rs. 2,44,216 crores.

Table – I :
Domestic production by value
(major and minor minerals) – 2016-17 to 2018-19

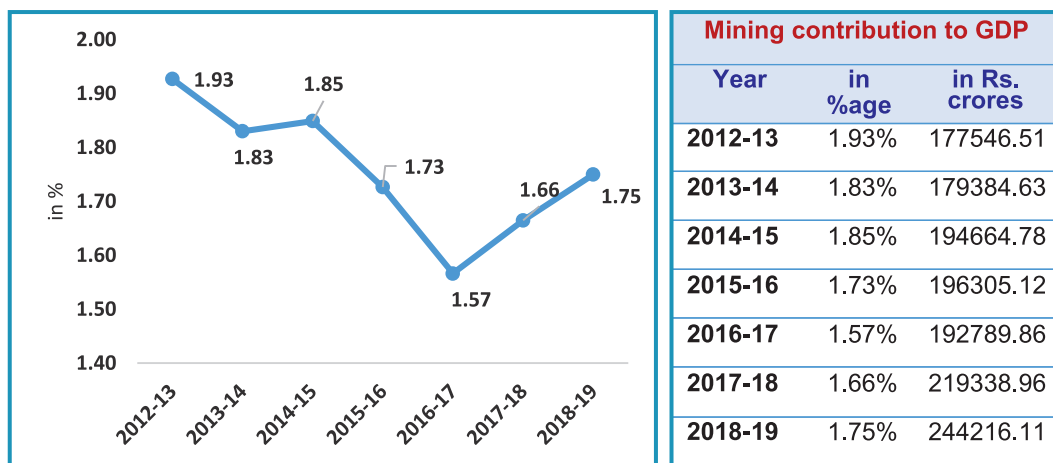
(Value in Rs. crores)

Minerals	2016-17		2017-18		2018-19	
	Value of production	% of production	Value of production	% of production	Value of production	% of production
Major minerals	138,795.56	71.99%	165,344.66	75.38%	190,221.81	77.89%
Coal	83,463.26	43.29%	97,572.47	44.48%	1,10,114.95	45.09%
Lignite	7,543.50	3.91%	7,941.67	3.62%	6,849.50	2.80%
Iron ore	25,229.18	13.09%	34,713.10	15.83%	45,184.14	18.50%
Limestone	7,387.84	3.83%	8,099.57	3.69%	8,484.11	3.47%
Chromite	3,193.75	1.66%	3,203.70	1.46%	3,583.61	1.47%
Manganese ore	1,624.84	0.84%	1,990.75	0.91%	2,270.25	0.93%
Bauxite	1,486.55	0.77%	1,578.42	0.72%	1,716.84	0.70%
Others	8,866.64	4.60%	10,244.98	4.67%	12,018.41	4.92%
Minor minerals	53,994.30	28.01%	53,994.30	24.62%	53,994.30	22.11%
Total	1,92,789.86	100.00%	2,19,338.96	100.00%	2,44,216.11	100.00%

Source: Indian Bureau of Mines; Coal directory; For Minor Minerals: (Data repeated in case of non-availability).

4. India's obsession with surficial minerals explains why the contribution of mineral sector in GDP (excluding petroleum and natural gas) is so low and stood at 1.75% in 2018-19.

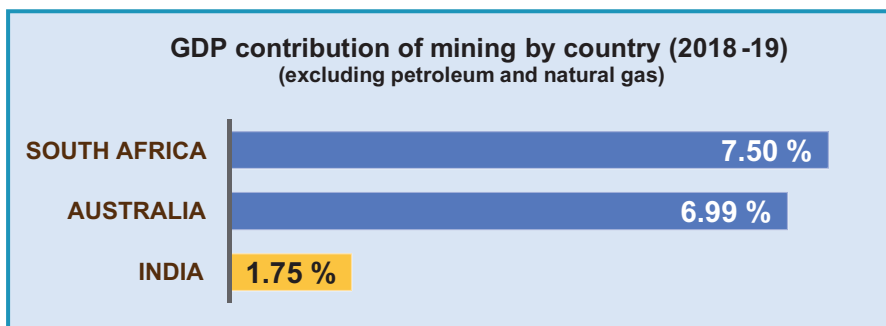
**Table – II :
Contribution of mining sector to GDP**



Source: FIMI analysis based on Ministry of Mines Annual Report (2018-19); Indian Bureau of Mines; Coal and Lignite: Coal Directory 2018-19; Country's GDP from Central Statistics Office (CSO).

5. It compares unfavourably to other resource-rich countries:

**Chart – I :
GDP contribution of mining by country**



Source: For South Africa: Mineral Council of South Africa; For Australia: Australian Bureau of Statistics. **Note:** For Australia and South Africa: data is for the year 2017.

6. As compared to value of domestic production of minerals listed in **Table–I**, India imported minerals, metals and their products (excluding petroleum and coal) amounting to Rs. 6,20,406 crores in 2019-20. In the same year, we imported coal, lignite and coal products amounting to Rs. 1,62,232 crores. The minerals and their products that India imports are very vital for the economic development of the country.

**Table – III :
Indian imports by sector (2017-18 to 2019-20)**

(Value in Rs. crores)

Sectors	2017-18			2018-19			2019-20		
	Value of imports	% of total imports	Rank	Value of imports	% of total imports	Rank	Value of imports	% of total imports	Rank
Petroleum fuel (ex. coal)	7,01,500.46	23.4	2 nd	9,87,277.29	27.5	1 st	9,26,288.94	27.6	1 st
Minerals, metal & their products	7,12,802.02	23.8	1 st	7,23,401.52	20.1	2 nd	6,20,405.53	18.5	2 nd
Electrical parts	4,32,102.52	14.4	3 rd	5,06,887.09	14.1	3 rd	4,94,922.33	14.8	3 rd
Nuclear parts thereof.	2,43,815.93	8.1	4 th	3,06,368.41	8.5	4 th	3,07,066.95	9.2	4 th
Chemicals	1,98,208.81	6.6	5 th	2,51,536.50	7.0	5 th	2,24,317.07	6.7	5 th
Coal products and thereof.	1,51,196.19	5.0	7 th	1,87,437.56	5.2	6 th	1,62,231.95	4.8	6 th
Food/animal product	1,66,067.95	5.5	6 th	1,56,199.73	4.3	7 th	1,59,272.26	4.8	7 th
Plastic	89,768.37	3.0	8 th	1,06,591.46	3.0	8 th	1,00,604.71	3.0	8 th
Medical and pharma	68,453.45	2.3	9 th	81,932.77	2.3	9 th	82,074.70	2.5	9 th
Fertilizer	30,108.17	1.0	10 th	46,456.75	1.3	10 th	47,396.70	1.4	10 th
Others	2,07,009.54	6.9	-	2,40,585.52	6.7	-	2,31,082.53	6.9	-
India's Total Import	30,01,033.43	100%		35,94,674.61	100%		33,55,663.66	100%	

Source: FIMI analysis, based on Ministry of Commerce and Industry

7. If India's geological setup is so propitious, being a part of Gondwana land, then how is it that the country depends to a substantial extent on imports of vital raw materials like gold, base metals, platinum group of minerals, diamond etc.? It may be either the country does not want to exploit its resources or it does not have technical and financial capability to undertake exploration. Central Government made half-hearted attempts to invite foreign technologies and investments in the recent past but the State Governments were lukewarm. As a result, the country continues to remain under-explored and mining sector's contribution to GDP is paltry 1.75%.

8. It is obvious that the country does not have requisite technologies and investment required to explore and exploit resources for which we depend on imports. We have therefore to attract technologies not available in the country and make necessary changes in the MMDR Act, 1957 and ensure that it is not changed frequently as it has been so far.

II – PREREQUISITES TO ATTRACT FDI AND TECHNOLOGIES

9. Three ingredients are necessary to attract latest technology and investment in mining :

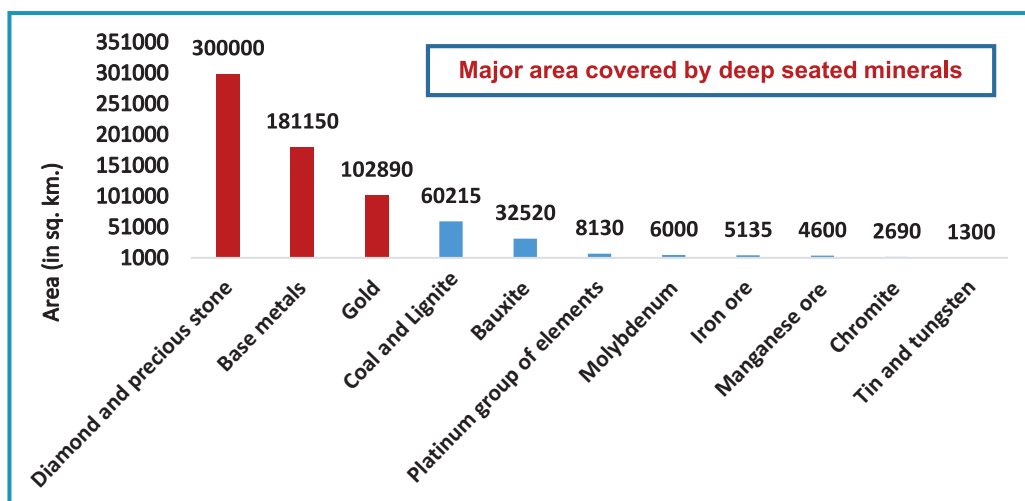
- (A) Geological Prospectivity
- (B) Political Stability
- (C) Fiscal Regime

(A) GEOLOGICAL PROSPECTIVITY

10. Geological prospectivity is vital for attracting investors to explore and mine in a country. It indicates the mineral potential of a country which can create value for all stakeholders – investors, Government, community and society at large.

11. Out of total obvious geological potential (OGP) area of 0.571 million square kilometre (17.4% of India's landmass), only 10% of the area (i.e., 1.74% of total landmass) has been explored and out of this, mining is carried out in meagre 1.5% of the OGP area. This is despite the fact that Geological Survey of India (GSI) was set up in 1851 or about 170 years back. It is said that GSI does only regional exploration. Base Paper on National Mineral Exploration Policy 2015 has identified OGP areas by minerals:

Chart – II :
Obvious Geological Potential (OGP) area by minerals



Source: Base Paper on National Mineral Exploration Policy 2015

12. The question arises how despite identifying OGP mineral-wise, most of the minerals / metals, which are being imported, are not being exploited within the country. The answer seems to be either the country does not have the technology and wherewithal to undertake their exploitation or we did not want to exploit them. If indeed we did try to import technology and investment from abroad, what was the result? The next section will answer this question.

(B) POLITICAL STABILITY

13. Mining assets have long gestation period and take a long time to generate returns. Political stability is necessary for assuring investors that a return on investment (ROI) is guaranteed over the mining life cycle. In addition, legislation also needs to be stable.

14. India is one of the countries with its flourishing democracy and stable political regime. However, the mining legislation (i.e. Mines and Minerals (Development and Regulation) Act, 1957) is unstable. Not only the Act is amended frequently at will but even the provisions of the extant Act are not honoured:

- (i) Following the submission of B. B. Tandon Committee Report in January 1998, the MMDR Act was amended in December 1999. As many as 401 reconnaissance permits (RPs) were issued to international junior / senior

exploration companies, out of which 341 RPs were implemented. Total area covered by RPs, which included diamond, gold and base metals was 5.18 lakh square kms. 191 final reconnaissance reports reconnaissance permits (RPs) were issued to international junior / senior exploration companies. However, in reality only three RPs could reach to the level of grant of mining lease: one for diamond mine in Bunder area in Madhya Pradesh (which ultimately could not start production as forest clearance was not granted) and two for gold: one in Karnataka and the other in Andhra Pradesh. In Karnataka, even the Letter of Intent (LoI) was not issued by the State Government. The other was in Jonnagiri area in Andhra Pradesh. The bitter experience of some of these companies who got RPs / PLs / MLs can be seen at **Annexure-I**. The Central Government remained mute spectator to the death-knell of the policy.

- (ii) As on 05-05-2014, 66,477 applications were pending with both Central and State governments, including 43,025 mining lease applications:

Table – IV :
Pending applications as on 05-05-2014

	State Government level	Central Government level	Total
Reconnaissance Permit (RP)	643	15	658
Prospecting Licence (PL)	19891	123	20014
Mining Leases (ML)	42861	164	43025
Letters of intents (LOIs)	265	-	265
Renewals	2515	-	2515
Total	66175	302	66477

Source: Ministry of Mines

All these pending applications lapsed with the amendment of MMDR Act w.e.f. 12th January, 2015 excepting some of the applications saved under Section 10A(2)(b) and 10A(2)(c). However, under 10A(2)(c) many of the applications could not be converted into grant of mining leases within the stipulated timeframe of 2 years. Further, under Section 10A(2)(b) which does not have sunset clause, none of the saved cases have been granted PL / ML and the reports are that the Government of India is considering to repeal this sub-section.

The reason why such a large number of applications for RP, PL and ML were pending with the State Governments was that though Mineral

Concession Rules (MCR), 1960 provided for a timeframe for disposal of RP, PL and ML applications, the State governments did not pass any order within stipulated timeframe. Since no order was passed, no cause for action arose with the applicant to file revision application before the Central Government. The result was that these were left unattended for years together. Even applications for the minerals which were to be referred to Central Government under MMDR Act, 1957 required herculean efforts on the part of the applicants to get these forwarded. Since the recommendations of the State governments were not complete, lot of time was wasted in seeking clarifications by the Central Government. Consequently, applications remained undisposed of for years. At the Central Government level, there was no timeframe for final disposal of applications.

Even if 50% of these mining lease applications ($43025 / 2 = 21,512$) had been granted, there would have been huge employment generation in the mining sector. Assuming average employment in a mine to be 50, these 21,512 mining leases could have generated $(21,512 \times 50) = 10,75,600$ i.e. 10.76 lakhs direct employment. With an employment multiplier of 1:10, there would have been an additional indirect employment of 107.6 lakhs in the economy. The following table shows that, if the above mentioned applications had been considered and granted timely, the mining sector could have created additional 118.36 lakhs jobs in the economy.

Table – V :
Loss of job opportunities due to lapse of pending applications
(as on 05-05-2014)

	Direct job	Indirect job	Total loss of job opportunity
Mining	$(21512 \times 50) =$ 10.76 lakhs	107.6 lakhs	118.36 lakhs

Source: FIMI analysis, based on National Mineral Policy – Report of the High Level Committee, 2006

- (iii) The MMDR Amendment Act 2015 changed the very nature of mining regime in the country :
- Mining leases to be granted through Auction.
 - Tenure of leases for 50 years, without renewal.
 - Validity of existing leases upto 31.03.2020 for non-captive; upto 31.03.2030 for captive, with right of first refusal; and extendable upto 20 years at a time for Government companies.

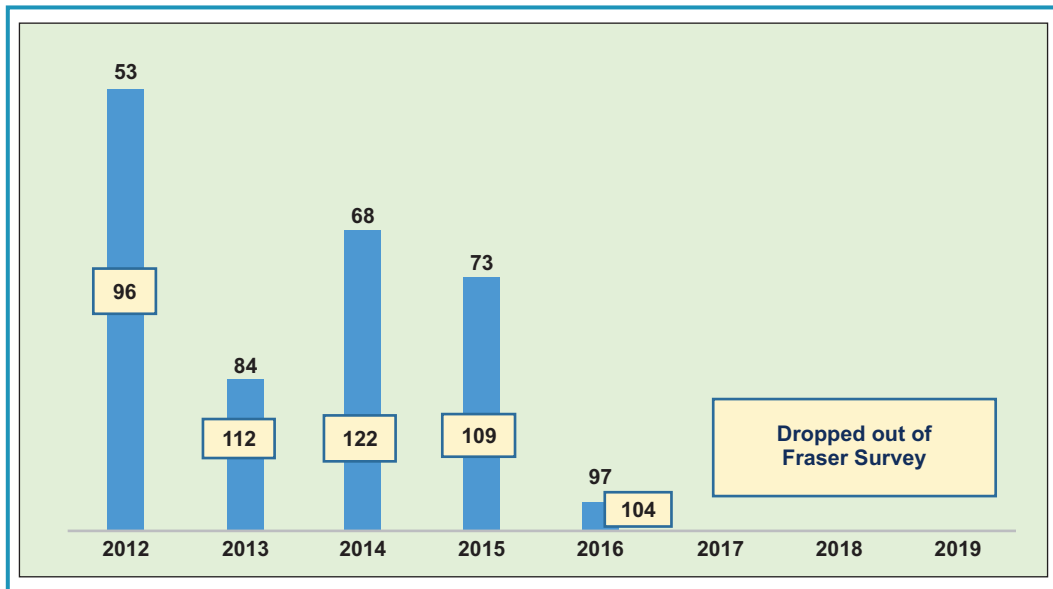
- District Mineral Foundation (DMF) for development of mining-affected areas: contribution by existing mines @ 30% of royalty and by new mines @ 10% of royalty.
 - National Mineral Exploration Trust (NMET) for regional and detailed exploration: contribution by industry @ 2% of royalty.
- (iv) Section 10A(2)(b) of the amended Act protected RPs and PLs where applicants have not failed to apply for grant of PLs or mining leases (MLs) within a period of three months after the expiry of RP or PL or within such further period not exceeding six months as may be extended by the State Government.

The total number of cases covered under Section 10A(2)(b) were 572. The grant of RP to PL (179 cases) and PL to ML (393 cases) would have provided jobs to thousands of local people directly and indirectly. However, unfortunately, despite the lapse of more than 5 years, not even a single RP / PL / ML has been granted under this Section. It is understood, Government of India is considering to repeal this Section and auction these mines. ‘


- (v) In addition, Section 10A(2)(c) of the amended Act provided only two years to applicants possessing Letter of Intent (LoI) to obtain statutory clearances and execute mining lease. Since grant of statutory clearances take up to 3–5 years and are beyond an applicant’s control, as many as 196 applications saved under Section 10A(2)(c) expired and are about to be auctioned.

15. This has sent a wrong signal to domestic and international investors about the stability in India's mineral policy. The net result is that India no longer finds place among attractive destinations for investment opportunities in Fraser Institute's Annual Survey of Mining Companies for the last three years.

Chart – III :
India's Rank in Fraser Survey



Source: Fraser Institute's Annual Survey of Mining Companies

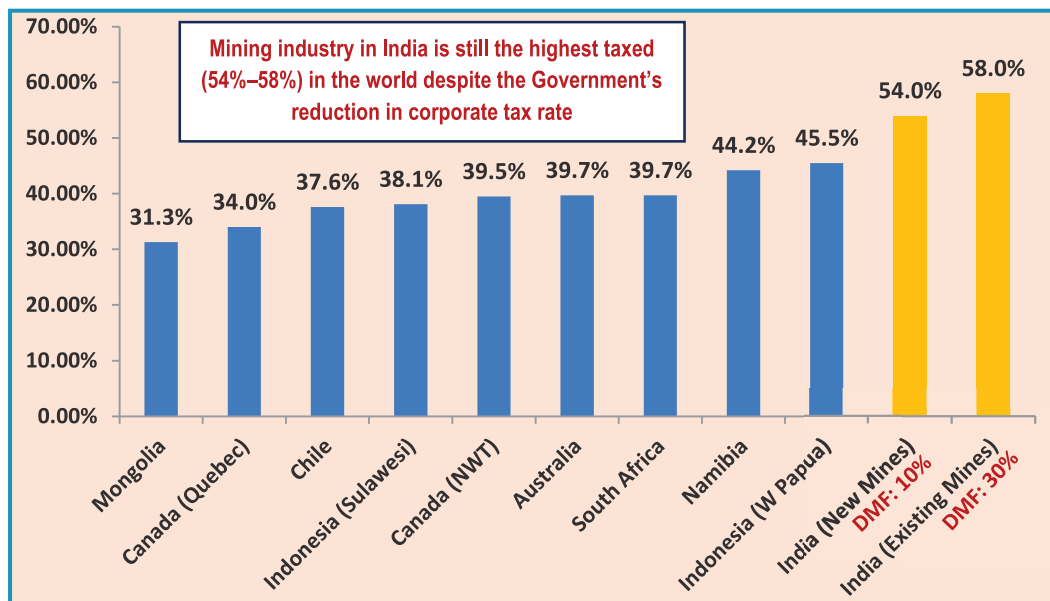
Note:  → Number of countries participated in the survey

(C) FISCAL REGIME

16. This is the third most important condition for attracting foreign investment in exploration and mine development. Investors invest in any country / venture to realize ROI commensurate with the business risk. Taxation is a major component that affects ROI for an investor.

17. Mining industry in India is the highest taxed (54% – 58% ETR) in the world despite the Government's reduction in corporate tax rate. The following table bears this out:

Chart – IV :
Effective Tax Rate (ETR) :
World vis-à-vis India



Source: FIMI analysis and Ministry of Steel; Rajya Sabha Unstarred Question No. 3649, answered on 24th July, 2019

The above chart of ETR (**detailed calculation at Annexure-II(a)**) refers to the typical case of iron ore and includes the following components of taxes which are specific to mining as per MMDR Amendment Act, 2015, besides common components like corporate tax, CSR etc.

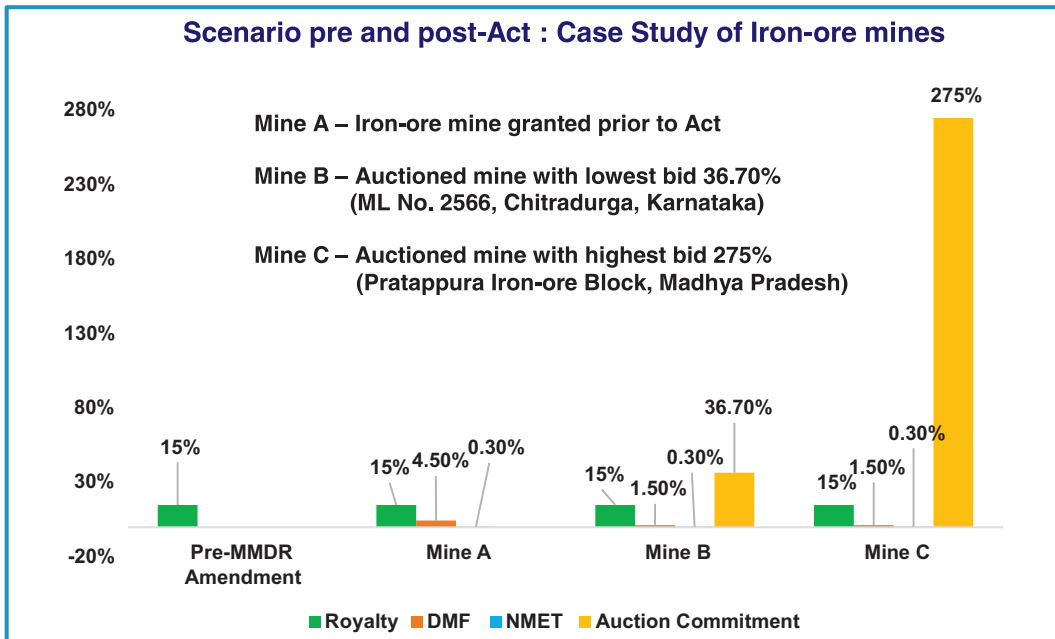
- Royalty on minerals – Section 9 and Schedule II (royalty on iron ore @ 15%) or Dead rent on mining leases – Section 9A and Schedule III.
- Contribution to District Mineral Foundation (DMF) – Section 9B and Mines and Minerals (Contribution to District Mineral Foundation) Rules, 2015:
 - @ 10% of the royalty in respect of mining leases / PL-cum-ML granted on or after 12-01-2015 – Rule 2(a).
 - @ 30% of the royalty in respect of mining leases granted before 12-01-2015 – Rule 2(b).
- Payment to National Mineral Exploration Trust (NMET) @ 2% of the royalty – Section 9C.

18. ETR chart does not include many other taxes / levies that have impact on the cost of production and the viability of mining the deposits. This can be seen at **Annexure-II(b)**.

19. In addition to various taxes / levies detailed above, the existing mines have to give bank guarantee for financial assurance for progressive mine closure plan. These are Rs. 3 lakhs per hectare (minimum Rs. 10 lakhs) for 'A' category mines and Rs. 2 lakhs per hectare (minimum Rs. 5 lakhs) for 'B' category mines. No financial assurance for mine closure is required for leases granted where Mine Development and Production Agreement (MDPA) has to be signed.

20. The final scenario which emerges as regards royalty and other taxation post auctions in a typical case study of iron ore mine is as under:

Chart – V :
Royalty and Taxation Scenario
post-auctions: Case study – Iron Ore



Note: This table is restricted to only auction commitment, royalty, DMF and NMET. It excludes all kinds of taxes / levies under other Acts, i.e., corporate income tax and other taxes / levies imposed by local bodies, net present value (NPV) and compensatory afforestation (CA) charges if area is under forest.

21. In a competitive world, it is necessary that what we produce should be economically viable. Mr. Graeme Hancock of World Bank in his report submitted in 2006 has observed that "*countries compete for mineral sector investment and generally offer terms of ETR between 40% and 50%*". The taxes mentioned above have all the ingredients to make domestic raw materials costly. In present day uncertain commodity market around the world, a time may come when imports would be cheaper than buying raw materials in the domestic market. The high taxation on mining in India alongwith inordinate delays in grant and development of mines have already led to several major international players exiting the country.

22. Further, the high raw materials cost will make finished products unviable and open it to the vagaries of imports. The safeguards against imports of better quality of metals (particularly steel) have encouraged the domestic producers of these metals to raise their prices which has affected the viability of down-stream products and their exports. Downstream industries provide jobs to a large number of people and if the cost of finished products increases, the domestic consumers and exports will get affected.

**III – FEASIBILITY OF ATTRACTING
FDI IN MINING**

23. In light of foregoing narration, it would be worthwhile to examine the feasibility of attracting foreign direct investment (FDI) which brings with it latest technologies in exploration and mine development. This requires analysis of the policy for the grant of concessions.

**(a) Grant of mineral concessions
(as per 2015 amendment)**

24. Grant of ML of notified minerals (bauxite, iron ore, limestone and manganese ore) shall be through auction. However, where there is inadequate evidence of the existence of mineral content of any notified mineral in any area, PL-cum-ML can be granted through auction. For other than notified minerals, grant of prospecting-cum-mining lease (PL-cum-ML) will also be through auction but in case if there is evidence to show the existence of mineral contents, the State Government can also grant a mining lease for minerals other than notified minerals through auction. Incidentally, these provisions do not apply to public sector units whom the State Governments can grant leases with provision for extension upto 20 years at a time.

25. Non-Exclusive Reconnaissance Permits (NERP) may be granted for any notified or non-notified minerals but the holder of NERP shall not be entitled to make any claim for PL-cum-ML. As if this is not enough, NERP Rules 2015 state that *“The grant of a non- exclusive reconnaissance permit over any area shall not prohibit the State Government from notifying all or any part of such area for grant of a mining lease or a prospecting licence-cum-mining lease and upon such notification the validity of all non-exclusive reconnaissance permits over such notified area will stand automatically terminated.”(Rule 3(11)).*

(b) Exploration regime

26. Since exploration is the lifeline of mining, it is necessary to analyse country's policy in this regard. Following the promulgation of NERP Rules, 2015, the Central Government notified most of the Central and States PSUs as the exploration agencies apart from GSI and MECL. Many of the State PSUs have no expertise and adequate infrastructure to undertake exploration upto G2 / G3 level. The funds for their exploration activities will be met through National Mineral Exploration Trust set up under MMDR

Amendment Act, 2015. The exploration regime thus stands nationalised. There is no doubt in such a situation, India will continue to be one of the least explored countries in the world.

27. Realising that government agencies / public sector alone will not be able to deliver, the Government of India brought out a new National Mineral Exploration Policy, 2016. It invited private sector expertise for deep-seated minerals and provided for :

- Availability and free accessibility of comprehensive, pre-competitive baseline geoscience data;
- Incentives structures that provide an appropriate risk-return scenario; and
- Ease of doing business and earning attractive returns from the investment. **(para 12.2 of Policy)**

Such a policy may encourage only contractual drilling in the name of exploration.

(c) Auction : an analysis

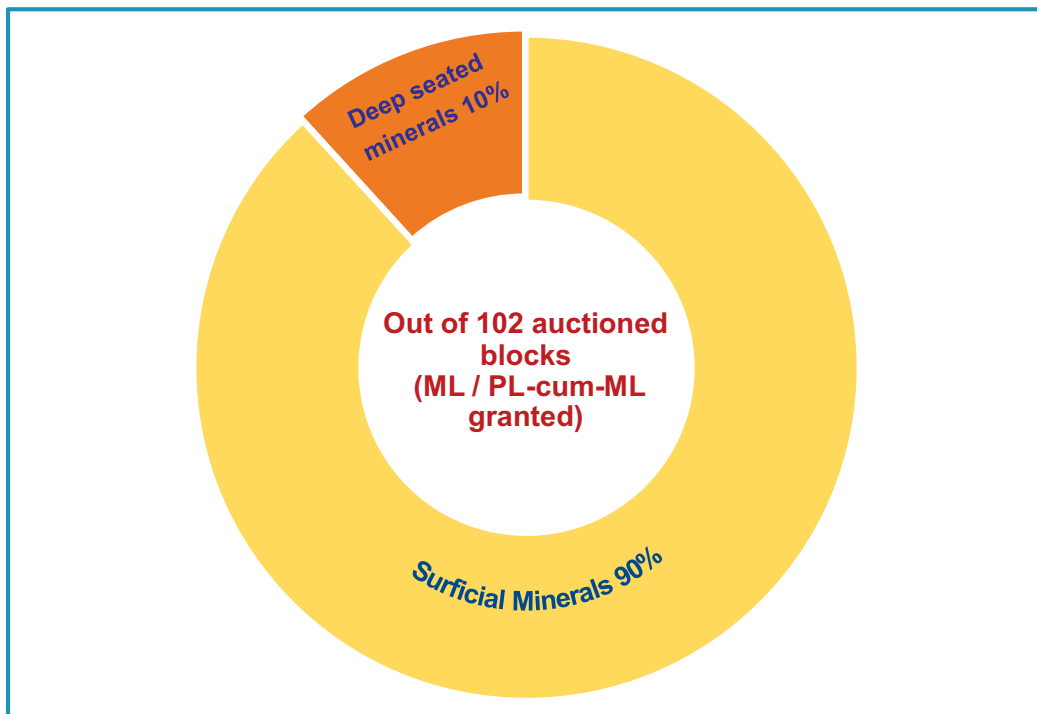
28. It would be worthwhile to analyse the impact of auction on the resource development for benefit of the country. Most of the auctions so far have been for surficial deposits which are available in abundance. Although both categories are vital for India, but India is 100% import reliant on deep seated minerals (diamond, gold etc.) which require detailed exploration. However, so far in auction regime, out of 102 successful auctioned blocks, only 10% ML / PL-cum-ML are for deep seated minerals and rest 90% ML / PL-cum-ML are for surficial minerals. The status of minerals-wise auction is represented in the following table and chart:

Table – VI :
Surficial vs. Deep seated minerals through auction :
an analysis of 102 blocks (July, 2020)

Surficial	ML	% of total	PL-cum-ML	% of total
Iron ore, iron and manganese ore	42	41.2	0	0.0
Limestone	28	27.5	2	2.1
Bauxite	7	6.9	0	0.0
Graphite	4	3.9	1	1.0
Manganese ore	4	3.9	1	1.0
Chromite	3	2.9	0	0.0
Total surficial	88	86%	4	4%
Deep seated	ML	% of total	PL-cum-ML	% of total
Gold	4	3.9	2	2.0
Diamond	1	1.0	1	1.0
Copper	0	0.0	2	2.0
Total deep seated	5	5%	5	5%
Total auctioned	102			

Source: Ministry of Mines and MSTC

Chart – VI :
Surficial vs. Deep seated minerals



Source: Ministry of Mines

29. Experience gained so far suggests that non-coal blocks auction has failed to bring into operation any of the greenfield projects despite lapse of more than 5 years. Auction system has completely failed for resource development. The following table adequately highlights the same.

Table – VII :
Status of non-coal mineral blocks auctioned
(July, 2020)

Total mineral blocks (including ML and PL-cum-ML) offered for auction	153	
Actually auctioned	102	9 – Prospecting License –cum-Mining Lease (PL-cum-ML) 93- Mining Lease – 52 Greenfield – 14 “C” category iron ore mines in Karnataka – 27 leases expired in 2020 (4 in Karnataka and 23 in Odisha)
PL-cum-ML (composite license granted)	1 license	Out of 9 PL-cum-ML
Execution of MLs (Greenfield blocks) / commencement of operation	NIL	Out of 52 Greenfield auctioned mineral blocks, no ML has been executed / commenced operation.
Execution of ML for “C” category iron ore mines of Karnataka	7	These are from 14 “C” category mines auctioned in Karnataka which were already operational earlier and where the Hon'ble Supreme Court had ruled that FC and EC granted to earlier operational leases will automatically be transferred to successful bidder.
Execution of ML for operational mines which expired on 31 st March, 2020 and subsequently auctioned	17	Out of 27 leases (23 in Odisha and 4 in Karnataka) – 17 ML have been executed out of 23 ML expired in Odisha (these are the mines which were already operational earlier) and where validity of existing FC, EC and mining plan have been extended by 2 years. – No ML has been executed out of 4 ML expired in Karnataka.

Source: FIMI analysis based on Ministry of Mines

30. During the last five years only 153 blocks could be offered for auction for a country of India's size and geological prospectivity. It is itself an indication of failure of auction regime which requires serious rethinking on the part of Government of its long-term efficacy for resource development.

31. As of June, 2020, the Ministry of Mines has uploaded the data of 97 auctioned mineral blocks, with an estimated value of resource of Rs. 8,02,127.04 crores which can be seen from **Annexure–III**.

Table – VIII :
Auction overview (97 blocks) :
revenue to Government

Particulars	Total (in Rs. crores)	% of resource value
(A) Estimated value of the resources	802127.04	100%
(B) Additional Contribution through Auction	692205.17	86.30%
(C) Royalty	119087.13	14.85%
(D) DMF	11908.71	1.48%
(E) NMET	2381.75	0.30%
(F)= (C)+(D)+ (E) Statutory payments	133377.59	16.63%
(G) = (B)+(F) Total Revenue to Government	825582.75	102.93%
(H)= (A) - (G) Remaining with mining companies	-23455.71	-2.93%

Source: Ministry of Mines

Note: As of 1st July, 2020, total 102 mineral blocks have been auctioned. However, as on June, 2020 Ministry of mines has given expected total revenue data on 97 mineral blocks (Overall revenue). Therefore, overall revenue analysis is based on 97 mineral blocks.

32. The above table shows that 102.93% of the estimated value of resources (A) auctioned will go to the Government as revenue, while nothing will remain with the mining companies. The average winning bid (ratio of total contribution from auctions to the value of resources) comes to 86.30%, and 16.63% (royalty = 14.85%, DMF = 1.48% and NMET = 0.30%) of the value of the resource, on average, will need to be paid as statutory payments.

33. Beyond 100% of the value of the minerals being auctioned will go back to the Government exchequer, leaving nothing with the mining companies. Furthermore, mining companies will also have to incur mining cost, pay various other taxes and cesses for mining operations, including upfront payment, performance security, corporate tax and contributions for the preservation of the environment and forestry.

34. Here, mining companies' return on investment is negative. No mining entrepreneur will be interested to invest where the investment return is

negative. Moreover, no foreign investor will be interested to invest in India. Therefore, present auction regime not only forced domestic and foreign mining companies to leave India, but also pushed India out of the league of mining destinations in the world.

35. As with mineral commodities and metals, MMDR Act, 1957 has always been subject to vagaries of whims and fancies. Every new amendment is thought to be an improvement over previous one. MMDR Amendment Act, 2015 was thought to be a “reform” whereas it has proved to be the most impractical.

36. The fact that auction system has utterly failed is evident if one compares the grant of mineral concessions before auction and after the introduction of auction in 2015.

Table – IX :
Concessions granted before and after auction regime

	Before auction regime		After auction regime (2015 – 2020) (as on July, 2020)
	(2006 - 2010)	(2010 - 2014)	
RP granted	74	49	Nil
PL granted	192	496	1 (PL-cum ML)
Execution of ML	2754 (Mostly Greenfield)	494 (Mostly Greenfield)	24 (all Brownfield)

Source: Indian Bureau of Mines (IBM); FIMI analysis

37. **Execution of ML:** While 2754 mining leases were executed during 2006-10 and 494 mining leases were executed during 2010-14, most of which were greenfield, after the auction regime, only 24 brownfield mining leases have been executed, having pre-existing EC and FC. In the auction regime, not even a single mining lease has been executed / operationalised in case of green field auctioned blocks.

38. **Grant of RP and PL:** The experience in case of exploration (RP, PL) under auction regime has been very discouraging: only 1 PL-cum-ML has been granted so far under the auction regime in last 5 years. On the contrary, 123 RPs and 688 PLs were granted prior to the auction regime during 2006-14.

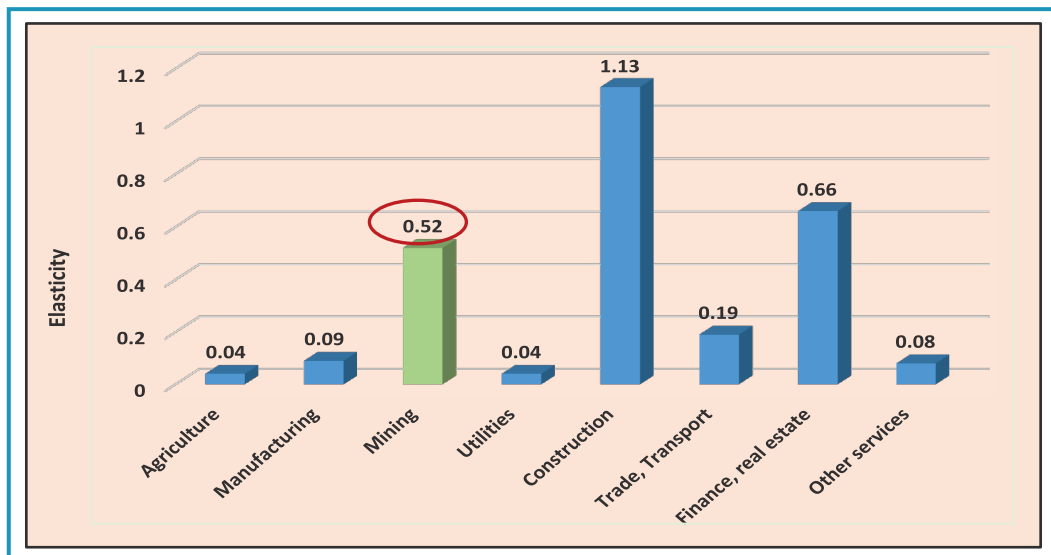
39. It can be concluded that, before auction, there was high opportunity to create new jobs through granting the mining leases, but since the auction regime started in India w.e.f. 12th January 2015, the mining sector has been crippled – no exploration and no greenfield mines and – hence no new employment opportunities in mining.

(d) Exploration / mining and local area development vs. revenue to State Governments

40. Exploration and subsequent development of a mine, when the discovery is viable, opens up new vistas for local area's economic and social growth. Unemployment is a serious issue. Since mineral resources in India occur mostly in forest and remote tribal areas, it would be a boon to these areas.

41. Mining in India is a labour intensive activity and creates employment opportunities in the hinterland which has limited potential for other economic activities. Given the present unemployment crisis in the country, it is obvious that employment-intensive growth is the key towards utilizing India's demographic dividend and ensuring a remarkable growth story. In addition, it acts as a significant variable towards achieving a sustainable and inclusive growth. Thus, it becomes imperative to understand the country's employment generation potential that can best be summarized in terms of employment elasticity.

**Chart – VII :
Sectoral Employment Elasticity (2000-2010)**



Source: Planning Commission, 12th Five Year Plan 2012-17, Chapter 22

42. As per 12th Five Year Plan, the above chart shows the sectoral employment elasticity in India from 2000 to 2010. Employment elasticity is a measure of the percentage change in employment associated with a 1% change in sectoral growth. It indicates the ability of an economy to generate employment opportunities for its population as % of its growth process. The mining sector emerges as the 3rd largest in terms of generating job per unit increase in the sectoral GDP with an employment elasticity of 0.52, next only to construction and finance and real estate. This implies that with every 1% growth in mining sector's GDP, employment in the sector increases by 0.52%. Mining sector creates 13 times more jobs than in agriculture and 6 times more than in manufacturing.

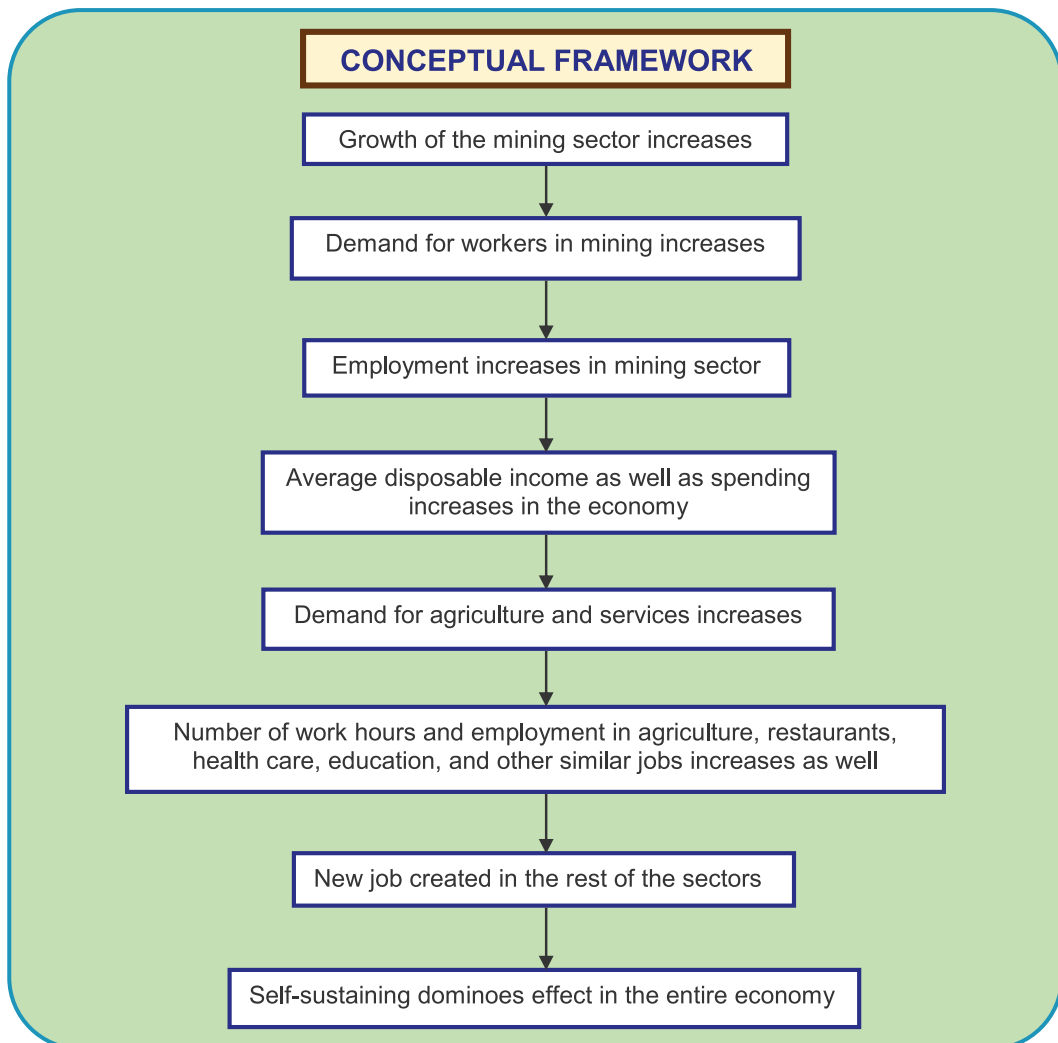
43. According to the Government of India's 'National Mineral Policy – Report of the High Level Committee' published in 2006, the ratio of direct to indirect employment in the mining sector is 1:10 i.e., for every job created in the mining sector another 10 jobs (indirect jobs) are generated along the supply chain. This is typically because of the type of linkages that the mining sector has:

- **Backward linkages** from mining represent the local or regional purchase of inputs. These often include food and catering services, electricity, transportation services, and raw materials. In turn, the regional suppliers for mining, purchase their own inputs, which further stimulate regional economic activity.
- **Forward linkages** from mining represent downstream processing of mineral ores or concentrate, including, for instance, smelting, refining, semi-fabrication, fabrication, and manufacture of products.
- **Final-demand linkages** describe the income that miners and their households spend on goods and services produced in the region (e.g., groceries, clothing, entertainment, restaurant etc.).
- **Fiscal linkages** embody the tax and royalty revenues which the regional governments use to develop infrastructures such as hospitals and schools and to purchase other goods and services.

44. If the mining sector grows, the direct effect of this is the increased employment in the mining sector. The operating mine would need to buy local goods and services provided by other businesses. This is called indirect employment, which refers to the employees working in these other businesses who will benefit from the increase in demand in mining sector. As a result, the average disposable income as well as spending of the economy increases, which in turn increase the demand for other sectors (such as agriculture, manufacturing, trade, etc.). New jobs are created in the rest of

the sectors. This means that when due to mining, the demand for agriculture and service sector increases, the number of work hours and employment in agriculture, restaurants, health care, education, and other similar jobs increases as well. Hence, the Government can collect more taxes and royalties from the economy, which, in turn, creates a self-sustaining dominoes effect in the whole economy.

**Chart – VIII :
Linkages and Job Multiplier**



45. Mining is linked to many other industries and sectors in the economy, including transportation, construction, equipment manufacturing, environmental management, geological services, education and research,

among others. If mining is promoted, more jobs will be created indirectly in these sectors, bringing all round growth in the economy.

46. In India, the practice of hiring “casual” labourers rather than permanent employees is widespread. As per Deloitte's report titled “*Human Resource & Skill Requirement Study for Mining Sector (2016)*”, mining sector's employment was around 23.23 lakh in 2011-12 and it was estimated that direct employment in the mining sector would increase to 26.45 lakhs by 2021-22 in business-as-usual (BAU) scenario. However, according to Ministry of Mines Strategy Paper, “*Unlocking the Potential of the Indian Minerals Sector (2011)*”, with proper regulatory mechanism and Government support, the Indian mining sector can create 25 lakhs additional jobs by 2025, which will increase the total direct employment in mining to 48.23 lakhs direct jobs in 2025. Since mining creates a ten-fold indirect employment, the number of indirect jobs due to mining can rise to 482.3 lakhs in 2025. Therefore, mining sector has the potential to create a total employment for 5.3 crores Indians (48.23 lakhs direct and 482.3 lakhs indirect jobs).

Table – X :
Future Employment by Mining

Employment	2012 (Actual)	2022 (Projected employment in BAU scenario)	2025 (Projected employment in accelerated growth scenario)
Direct Employment	23.23 lakh	26.45 lakh	48.23 lakh
Indirect Employment	232.3 lakh	264.5 lakh	482.3 lakh
Total employment	255.53 lakh	290.95 lakh	530.53 lakh

Source:

For Direct Employment

1. 2012 and 2022 values: Deloitte Report, “*Human Resource & Skill Requirement Study for Mining Sector*”, 2016
2. 2025 values: Ministry of Mines, Strategy paper, “*Unlocking the Potential of the Indian Minerals Sector*”, 2011

For Indirect Employment

FIMI analysis, based on National Mineral Policy – Report of the High Level Committee, 2006

47. The main objective behind MMDR Amendment Act, 2015 was to ensure that the State Governments get maximum revenue right from the start (cradle) to the closure (grave) of the mining operations. It has to be realised that in this country, the mines are mostly in tribal and forest areas with no infrastructure facilities. Development of a mine with the attendant

infrastructure required therefor will directly benefit the socio-economic milieu of the people living in those areas. If acquiring a mine and its continuous operations become unviable, no entrepreneur will be encouraged to acquire a mine and the area will remain backward. State will also get no revenue. Instead of earning more revenue from auction and other means, which may never be utilised in these backward and tribal areas, the State should attract more investment in mines in these areas which will provide jobs and lead to socio-economic development.

48. Even after the mining operations are closed after the exhaustion of deposit, the area continues to be self-sustaining because of a large number of economic activities and skills developed during the subsistence of mining operations. State Governments will continue to get their revenues even after closure of mining operations whereas in auction regime, the mining operations may not be viable and the area may remain undeveloped.

49. While resource-rich nations are competing to attract investors to explore, mine, contribute to socio-economic growth and create new employment opportunities by unlocking their own mineral potential whereas, in India, we are making it difficult for investors with state-of-the-art technologies to invest in exploration and development of mineral resources.

50. Auction regime has put the whole process of mineral development into the realm of astrology which cannot be predicted in the minerals and metals trade where booms and depressions alternate. Unless the approach of Centre and States changes, Indian mining will continue to have uncertain future. Country will continue to depend on imports for most of the vital raw materials and metals. Even the Hon'ble Supreme Court of India in its Judgement on *Special Reference No. 1 of 2012* dated 27th September, 2012 observed that:

"A fortiori, besides legal logic, mandatory auction may be contrary to economic logic as well. Different resources may require different treatment. Very often, exploration and exploitation contracts are bundled together due to the requirement of heavy capital in the discovery of natural resources. A concern would risk undertaking such exploration and incur heavy costs only if it was assured utilization of the resource discovered; a prudent business venture, would not like to incur the high costs involved in exploration activities and then compete for that resource in an open auction."

(para No. 130 of the Hon'ble Supreme Court of India Judgment)

**IV – OPEN UP EXPLORATION AND MINING
TO PRIVATE SECTOR TO GET LATEST
TECHNOLOGY AND INVESTMENT**

(a) Exploration expenditure

51. Most of the discoveries in India have been chance discoveries or based on old workings. These include lead and zinc in Udaipur, chromite in Sukinda, copper in Malanjkhand, gold in Hutti and Bharat Gold mines in Karnataka, etc. Because of the unhelpful exploration policy, and being limited to GSI / MECL, the focus has been on surficial deposits such as iron ore, bauxite, limestone, manganese ore, chromite, etc. There has not been enough focus on deep-seated minerals which has resulted more imports of these minerals / metals.

52. The level of exploration determines the level of mining in a country. It will be interesting to know how much India spends on exploration:

**Table – XI :
Country-wise exploration expenditure (in Billion USD)**

Country	2012	2013	2014	2015	2016	2017	2018	2019
Canada	3.29	1.88	1.51	1.28	0.97	1.11		
Australia	2.46	1.88	1.3	1.09	0.9	1.08		
US	1.64	1.01	0.75	0.74	0.49	0.64		
Russia	0.62	0.72	0.54	0.46	0.35	0.32		
Mexico	1.23	0.87	0.75	0.54	0.42	0.48		
Peru	1.03	0.72	0.54	0.54	0.42	0.56		
Chile	1.03	0.87	0.75	0.69	0.42	0.64		
S. Africa	0	0.43	0.3	0.35	0.28	0.16		
China	0.81	0.57	0.7	0.54	0.42	0.40		
Brazil	0.62	0.04	0.3	0.27	0.28	0.24		
Argentina	0.62	-	-	-	-	0.16		
DRC	-	-	0.3	0.13	0.14	-		
Other countries	7.18	5.44	3	2.57	1.88	2.16		
Total	20.53	14.43	10.74	9.2	6.97	7.95	9.62	9.3

The above figures do not include bulk commodities like iron ore, manganese ore, coal, bauxite, potash, phosphates and chromite.

Source: (1) S&P Global Market Intelligence, 2018; (2) For India: Ministry of Mines

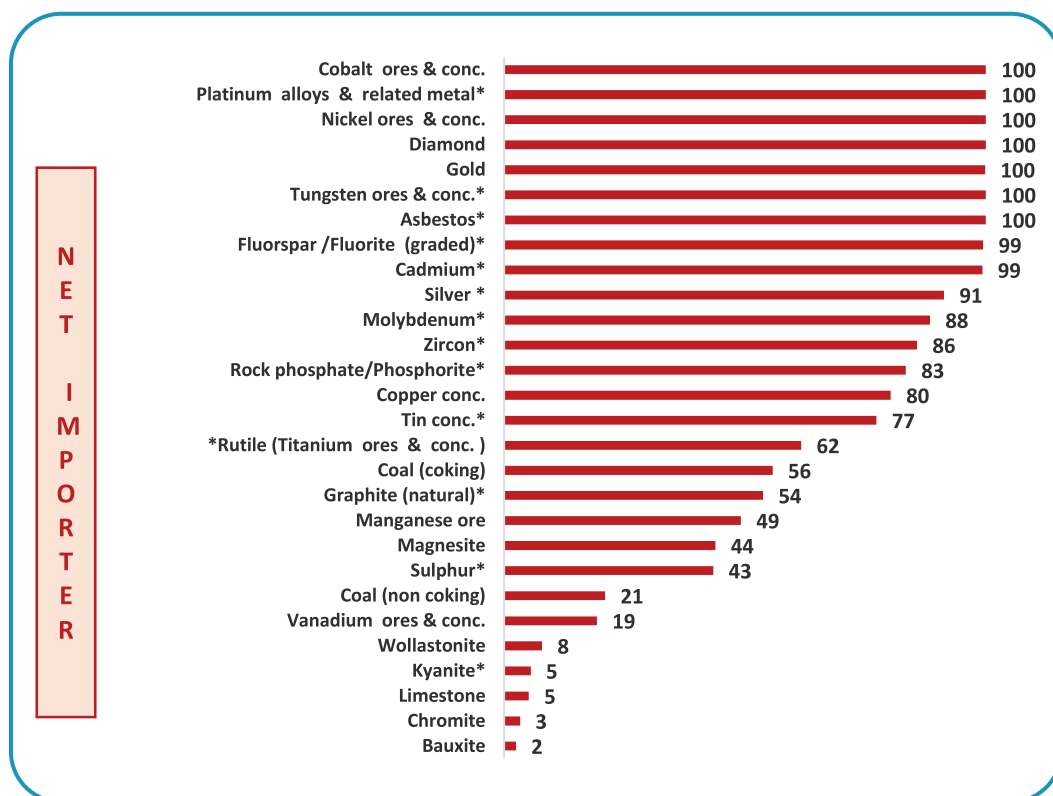
Note: India's exploration expenditure for the financial years 2016, 2017 and 2018 was USD 0.13, 0.15 and 0.17 billion respectively mostly on surficial minerals. This comprises of expenditures incurred by GSI and MECL under NMET only. In addition, CMPDIL, Department of Atomic Energy and State DMGs also incur significant expenditure on exploration.

53. In terms of percentage, whereas Canada spends 14% of global exploration expenditure, Australia 13% but India spends approximately 0.2% and that too mainly on surficial deposits and not on minerals which we import. In the last two years, there has been insignificant expenditure on exploration. In 2014, as per Mckinsey Report per square kilometre spent on exploration in India (around US\$ 17) is insignificant in comparison to Chile (US\$ 1202), Australia (US\$ 246), Canada (US\$ 192).

(b) Thrust areas for exploration

54. Most of the minerals produced in the country are surficial which are available in abundance. The country must concentrate on exploration and production of minerals / metals in which we are deficient and have to import. India's net import reliance can be gauged from the following chart:

Chart – IX :
India's Net Import Reliance (%) – 2018-19
(excluding petroleum, natural gas, atomic and minor minerals)



Source: FIMI analysis based on Indian Bureau of Mines, Ministry of Commerce and Industry.
Note: * Implies data from 2017–18

55. If one analyses the trend in world exploration, it will be evident that most of the exploration expenditure goes into the minerals / metals for which India is dependent on imports:

**Table – XII :
Commodity-wise expenditure on exploration**

(US\$ billion)

Year	Gold	Base Metals (copper, nickel, lead / zinc)	Diamond	PGM (platinum group of metals)	Other Minerals	Total
2012	9.65 (47%)	6.57 (32%)	0.62 (3%)	0.31 (1.5%)	3.39 (16.5%)	20.53 (100%)
2013	6.64 (46%)	4.76 (33%)	0.58 (4%)	0.14 (1%)	2.31 (16%)	14.43 (100%)
2014	4.62 (43%)	3.76 (35%)	0.54 (5%)	0.21 (2%)	1.61 (15%)	10.74 (100%)
2015	4.14 (45%)	3.13 (34%)	0.46 (5%)	0.14 (1.5%)	1.33 (14.5%)	9.20 (100%)
2016	3.48 (50%)	2.16 (31%)	0.28 (4%)	0.070 (1%)	0.98 (14%)	6.97 (100%)
2017	4.05 (51%)	2.38 (30%)	0.25 (3%)	0.080 (1%)	1.19 (15%)	7.95 (100%)
2018	4.85 (51%)	3.04 (31%)	0.30 (3%)	1.00 (10%)	0.43 (4.46%)	9.62 (100%)
2019	4.29 (50%)	3.23 (31.37%)	1.78 Collectively (18.63%)			9.3 (100%)

Source: S&P Global Market Intelligence;
Note : The above figures does not include bulk commodities; Figures in parenthesis indicate the percentage expenditure for a mineral in a particular year.

(c) How to revive exploration and mining of minerals for which India depends on imports

56. Mineral exploration is the lifeline of mining. The level of exploration activity determines the level of mining in a country. It is a scientific knowledge-driven process and a commercial business of value addition to a licenced block of land with the eventual aim of mining it for a profit. The process of discovering and defining mineable mineral deposits evolves in stages from conceptualization and selection of a target to be explored followed by reconnaissance (exploration), prospecting, pre-feasibility and feasibility studies for mining operations. The initial licenced area would be a large block of land, generally called as Greenfield, which progresses with reduction in area to a Brownfield or Prospect and eventually, if successful, results in a mineable mineral deposit.

57. Exploration is not always a rewarding exercise. Globally, mineral exploration is viewed as a high risk business because it involves high investment but may fail, at any stage of exploration, to show up the potential of the chosen area to deliver a profitably mineable mineral deposit.

58. All over the world, prospecting and mining are recognised as an independent activity with transferability of the concessions. By and large, almost all the resource-rich countries have adopted the system of First-Come-First-Served (FCFS) for their resource development. If implemented strictly and in true spirit, FCFS is transparent and non-discretionary.

59. Under the FCFS system, an agreement is entered with the Government with full checks and balances whereby there is annual financial / expenditure commitment (which differs from country to country) by the concessionaire to undertake minimum committed level of work, which goes on increasing every year.

60. Normally the success rate of prospects in exploration is 1:100. As such, no resource rich country spends tax payers' money on such a risky venture. For undertaking exploration job, these countries entrust the same to private companies, popularly known as *junior exploration companies*.

61. Junior Exploration Company is formed by a group of geologists whose domain expertise is in a particular mineral or group of minerals. For exploration job, they bank on venture capital or hedge funds (most of the funds are raised from Toronto Stock Exchange followed by New York, London and Perth Stock Exchanges, etc.)

62. A junior exploration company, when it is successful in locating a world class discovery, sells it to a major mining company at a price which may recover all the past losses, if any, and may cover possibly future losses. A mining company can also undertake exploration such as Rio Tinto who discovered the diamond deposit in Bunder area in Madhya Pradesh.

63. Both the *Junior exploration companies* as well as mining companies have freedom to sell / transfer the concessions with its tenurial guarantee and seamless transition to a mining stage, all of which are key to success of FCFS system. These companies require freedom to market their products to derive maximum value.

(d) Indian initiative

64. To make mining more attractive and in tune with international practice, a High Powered Committee, popularly known as Hoda Committee, was set up following which National Mineral Policy (NMP) was revised in March 2008. The Policy gave private sector a primary role for exploration and emphasized that *“In order to make the regulatory environment conducive to private investment, the procedures for grant of mineral concessions of all types, such as Reconnaissance Permits, Prospecting Licenses and Mining Leases, shall be transparent and seamless and security of tenure shall be guaranteed to the concessionaires. The first-in-time principle in the case of sole applicants and the selection criteria in the case of multiple applicants will be appropriately elaborated. Prospecting and mining shall be recognized as independent activities with transferability of concessions playing a key role in mineral sector development”* (para 3.3). This Policy remained only on paper and never saw the light of the day.

(e) Indian story: missed opportunity

65. No mineral-rich country has developed its mining industry on the basis of government exploration alone. Mineral rich countries such as US, Canada, Australia, Brazil, South Africa, Chile, Mexico etc. do not want 'to spend' tax payers' money on the risky venture like exploration*. The government in these countries create favourable conditions and provide necessary data to the private sector to explore. These countries therefore encourage the private companies, commonly known as junior exploration companies, to undertake detailed exploration by providing various incentives and security of tenure besides seamless grant of concessions as well as freedom to sell / transfer the concessions.

66. Foreign Direct Investment (FDI) inflow plays a vital role to shape the Indian economy. FDI helps to boost economic activity, R&D and generate employment, with an ultimate objective of generating a return on the investment. 100% FDI is permitted in mining sector since February 2000.

* *The exploration work is extremely risky: if during aerial survey, 1000 anomalies are observed, it may be that only 100 anomalies are worth ground prospecting and it may again be that only one out of these 100 turns out to be worth economic exploitation. The Governments do not therefore prefer to spend the tax payers' money on exploration because it does not want the tax payers' money to be invested in risky and hazardous ventures like exploration.*

67. However, compared to other mineral rich countries, FDI in mining sector in India is quite low. The following table brings out the trend of the FDI in mining sector in resource rich countries:

Table – XIII :
Trend of FDI inflow in mining :
India vis-à-vis other resource rich countries (in USD million)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
India	268	592	204	69	24	129	596	141	82	247
Mexico	1,385	1,541	915	3,013	5,745	2,679	1,582	919	1,364	1,506
Peru	NA	NA	NA	NA	NA	NA	NA	1,215	2,298	2,528
Colombia	5,651	4,918	7,092	7,955	8,220	6,897	3,174	2,199	4,261	3,941
Australia	1,327	10,463	41,558	40,738	49,407	49,107	10,963	23,738	15,139	2,632
Canada	NA	NA	15,760	7,215	23,538	15,267	2,924	8,256	NA	4,456
Russia	NA	3,759	4,549	4,808	7,101	4,545	11,489	22,304	8,329	5,043

Source: International Trade Centre; <https://www.investmentmap.org/home>

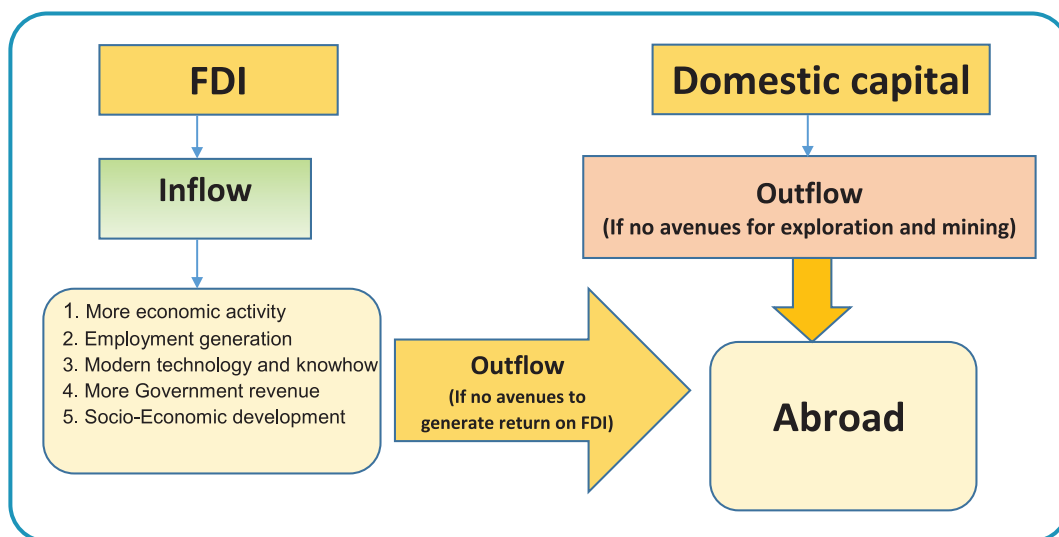
68. As per UNCTAD report, African continent attracted FDI to the extent of US\$ 46 billion in 2018 which was 12% higher than a year earlier. This is despite 14% contraction of FDI worldwide. The top five African recipients of FDI were:

- Egypt – US\$ 6.8 billion
- South Africa – US\$ 5.3 billion
- DRC – US\$ 4.3 billion
- Morocco – US\$ 3.6 billion
- Ethiopia – US\$ 3.3 billion

Source: Investing in African Mining Indaba 7th November, 2019
<http://www.miningindaba.com/Articles/fdi-in-african-mining>

69. In mining, FDI inflow turns into FDI outflow if there is no avenue to generate return on investment. Furthermore, the domestic capital will flow out if no avenue is there for exploration and mining. In case of India, FDI inflow in 2016 was US\$ 596 million and outflow was US\$ 2,166 million which implies that flight of domestic capital to foreign countries for mining far exceeds the FDI inflow. Indian capital is moving out of the country to generate socio-economic development and create jobs abroad.

Chart – X :
FDI inflow vs. outflow (conceptual framework)



Source: FIMI

Table – XIV :
FDI Inflow vs. Domestic Capital Outflow in Mining

Period	FDI Inflow	Domestic Capital Outflow	
2010–14	\$ 889 million	\$ 3,200 million	22 deals in Australia, Indonesia and Africa
		+ undeclared amount	23 deals in Australia, Indonesia and Africa
2015	\$ 129 million	\$ 721 million	25 deals globally
2016	\$ 596 million	\$ 2,166 million	26 deals globally
2017	\$ 141 million	NA	NA
2018	\$ 82 million	NA	NA
2019	\$ 247 million	NA	NA

Source: FIMI analysis based on RBI (for FDI inflow) and Blake, Cassels & Graydon LLP (for outflow during 2010-14) and Ernst & Young (for outflow during 2015 & 2016)

70. The countries with supportive regime have been able to attract significant investment. Just the state of Ontario, in Canada, has been able to attract over US\$ 2.4 billion only in gold mining projects within a period of only three years between 2012 and 2015 (**Annexure-IV**). This shows that the supportive mineral regimes have been able to attract sizeable investments during the periods when India has seen only trickles of investments.

71. In order to increase productivity, employment, export and reduce imports, it is necessary to increase FDI in the mining sector. FDI brings with it the latest technologies for exploration and mining. And for that, India needs supportive mineral regime, to attract both domestic and international companies to explore and mine in India.

**V – MINING TO BE CONSIDERED
AS AN INDEPENDENT ACTIVITY**

72. For junior exploration companies to come, explore and invest, it is essential that mining is recognised as an independent activity and not made captive to an industry. This is essential, because unless mining is an independent activity, the junior exploration company will not be able to get real value of the risk undertaken.

73. The concept of captive mines for an industry is typical to India. While the supplies of materials from captive mine are limited to its end use linked industry only, non-captive mine caters to the need of wide spectrum of industry.

74. A mine or a deposit contains various grades with different chemical and physical composition whereas a plant would require a uniform grade to maintain a consistent feed. A plant therefore blends ores from various sources to make a consistent feed to make a quality product economically.

75. The policy of captive mines has led to serious repercussions and has affected the growth of a viable mining industry in India:

- no benefit to the down-stream users as inter-sectoral subsidy from mining is not passed on to them and hence there are no multiplier benefits;
- subsidies in the form of captive leases or concessional land have hidden their inefficiencies and has covered up their windfall profits;
- has deprived the country of world-class stand-alone resource mining companies which could lead to sustainable development of resources with attendant benefits such as development of infrastructure and socio-economic growth of tribal and backward areas; and
- has excluded those companies with a proven track record and skills in mine development.

76. The system of acquiring captive mines has not been able to unleash the full potential of mining in India. Mining and smelting are the business of volumes. It is volume which gives the mining and smelting the economy of scale. Captive mining limits the scale of mining, leads to selective mining and wastage of resources. Since area granted for captive leases is large, exploration activities are minimal and limited to the requirements of the plant(s).

**Improving regulatory regime:
timely disposal of RP / PL / ML applications**

77. As mentioned earlier as on 05-05-2014, 66,477 applications were pending with Central and State Governments which included 43,025 mining lease applications. These lapsed once MMDR Act was amended w.e.f. 12th January 2015. The main reason was that the State Governments did not pass any order within the timeframe provided in the Mineral Concession Rules (MCR) 1960. Since no order was passed, there was no cause for action to file Revision Application with the Central Government under Section 30 of MMDR Act 1957. To overcome this lacuna and to streamline the grant of mineral concessions (RP / PL / ML), it is suggested to amend Section 30 of MMDR Act, 1957 to incorporate timelines for State and Central Government to dispose the applications.

- There should be strict timeframe of 90 days for disposal of RP / PL / ML and other related applications at State level, failing which an applicant will have a cause for action to appeal to Central Government.
- The Tribunal of Central Government should be made full-time with a dedicated officer of the Ministry of Mines not below the rank of Joint Secretary, exclusively hearing the revision / appeals / pending applications. This Tribunal should give speaking orders on a case within 90 days which is implementable at the State level.

78. These suggestions will help India to improve its regulatory mechanism in mining and put it on a growth path. Further, Central Government should encourage healthy competition in between various mineral-rich States to attract investment in exploration and mining.

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VI – TIMELY GRANT OF APPROVALS

79. Time is essence for any business. Since longer timeline increases the interest on capital and ultimately affects viability of the project, investors therefore prefer jurisdictions which allow them to deploy capital and generate revenue within shorter period.

80. At present, the process of grant of approval for obtaining statutory clearances like Environmental Clearance (EC), Forest Clearance (FC), Wildlife Clearance, land acquisition etc. for mining projects is quite cumbersome and lengthy. It takes minimum 3–5 years to obtain such approvals and at times there is no guarantee that mining lease will be granted. As an example after a gap of 25 years, a world-class diamond deposit was discovered by Rio Tinto in Bunder area in Madhya Pradesh in 2004. Although Rio Tinto was able to obtain EC in 2015, but it was later denied FC. The company had to wind up their operations after having spent 13 years and Rs. 500 crores on the Bunder project.

81. As a result of inordinate delays as well as uncertainty in obtaining approvals for mining projects, entrepreneurs are discouraged to invest their time and money for exploration / mining in India. Hence, timely facilitation / approvals by Government is a must for attracting investment and improving ease of doing business in India.

82. There should be single appraisal system for EC, FC and Wildlife clearances as all three inherently evaluate the impact of a project on flora, fauna and ecosystem. Such a single appraisal system may involve –

- Preparation of unified EIA/ EMP report as per prescribed TOR;
- Public consultation and Gram Sabha may be conducted jointly, wherever possible; and
- Appraisal by Committee and grant of single Environment-Forest-Wildlife Clearance.

**VII – NEED FOR AN ALL-INDIA GEOLOGISTS
AND MINING ENGINEERS' SERVICE**

83. Unlike Atomic Energy, Science & Technology, Earth Science Ministries / Departments, which are headed by specialists, Ministry of Mines and State Departments of Mines and Geology are now-a-days led mostly by people who do not have domain expertise.

84. For the mining sector, not only the policy issues, but the nature, origin and occurrence of minerals, their distribution world over, rate of their depletion, advances in extraction and process technologies is of prime importance. For sustainable development and exploration of minerals, the persons in mining department / ministries at all-India and states level have to keep track with new and state-of-the-art technologies evolved in the resource rich countries.

85. These people have to analyse which should be the thrust areas for exploration and exploitation so that the country should not depend on imports. Since the Ministries / departments in the Centre and States are not guided by the people who have knowledge of mining, proper attention has not been given towards scientific and sustainable growth of mining industry as a supplier of raw material to domestic manufacturing industry. As against this, atomic energy, space and other scientific departments brought pride to India's image primarily because they were led by domain experts. Mining Ministries / Departments are unable to give shape to India's future course and thrust areas for exploration and mine development for the growth of mineral and metal industries.

86. It would therefore be worth consideration for the Government of India to constitute a separate all-India service of Geologists and Mining Engineers so that specialised domain experience is available to take a long-term view for the growth and thrust areas for exploration and mine development.

VIII – CONCLUSION

87. If India has to explore its mineral deposits for which the country is dependent on imports and which are generally deep-seated, we have to revise our exploration policy in line with global practice. One of the main reasons for the exploration policy being not successful despite provisions of MMDR Act as amended in December, 1999 was that the States played truants in converting RPs into PLs and PLs into MLs. The Central Government has to take the responsibility to see that the States follow the policy in true letter and spirit. Further large areas reserved for PSUs should also be dereserved. There is also an urgent need to simplify the process for forest and environment clearances, and land acquisition besides rationalising the taxation in mining sector.

88. It is sad that India in the last more than seventy three years since Independence in 1947, has not been able to formulate a stable and attractive policy for the development of its mineral resources and continues to be highly unexplored despite having good geological prospectivity. The MMDR Act as amended in December 1999, was a good piece of legislation. It is not the Act which failed; it is the regulatory regime in the States, right from political to civil servants, which failed and we blamed the statute. The Base Paper on National Mineral Exploration Policy 2015 acknowledged that:

“Apart from the inherent administrative difficulties in implementing such a policy, it would also seem that the recommendations would have placed an impossible burden on the executive machinery of the Government”.
(para No. 3.2.3, page No. 9)

It looks a strange statement from the Government showing its helplessness about its ability to harness the country's resources for the benefit of the people. Let us therefore reform and streamline the regulatory regime to be in line with modern and positive outlook. It is hoped that the all-India service for Geologists and Mining Engineers being proposed may overcome these lacunae.

**SOME OF THE DISCOVERIES BY PRIVATE SECTOR
DURING 2000–2015**

(A) Geomysore Services (India) Pvt. Ltd. and Deccan Gold Mines Ltd.

Andhra Pradesh

1. 4 parallel very wide zones (up to 200 metres) of deep seated (Below 200 metres and up to 400 metres), granite-hosted, NNE-trending, NW dipping, drill tested, gold-deposits in the west block of Jonnagiri Gold Fields.
2. Chigarigunta–Peddapartikunta New Tract in South Kolar belt, Chittoor distt.
3. Sadukonda Magnetite Iron ore deposit of 33% Fe grade (300 million tonnes of geological potential estimated)

Chhattisgarh

4. Granite hosted gold-bearing massive sulphide bodies and gold-quartz veins in Semarkachar-Bhagora Gold Field, Jashpur district.

Karnataka

5. BIF hosted Ganajur Main gold prospect and 8 satellite auriferous BIF bodies in D-S Basin, Haveri district.
6. BIF hosted Mangalgatti and Bhavihal prospects in D-S Basin, Dharwad district.
7. 20 other BIF-hosted gold prospects spread between Haveri and Dharwad in Dharwar-Shimoga Basin. All are new discoveries.
8. Polymict conglomerate hosted gold in 3 prospects north of Hanni in Shimoga belt, Chikmagalur district.
9. Sheared magnetite gabbro hosted Manigatta-Syagattur 5km long mineralized zone, North Kolar belt, Kolar district.
10. BIF hosted Hirenagnur prospect in Hutti belt, Raichur district.
11. Granite hosted ENE-trending Yatkal Prospect in Hutti belt, Raichur district.
12. Granite hosted Ashoka prospect in South Hutti belt, Raichur district.
13. Palkanmardi-Chinchergi tract in Hutti belt, Raichur district.
14. Vadigehalli-Jaderi-Venkatapura prospect in North Kolar belt, Kolar district.

Madhya Pradesh

15. Kusera gold Field in Mahakoshal belt, Jabbalpur district.

Maharashtra

16. Mokabardi gold tract in Sakoli Fold belt, Nagpur district. Details of the above prospects was presented at the 2nd National Seminar on Gold Mining Industry in India organized by GSI in 2009.

(B) Ramgad Minerals and Mining Limited (Baldota Group)

Andhra Pradesh

17. Diamond prospect found by RMML, but PL applied after RP in 2008 is under process.

Karnataka

18. Gold prospect in Nabhapura Central, Gadag District, Karnataka in 2012.
19. Gold prospect in Basappagudda, Gadag District, Karnataka in 2004.
20. Gold prospect in Suranagi, Gadag District, Karnataka in 2004.

Rajasthan

21. Rare Earths Element (REE) prospect in Kamthai, Barmer District, Rajasthan in 2015.

(C) De Beers India Pvt. Ltd.

22. Discovered 56 kimberlites and lamproites – the primary source rocks for diamonds.

(D) Rio Tinto India Pvt. Ltd.

23. Bunder discovery in Chhatarpur, Madhya Pradesh with an estimated diamond resource of 27 million carats is the largest diamond discovery in the world in the last decade.

(E) Hindustan Zinc Ltd.

24. PL applied by HZL in Karnataka for gold in 1999 and approved by Govt. of India in 2010 was yet to be executed by Govt. of Karnataka. Similarly, a ML for gold approved by Govt. of India in 2015 is yet to be executed by Govt. of Karnataka

(F) Adi Gold Mining Pvt. Ltd.

25. Ascot Multi Metal Project was a world class deposit of copper having high gold and silver content discovered by Adi Gold Mining Pvt. Ltd. (Indian arm of a Junior exploration company Pebble Creek Mining Limited, Toronto) in Pithoragarh, Uttarakhand. The project finally did not take shape despite the company having made significant investment in the project as well as in CSR activities because forest and environmental clearances were not forthcoming even after years of waiting.

(G) Metal Mining India Pvt. Ltd.

26. Discovered gold deposit at Jagpura, Rajasthan. But 10 PL and one ML applications for gold of Metal Mining India Pvt. Ltd. were rejected and later reserved for RSMML (a State PSU) after expiry of RPs / PLs in 2008.

(H) Mira Exploration Pvt. Ltd.

27. Copper deposit discovered in Chhattisgarh. LOI granted but Chhattisgarh Govt. stated that it cannot assure ML in case of adverse decision of the Committee set up for this purpose. Chhattisgarh has a policy of reservation in favour of CSMDC who then give contract to private parties.

COMPUTATION OF EFFECTIVE TAX RATE IN MINERAL-RICH COUNTRIES (FEBRUARY, 2020)

Basis	Items	UoM	India (New Mines)	India (Existing Mines)	Mongolia	Canada (NWT)	Chile	Indonesia (Sulawesi)	Australia	South Africa	Namibia	Remarks
A	Quantity of Iron Ore	MT	1	1	1	1	1	1	1	1	1	
B	Assumed Sales Price	\$	60	60	60	60	60	60	60	60	60	
C = A*B	Net Revenue	\$	60	60	60	60	60	60	60	60	60	
D	Cost of Goods Sold (COGS)	\$	16	16	19	20	22	18	17	16	19	
E = C-D	Gross Profit	\$	44	44	41	41	38	42	44	44	41	
F	Royalty	\$	9	9	3	4	8	2	3	0	1	India : 15% of Sales Price
G = E-F	Profit Before Tax	\$	35	35	38	36	30	41	40	44	40	
H	Corporate Tax	\$	9	9	4	9	6	10	12	12	15	India : @25.17% incl. cess, surcharge
I	CSR	\$	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	India : 2% of PAT
J = G-H-I	Profit Available for Distribution	\$	25	25	34	27	24	30	28	31	25	
K	Dividend Distribution Tax	\$	4	4	3	3	0	0	0	5	0	India : 16.95%
L = J-K	Net Amount after DDT	\$	21	21	32	25	24	30	28	27	25	
M	Share of Community (DMF)	\$	1	3	0	0	0	0	0	0	0	
N	NMET	\$	0.2	0.2	0	0	0	0	0	0	0	India : 2% of Royalty
O	Other Taxes	\$	0.0	0.0	3.5	0.0	0.0	4.2	2.0	0.2	2.0	
P = L-M-N-O	Effective Earning	\$	20	18	28	25	24	26	26	27	23	
Q = E-P	Amount paid as Effective Tax	\$	24	25	13	16	14	16	17	17	18	
R = (Q/E)%	ETR (Effective Tax Rate)	\$	54.14%	58.26%	31.30%	39.50%	37.60%	38.10%	39.70%	39.70%	44.20%	

**OTHER TAXES / LEVIES ON THE MINING
INDUSTRY NOT COVERED IN ETR**

ETR does not include a number of other payments such as :

- Auction price (base price + premium)
- Upfront payment at the time of grant of mining lease = 0.50% of value of estimated resources.
- Performance security = 0.50% of the value of estimated resources
- Additional payment equal to 80% of the royalty in case of transfer of captive leases.
- Purchase of land for mining
- GST @18% of royalty made effective w.e.f. 01.07.2017.
- 10% tax levied by Supreme Court in Goa and Karnataka and FDT levied by Karnataka as well as highest rate of royalty on iron ore in Odisha.
- Net Present Value (NPV) in case of survey in forestland:
 - Coal, lignite, ferrous and non-ferrous minerals using core drilling technology having density of 10%–40% = 2% of total Prospecting Lease (PL) area;
 - Coal, lignite, ferrous and non-ferrous minerals using core drilling technology having density of 40%–70% = 5% of total Prospecting Lease (PL) area; and
 - Any amount of NPV deposited in the stipulated Government account is non-refundable. However, the NPV deposited for prospecting in the area, will be adjusted against the estimated NPV to be levied, in case the approval is obtained for diversion of the same forest land for mineral extraction, under Section 2 of FCA 1980.
- Net Present Value (NPV) for diversion = Rs. 4.38 lakhs to Rs. 10.43 lakhs per hectare depending on the density of forests at the time of grant of lease.
- Compensatory afforestation charges which differs from State to State.

Source: FIMI analysis

STATE-WISE AUCTION SUMMARY (JUNE, 2020)

States	Rajasthan (8)	Odisha (30)	MP (8)	Chhattisgarh (5)	Karnataka (18)	Jharkhand (7)	Andhra Pradesh (5)	Gujarat (3)	Maharashtra (13)	Total
Mineral	8 Limestone	15 Iron Ore, 6 Iron Ore & Manganese, 3 Manganese, 3 Chromite, 2 Limestone, 1 Graphite	3 Limestone, 2 Graphite, 2 Diamond, 1 Iron Ore	4 Limestone, 1 Gold	18 Iron Ore	2 Limestone, 2 Gold, 2 Graphite, 1 Iron Ore	4 Limestone, 1 Gold	3 Limestone	6 Bauxite, 2 Limestone, 2 Manganese, 2 Copper, 1 Iron Ore	97
Estimated value of the resources (incr)	55,109.51	535,827.63	59,189.94	26,937.32	65,053.49	8,217.19	7,947.32	35,276.91	8,567.72	802,127.04
Additional Contribution through Auction (in cr)	24,544.10	542,520.09	20,666.67	22,164.61	62,925.28	4,755.53	1,597.31	9,468.79	3,562.78	692,205.17
Royalty (in cr)	9,897.47	79,029.89	6,918.69	4,489.94	9,758.02	785.42	1,135.77	6,012.00	1,059.94	119,087.13
DMF (in cr)	989.75	7,902.99	691.87	448.99	975.80	78.54	113.58	601.20	105.99	11,908.71
NMET (in cr)	197.95	1,580.60	138.37	89.80	195.16	15.71	22.72	120.24	21.20	2,381.74
Total of Royalty + DMF + NMET (Statutory Payments) (in cr)	11,085.16	88,513.48	7,748.93	5,028.74	10,928.99	879.67	1,272.06	6,733.44	1,187.13	133,377.59
Total revenue to the Govt. over 50 years (in cr)	35,629.27	631,033.57	28,415.60	27,193.35	73,854.26	5,635.21	2,869.37	16,202.23	4,749.90	825,582.75

Source: Ministry of Mines

FDI IN GOLD PROJECTS IN ONTARIO

Company	Project	Listing
Chalice Gold Mines	Cameron Lake	Advanced exploration
Detour Gold	Detour Lake	Operating
Cold Canyon Resources	Springpole	Advanced exploration
Goldcorp	Borden Lake	Advanced exploration
Goldcorp	Cochenour	Under Construction
Goldcorp	Hollinger	Operating
Gowest Gold	Bradshaw	Advanced exploration
HarteGold	Sugar Zone	Advanced exploration
IAMGold	Cote Lake	Advanced exploration
Agnico Eagle-Yamana	Hammond Reef	Advanced exploration
PC Gold	Pickel Crow	Advanced exploration
Premier Gold Mines	Hardrock	Advanced exploration
Premier Gold Mines	Brookbank	Advanced exploration
Argonaut gold	Magino	Advanced exploration
Agnico Eagle-Yamana	Upper beaver	Advanced exploration
Moneta Porcupine Mines	Golden Highway	Advanced exploration
New Gold	Rainy River	Under Construction
Northern Gold Mining	Garrison	Advanced exploration
Rubicon Minerals	Phoenix Gold	Under Construction
St. Andrews Goldfields	Taylor	Under Construction
Treasury Metals	Goliath	Advanced exploration
<p>Notable transactions in the junior gold space since 2012 (in red), totalling approximately US\$ 2.4 billion</p> <ul style="list-style-type: none"> — IAMGold's purchase of Trelawney valued at \$608 million — Argonaut's purchase of Prodigy valued \$341 million — Osisko's purchase of Queenston valued \$550 million — New Gold's purchases of Rainy River valued at \$310 million — Goldcorp's purchase of Probe Mines for \$526 million 		



