खान मंत्रालय
MINISTRY OF
MINES
सत्यमेव जयते

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GOVERNMENT OF INDIA

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DEVELOPING LOCAL ECOSYSTEM OF MINING EQUIPMENT MANUFACTURING

8TH JANUARY 2025, NEW DELHI

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CONSTITUTION OF THE GROUP

List of study group members of Chintan Shivir "Developing Local Ecosystem of Mining Equipment Manufacturing

- Shri Pankaj Kulshrestha, CCoM, IBM,
- Shri Rajesh Gopalan Nair, Director of Mines & Geology, Odisha
- Shri Shubhankit Shrivastava, Dy. Sec. Department of Heavy Industries
- Shri Sudhir Agarwal, ED, Coal India.
- Shri Yoganand, Chief General Manager, BEML
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- Shri Manish Mishra, Chief, Corporate Affairs, Tata Steel
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- Shri Ritesh Keshri, Associate Professor, VNIT, Nagpur
- Dr. Nikhil Sir Desai, Associate Professor, VNIT, Nagpur

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PROCEEDINGS OF THE GROUP

The group conducted 4 virtual meetings and have discussions on

- Indian mineral sector, and its growth potential,
- To identify potential risks, challenges and opportunities
- Current market trends, competition, and growth potential
- Requirement of infrastructure, technology, testing facilities, R&D
- Creation of a support network for after-sales service and spare parts;
- Policy framework that incentivizes local manufacturing.

INDIAN MINING SCENARIO

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India's Position and Rank in World Reserves and Resources of Principal Minerals , 2020

Mineral	world Resources (%)	India's Rank
Iron Ore	8.09	7th
Chromite	10.19	3rd
Manganese Ore	5.13	7th
Bauxite	6.29	7th

Mineral	Contribution in world Resources	India's Rank

India's contribution and Rank in World Production of Principal Minerals & Metals, 2022

Mineral/Metal	Contribution in world production(%)	India's Rank
Steel (Crude)	5.12	2nd
Aluminium (Primary)	5.53	3rd
Chromite	9.23	3th
Iron Ore	6.77	4th
Manganese Ore	4.95	5th
Bauxite	5.34	5th

Mineral	Contribution in world	India's Ran

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OPPORTUNITIES IN MINERAL SECTOR

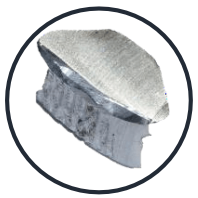
Various Government initiatives under varied stages of implementation…

Non-exhaustive

1. Make in India
2. Building Smart Cities
3. Introduction of high speed trains
4. e- Mobility
5. Per capita consumption of mineral rate lowest in the world

Will lead to growth in demand for mineral intensive sectors

Steel



Aluminum

Copper & other Base Metals

Lithium, Cobalt, etc.

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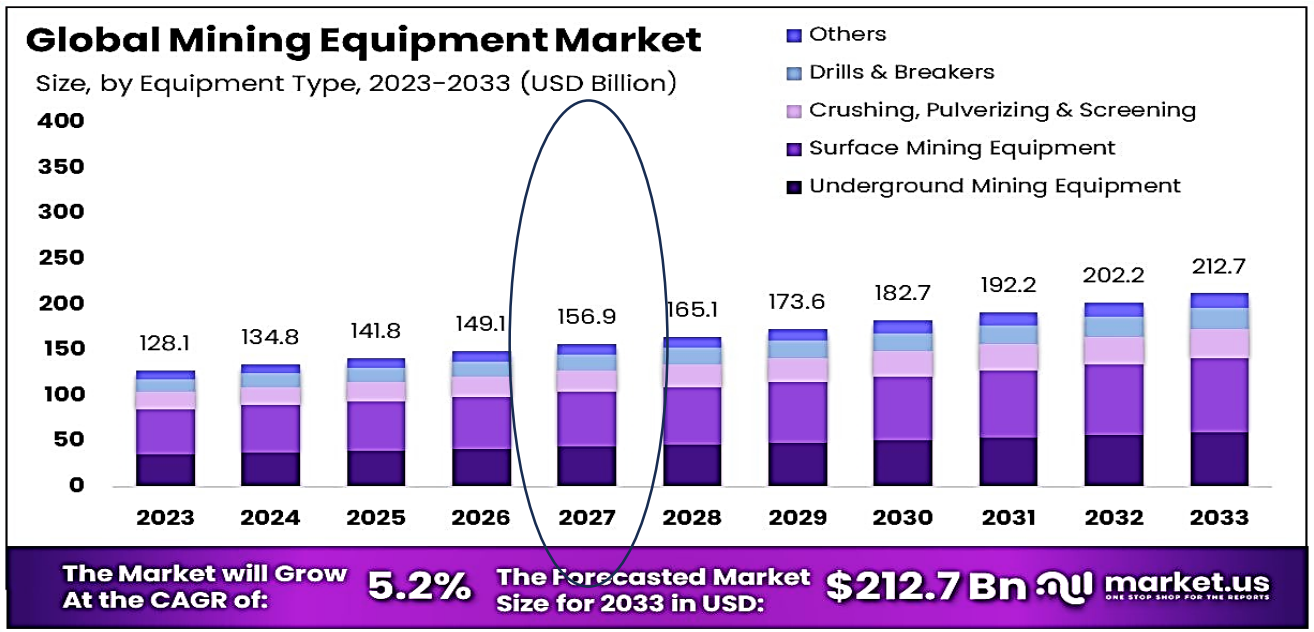
MINING EQUIPMENT – GLOBAL OVERVIEW(1)



- Valued at $128.1 billion in 2023, expected to reach $156.9 billion by 2027.
- Expected CAGR of 5.2 % from 2023 to 2027.
- Surface mining equipment held the largest market share in at 38%
- Market is segmented into metal mining, mineral mining, and coal mining. Metal mining held the largest share in 2022
- In 2023, mining trucks constituted the most share of the surface mining equipment market, succeeded by dozers and excavators' & shovels.

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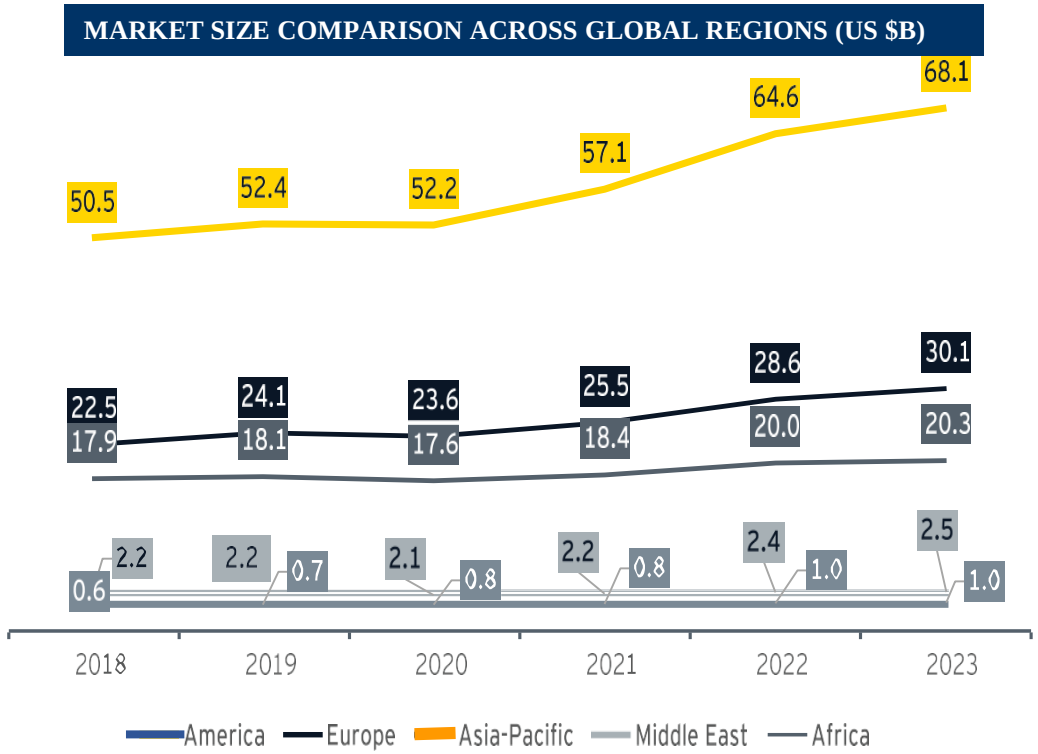
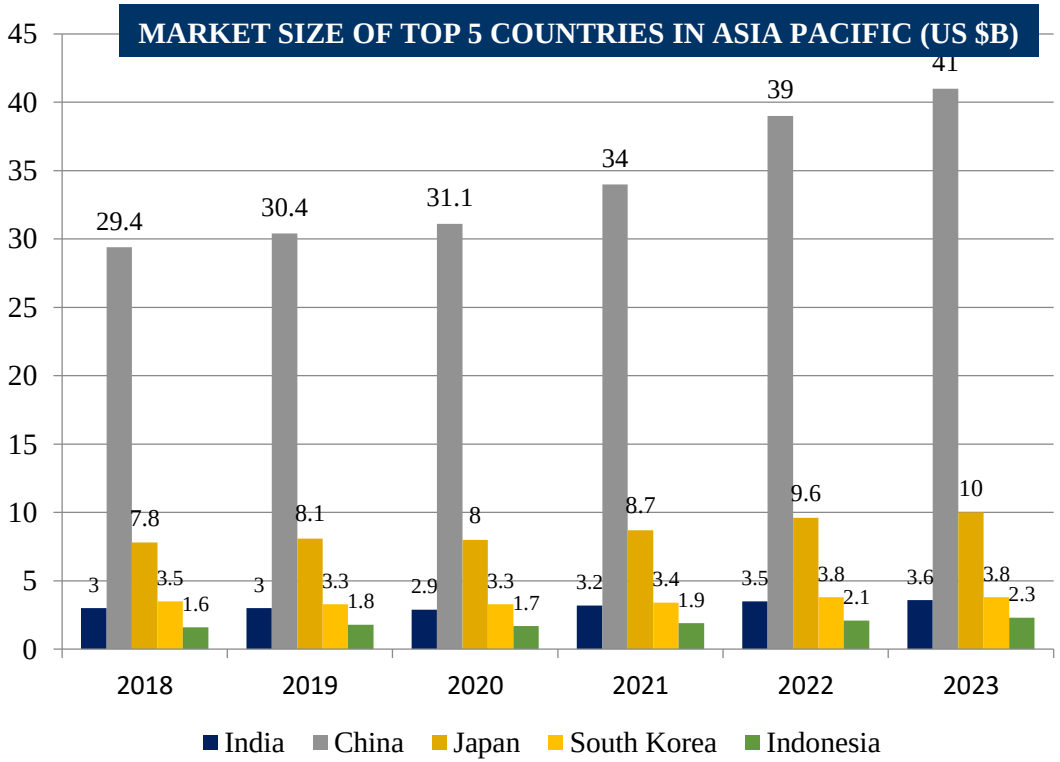
MINING EQUIPMENT – GLOBAL OVERVIEW(2)





India being a geography houses ~20% of the world's population and ~35 % of the Asia Pacific population and an area which is rich in minerals, it contributes merely 5 percent to the Asia Pacific region

Source: Barnes Report

Source: Barnes Report

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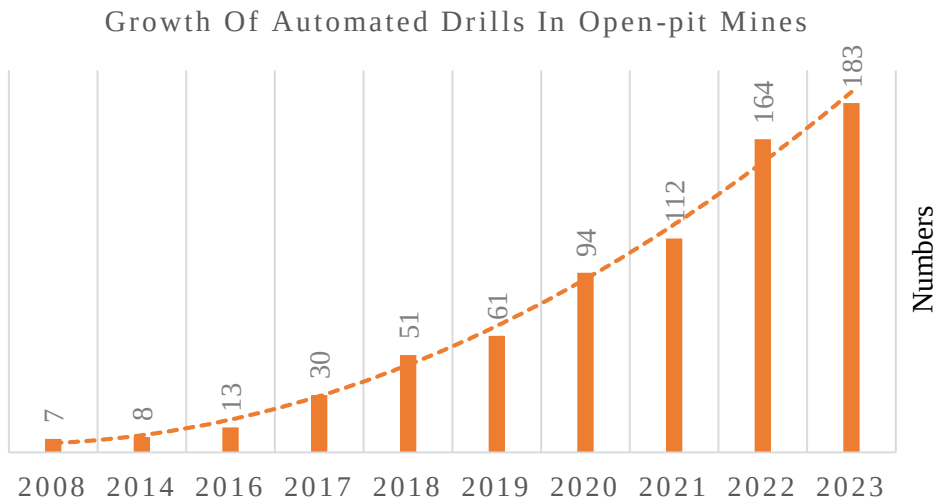
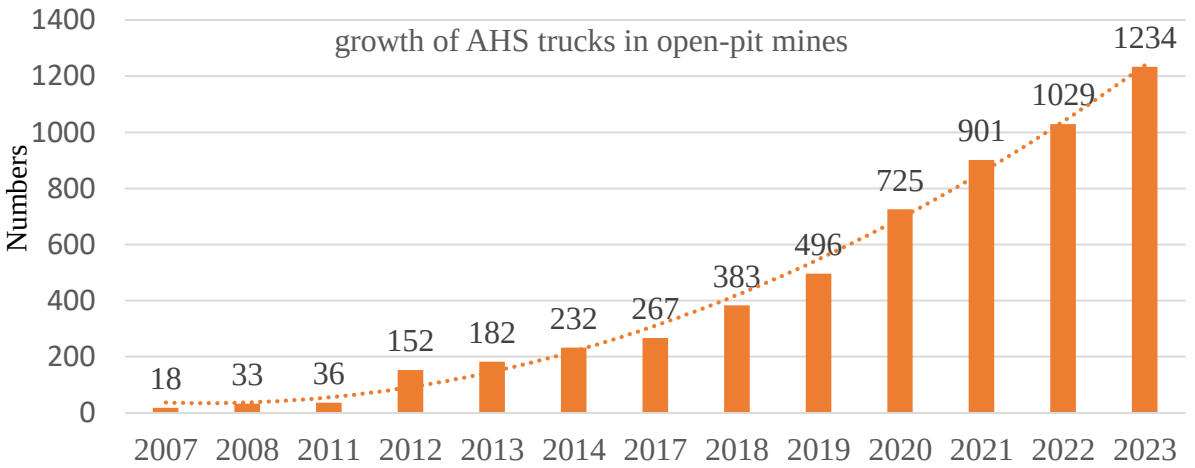
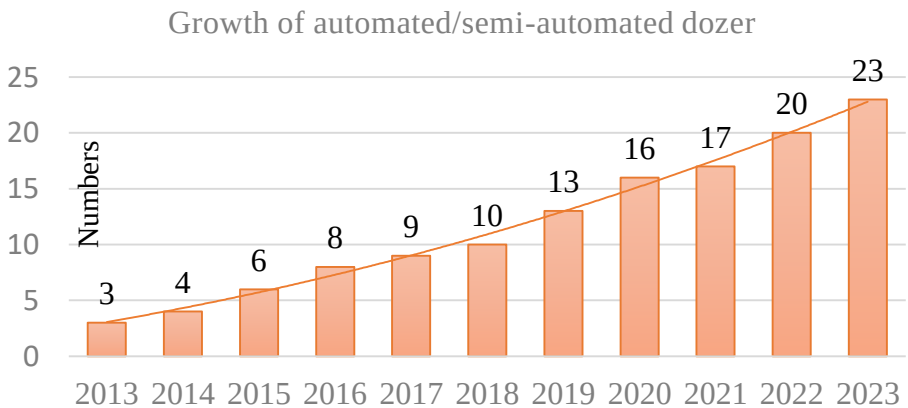
SHIFT TOWARDS AUTOMATION







Automation technology has become a viable solution in situations where human efficiency is compromised

-– an increase of 15% to 20% in output
– a decrease of 10% to 15% in fuel consumption
– decrease in tire wear by 5% to 15%
– an increase in truck up-time by 10% to 20%

MINING EQUIPMENT - DOMESTIC SCENARIO

Mix of Multinational and medium-sized local companies that are specialized in specific product

In 2022, The Indian mining equipment market was valued at around USD 3.5 billion

Current Status

Domestic Production

Domestic production began in 1964 with the setting up of BEML.

Key Manufacturers

BEML, TIL, Caterpillar, Hitachi, Ingersoll-Rand, JCB, L & T, Joy Mining Machinery, Komatsu, Terex, , Sanvy & Volvo.

Market Size

Key Products

Excavator, Dump-truck, Bull Dozers, Loaders, tippers , drill rigs etc.

CONSTRUCTION EQUIPMENT IN INDIA – AN OVERVIEW

North India Market Accounted largest share in the Indian Construction Equipment Market

8.9% CAGR
Indian Construction Equipment Market to grow at a CAGR of 8.9% during 2024-2030

Indian Construction Equipment Market

Indian Construction Equipment Market Share, by Region in 2023 (%)

Indian Construction Equipment Market Size

2023	2030
USD 7.89	USD 14.34

Exhibit: Trend in Indian MCE industry volumes

Source: ICEMA, ICRA Research

CATERPILLAR®

KOMATSU

VOLVO Construction Equipment

JCB

TATA HITACHI

- **By Type**
- Excavators
- Loaders and Dozers
- Graders
- Mobile Cranes
- Compactors
- Pavers
- Others
- **By Power Output**
- <100 HP
- 101-200 HP
- 201-400 HP
- >401 HP
- **By Application**
- Earth Moving and Grading
- Material Handling
- Concrete and Asphalt Work
- Transportation
- Others
- **By End-use Industry**
- Mining
- Infrastructure
- Building Construction
- Others

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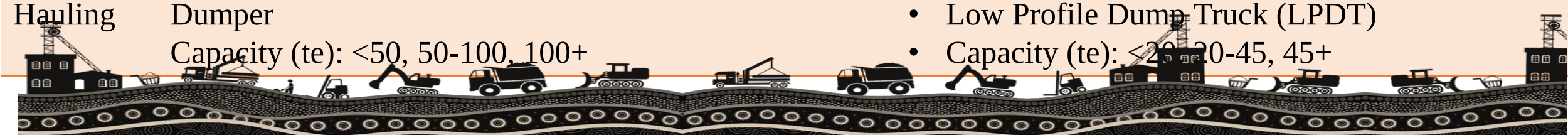
TYPES & CAPACITY OF EQUIPMENT USED IN INDIA

Value Chain	HEMMs Used In Open pit Mines In India	HEMMs Used In Underground Mines In India
Drilling	• Top Hammer Drill Rig (Hole dia. (mm): 57-127) • Down-the-Hole Drill Rig (Hole dia. (mm): 89-140)	• Rotary Percussion Drill Rig Hole dia. (mm): 51-89 • Top Hammer Long-hole Drill Rig Hole dia. (mm): 64-127
Loading	• Excavator Bucket Capacity (cum): <5, 5-15, 15+ • Electric Shovel Bucket Capacity (cum): <5, 5-15, 15+ • Loader Bucket Capacity (cum): <3, 3-7, 7+ • Dragline Bucket Capacity (cum)/Boom Length (mt): 24-34/74-101, 46-61/100-105 • Surface Miner Cutting Width (mm): 2200-4200 • Dozer / Ripper / Grader	• Side Discharge Loader (SDL) • Bucket Capacity (cum): <1, 1-1.5, 1.5+ • Load Haul Dump (LHD) • Bucket Capacity (cum): <2.5, 2.5-4.2, 4.2+ • Continuous Miner / Shearer • Loading Capacity (te/min): 10
Hauling	Dumper Capacity (te): <50, 50-100, 100+	• Low Profile Dump Truck (LPDT) • Capacity (te): <20, 20-45, 45+



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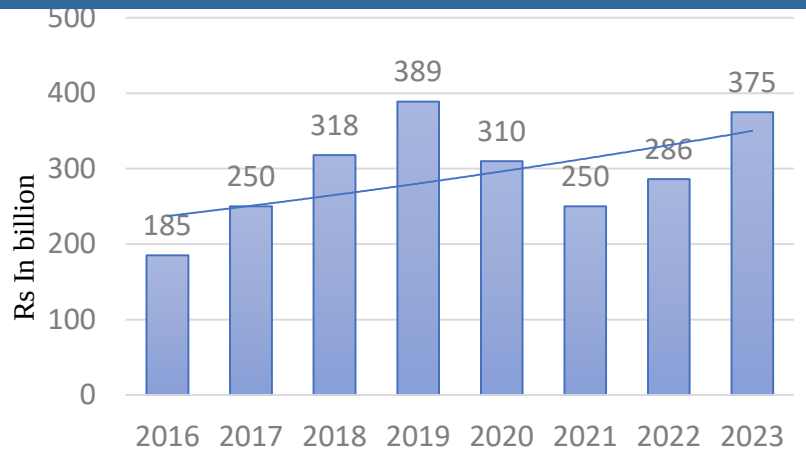
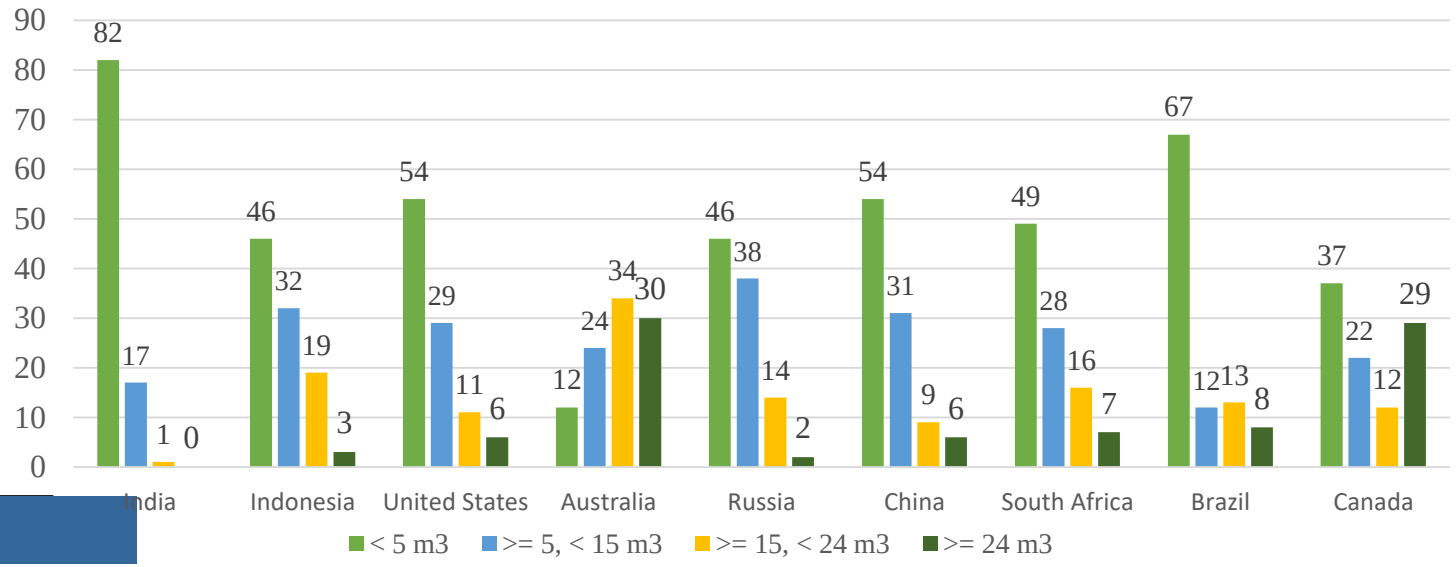
DEMAND AND GROWTH RATE

Market size of mining equipment(Rs in billion)



Source: Statisca

Share of Excavator Deployment



Projected HEMM requirement up to FY 2030

S. No.	Description	Indigenous	Imported	Total
1	CIL (Departmental)	4265	723	4988
2	CIL (HOE/MDO)	4060	313	4373
3	CIL (Others)	7546		7546
4	Non-Coal (Excavators, Dumpers & Drills)			12908
5	Non-Coal (Other)			710

- In 2023, valued at around Rs 375 billion
- Expected CAGR of 6-7 % from 2023 to 2030.
- Generally deployed low size equipment

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FUTURE TRENDS

Shift Towards Electric and Renewable-powered Equipment

Supply Chain Resilience and Localization

Collaborative Partnerships and Innovation Hubs

Digital Transformation and Data Analytics

Focus on safety and Environment Sustainability

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KEY MANUFACTURERS


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GLIMSE OF MINING EQUIPMENT PRODUCED IN INDIA

- India Construction Equipment Market
  - Material Handling Equipment
    - Crane
    - Forklift
  - Earthmoving Equipment
    - Excavator
    - Loader
    - Motor Grader
    - Bull Dozer
  - Concrete Equipment
    - Asphalt Finisher
    - Concrete Pumps
    - Transit Mixer
  - Construction Vehicle
    - Dumper Truck
    - Tanker Truck
    - Tipper Truck

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CHALLENGES AND ISSUES

To remain competitive in the global market, mining equipment manufacturing industry must address following challenges

- Dependence on the import of precision components
- Mineral Diversity and Market volatility
- Inadequate infrastructure and logistics
- Competition from Global Players; Cheap import
- poor networking with financial institutions
- Lack of innovation, Automation and R&D

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CHALLENGES AND ISSUES

To remain competitive in the global market, mining equipment manufacturing industry must address following challenges

- Issues with Public Procurement Policies
- Cost disabilities due to skewed tax structure
- High cost and non availability of critical components
- Lack of end user acceptance
- Shortage of skill and trained persons
- Week Quality Checks for second hand equipment

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GROWTH PROSPECTS

- Rising Demand For Minerals
- Technological Advancement
- Shift Towards Automation
- Demand For Battery Operated Vehicle
- Expansion In Mining Activities
- Replacement and fleet renewal

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RECOMMENDATIONS

Technology Acquisition	Establishment of CoE to support technology acquisition, technology transfer, and the procurement of IPRs and for skill development
Tax rebate for R&D expenditure	Tax exemptions for R&D expenditures for development of indigenous technologies and processes
PLI Scheme	Formulation of a PLI Scheme for providing incentive to manufacturers for manufacturing mining equipment indigenously for an initial period of 05 years.
Easy access to Financing	Establishment of dedicated PSUs for financing initiatives in this sector. Introduction of the concept of microfinancing schemes for small-scale mines.

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RECOMMENDATIONS

Infrastructure Support	The creation of SEZs for manufacturing of locally produced mining equipment within clusters situated near mining operations.
Testing & Trial Support	Financial support to prominent PSUs to conduct trials and implement prototypes of indigenous mining equipment
Restriction on Sub Standard Imports	Enhancement of import duty on mining equipment; Machinery more than 10 years' old should not be allowed for import.
Offshore Mining & Critical Mineral	Implementing measures like tax incentives such as tax breaks and reduced or zero import duties on vital raw materials, components, and assemblies

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RECOMMENDATIONS

Public Procurement Policies

- Relaxation in performance criteria for newly developed indigenous equipment against trial orders by the PSUs.
- Enhancement of the local content percentage of mining equipment in the tenders of PSUs.
- Incentives to mines that use 100% indigenous products. Preference to bidders by the PSUs for utilizing “indigenous " equipment.

Duty under FTAs/PTAs

- Granting import duty concessions on key components like engines, transmissions, and motors, as local suppliers are lacking, & permitting manufacturers to avail up to 50% CENVAT credit.

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CONCLUSION

To develop a local ecosystem a comprehensive strategy is needed that spans innovative approach in

- Investment in Research and Development,
- technology Acquisition
- building strong supply chain
- skill development,
- infrastructure improvement,
- government support.
- ease of doing business

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DICUSSION POINTS

- Impact of Automation, Adoption of AI & IoT and Machine Learning in Mining Equipment Operations.
- High Cost & Lack of Domestic Availability of Critical Inputs and Sourcing of Raw Material for Indigenous Production.
- Strategies for Promoting Local Manufacturing over Imports.
- Challenges and Opportunities in financing large scale mining Equipment.
- Technology Constraints, Lack of investment in R & D for next Generation Mining Solutions and Role of Public Private Partnership In R & D.
- Dominance of Big International Players and Competition from Cheap Imports

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THANK YOU