Indian Mining Industry and opportunity for Mining Equipment, Technology and Service providers

Australian Trade and Investment Commission
Jun 2019
Indian mining industry to continue to demonstrate strong growth

India remains an oasis of growth amongst slowing global outlook.

Real GDP Growth (%)

- India: 7.5% (2020), 7.7% (2021), 6.1% (2022), 5.5% (2023), 2.5% (2024)
- China: 2.2% (2020), 1.8% (2021), 1.7% (2022), 1.6% (2023), 1.6% (2024)
- Brazil: 1.7% (2020), 1.7% (2021), 1.9% (2022), 1.6% (2023), 0.5% (2024)
- Russia: 1.6% (2020), 1.6% (2021), 0.5% (2022), 0.5% (2023)
- US: 0.5% (2020), 0.5% (2021), 0.5% (2022), 0.5% (2023), 0.5% (2024)
- Japan: 2.0% (2020), 2.0% (2021), 2.0% (2022), 2.0% (2023), 2.0% (2024)

Source: World economic outlook, April 2019, IMF

India is at an early stage in terms of per capita mineral consumption and has a significant potential to grow at accelerated growth than historical growth

### Demand drivers for Indian mining sector

#### Coal
- Demand estimated to increase to 1.3-1.9BT by 2030 (Base case - 1.5 BT)
- Demand scenario is volatile due to fast changing energy landscape

#### Iron & Steel
- Steel demand to grow at a high pace and will reach 214-247 MT by 2030
- Iron ore demand is expected to reach ~430 MT by 2030

#### Non-ferrous Metals (Al, Cu, Pb, Zn)
- Demand is expected to reach ~9 MT in 2022
- Individual demand will reach Al ~5MT, Cu ~1.3MT, Pb ~2MT, Zn~ 1MT

#### Beach Sand Minerals
- High reserve share of beach sand minerals (35%) presents high potential
- Exploration covered only ~2,000 km of coastal stretch, out of ~6000 km

### Opportunity

- Expansion or production enhancement projects
- Inclination towards advanced configuration machinery
- Detailed exploration
- Inclination towards higher configuration machinery
- Technological advancement in beneficiation
- Upgrading technology in developing quality downstream products
- Scope of further exploration
- Establishing Value addition industries
- New & efficient technologies

Source: MoC, CIL, SCCL, KPMG Analysis

Source: NSP 2017

Source: KPMG report: Mines and Minerals Development way forward

Source: KPMG report: Non-Ferrous metals industry - Building the Future

Mining sector is closely associated with economic development and in the case of India as it shall post healthy growth in the future due to following factors:

- Strong economic growth – Projected to be fastest growing economy at-least till 2024
- Make in India – Focus on increase in Manufacturing share to 25% by 2025
- New application areas such as electric vehicles, renewables, defense etc.
- Growing demand from end-use industries such as infrastructure, Automotive, Power
- Technology Development in the sector increasing efficiencies and productivity
- Low per capita metal consumption creates tremendous potential

Source: World economic outlook, April 2019, IMF

India is an oasis of growth amongst slowing global outlook.
India’s true mining and exploration potential is yet to be tapped

Currently, only 10% of the 8 lakh sq. km of potential resource bearing area in India has been explored - Significant exploration potential to convert resources to reserves

- For many minerals, India’s global production share is low; although it has high reserve share - provides for significant potential in future

Contribution of Mining Sector to GDP is low as compared to other mineral rich States

- India is a mineral rich nation with significant mineral potential
- Every 1% incremental growth in mining and quarrying sector results in
  - ~1.2–1.4% incremental growth in industrial production
  - ~0.3% incremental growth in India’s GDP
- If India converts these resources into reserve and produce it economically, then it will contribute significantly to India’s GDP


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The country to witness strong momentum with forthcoming auctions – post Mar’20

5 states account for 45% of the Value of Minerals Produced (excl. atomic mineral) in India

Rajasthan (12%)
- Minerals mined in Rajasthan sent to other states in raw form
- Tremendous scope for setting up of new mineral based industries for value addition

Jharkhand (7%)
- Owns ~40% of total mineral resources of India
- Thrust on using natural sources to generate revenue and employment
- Ranked 4th in India in Ease of Doing Business

Madhya Pradesh (6%)
- Pro-activeness of State Govt. in terms of geochemical survey of resources, making land available, etc.
- Ranked 7th in India in Ease of Doing Business

Chhattisgarh (7%)
- Strong mining eco-system. 80% Industries are mining based
- Surplus-Power state with Power being 20% cheaper than National Avg.
- Ranked 6th in India in Ease of Doing Business

Odisha (11%)
- Vast natural resources and supportive and flexible administrative set up
- Increasingly investment-oriented

Coal – Adequate capacity already allocated to fulfil anticipated demand
- CIL is estimated to remain the dominant supplier
- More than 50% of mines/ projects face Medium-High development risk

Non–Coal minerals – Odisha to be at the front in forthcoming auction
- 104 Brownfield merchant mining leases to be auctioned in 2020, of which, 49 are working mines
- 44 working mines are of Fe, Mn and Chromite which has a significant production share in India’s total production

Source:: Annual Report 2016-17, MoM

Source: Report of the Committee chaired by Dr. K. Rajeswara Rao, Addl. Secretary, M/O Mines to look into the issues related to seamless operationalization of the mining leases expiring on 31.03.2020
Cost & tech. efficiency driving outsourcing model in mining industry

### Players
- **Government & PSUs - GSI, MECL, AMD etc.**
- **Nomination**
  - Private companies get contract on tender basis but limited

### Type
- **1. Reconnaissance**
- **2. Prospecting**

### Operating Model
- **Nomination**

### Exploration
- **All**

### Mineral
- **Coal**
- **Non-coal minerals**

### Mining
- **Coal**
  - Commercial mining
  - Captive mining
  - Domination by PSUs
  - Mix of Pvt. and PSUs
  - Private: JSPL, PSU: NTPC, State Gencos
  - MDO
  - Mining contracts
  - Others
  - MDO***

- **Non-coal minerals**
  - Commercial mining
  - Captive mining
  - Mix of Pvt. Co. and PSUs
  - Private: Vedanta, PSU: NMDC
  - Private: Hindalco, PSU: Nalco
  - MDO
  - Mining contracts

**Notes**:
- **Civil infra, logistics, washing, coal supply chain management**
- **Mining contract opportunities with Pvt sector but limited**
- **Mining contract opportunities with Pvt sector but limited**
- **Mining contract opportunities with Pvt sector but limited**
- **Private companies get contract on tender basis but limited**
Favorable Policies and Regulations likely to impact the Sector

**National Mineral Policy 2019**
- Introduction of **Right of First Refusal** for RP/PL holders and auctioning of composite RP cum PL cum ML in virgin areas
- Encouraging the private sector to take up exploration by introducing appropriate incentives
- Encouragement of merger and acquisition of mining entities.
- Creation of **dedicated mineral corridors** to boost private sector mining areas.
- Encouraging technology through appropriate incentives for mineral administration and curb illegal mining
- Proposes to grant ‘industry’ status to mining with the objective of boosting financing of private sector.
- Harmonize taxes, levies & royalty with world benchmarks to help private sector.

**MMDR Amendment Act, 2015**
- The MMDR Act of 1957, witnessed amendments in 2015 for the promotion and development of the mining industry, that includes
  - Auctions for allocation of mining leases, longer lease duration and stringent provisions for illegal mining
  - Provision of composite license i.e. prospecting license-cum-mining lease (PL-cum-ML)
  - District Mineral Foundation is set up by government which will work for the interest and benefit of mining affected person
  - Establishing a dedicated trust ‘NMET’ for collecting funds (2% of royalty from leaseholders) and use it for exploration purposes

**Relaxed FDI norms**
- FDI of up to 100 per cent is permitted under the Automatic Route for mining and exploration of metal and non-metal ores but excluding titanium bearing minerals and its ores
- In March 2018, the government allowed 100 per cent FDI in commercial coal mining to introduce private sector participation

**Investment Incentives**
- Low custom duty on the capital equipment used for minerals such as Nickel, tin, pig iron and unwrought Aluminum
- One-tenth of the expenditure on prospecting, extraction and production of certain minerals during five years ending with the first year of commercial production is allowed as a deduction from the total income (subject to the timelines provided in the law)

Source: Mining in India, Lexology
<table>
<thead>
<tr>
<th>Segment</th>
<th>Issue/ Challenge</th>
<th>Development</th>
<th>Opportunity/Benefit</th>
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</thead>
</table>
| Exploration                  | Low exploration focus                                 | • Amended MMDR Act 1957 to establish NMET, • Charges 2% of royalty from lease holder for utilisation in exploration • NMET Rules 2015 – To promote regional and detailed exploration • NMP 2019 (4.3) - Exploration of minerals having poor Reserve/ Resource                                                                                                                                                                                                                                                                                                                                                     | EMS: Low  
EA: Low  
TSP: Medium  
Tech: Low  
AP: Medium |
|                              | Lack of financial/ technical expertise                | • NMP 2019 (4.4) - Encouraging private sector to take up exploration by providing appropriate incentives • NMET Rules 2015 (9)(j) - Organize capacity building programs to raise technical capability                                                                                                                                                                                                                                                                                                                                                           | EMS: Medium  
EA: Low  
TSP: High  
Tech: Medium  
AP: Medium |
|                              | Low technology adoption                               | • NMP 2019 (4.1) - Use technologies such as seismic 2D/3D interpretative system for exploration by appropriate incentives • NMP 2019 (5.1) - Digitizing resource inventory and tenement registry and integrate with GIS                                                                                                                                                                                                                                                                                                                                                      | EMS: Low  
EA: Low  
TSP: Medium  
Tech: Low  
AP: Low |
| Mineral Administration and Management | Illegal Mining and Value Leakage                      | • NMP 2019 (1) - High penetration of e-governance system and administrating minerals in the supply chain with use of IT system • Govt. of Orissa, AP and Gujarat have already adopted technologies such as GPS tracking, drone surveillance to curb illegal mining                                                                                                                                                                                                                                                                                                                      | EMS: High  
EA: High  
TSP: Medium  
Tech: High  
AP: Medium |
|                              | Inefficiency in concession management process         | • NMP 2019 (5.2) - Establish Mining Tenement System to automate the entire life cycle using state of the art IT system                                                                                                                                                                                                                                                                                                                                                                                                                                           | EMS: High  
EA: High  
TSP: Medium  
Tech: High  
AP: High |
### Key issues, development and opportunity for METS - (2/3)

<table>
<thead>
<tr>
<th>Segment</th>
<th>Issues/ Challenges</th>
<th>Development</th>
</tr>
</thead>
</table>
| Mining and Processing       | **High operating cost**                                                          | • NMP 2019 (6.4)-Incentivising machinery & equipment which improve economics of mining, beneficiation, safety of persons working  
   • NMP 2019 (6.4)- Development of indigenous industry for manuf. of machinery, beneficiation equipment and Induction of new technology  
   • Draft study group report has been prepared wherein royalty rates & rent and royalty of most of the minerals have been reduced |
|                             | **Large no. of leases expiring in 2020 & 2030**                                    | • MCDR 2017 (12)(4A) - Clear timelines are set to auction leases expiring on 2020 to ensure uninterrupted supply of minerals  
   • Regular reviews are being carried out by Central Government to ensure timelines are met |
|                             | **Procedural delays in grant of concessions**                                     | • NMP 2019 (3.1)- Auction blocks with pre-embedded statutory clearances  
   • States such as Andhra Pradesh are in process of launching Single desk portal for streamlining the process of grant of concessions |
|                             | **Limited mechanisation**                                                          | • NMP 2019 - Consider appropriate fiscal measure to facilitate import of automated equipment, machinery and mining robots etc. |

### Opportunity/Benefit

- **EMS**: High  
- **Tech**: Medium  
- **TSP**: Low  
- **Con**: Low  
- **AP**: High
## Key issues, development and opportunity for METS - (3/3)

### Infrastructure and Logistics
- **Issues/Challenges:**
  - NMP 2019 (6.6) - Promotion of eco-friendly and efficient modes of evacuation like slurry pipelines and close loop conveyors
  - NMP 2019 (6.6) - Creation of dedicated mineral corridors to boost private sector mining areas.

### Small mineral deposits
- **Issues/Challenges:**
  - NMP 2019 (6.8) - Promotion of small mineral deposits in a scientific and efficient manner while safeguarding vital environmental and ecological imperatives.

### Protection of environment
- **Issues/Challenges:**
  - NMP 2019 (6.10) - Use of renewable sources of energy at mining sites will be encouraged through appropriate incentives.
  - MoM instituted ‘Star Rating’ system which gives rating to leases for their efforts in implementing of Sustainable Development Framework

### Safety of mines & mine-workers
- **Issues/Challenges:**
  - NMP 2019 (6.14) - DGMS to be further strengthened through equipment in order to carry out the regulatory role for ensuring miners’ health and mine safety effectively
KPMG India team has hands on experience of working in mining sector both in India and abroad and is well connected to the Sector.

<table>
<thead>
<tr>
<th>Experience in India and abroad</th>
<th>Deeply connected to the sector</th>
</tr>
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<tr>
<td>A coal mining company in India</td>
<td>A large coal mining company in China</td>
</tr>
<tr>
<td>An iron ore mining company in India</td>
<td>A platinum mining company in South Africa</td>
</tr>
<tr>
<td>A large coal mining company in China</td>
<td>A platinum mining company in South Africa</td>
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**Value chain of the Bid-to-Build (B2B) cycle in mining is quite significant and KPMG can assist across all areas**

<table>
<thead>
<tr>
<th>Bidding &amp; Auction</th>
<th>Pre-Mining Clearances</th>
<th>Land Acquisition &amp; R&amp;R of PAPs</th>
<th>Engaging &amp; Managing Mining Contractor</th>
<th>Mine construction and operations</th>
<th>Human Resource Management</th>
<th>Establishment of Processes &amp; Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification of blocks to bid for</td>
<td>Mining Plan Approval from MoC</td>
<td>Land acquisition or Purchase</td>
<td>Selection of Consultants</td>
<td>Pre-development stage work by MDO</td>
<td>Manpower Planning</td>
<td>Establishment of SOPs and Governance Protocols</td>
</tr>
<tr>
<td>Partner identification &amp; JV agreement/</td>
<td>Environmental Clearance</td>
<td>Identification of owner</td>
<td>Operating model design for MDO/ Contractors</td>
<td>Mine development by MDO</td>
<td>Organization structure, job description, KRA/ KPIs formulation</td>
<td>Implementation/ Roll-Out of ERP and other IT/ Automation Systems</td>
</tr>
<tr>
<td>Draft Mine Planning (incl. costs, tax structuring etc.</td>
<td>Approvals from State Pollution Control Board</td>
<td>Bipartite Agreement between Land Owners and the Company</td>
<td>Contracting strategies and Bid process</td>
<td>Setting up of CHP/ Siding/ operational infrastructure</td>
<td>Compensation and incentive planning</td>
<td>Creation &amp; establishment of shared service organization</td>
</tr>
<tr>
<td>Bidding strategy</td>
<td>Approvals for Ground Water from CGWA</td>
<td>Relocation Plan &amp; Execution Strategy</td>
<td>Award of Contract (s)</td>
<td>Start of mining operations/ box-cut</td>
<td>Identification of operating, management &amp; statutory staff</td>
<td>Establishment of basic ops – logistics contracts, maintenance &amp; housekeeping services, regulatory compliance management etc.</td>
</tr>
<tr>
<td>Bid preparation &amp; compilation</td>
<td>Forest Clearance</td>
<td>Payment Negotiation and settlement (land &amp; R&amp;R)</td>
<td>Contract Management &amp; Monitoring</td>
<td>Periodic Reviews &amp; Audits</td>
<td>Recruitment of land-losers and other personnel</td>
<td>Independent project monitoring oversight</td>
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<tr>
<td>Submittal of Mine Planning Bid</td>
<td>Mining Lease</td>
<td>Creation of CSR strategy</td>
<td></td>
<td></td>
<td>Establishment of HR Operations - payments, time management, skill development programs, registration of unions, performance management etc.</td>
<td>Establishment of sustainable CSR Operations</td>
</tr>
</tbody>
</table>

*DGMS Approvals, CCO Approval, Other Approvals*
KPMG has successfully executed engagements across the value chain of the Bid-to-Build (B2B) cycle in mining along with strategic planning.

<table>
<thead>
<tr>
<th>Strategy &amp; Planning</th>
<th>Bidding and Auction</th>
<th>Pre-Mining clearances, Land acquisition, R&amp;R</th>
<th>Engaging &amp; managing Mining Contractor</th>
<th>Mine construction and operations</th>
<th>Human Resource Management</th>
<th>Establishment of processes &amp; systems</th>
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<tbody>
<tr>
<td>• Coal India Ltd</td>
<td>• Reliance Power</td>
<td>• Hindalco Industries, for four coal blocks</td>
<td>• Reliance Power</td>
<td>• Coal India Ltd.</td>
<td>• Essel Mining</td>
<td>• Essel Mining</td>
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<td>• Reliance Energy</td>
<td>• Tata Steel</td>
<td>• Gare Palma IV/4</td>
<td>• Essel Mining</td>
<td>• Essar</td>
<td>• Shenhua</td>
<td>• Reliance Power</td>
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<td>• MOIL</td>
<td>• Tata Sponge</td>
<td>• Gare Palma IV/5</td>
<td>• PTTI-SAR</td>
<td>• Rio tinto</td>
<td>• Adani</td>
<td>• Shenhua</td>
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<td>• Tata Power</td>
<td>• Tata Power</td>
<td>• Kathautia</td>
<td>• Homeland Energy</td>
<td>• Vedanta</td>
<td>• Jambalaya</td>
<td>• JSW</td>
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<td>• L&amp;T</td>
<td>• GMR Energy</td>
<td>• Dumri</td>
<td>• African Barrick Gold</td>
<td>• Hindalco</td>
<td>• Sesa Goa</td>
<td>• Sesa Goa</td>
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<td>• Adani Group</td>
<td>• Hindalco Industries</td>
<td>• Jhoria Action Plan (Ministry of Steel)</td>
<td>• Anglo Coal</td>
<td>• OMC</td>
<td>• Thriveni Earthmovers</td>
<td>• Adani</td>
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<td>• AVB Group</td>
<td>• Saddhav Engineering</td>
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<td>• Shenhua</td>
<td>• MSPL Limited</td>
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<td>• Ministry of Coal</td>
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<td>• MSPL Limited</td>
<td>• OMC</td>
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<td>• Ministry of Steel</td>
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<td>• SBCL</td>
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<td>• APMDC</td>
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<td>• NTPC</td>
<td>• DGM</td>
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<td>• Konkola Copper Mines</td>
<td>• OMC</td>
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<td>• Hindalco Industries</td>
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<td>• NMDC</td>
<td>• Chhattisgarh</td>
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</table>
KPMG is a thought leader in mining

From volume to value: Cost optimization in the mining sector

Non ferrous metal industry Building the future (Insights/future potential/growth)

Growth in a time of Scarcity: Transactions in Mining Sector

Mining Projects: Seeking greater value - 2013

Brazil Country Mining Factsheet

Going for Gold: China as a Global Mining Player

Quarterly Commodity Insight – Coal/ Iron Ore/ Base Metals/ Precious Metals, etc.

Future Trends in Mining Industry Business Resilience
Thank you

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Factors influencing India’s mining industry potential

- Evolving Regulations
- Auction
- Environmental clearances
- Statutory clearances
- Falling Global Prices
- Rising Imports
- Low exploration focus
- Squeezed profits
- Commercial mining
- Manpower availability
- Mechanization Level
- Logistics
- Mining method
- Ease of doing business
### What are the various opportunities in the sector?

<table>
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<tr>
<th>Segments</th>
<th>Some Players</th>
<th>Challenges</th>
<th>Opportunities</th>
<th>Ratings</th>
</tr>
</thead>
</table>
| Equipment Manufacturers/ suppliers | 1. Caterpillar (Gainwell, GMMCO)  
2. JCB  
3. Tata-Hitachi | 1. Regulatory challenges  
2. Challenges in logistics  
3. Inventory management | 1. HEMM market expected to touch $4-$5 billion USD per annum in the next 3 years | ![Blue](#) |
| Exploration agencies              | 1. Geological Survey of India  
2. Mineral Exploration Corporation Limited | 1. State governments admit they don’t have financial or technical competencies required for G3 Level prospecting. | 1. Exploration agencies can assist GSI and State Governments in prospecting and preparing accurate geological reports. | ![Blue](#) |
| Technical service provider       | 1. AMC  
2. Runge  
3. DMT | 1. Planning experience for large opportunities  
2. Deeper experience in large HEMM deployment | 1. Contract with OEM & technical consultancies | ![Blue](#) |
| Mine developers cum Operators     | 1. Essel Mining  
2. Adani Enterprises  
3. Thriveni Earthmovers | 1. Lack of high capability and experience  
2. Higher equipment configuration  
3. Tackling on-ground problems | 1. Coal MDO market size – may reach between $6.15 – $9.23 billion USD pa in next 10 years  
2. Large no. of MDO contracts (total nearly $0.77 billion USD pa) expected to be finalized in FY 15-16 | ![Blue](#) |
| Ancillary service provider        | 1. Bridgestone  
2. Solar Industries  
3. Kirloskar (Pumps)  
4. Metso (Material Handling) | 1. Limited suppliers for explosives accessories  
2. Deep underground mine ventilation system  
3. Inventory management of high capacity HEMM tires | 1. Develop in-house infrastructure to compete with global products  
2. Solutions for achieving higher utilization and productivity | ![Blue](#) |