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STANDING COMMITTEE ON COAL, MINES AND STEEL (2025-2026)

EIGHTEENTH LOK SABHA

MINISTRY OF MINES

'SELF RELIANCE IN MINERALS AND METALS'

SIXTEENTH REPORT

LOK SABHA SECRETARIAT
NEW DELHI
DECEMBER, 2025/AGRAHAYANA 1947 (Saka)

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Presented to Lok Sabha on 17.12.2025

Laid in Rajya Sabha on 17.12.2025

LOK SABHA SECRETARIAT
NEW DELHI
DECEMBER, 2025/AGRAHAYANA 1947 (Saka)

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#nominated w.e.f. 10.10.2024 *vide* Bulletin – Part-II, Para No. 862 dated 11.10.2024

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*nominated w.e.f. 16.10.2025 *vide* Bulletin – Part-II, Para No. 3329 dated 17.10.2025

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4.	Shri Lalit Sharma	-	Executive Officer

INTRODUCTION

I, the Chairperson, Standing Committee on Coal, Mines and Steel (2025-26) having been authorized by the Committee to submit the Report on their behalf, present this Sixteenth Report (Eighteenth Lok Sabha) on the subject 'Self-Reliance in Minerals and Metals' pertaining to the Ministry of Mines.

2. The subject was selected for detailed examination by the Committee during 2024-25. The Committee was briefed by the representatives of the Ministry of Mines on 15.04.2025. Thereafter, the Committee took oral evidence of the Ministry of Mines, GSI and IBM on 27.05.2025 and oral evidence of the representatives of the Ministry of Mines, MECL, HCL and NALCO on 06.06.2025. The Committee was also briefed by the representatives of the CII, FICCI, ASSOCHAM and PHDCCI on 25.07.2025. Based on the oral and written testimonies to the Committee, a report on the subject was prepared.

3. The Report was considered and adopted by the Committee at their sitting held on 15.12.2025. The Minutes of the sittings of the Committee are appended to the Report.

4. The Committee wish to express their gratitude to the Ministry of Mines, the CPSEs and the various organisations for providing valuable information and for tendering evidence and views before the Committee.

5. The Committee also place on record their profound appreciation for the valuable assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

6. For the facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in Part-II of the Report.

NEW DELHI;
15 December, 2025
24 Agrahayana, 1947(Saka)

ANURAG SINGH THAKUR
Chairperson
Standing Committee on Coal, Mines and Steel

Part I

REPORT

CHAPTER – I

SUSTAINABLE MINING FOR VIKASIT BHARAT

A. Introductory

1.1 Self-reliance in the minerals and metals sector is vital for India's economic growth, national security, and industrial development. Though India is endowed with a rich mineral base, yet depends heavily on imports for several critical and strategic minerals. The drive for "Aatmanirbhar Bharat" (Self-Reliant India) has placed a strong emphasis on reducing this dependency.

1.2 The core principles of the Atmanirbhar Bharat Mission are self-reliance, strategic autonomy and distinction from self-sufficiency. There are five main pillars of it, which include, economy, infrastructure, technology-driven systems, vibrant demography and demand. The vision is to create a self-reliant India that is independent and robust, without being isolationist and the goal is to reduce dependency on imports and strengthening of domestic industries by promoting local products and making them "local for global".

1.3 Self-reliance in minerals and metals being essential for India's manufacturing growth, energy transition, and defence autonomy, the efforts of the government are focussed towards promoting mineral self-reliance, attracting investment, and advancing technological capabilities in the minerals and metals sector. While significant progress has been made in this regard through recent developments and policy changes, challenges remain.

B. Minerals and Metals in the Country

1.4 Minerals are valuable natural resources. They constitute the vital raw materials for many basic industries and are a major resource for development. The history of mineral extraction in India dates back to the days of the Harappan civilization. The wide availability of the minerals provides a base for the growth and development of the mining sector in India.

1.5 The country is endowed with huge mineral resources of fuel, metallic and non-metallic minerals including minor minerals. Mining sector is an important segment of the Indian economy. Since independence, there has been a pronounced growth in the mineral production both in terms of quantity and the value as well. India produces as many as 95

minerals, which includes 4 fuel, 10 metallic, 23 non-metallic, 3 atomic and 55 minor minerals (including building and other materials).

1.6 The total value of mineral production (excluding atomic, fuel minerals and minor minerals) during 2024-25 has been estimated at ₹141061 crore, which shows a decrease of about 0.47% over that of the previous year. During 2024-25, estimated value for metallic minerals is ₹128261 crore or 91% of the total value and non-metallic minerals is ₹12800 crore or 9% of the total value underscoring the importance of metallic minerals in the overall production landscape.

i) Metallic Minerals

1.7 Metallic minerals are those minerals from which metals can be extracted profitably. They usually occur as ores, have a shiny appearance, and are good conductors of heat and electricity — for example, iron, copper, bauxite, zinc, and lead ores.

1.8 The estimated value of metallic minerals in 2024-25 at ₹128261 crore increased by about 0.13% over the previous year. Among the principal metallic minerals, iron ore contributed Rs 97777 crore or 76.2%, Zinc concentrate ₹9239 crore or 7.2%, Silver ₹5942 crore or 4.6%, Chromite ₹4759 crore or 3.7%, Manganese Ore ₹2814 crore or 2.2%, Lead Conc ₹2761 crore or 2.2% and Bauxite ₹2729 crore or 2.1%.

1.9 The estimated production of bauxite at 24.22 million tonnes in 2024-25 increased by 1.25% compared to the previous year whereas the estimated production of Chromite at 3.04 million tonnes in 2024-25 has decreased by 3.54%. Copper concentrate is estimated at 106.83 thousand tonnes in 2024-25, a decrease by about 14.69% as compared to the previous year whereas primary gold at 1431 kg in 2024-25 registered decrease of about 9.77%. The estimated production of iron ore at about 277.83 million tonnes in 2024-25 registered an increase of 0.18% over the previous year. For the year 2024-25, the estimated production of lead concentrates at 384.59 thousand tonnes increased by 1.00% and that of zinc concentrate at 1639.26 thousand tonnes showed a decrease of -4.14% over the previous year. The estimated production of manganese ore at 3.51 million tonnes in 2024-25 increased by about 1.96% compared to that in the previous year.

ii) Non-Metallic Minerals

1.10 Non-metallic minerals are minerals that do not contain metals and do not yield new products when melted. They are usually non-shiny, non-conductive, and used in industries like cement, glass, fertilizer, and ceramics — for example, limestone, mica, gypsum, and rock phosphate.

1.11 The estimated value of production of non-metallic minerals at ₹12800 crore during 2024-25 decreased by 6.11% as compared to the previous year. Limestone retained its leading position by contributing 89.2% (₹11422 crore) of the total estimated value of non-metallic minerals in the year 2024-25, following that, the other non-metallic mineral is Phosphorite ₹1191 crore or 9.3%.

1.12 The production of limestone was at 431.53 million tonnes in the year 2024-25 decreased by 4.33%, as compared to that in the previous year. Limestone is widely produced in India. The production of magnesite at 112.12 thousand tonnes during 2024-25 decreased by 15.06% as compared to that in the previous year. The production of phosphorite at 1649.14 thousand tonnes in 2024-25 has increased by 5.86% as compared to that in the previous year.

iii) Critical Minerals

1.13 Critical minerals are naturally occurring elements or mineral resources that possess high economic importance, particularly for advanced technologies, clean energy, defence, and manufacturing. They include lithium, cobalt, nickel, graphite, rare earth elements, and tungsten, which are vital for batteries, renewable energy systems, electronics, and strategic defence applications.

1.14 Critical minerals are those minerals which are essential for economic development and national security; the lack of availability of these minerals or even concentration of existence, extraction or processing of these minerals in few geographical locations may lead to supply chain vulnerability and disruption. As part of the Atmanirbhar Bharat initiative, the Government of India has undertaken several initiatives over the past two years to address challenges in the critical minerals sector.

C. Mining Sector in the Country

1.15 The mining sector plays a critical role in economic development, attracting investment and generating employment in the country. In India, there are total 1206 working mines, of which 122 mines are public and 1,084 mines are private. Indian mining industry is characterized by many small operational mines.

1.16 The number of mines which reported MCDR Returns of mineral production (excluding atomic, fuel and minor minerals) in India was 1426 (estimation) in 2023-24 as against 1457 (Provisional) in the previous year. Out of 1426 reporting mines, 322 were in Madhya Pradesh followed by Gujarat (162), Karnataka (130), Odisha (122), Andhra Pradesh (120),

Chhattisgarh (112), Rajasthan (104), Tamil Nadu (96), Maharashtra (95) and Jharkhand (41) etc.

i) Working Mines

1.17 The Ministry has submitted in a written note that the total number of mines for major minerals in the country is 2995 including 1206 working and 1789 non-working mines. State wise break up is given in the following table:

"

State	Working	Non-Working	Grand Total
Andhra Pradesh	101	276	377
Assam	4	2	6
Bihar	1	4	5
Chhattisgarh	89	69	158
Goa	1	9	10
Gujarat	153	224	377
Haryana	0	4	4
Himachal Pradesh	26	13	39
Jammu & Kashmir (UT)	8	29	37
Jharkhand	29	72	101
Karnataka	105	157	262
Kerala	1	4	5
Ladakh (UT)	0	1	1
Madhya Pradesh	302	342	644
Maharashtra	73	38	111
Meghalaya	15	8	23
Odisha	96	57	153
Rajasthan	98	39	137
Tamil Nadu	63	392	455
Telangana	36	42	78
Uttar Pradesh	3	1	4
Uttarakhand	2	5	7
West Bengal	0	1	1
Grand Total	1206	1789	2995

"

1.18 For the year 2024-25, the estimated mineral production (excluding Atomic, Fuel and Minor Minerals) would be from 20 States of which the bulk of value of mineral production of about 97.70% was confined to 8 States only. The order was Odisha with a share of 43.49% followed by Rajasthan (16.26%), Chhattisgarh (13.69%), Karnataka (12.42%), Maharashtra (4.76%), Jharkhand (3.26%), Madhya Pradesh (2.78%) and Andhra Pradesh (1.04%) in the total value of mineral production (excluding Atomic, Fuel and Minor Minerals). Remaining states contributed 2.30%.

1.19 The Ministry of Mines is responsible for the administration of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) and rules made thereunder in respect of all mines and minerals other than coal, natural gas and petroleum. The Ministry also administers the Offshore Areas Mineral (Development and Regulation) Act, 2002 and rules made thereunder.

1.20 The Gross Value Added (GVA) from the mining and quarrying sector is estimated by the National Accounts Division of the National Statistical Office under the Ministry of Statistics & Programme Implementation.

ii) Mining in Public and Private Sector

1.21 During the year 2023-24, the Private Sector contributed for 61.4% or Rs. 87028 crores (including metallic and non-metallic) in the total value. The minerals which were wholly mined/ recovered by the private sector in 2023-24 were Lead concentrate, Limeshell, Siliceous earth, Sillimanite, Wollastonite, Zinc concentrate, Marl and Moulding sand. In 2023-24, the Private Sector accounted for sizeable 93.2% of Limestone, 52.3% of Chromite, 54.5% of Iron Ore, and 46.7% of Bauxite.

1.22 During the year 2023-24, the Public Sector contributed for 38.6% or Rs. 54706 crore (including metallic and non-metallic) in the total value. The minerals which were wholly mined/ recovered by the public sector in 2023-24 were Copper ore and concentrate and Diamond. In 2023-24, the Public Sector accounted for sizeable 74.3% of Fluorite (graded), 91.2% of Tin concentrate, 99.2% of Phosphorite and 98.2% of Gold Ore.

1.23 In reply to a query as to the relative contribution of public and private sector in mining, the Ministry in their written reply have submitted as under:

> "The public sector's contribution to India's mineral production is significant, reflecting its key role in driving mineral extraction and value creation. This highlights the sector's importance in ensuring the stability and growth of the nation's mineral resources. The sector-wise value of production of MCDR mineral and share of public & private sector during 2022-23, 2023-24(P) and 2024-25(P) is given in Table below:

Value of MCDR Mineral Production- Private and Public

Year	Value of Production of MCDR minerals (in Rs Crores)			% Share in Total Value	
	Private	Public	Total	Private	Public
2022-23	75,019	48,375	1,23,394	60.8%	39.2%

2023-24	87,839	55,680	1,43,521	61.2%	38.8%
2024-25(P)	89,263	58,873	1,48,135	60.3%	39.7%

"Source: MCDR Returns. P: Provisional

1.24 As regards the share and trend of private sector and public sector companies in production of non-ferrous metals, the Ministry has replied that the production of non-ferrous metals in India comes primarily from the private sector. The share of public and private sector in production in 2024-25 is given below:

Non-ferrous metal producers- public and private sector

Quantity in Lakh Tonnes (LT)

Sl No.	Non-ferrous metal	Production		
		Public	Private	Total
1	Copper	HCL (0)	HINDALCO (4.02), Sesa Sterlite (1.49), Kutch Copper (0.22)	5.73
2	Aluminium	NALCO (4.60)	BALCO (5.87), HINDALCO (13.23), VEDANTA (18.29)	41.99
3	Lead	-	HZL (2.25)	2.25
4	Zinc	-	HZL (8.27)	8.27
5	Silver	-	HZL (0.007 LT or 687 ton)	0.007 LT or 687 ton
6	Gold	-	HGML (250 Kg), HINDALCO (1,300 Kg)	1,550 Kg

D. Major Mineral Producing Countries and India

1.25 As per World Mineral Production, 2018-22, British Geological Survey, India's ranking in 2022 in world production in term of quantity was 2nd in steel (crude/liquid) and lead (refined); followed by 3rd in zinc (slab) and chromite ores & concentrate; 4th in iron ore and graphite; 5th in aluminium (primary); 6th in manganese ore and bauxite; 10th in copper (refined); and 16th in apatite & rock phosphate and magnesite.

1.26 Contribution and Rank of India in World Production of Principal Minerals & Metals, 2022

Sector	Unit	Production quantity		Contribution (Percentage)	India's rank in World order$
		World	India*		
Metallic Minerals					
Bauxite	'000 tonnes	401500	23844	5.94	6th
Chromite	'000 tonnes	37900	3557	9.39	3rd
Iron ore	'000 tonnes	2516000	258364	10.27	4th
Manganese ore	'000 tonnes	54200	2826	5.21	6th
Industrial Minerals**					
Magnesite	'000 tonnes	32200	108	0.34	16th
Apatite & Rock phosphate	'000 tonnes	222000	1978	0.89	16th
Metals					
Aluminium (primary)	'000 tonnes	67200	4066#	6.05	5th
Copper (refined)	'000 tonnes	258001/	554#	2.15	10th
Steel (crude/liquid)	million tonnes	1873	125	6.67	2nd
Lead (refined)	'000 tonnes	125002/	211#	1.69	2nd
Zinc (slab)	'000 tonnes	13400	821#	6.13	3rd

Source: World Mineral Production, 2018-2022, British Geological Survey for world production and MCDR returns & individual plants for production with respect to India.

*: Figures relates to financial year 2022-23 (P)

**: Minerals declared as minor minerals vide Government of India Notification S.O. 423(E) dated 10th February, 2015, are not included due to non-availability of production with respect to India.

$: India's rank based on India's production as per MCDR return and world production mentioned in World Mineral Production 2018-22, British Geological Survey.

#: As per World Mineral Production, 2018-22, the production of Aluminium (primary), Copper (refined), lead (refined) and Zinc (Slab) during 2022 are 2322 thousand tonnes, 542 thousand tonnes, 966 thousand tonnes and 684 thousand tonnes, respectively.

1/ Figures relate to both primary and secondary refined copper, whether electrolytic or fire refined. Metal recovered from secondary materials by remelting alone is excluded.

2/ Figures related to both primary & secondary refined lead and include the lead content of antimonial lead.

1.27 During a presentation before the Committee, the Table showing the top 5 key minerals producing countries were listed out as under:

MINERALS	TOP 5 PRODUCING COUNTRIES OF KEY MINERALS				
LIMESTONE	China	India	USA	R	Brazil
IRON ORE	Australia	Brazil	China	India	Iran
CHROMIUM	South Africa	Turkey	Kazakhstan	India	Finland
ZINC CONC	China	Peru	Australia	India	USA

MANGANESE ORE	South Africa	Gabon	Australia	Ghana	India
BAUXITE	Guinea	Australia	China	Brazil	Indonesia

1.28 In this context, the Secretary, Ministry of Mines informed during oral evidence before the Committee as under:

> "…..In Limestone, we are at the second position in the world; in iron ore, we are at the fourth position; in chromite, we are at the fourth position; in zinc, we are at the fourth position; in manganese, we are the fifth position; and in bauxite, from which aluminium is made, we are at the sixth position. This is a snapshot of the main minerals. All these minerals contribute to 90 per cent."

1.29 In reply to a query about the gap between the first and fourth position, the Secretary, Ministry of Mines submitted as under:

> "In fact, there is a lot of gaps. *हम भले कह रहेहैं कि चीन के बाद हम दूसरे नंबर पर हैं,* but usually China is much ahead of us. We will give those numbers. In fact, in some of these places, we have only two per cent or three per cent of the total production of the world. Even though we may be at the fifth or the sixth position, we have only two or three per cent. There are countries which have 20 per cent or 30 per cent".

1.30 The details of share of top ranked countries in key minerals are given at **Annexure - I**

E. Contribution of Mining Sector to GDP in India and the Global Average

1.31 Regarding the contribution of mining sector in GDP of some top mining countries such as Australia and the employment generation through mining sector in these countries, the Ministry in a written reply submitted as under**:**

> "Mining sector contributes to about 12% of Australia's GDP. Over 3.2 lakh people are employed in mining in Australia, accounting for about 2.2% of the country's workforce. In Canada, the share of mining sector in the country's GDP is about 6%, creating total employment of about 7 lakh persons. Similarly, the share of mining sector in GDP is about 6% in South Africa as well, with 4.75 lakh persons employed in the sector."

1.32 In this context, the Secretary, Ministry of Mines informed during the oral evidence:

> "If we combine all the minerals, our GDP contribution then comes around two per cent. There are countries like Canada and Australia where the contribution of mining sector to GDP is around 10 per cent and 14 per cent respectively. We need to catch up. In fact, self-reliance in minerals is another way where we can ensure that our contribution of mining sector to GDP increases."

1.33 Further, as regards the reasons for less contribution to GDP by Mining Sector in India, the Ministry submitted in a written reply as under:

“The contribution of mining sector to Gross Domestic Product (GDP) varies across countries depending upon the resources endowment, geological setting, technology, infrastructure, investment level, etc. Accordingly, the share of mining is high in mineral rich countries like Australia, Chile, South Africa and Canada, wherein mining is a dominant economic activity vis-à-vis other sectors. Thus, the contribution of mining to GDP is higher, irrespective of the absolute value of mining output. The share of mining in GDP is about 12-14 percent in Australia and Chile, while it is in the range of 6-8 percent in South Africa and Canada each.

On the other hand, countries with robust manufacturing and/ or services sector, usually have lower contribution of primary activities such as agriculture and mining in their GDP. For example, mining sector’s share in GDP among top mining jurisdictions like USA and China is about 1.5 percent and 3.5 percent, respectively. Similarly, in India, gross value added (GVA) by mining & quarrying sector accounts for about 2 percent of the country’s GDP; of which mining GVA (major minerals and minor minerals) accounts for about 0.9 percent. This share has been in the range of 0.85 to 1.06 percent over the last decade.”

CHAPTER - II

DEGREE OF SELF SUFFICIENCY IN MINERALS & MINERAL BASED PRODUCTS IN INDIA

A. Self-Sufficiency Levels in Core Minerals

2.1 India continued to be wholly or largely self-sufficient in minerals which constitute primary mineral raw materials that are supplied to industries, such as, iron & steel, cement, etc. India is self-sufficient or near to self-sufficient in bauxite, chromite, iron ore, kyanite, limestone, sillimanite, etc. In spite of significant production, some ores/minerals are also imported to meet the demand either for blending with locally available mineral raw materials and/or to meet special requirement for manufacturing special qualities of mineral based products.

2.2 India is deficient in magnesite, manganese ore, rock phosphate, etc. which were imported to meet the domestic demand. To meet the increasing demand of uncut diamonds, emerald and other precious & semi-precious stones by the domestic Cutting and Polishing Industry, India is dependent on imports of raw uncut stones for their value-added re-exports.

2.3 The degree of self-sufficiency in respect of various principal minerals and metals in 2023-24 is furnished as under:

Degree of Self-sufficiency in Principal Minerals, 2023-24(P)

Sl. No.	Ores/Minerals	Apparent Demand* ('000 tonnes)	Production/ Domestic Supply ('000 tonnes)	Degree of Self-sufficiency (%)
1	Bauxite	28049	23721	85%
2	Chromite	3318	3148	95%
3	Iron ore	233511	274927	100%
4	Kyanite	4.82	3.32	69%
5	Limestone	483308	451161	93%
6	Magnesite	608	132	22%
7	Manganese ore	9034	3441	38%
8	Rock phosphate (including apatite)	10368	1558	15%

Figures rounded off *P: Provisional.*

Source: MCDR Returns for production data and DGCI&S for export & import data.

Note: a) Minor minerals have not been included due to non-availability of production for the year 2023-24.

b) Even in cases where almost entire domestic demand is satisfied by domestic supplies, some quantities of certain special quality/ types of minerals and metals are imported to meet the requirement in certain specific end-uses.
**: Apparent demand (production+ import-export)*

2.4 On being asked about the extent of demand of minerals and metals as raw materials for various sector including industries, the Ministry responded in a written reply as below:

> "Iron ore production reached a record 289 million metric tonnes (MMT) in FY 2024-25, reflecting the robust demand conditions in the user industry viz. steel. National Steel Policy envisions achieving 300 million tonnes (MT) of steel production capacity by 2030-31, requiring about 437 MT of iron ore. We are self-sufficient in meeting this demand, as we estimate iron ore production to increase to 450 MMT by 2030. Similarly, limestone production is projected to rise to 730 MMT to meet the demand of cement industry; while bauxite production is projected to increase to 37 MMT to meet Aluminium sector's demand by 2030.
>
> In non-ferrous metals, the demand for zinc for corrosion protection will rise with the boost in demand for steel. In this regard, Hindustan Zinc Limited (HZL), a leading producer of Zinc plans to expand its production capacity to 2 million tonnes per annum by 2030, nearly doubling its current output. Increased production of non-ferrous metals like copper and aluminium is key to meet the rising demand in user sectors such as energy, infrastructure, construction, automotive and machinery.
>
> India is the 2nd largest producer of primary Aluminium in the world and has seen record production level of 42 lakh tonne (LT) in FY 2024-25. The Indian Aluminium industry has announced new investments worth Rs. 1.69 lakh crore to augment domestic production and make India as the Aluminium manufacturer of the world.
>
> Refined copper production stood at 5.73 LT in FY 2024-25 and is set to receive further boost with full operationalization of Kutch Copper Limited's 5 LT capacity plant. Further, copper industry plans to expand domestic smelting capacity by 1-1.5 MMT to reach 2-3 MMT by FY 2029-30."

2.5 In order to meet this demand of minerals by industry, the Ministry of Mines has, *inter-alia*, taken several steps, which include setting up of the National Critical Minerals Mission (NCMM), enhanced participation in multilateral forums, enhanced funding support to exploration activity from the National Mineral Exploration Trust (NMET), auctioning of critical and strategic mineral blocks, auctioning of offshore mineral blocks, undertaking process reforms in the execution of mineral concessions granted, R&D and technology support for critical minerals, etc.

2.6 Non-ferrous metals mainly comprise Aluminium, Copper, Lead and Zinc. In non-ferrous metal sector, India is the 2nd largest Aluminium producer and among top-10 producers in refined copper in the world. The table below presents an overview of India's non-ferrous metal sector for FY 2023–24, highlighting production, capacity, trade volumes, and import

reliance for these non-ferrous metals. Overall, country is largely self-reliant in aluminium, lead, and zinc, while in copper, country is still import reliant. However, India will likely become self-reliant in refined copper with commissioning of M/s Adani's Kutch Copper Refining and production ramp up to full capacity expected this year.

2.7 The following table gives an Overview of India's non-ferrous metal sector for FY 2023–24:

#	Non-ferrous metal	Capacity	Production	Major producers	Import (in lakh ton)	Export (in lakh ton)	Import Reliance (%)
1	Aluminium	41.70	41.59	Vedanta, Hindalco, BALCO, NALCO	3.63	21	Nil
2	Copper	12.85	5.09	Hindalco, HCL, Kutch Refinery*, Vedanta	3.63	0.28	40%
3	Lead	2.01	2.16	HZL	4.03	3.41	22%
4	Zinc	8.43	8.17	HZL	2.21	2.43	Nil

Note: Import reliance= Net Imports/Apparent Consumption

Capacity/ Quantity in lakh ton

** Recently commissioned. Ramp up to full capacity of 5 LT expected this year*

B. Import Dependence of Some Key Minerals

i) Copper

2.8 The Committee observed that the data of the ministry shows that although India has a copper production capacity of 12.85 lakh tonnes, only 5.09 lakh tonnes was produced in 2023-24. On being inquired that with a 40% import dependence and domestic demand rising, what explains this under-utilisation of capacity and what steps are being taken, the Ministry has replied as under:

> "Due to low availability of copper reserves/ resources in the country and consequent low domestic production, India has always been an importer of copper ore & concentrate. Copper concentrate is used as raw material in the production of refined copper, in which India has a robust capacity. The refined copper capacity has increased from 7.85 lakh ton (LT) in FY 2022-23 to 12.85 LT at present due to a huge capacity addition of 5 LT from the Kutch Copper Ltd (KCL) by M/s Adani in FY 2023-24. However, since the production from KCL begun only in FY 2023-24, reaching 0.2 LT in FY 2024-25, it will take a few years for utilization of installed capacity. With KCL, India will see an increase in domestic production of refined copper in the coming years, thereby reducing our import reliance.

The Government has, *inter-alia*, taken the following steps to reduce India's import dependency in refined copper, including strategies to boost domestic availability of copper mineral (identified as critical mineral by Government) and develop domestic refining and processing capabilities:

i. Introduction of Exploration Licence, through the Mines and Minerals (Development and Regulation) (MMDR) Amendment Act, 2023, for 29 deep-seated and critical minerals including copper, which permits the licensee to undertake reconnaissance and prospecting operations for critical and deep-seated minerals, which are otherwise difficult to explore and mine. The Central Government has taken the power to auction mineral blocks for grant of exploration licence vide order dated 21.10.2024 under Section 20A of the MMDR Act. The Central Government has launched the NIT for 13 blocks for grant of exploration licence on 13.03.2025.
ii. Accredited private exploration agencies notified under the MMDR Act have been allowed to carry out exploration without prospecting licence and are made eligible for funding under the National Mineral Exploration Trust (NMET).
iii. As part of the Union Budget 2024-25 announcements, import duties have been eliminated for 25 critical minerals, which includes copper ores and concentrates, to diversify import source, support its easy evacuation to the country, and to encourage domestic refining and processing.
iv. To benefit secondary producers of copper, import duty on copper scrap has been eliminated in Union Budget 2025-26. This will benefit our secondary producers by reducing their costs, provide level playing field vis-à-vis international secondary producers, and enable Indian players to compete globally and increase exports of secondary/downstream products."

ii) Rock phosphate

2.9 As per the note provided by the ministry, India's domestic rock phosphate deposits are largely of low grade, making them unsuitable for direct use in most phosphatic fertilizer and phosphoric acid plants, which are currently designed for high-grade imported rock phosphate from countries such as Morocco and Jordan. On being inquired that given the expected rise in demand for phosphatic fertilizers due to population growth and increased food requirements, how does the ministry plan to reduce reliance on imports by promoting domestic production and specifically, what steps are being taken to encourage the beneficiation of low-grade domestic rock phosphate, to incentivize cluster mining to minimize environmental degradation, and to adopt extraction technologies suited for low-grade ores and whether the Ministry is undertaking systematic exploration to identify new viable reserves of rock phosphate across the country, the Ministry has replied as under:

"To reduce import dependency and enhance domestic production of rock phosphate, the Ministry has taken the following measures:

- Identification of Phosphorus as a Critical Mineral: Phosphate (without uranium) has been classified as a critical mineral under Part-D of the First Schedule of the MMDR Act, 1957 (as amended in 2023), enabling focused attention and strategic intervention.
- Centralised Auction Mechanism: The MMDR Amendment Act, 2023 empowers the Central Government to exclusively auction mining leases and composite licences for 24 critical minerals, improving efficiency, transparency, and pace of mineral development.
- Auction of Mineral Blocks: As of 31.03.2025, 11 mineral blocks (4 rock phosphate in Madhya Pradesh and 7 phosphorite in Madhya Pradesh and Uttar Pradesh) have been successfully auctioned.
- Introduction of Exploration Licence: A new category of mineral concession—Exploration Licence—has been introduced for 29 critical and deep-seated minerals including rock phosphate. The licence holder is eligible for a share in future revenue from production, thereby incentivizing investment in exploration.
- Facilitation of Clearances: To expedite mining projects, the Ministry of Mines has taken up with MoEF&CC for fast-tracking Environment Clearance and Forest Clearance for mining projects of critical minerals, including requests for:
    - Relaxations in compensatory afforestation norms.
    - Exemption from public hearing in environmental clearances.
    - Simplified EIA/EMP procedures.

  These initiatives are aimed at enhancing domestic production, securing long-term supply, and reducing the strategic dependence on imports."

iii) Lithium and cobalt

2.10 In reply to a query whether the Government of India is preparing to launch dedicated incentives for the recycling of 24 critical minerals, including lithium and cobalt under the National Critical Minerals Mission alongwith their outlay and other criteria, the Ministry has replied as under:

"The proposed expenditure for the scheme is INR 1,500 crores (inclusive of administrative expenses) and the proposed duration of the scheme is six years, from FY 2025-26 to FY 2030-31. The financial incentive structure under the scheme will comprise the following:

- Partial reimbursement of capital expenditure ("Capex Subsidy") for new recycling capacity or fresh expansion of existing capacity;
- Financial incentive of a certain percentage of incremental sales ("Opex Subsidy") as a measure of subsidizing operational expenditure; and
- Hybrid of Capex and Opex subsidy

An incentive of 20% on capital expenditure shall be provided to the units for new recycling capacity or fresh expansion of existing capacity. The capital expenditure will be on plant, machinery, equipment, associated utilities and technology including research & development (R&D). Similarly, an incentive of 6% on incremental sales (in a particular year starting from FY 2025-26 up to FY 2029-30 over the previous year) of critical minerals recovered and extracted shall be provided to the units. Further, a unit may avail of capex subsidy, or opex subsidy or both. However, total incentive per participant will be subject to a ceiling in order to ensure greater number of beneficiaries.

Eligibility: The target beneficiary of this scheme will be the recyclers of secondary products recovering and extracting critical minerals registered in India. Application under the scheme can be made by any entity of the target segment registered in India. The Scheme will be applicable to investments in new units as well as expansion of capacity/ modernization and diversification of existing units.

The specific details of the scheme structure including incentive amount, eligibility criteria, and implementation aspects, etc will be specified in the scheme guidelines to be notified by the Ministry of Mines."

iv) Nickel

2.11 On being inquired that India is 2nd largest producer of steel in the world but coking coal and nickel is being imported for the same and how does the Ministry plan to get out of this import reliance and by when, the Ministry has replied as under:

"Nickel has been identified by the Government of India as a critical mineral. As per Returns submitted under MCDR, 2017, there is no reported production of Nickel from primary sources in the country. The demand of Nickel is met through import".

"A total 4 blocks of Ni, Cr and associated PGE and 01 block of Ni, Cr and Co has already successfully auctioned. Besides, ongoing NIT (as on 31.03.2025) are under progress for 01 block of Nickel & PGE. On commencement of mining operation after grant of mining lease for these blocks, the production/availability of Nickel may likely be in the country in near future.

Efforts are being made by the Ministry of Coal in domestic coking coal production, improving coal washing practices to enhance fuel quality, and promoting the adoption of advanced coke-making and gasification technologies to enable cleaner steelmaking. Also, Government started Mission Coking Coal in 2021aimed at reducing import dependency, targeting 140 MT of domestic production, and increasing blending of domestic coal from 10% to 30% in steelmaking by 2030. Key initiatives under this mission include the identification of new exploration areas, boosting output from existing mines, increasing coal washing capacity, and auctioning new coking coal blocks to private enterprises."

v) Limestone

2.12 In reply to a query that India is 2nd largest producer of limestone but limestone is also the 2nd largest item of mineral imports and what explains this, the Ministry has replied that:

> "India produced about 451 million tonnes of limestone during FY 2023-24 while the import of limestone during the same period was 33.81 million tonnes only. This import mainly pertains to S.M.S (Steel melting Shop) grade of limestone, which is primarily used in steel making. There is nil/ negligible availability of this limestone in India whereas India is self-sufficient in limestone used for cement making."

CHAPTER - III

CRITICAL MINERALS AND RARE EARTH ELEMENTS (REE)

A. Critical Minerals

3.1 Critical minerals are essential for our country's economic development and national security. The lack of availability of these minerals or the concentration of their extraction or processing in a few countries poses a challenge of supply chain vulnerabilities. The future global economy will be underpinned by technologies that depend on minerals such as lithium, graphite, cobalt, titanium and rare earth elements (REE). India has committed to achieve 50% of cumulative electric power installed capacity from non-fossil sources by 2030. Such ambitious plan for energy transition is set to drive the demand for electric cars, wind and solar energy projects and battery storage systems thereby increasing the demand for these critical minerals. Critical and Strategic Minerals are in high demand and the demand is usually met by imports. Critical minerals cater to the needs of sectors like renewable energy, defense, agriculture, pharmaceutical, high-tech electronics, telecommunications, transport, creation of Gigafactories etc.

3.2 The usage of critical minerals can be highlighted across different sectors:-

Usage of Critical Minerals

1. Solar energy

- Critical minerals such as silicon, tellurium, indium, and gallium are vital for the production of photovoltaic (PV) cells used in solar panels.
- India's current solar capacity of 64 GW is heavily dependent on these minerals.

2. Wind energy

- Rare earth elements like dysprosium and neodymium are used in permanent magnets for wind turbines.
- India aims to increase its wind energy capacity from 42 GW to 140 GW by 2030, necessitating a stable supply of these minerals.

3. Electric vehicles (EVs)

- Lithium, nickel, and cobalt are key materials used in lithium-ion batteries.
- Under the National Electric Mobility Mission Plan (NEMMP), India plans to deploy 6–7 million EVs by 2024, leading to increased demand for these critical minerals.

4. Energy storage

- Lithium-ion batteries used in advanced energy storage systems depend on lithium, cobalt, and nickel.

3.3 The Ministry of Mines in their Press release has stated that a Committee formed by the Ministry of Mines in November 2022 identified 30 critical minerals, with 24 included in Part D of Schedule I of Mines and Minerals Development and Regulation Act, 1957 (MMDR Act, 1957). The inclusion of 24 critical minerals in Part D of the First Schedule of the Mines and Minerals (Development and Regulation) Act (MMDR Act) means that the Central Government now has the exclusive authority to auction mining leases and composite licenses for these specific minerals. It also recommended setting up a Centre of Excellence on Critical Minerals (CECM)to regularly update the mineral list and guide strategy.

3.4 The Critical and Strategic Minerals specified in Part D of First Schedule of the MMDR Act [24 minerals] are as under:

Critical and Strategic Minerals specified in Part D of First Schedule of the MMDR Act [24 minerals]	
1. Beryl and other beryllium bearing minerals.	13. Platinum group of elements bearing minerals.
2. Cadmium bearing minerals.	14. Potash.
3. Cobalt bearing minerals.	15. Minerals of the "rare earths" group not containing Uranium and Thorium.
4. Gallium bearing minerals.	16. Rhenium bearing minerals.
5. Glauconite.	17. Selenium bearing minerals.
6. Graphite.	18. Tantalum bearing minerals.
7. Indium bearing minerals.	19. Tellurium bearing minerals.
8. Lithium bearing minerals.	20. Tin bearing minerals.
9. Molybdenum bearing minerals.	21. Titanium bearing minerals and ores (ilmenite, rutile and leucoxene).
10. Nickel bearing minerals.	22. Tungsten bearing minerals.
11. Niobium bearing minerals.	23. Vanadium bearing minerals.
12. Phosphate (without uranium).	24. Zirconium-bearing minerals and ores including zircon.

3.5 Critical mineral resources across the world are geographically concentrated with at least 55% of each of the identified critical minerals found in only 15 countries, as of date. A

significant amount of lithium reserves is found in Latin American countries. The Democratic Republic of Congo (DRC) has almost 50% of the world's cobalt reserves. Indonesia and the Philippines have abundant nickel and cobalt reserves, with Indonesia standing out as a global leader in nickel reserves. Moreover, China produces about 60% of rare earth elements (REE) and molybdenum, while covering for almost 85% processing of much of the overall global rare earth supply. According to IEA, although mining operations for critical minerals have become more geographically diverse, little has changed for refining facilities. China controls 50% of planned lithium chemical plants, while Indonesia dominates with 90% of planned nickel refining facilities.

Import Dependence

3.6 As informed by the Ministry, the country is highly import reliant due to low or nil reserves/ production. The import reliance of a few key critical minerals is given in the table below:

"Table: Critical Minerals – Application & Import Dependency

Critical Mineral	Use	India's import dependency	Top 3 producers		
Cadmium	Aerospace, Batteries, Glass	100%	China	Korea	Canada
Gallium	Electronics, Batteries, Solar, Wind		China	Russia	Japan
Niobium	Capacitors, Steel Alloys		Brazil	Canada	Congo
Molybdenum	EV, Batteries, Solar, Wind		China	Peru	Chile
Lithium			Australia	Chile	China
Nickel			Indonesia	Philippines	Russia
Cobalt			Congo	Indonesia	Russia
Graphite		25%	China	Mozambique	Madagascar
Potash	Fertilizers	100%	Canada	Russia	China
Phosphorus		85%	China	Morocco	USA

"

3.7 In this regard, the Secretary, Ministry of Mines informed the Committee during oral evidence that:

> *"If you look at critical minerals which is a current topic, most of these are imported. We are 100 per cent dependent on imports as far as lithium, cobalt, and nickel are concerned. As for graphite, we are able to produce 75 per cent in the country and we*

import 25 per cent of it. Potash and phosphorus are both fertilizer minerals. For them, we are heavily dependent on import from other countries."

Processing of critical minerals

3.8 Processing of critical minerals broadly refers to the physical and chemical operations needed to extract and purify elements or compounds from their naturally occurring ore, scrap, or metallic form to make them suitable for various applications including industrial use. The processing stage is a critical part of the critical mineral value chain which encompasses all stages from mineral exploration and mining to beneficiation, processing, and recovery from end-of-life products.

3.9 As informed by the Ministry of Mines, the top ranked countries in processing of critical minerals are given in the Table below:

Top countries in critical mineral processing

Critical Minerals	Top countries in processing
Copper	China (44%), Chile (8%), Congo (8%)
Lithium	China (65%), Chile (26%), Argentina (5%)
Nickel	Indonesia (37%), China (28%), Japan (5%)
Cobalt	China (77%), Finland (8%), Canada (3%)
Graphite	China (91%), Japan (6%), Germany (1%)
Rare earth minerals	China (92%), Malaysia (5%), Vietnam (1%)

Source: IEA Global Critical Minerals Outlook 2024

3.10 In this context, the Secretary, Ministry of Mines informed during the oral evidence as under:

"China is number one in the processing of most of these minerals

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it controls 90 per cent of processing of rare earth minerals. When it comes to mining, there are certain minerals which China does not produce much but it imports a lot of it. Regarding lithium production, China is number three but in processing, it is number one. Most of the lithium in the world is being processed in China.

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The control is more to do with processing than production. Australia today is struggling to process lithium because they do not have the technology."

B. Rare Earth Minerals

3.11 Rare earth minerals broadly are a group of metallic elements that are crucial for many modern technologies, from electronics to clean energy. Despite their name, they are not particularly rare in the Earth's crust, but they are difficult and expensive to extract and process because they are widely dispersed and rarely found in high concentrations. These are

extensively used in clean energy applications like wind energy turbines, hybrid car batteries/electric motors, solar energy and defence related systems.

3.12 In India, monazite has been the principal source of rare earths. It occurs in association with other heavy minerals, such as ilmenite, rutile, zircon, etc., in the beach sands and inland placer deposits. It also contains thorium and uranium. Although India possesses large deposits of monazite, the heavier rare earths are not present in sufficient quantities in this mineral. Concentration of REEs in hard rock has been recorded in association with carbonatites, syenites, albitites, granites, pegmatite, apatite, phosphorites and carbonaceous schists in various parts of the country. Fresh sources of REEs from primary rocks need to be explored. There is a need for further exploration with modern concepts and tools including remote sensing capabilities.

3.13 The Committee observed that given the under-explored mineral landscape of India and its globally significant rare earth reserves whether the ministry is considering the creation of a dedicated agency or strengthening existing institutions like IREL through targeted budgetary allocations to prioritise the exploration and mining of rare earth elements, the Ministry submitted as under:

> "Geological Survey of India (GSI) is engaged in different stages of mineral exploration following the Minerals (Evidence of Mineral Contents) MEMC Rules, 2015 and subsequent amendments with an aim to augment resource for various strategic and critical minerals including rare earth elements.
>
> Accordingly, GSI is giving emphasis on the exploration for REE in different parts of the country with an aim to find out potential mineralized locales as well as to augment mineral resources. During the last three years (since FS 2022-23 to 2024-25), GSI has taken up 186 projects on REE and in the current FS 2025-26, GSI is carrying out 94 exploration projects on REE across the country."

The resource augmented for REE by GSI since MMDR Amendment Act, 2015 is given in **Annexure-II.**

3.14 Further, in order to support and encourage exploration activities for critical and strategic minerals including Rare Earth Elements, NMET offers exploration incentive up to 25 % of the approved cost of the project for G4 items in Greenfield areas for gold, base metals, other precious minerals, strategic/critical minerals and fertilizer minerals, if the block is successfully auctioned or upgraded from G4 to G3 Stage. Various NPEAs are taking up exploration projects on REE with the support of NMET. To strengthen agencies (State DGMs, Central Agencies/PSUs) in the field of exploration, NMET provides financial support for procuring machineries/ equipment/softwares**.** Minerals of the "rare earths" group not

containing Uranium and Thorium are critical and strategic minerals under Part-D of First Schedule to the MMDR Act. Minerals of the "rare earths" group containing Uranium and Thorium are atomic minerals under Part-B of the First Schedule to the MMDR Act. The Department of Atomic Energy is the nodal Department for regulation of mining of atomic minerals. IREL also comes under the administrative control of the Department of Atomic Energy.

3.15 With a processing capacity of 6 lakh tons per annum, IREL produces key minerals like ilmenite, rutile, zircon, sillimanite, and garnet. It also operates a Rare Earth Extraction Plant in Chatrapur, Odisha and a Rare Earth Refining Unit at Aluva, Kerala. The company has been making profit consistently since 1997-98, with a peak turnover of over ₹14,625 million in 2021-22, including ₹7,000 million in exports. IREL is focused on expanding its production capacity, supporting value chain industries, and advancing R&D through its facility in Kollam, Kerala.

**** ***(The setting up of the National Critical Mineral Mission (NCMM), National Mineral Exploration Trust (NMET) and their activities towards the country's mining and mineral exploration and critical minerals will be dealt in a separate Report by the Committee.)***

Chapter IV

POLICY INITIATIVES TO INCREASE SELF RELIANCE IN MINERALS INCLUDING CRITICAL MINERALS

4.1 As part of the Atmanirbhar Bharat initiative, the Government of India has undertaken several initiatives to address challenges in the critical minerals sector. (AR 24-25 para 2.29). During last ten years, the Government has introduced important reforms to open up the mineral sector to ensure its contribution in achieving the national policy goals. Major reforms include enactment of the Mines and Mineral (Development & Regulations) (MMDR) (Amendment) Act, 2015, which made the process of allocation of mineral concessions completely transparent by introducing public auctions with active participation of the State Governments. In the federal set up, States are owners of mineral wealth in their respective territories. For realising the benefits of mineral wealth, States have primary and significant role to come up with auctionable mineral blocks that have clearance, to start production.

4.2 Regarding the roadmap for self-reliance in minerals and the Ministry's plan to ensure that the roadmap for self-reliance in minerals is successfully implemented to achieve 'Aatmanirbhar Bharat', the Ministry in their written reply has stated that:-

> "Government has made several policy reforms and steps to boost the mineral production in the country and make India Aatmanirbhar in Mineral sector. The Mines and Minerals (Development and Regulation) Act, 1957 has been amended through the MMDR Amendment Act, 2021 with the objective of inter alia increasing mineral production and time bound operationalization of mines, increasing employment and investment in the mining sector, maintaining continuity in mining operations after change of lessee and increasing the pace of exploration and auction of mineral resources.
>
> In addition, several others policy initiatives have been taken up by the Ministry to promote 'Ease of Doing Business', expedite auction of mineral blocks and increase the pace of exploration of minerals. These reforms include, simplification of exploration norms for auction of mineral blocks, enabling any person to submit a proposal to the State Government for notification of an area for auction of composite licence, incentive for production & dispatch earlier than the scheduled date of commencement of production, cap on net worth requirement for participating in auction of mining lease and composite license, decriminalization of offences of minor nature and allowing GPS for identification and demarcation of the area where a composite licence is proposed to be granted through auction.

Ministry of Mines omitted 6 minerals from the list of atomic minerals specified in Part B of the First Schedule of the Act and introduced Part-D for 24 critical and strategic minerals.

Further, Government has amended Mines and Minerals (Development and Regulation) Amendment Act, 2023 to further amend the said MMDR Act, 1957, empowering Central Government to exclusively auction mineral concessions for critical minerals list in Part-D of First Schedule of the Act. With the world-wide focus on critical minerals the amendment introduces major reforms in the mining sector which includes: Omission of 6 minerals from the list of 12 atomic minerals; Empowering Central Government to exclusively auction mineral concessions for critical minerals; and introducing exploration licence for deep-seated & critical minerals. Further, the Ministry launched the National Critical Mineral Mission (NCMM) in 2025 to establish a robust framework for self-reliance in the critical mineral sector.

The first ever tranche of auction of 13 mineral blocks in the offshore areas viz. 3 blocks each of Construction sand and Lime mud, and 7 blocks of Polymetallic nodules and crusts (containing Cobalt, Nickel, etc.) was launched on 28.11.2024 to explore and utilize India's extensive offshore mineral resources within its Exclusive Economic Zone The Ministry also launched the first-ever auction of 13 Exploration Licence blocks, covering critical minerals such as Rare Earth Elements (REE), Zinc, Diamond, Copper, and Platinum Group Elements (PGE).

All of these initiatives are aimed at giving further fillip to Aatmanirbhar Bharat Campaign launched by Government."

4.3 The policy initiatives under the key heads are elaborated as under:

A. Amendment to MMDR Act 2015-2023

I. The MMDR Amendment Act, 2015 instituted the system of e- auction for the grant of mineral concession for major minerals with a view to bring in greater transparency and removal of discretion in the allotment.

II. Subsequent to the 2015 amendment, the MMDR Act was further amended in the year 2020 with the objective of maintaining sustainable mineral production in the country and in the year 2021 with the objective of inter-alia increasing employment and investment in the mining sector, boosting mineral production, timebound operationalization of mines, increasing the pace of exploration, and auction of mineral resources. Further, the subordinate rules to implement the above reforms have been notified within the stipulated time.

III. The MMDR Act, 1957 has been further amended through the MMDR Amendment Act, 2023 in FY 2023-24 empowering the Central Government to exclusively auction mining leases and composite licences for 24 critical minerals and introducing the auction of Exploration Licence (EL) for deep-seated and critical minerals.

B. Auction of mineral blocks

4.4 The amendments in the MMDR Act and subsequently in Mineral Auction Rules have resulted in a significant increase in the auction of mineral blocks. The number of blocks auctioned per year has increased a lot since the reforms of 2021. The Ministry of Mines has informed that since 2015, 486 mineral blocks have been successfully auctioned, out of which 462 blocks have been auctioned by various State Governments and 24 blocks by Central Government. Out of 486 auctioned blocks, lease deed has been executed in 131 blocks (78 ML and 53 CL blocks). Out of 78 ML deed executed blocks, 63 blocks have been operationalized till date. Unlike other projects, mining projects have longer gestation period. Time taken for operationalization is dependent on obtaining clearances from various Central and State Regulatory Authorities after the auction of the mining block.

4.5 In reply to a query regarding the time gap between the auction of mineral blocks and their operationalization and what actions are being taken to bridge this pendency, the Ministry of Mines in their reply has submitted as under:

> "Time taken for operationalization is dependent on the various clearances required after the auction of the mining block such as Environment Clearance, Forest Clearance, Consents from State Pollution Control Boards along with Land acquisition and infrastructure development. As on date, out of 486 auctioned blocks, 63 blocks are currently operationalized. Unlike other projects, mining projects have longer gestation period.
>
> Timelines provided for operationalization of Mines:
>
> Mining Lease: minimum 5 years and maximum 8 years
> - For signing Mining Lease: 3 years from the date of LoI for signing the Mining Lease (extendable by 2 years)
> - After signing Mining Lease, 2 years for commencing production (extendable by 1 year)
>
> Composite License: minimum 9 years and maximum 14.5 years
> - Submit prospecting scheme within 1 year of LoI (extendable by 6 months)
> - Geological exploration to be conducted within 3 years (extendable by 2 years).
> - For signing Mining Lease: 3 years for signing the Mining Lease (extendable by 2 years)
> - After signing Mining Lease, 2 years for commencing production (extendable by 1 year)
>
> Ministry of Mines has undertaken several key initiatives to expedite the operationalization of auctioned mineral blocks. A dedicated Project Management Unit (PMU) has been set up to coordinate with stakeholders, track project progress

through a centralized dashboard, assess clearance status, and support policy simplification.

To resolve bottlenecks, the Ministry has conducted 73 review meetings with State Governments over the last three years, and also raised the issue with State Govt. in different meetings of Zonal Council".

4.6 Further, the time lag between grant of mining rights and actual start of production varies from country to country and the type of mineral commodity produced by the countries. On one hand, the average time taken to start production after grant of mining rights is around 5-6 years for countries like Australia, Argentina, Brazil and Canada, the duration is as high as more than 10 years for countries like Chile, Peru and DR Congo and as low as around 3 years for China.

C. National Mineral Policy, 2019

4.7 National Mineral Policy, 2019 replaced the National Mineral Policy 2008 ("NMP 2008"). National Mineral Policy, 2019 has been approved by the Union Cabinet on 28th February, 2019. The aim of National Mineral Policy 2019 is to have a more effective, meaningful and implementable policy that brings in further transparency, better regulation and enforcement, balanced social and economic growth as well as sustainable mining practices. The National Mineral Policy, 2019 includes provisions for giving boost to mining sector such as:

- Introduction of Right of First Refusal for RP/PL holders;
- encouraging the private sector to take up exploration;
- auctioning in virgin areas for composite RP cum PL cum ML on revenue share basis;
- encouragement of merger and acquisition of mining entities;
- transfer of mining leases and creation of dedicated mineral corridors to boost private sector mining areas;
- proposes to grant status of industry to mining activity to boost financing of mining for private sector and for acquisitions of mineral assets in other countries by private sector;
- proposes to auction mineral blocks with pre-embedded clearances to give fillip to auction process;
- proposes to make efforts to harmonize taxes, levies & royalty with world benchmarks to help private sector.

4.8 On being asked about how many mineral corridors have been established, how many firms have been given mining permit under the right of first refusal and how many mineral blocks have been auctioned by PSUs under National Mineral Policy 2019, the Ministry have informed as under:

"Para 6.6 of the National Mineral Policy, 2019 states that Mining infrastructure requires a special thrust as the economic efficiency of evacuation of minerals from pit mouth to user point or port or rail head is closely linked to the end use value of the mineral and of the viability of the industry producing and using the mineral. Further, National Mineral Policy, 2019, inter-alia, provides that dedicated mineral corridors shall be planned to facilitate transport of minerals from mining areas in hinterland along with encouraging the local evacuation networks to be built in an integrated manner.

As per available information, Ministry of Railways has taken up construction of two Dedicated Freight Corridors (DFC) viz. Eastern Dedicated Freight Corridor (EDFC) from Ludhiana to Sonnagar (1337 Km) and the Western Dedicated Freight Corridor (WDFC) from Jawaharlal Nehru Port Terminal (JNPT) to Dadri (1506 Km). Out of total 2843 Km, 2741 Route Kilometers (96.4%) has been commissioned and operational. The Dedicated Freight Corridor (DFC) Project is expected to enhance transportation and logistics efficiency, while facilitating the movement of mineral traffic across the country.

As per the provisions of Section 8A(7) of the MMDR Act, lessees of the captive mining leases shall have the right of first refusal at the time of auction held for such lease after the expiry of the lease period. Further, as per Section 8A(5) of the MMDR Act, the period of lease granted before 12th January, 2015, where mineral is used for captive purpose, shall be extended and be deemed to have been extended up to a period ending on the 31st March, 2030 with effect from the date of expiry of the period of renewal last made or till the completion of renewal period, if any, or a period of fifty years from the date of grant of such lease, whichever is later, subject to the condition that all the terms and conditions of the lease have been complied with.

In view of the above provisions, none of the existing captive mining leases have expired so far, consequently, no mining leases have yet been auctioned under the right of first refusal".

4.9 Since 2015, a total of 4 mineral blocks have been auctioned by State and Central Govt. to State/ Central PSUs. The details are given in the Table below:

Mineral blocks auctioned by State and Central Government

State	Block Name	Mineral	Preferred Bidder
Andhra Pradesh	Chigargunta Bisanatham Block	Gold	NMDC Limited
Central Govt./Madhya Pradesh	Khattali Chhoti Graphite Block	Graphite	Coal India Limited
Central Govt/Arunachal Pradesh	Phop Graphite and Vanadium Block	Graphite and Vanadium	Oil India Ltd

State	Block Name	Mineral	Preferred Bidder
Central Govt/Maharashtra	Vadakhol-Asoli Block	Ni, Cr, Co and Associated Mineral	Assam Mineral Development Corporation Limited

D. Offshore Mining

4.10 As per Article 297(1) of the Indian Constitution, all lands, minerals and other things of value underlying the ocean within the territorial waters, or the continental shelf, or the exclusive economic zone, of India shall vest in the Union and be held for the purposes of the Union. The Offshore Areas Mineral (Development and Regulation) Act, 2002 was amended with effect from 17.08.2023 whereby auction regime was introduced for allocation of offshore blocks. Pursuant thereto, the Central Government has launched the first tranche of auction of 13 offshore blocks on 28.11.2024 for grant of composite licence i.e. exploration licence-cum-production lease. This includes three offshore blocks of construction sand off the coast of Kerala beyond the territorial waters. As such the blocks are not on the coast of Kerala. The details of these blocks are given in the Table below:

Details of offshore blocks in Kerala

Sl. No.	Block Name	Area (in sq. km.)	Resources (in Million Tonnes)
1.	Kollam CS Block-1	79.00	100.33
2.	Kollam CS Block-2	78.00	100.64
3.	Kollam CS Block-3	85.00	101.45

4.11 The Ministry has further informed that as per Rule 5(2) of the Offshore Areas Operating Right Rules, 2024, prior consultation with stakeholder Ministries/Departments including Ministry of Environment, Forest and Climate Change (MoEF&CC) and Department of Fisheries is mandatory before notifying any offshore area for grant of operating right. In the present case, the Ministry of Mines had consulted with the MoEF&CC, Department of Fisheries and other related Ministries / Departments before notification of blocks for auction and the no objection of all Ministries / Departments was received prior to notification for auction.

4.12 Further, in order to conserve marine species, MoEF&CC has notified 130 Marine Protected Areas across the Coastal States and Islands and 106 coastal and marine sites have been identified and prioritized as Important Coastal and Marine Biodiversity Areas (ICMBAs) to take care of marine species conservation. The offshore blocks have been carved by excluding these areas.

4.13 As per the provisions of the Offshore Areas Mineral (Auction) Rules, 2024, before execution of an operating right, the bidders are required to obtain all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of production operations.

4.14 Further, as per the provisions of the Offshore Areas Mineral Conservation and Development Rules, 2024, no production operations shall be undertaken except in accordance with a production plan. The production plan, *inter-alia*, includes environment management plan indicating baseline information, impact assessment and mitigation measures.

4.15 The three offshore blocks notified for auction off the coast of Kerala are beyond the territorial waters. There are adequate provisions in the Offshore Areas Mineral (Development and Regulation) Act, 2002 and the rules made thereunder to safeguard ecological balance, bio-diversity and protecting the interest of fishermen.

4.16 Moreover, the Section 16A of the Offshore Areas Mineral (Development and Regulation) Act, 2002 provides for establishment of Offshore Areas Mineral Trust as a non-profit autonomous body. Accordingly, the Offshore Areas Mineral Trust has been established vide S.O. 3246(E) dated 09.08.2024. The coastal States have been made members of the Governing Body and Executive Committee of the Trust. The funds accruing to the Trust shall, *inter-alia,* be used for research, administration, studies and related expenditure with respect to offshore areas and mitigation of any adverse impact that may be caused to the ecology in the offshore area, due to operations undertaken, providing relief upon the occurrence of any disaster in the offshore area and for the interest and benefit of persons affected by exploration or production operations undertaken.

4.17 Therefore, the auction of the offshore blocks will reduce dependency of Kerala on the import of construction sand and will also create employment opportunities for the locals.

4.18 To explore and utilize India’s extensive offshore mineral resources within its Exclusive Economic Zone, the first ever tranche of auction of 13 mineral blocks was launched in the offshore areas viz. 3 blocks each of Construction sand and Lime mud, and 7 blocks of Polymetallic nodules and crusts (containing Cobalt, Nickel, etc.). The above

initiatives are intended to increase domestic mineral production and ensure country's self-reliance in minerals and metals for India. The details of the 13 Offshore Mineral Blocks are given at **Annexure-III.**

E. R&D in the field of mineral self reliance

4.19 Regarding the initiatives taken by the Ministry of Mines for R&D in metallurgy, mineral extraction and processing and comparison to the global standards, the Ministry in their written reply has submitted as under:

> "Ministry of Mines provides funds to academic institutions, universities, national institutes, R&D institutions, Startups and MSMEs for implementing R&D projects under Science and Technology Programme of Ministry of Mines with the vision to promote applied research in geosciences, mineral exploration, mining and allied areas, mineral processing, optimum utilization and conservation of the mineral resources of the country, for the benefit of the nation and its people.
>
> In August 2023, the thrust area of the programme has been expanded to include focus on extraction of strategic, critical and REE at elemental level. In November 2023, enlarging the scope of the S&T Programme of Ministry of Mines, a new component namely "Promotion of Research and Innovation in Start- ups and MSMEs in mining, mineral processing, metallurgy and recycling sector (S&T-PRISM)" was introduced to fund research and innovation in Start-ups and MSMEs working in the field of mining and mineral sector to bridge up the gap between R&D and commercialisation as also to promote the ecosystem for complete value chain in mining and mineral sector.
>
> On 29th January, 2025, Government of India launched National Critical Mineral Mission (NCMM) to establish a robust framework for self-reliance in critical mineral sector. Under the NCMM, it has been envisaged to recognise reputed academic institutes and R&D labs as Centres of Excellence (CoEs) on critical minerals which shall work on a Hub and Spoke Model with other institutions/organisations and research labs working on critical minerals. The CoEs will work on the critical minerals value chain and aim to synergise R&D and innovation with the national objectives. In April 2025, Ministry of Mines has brought out guidelines for Centre of Excellence under National Critical Mineral Mission (NCMM).
>
> India's mining industry/technologies lags behind global standards due to outdated technologies, limited automation, and slow adoption of AI, IoT, and digitalization (limited automation compared to advanced systems like autonomous trucks and AI-driven maintenance used in Australia, Canada, and China), resulting in higher operational costs. While exploration intensity remains low (at 0.29 boreholes per square kilometer versus Australia's 3.8), efforts by the Geological Survey of India are increasing. Mineral processing and refining, especially for critical minerals, depend heavily on imports due to inadequate

infrastructure (unlike China's dominant processing infrastructure). Deep-sea and offshore mining initiatives are in their early stages, while global leaders employ sophisticated technologies. Sustainability and worker safety face challenges from inefficient extraction methods, though ESG-aligned practices are emerging. Government reforms, including 100% FDI, aim to modernize mining, but financial support and regulatory hurdles hinder investment in cutting-edge technologies. India is gradually making strides toward technological advancement in mining through Science and Technology Programme of Ministry of Mines and with initiatives like the National Critical Minerals Mission which aim to bridge these gaps."

4.20 The Committee pointed out that as per reports in December 2024, the government cancelled the auction of 11 critical mineral blocks due to poor industry response—similar to earlier cancellations of 3 blocks in July, 14 in June, and 13 in March. The lack of industry interest, even for key minerals like lithium vital for renewable energy, raises concerns about technological capability and the ability of the country to harness domestic resources. On being queried whether to address this, is the government considering measures such as viability gap funding or support for technology development to boost industry participation, the Ministry has replied as under:

"Since the MMDR Amendment in August 2023, the Government has launched five tranches of Critical & Strategic Mineral auctions, with four tranches successfully completed. Out of the 48 unique blocks offered, 24 blocks have been successfully auctioned, reflecting a strong success rate.

To make the bidding process more attractive, the government has implemented the following measures to reduce financial barriers and support technology development:

i. The reserve price for critical mineral blocks has been set at a low 2.00%, and the tender price is kept low compared to the mineral auctions conducted by state governments.
ii. In 2023, enlarging the scope of the S&T Programme of Ministry of Mines, a new component namely "Promotion of Research and Innovation in Start-ups and MSMEs in mining, mineral processing, metallurgy and recycling sector (S&T-PRISM)" was introduced to fund research and innovation in starts up and MSME working in the field of mining and mineral sector to bridge up the gap between R&D and commercialisation as also to promote the ecosystem for complete value chain in mining and mineral sector.
iii. Due to increased emphasis on critical minerals, focus on extraction of strategic, critical and REE at elemental level has been added in the thrust area of the Programme.
iv. A total of 22 projects out of 42 projects from Academic institutions, universities, national institutes and R&D institutions amounting to ₹ 13.53

crore which are related to Critical Minerals have been sanctioned under R & D Component of Science and Technology Programme of Ministry of Mines during 2024-25. Further, a total of 6 projects from Start ups and MSMEs amounting to ₹ 7.922 crore which are related to Critical Minerals have been sanctioned under S&T-PRISM Component of Science and Technology Programme of Ministry of Mines during 2024-25. Thus, a total of 28 projects amounting to ₹ 21.452 crore which are related to Critical Minerals have been sanctioned under Science and Technology Programme of Ministry of Mines during 2024-25.

These initiatives are intended to boost industry participation in critical minerals sector"

F. Initiatives by GSI and IBM

4.21 Geological Survey of India (GSI), Headquarters at Kolkata is an attached office and the Indian Bureau of Mines (IBM), Headquarters at Nagpur is a subordinate office of the Ministry of Mines.

Geological Survey of India (GSI)

4.22 The Geological Survey of India (GSI), established in 1851, began its voyage with the mission to explore and evaluate the country's coal and mineral resources through regional exploration. Over the years, GSI has expanded its scope to encompass a wide range of geoscientific activities, significantly contributing to the field of geosciences and, consequently, to India's economic development. The primary functions of GSI include the creation and updating of national geoscientific information and the assessment of mineral resources. GSI undertakes ground, airborne, and marine surveys, mineral exploration, multidisciplinary geoscientific studies, geotechnical and geo-environmental research, natural hazard assessments, glaciology, seismotectonic studies, and fundamental research.

4.23 The Geological Survey of India (GSI) designs and implements its geoscientific programs through five key Missions: Baseline Geoscience Data Generation (Mission-I), Natural Resources Assessment (Mission-II), Geo-informatics (Mission-III), Fundamental, Multi-disciplinary Geoscience and Special Studies (Mission-IV), and Training and Capacity Building (Mission-V).

4.24 GSI is the only organization in India which is actively engaged in three layers of ground mapping (geology, geochemical & geophysics) of the Indian landmass. The integration of all geoscientific data (Geological, Aero-geophysical, Geophysical, Geochemical and Remote sensing) in GIS platform is also being done for prognostication of potential mineralized belt,

to resolve geological problems as well as to do public good geoscience and all data are uploaded in GSI's "BHUKOSH" portal (https:// bhukosh.gsi.gov.in/Bhukosh/Public) and in "NGDR" portal (https://geodataindia.gov.in/ login) for use of all other stakeholders.

4.25 Fundamental Geosciences & Research (M-IVC) - Fundamental research remains the backbone of GSI's activities under Sub-Mission M-IVC. During FS 2024-25, GSI has undertaken diverse research initiatives across Petrology, Palaeontology, Geochronology, Isotope Geology, and niche fields such as Meteorite and Planetary Sciences, Gemmology, and Quaternary Geology. Petrological research focuses on unravelling mineralization processes in various geological terrains, with 22 R&D projects targeting critical minerals like Rare Earth Elements (REE), Lithium, Cobalt, and Vanadium, along with Copper, Gold, and Platinum Group Elements (PGE). Notable studies include REE mineralization in the Samalpatti and Hogenakal carbonatites (Tamil Nadu), Lithium occurrences in the Bastar Craton, and porphyry Cu-Au-Mo potential in the Ladakh Batholith. Research on pegmatites, laterites, and schist belts has identified potential zones for Nickel, Cobalt, and Chromium in the Western Dharwar Craton, furthering India's goal of mineral self reliance.

4.26 The Committee, however, observed that one major deterrent in exploration is the lack of granular, reliable geoscience data. Many auctioned blocks remain at G3 or G4 stages of exploration, lacking sufficient information on ore grade and deposit size, thereby increasing perceived investment risk. While the National Geoscience Data Repository (NGDR) exists, its integration with block-level auction data and user accessibility is reportedly limited. In this context, on being asked about concrete outcomes which have been achieved so far through the NGDR, particularly in terms of private sector usage and data-driven targeting, what timelines and budgetary allocations exist for operationalising the proposed GSI Data Processing, Interpretation & Integration Centre, and will it be accessible to private and state-level entities for mineral targeting, the Ministry replied as under:

> "National Geoscience Data Repository (NGDR) portal was launched by Ministry of Mines in 2023 in accordance to the NMEP-2016 with the objective to provide free access to all the baseline and exploration related geoscientific data for all users to enhance the mineral exploration in the country. Some of the outcomes achieved so far through the NGDR, particularly in terms of private sector usage and data-driven targeting, are as under:
>
> - About 12,500 reports of GSI & other stakeholders and data related to more than 40 layers have been made available on NGDR portal. Some of the most important map service layers of the portal include, *inter-alia*, Exploration Blocks, Auctionable Blocks (containing the metadata of the G4/G3/G2 auctioned blocks of the selected commodity), Obvious Geological Potential zones (OGP areas),

Compiled Geology layers on 2M, 50K & 25K, Geochemistry layer (National Geochemical Mapping Programme (NGCM)), Coal blocks layer from CMPDIL, maps generated through National Aero-Geophysical Mapping Programme (NAGMP), Hydrocarbon blocks from DGH, Basin and Sub-Basin layer from CGWB, and, data layers imported from PM Gati Shakti portal like Infrastructure, Soil Agriculture and electricity. Recently, Forest, National Park and Sanctuary layer have been incorporated to NGDR.

- Further, 6,100 reports have been digitized of the remaining ~7,000 reports of stakeholders.
- Till date, more than 22,000 downloads of the data/reports uploaded in NGDR have been made by Private entities / NPEAs, academic organization for their use. The private agencies and NPEAs are planning their future projects using these data. AI compatible geoscience data was downloaded from NGDR Portal by participants for Hackathon.
- In 2025-26, GSI initiated 6 projects to identify mineralization areas using integrated geo-science data

GSI is in the process of establishing the Data Processing, Interpretation and Integration Centre (DPIIC) for which notice inviting 'Expression of Interest' (EoI) from global vendors was floated and responses have been received from 13 agencies with evaluation under progress.

- Based on the solutions obtained through the EoI responses, DPR and RFP will be prepared by the Project Management Unit (PMU) consultant, Digital India Corporation, MeitY and the same will be handed over to the eligible bidders.
- Timeline: The project implementation time is one year followed by 4 years of Operation and Maintenance.
- Budgetary allocation: Budget / Estimated cost will be finalized at DPR & RFP stage based on the inputs from EoI responses.
- DPIIC will be accessible to all private and state level entities for mineral targeting."

4.27 Further, the Ministry has informed Geological Survey of India (GSI) has conducted the first Hackathon titled "Innovative Mineral Hunt Techniques" in the year 2024 and has recently launched the second Hackathon titled "Mineral Targeting using Artificial Intelligence" on 13.03.2025 in association with India-AI Mission and Digital India Corporation, Ministry of Electronics and Information Technology. The Hackathon initiative aimed to harness state-of-the-art techniques and application of emerging technologies like AI/ML, interpretation and modelling of geophysical data and integration of multiple data sets. This initiative integrates AI-driven techniques with geoscience data to identify new target areas for mineral exploration, particularly deep-seated and concealed ore bodies. The solutions which emerged in the first Hackathon generated Mineral Predictivity Maps through various Machine Learning/Deep Learning algorithms. The results of the Hackathon have indicated prospective areas/leads

for various mineral commodities like copper, gold, graphite, phosphorite, REE etc. in Rajasthan. Presently, these leads are being assessed by GSI and formulation of project is underway for ground validation of the AI-ML results. The solutions/ results of the Hackathon are available in the public domain for free access by private exploration agencies who may take up exploration projects based on those leads. Further, GSI is in the process of establishing a “Data Processing, Interpretation and Integration Center (DPIIC)" at Bengaluru with the objective of upgrading competency in data interpretation, analysis, build appropriate 2D & 3D models for finding new areas of exploration by using modern technologies like AI/ML.

4.28 The Committee observed that presently, only 15% of the geographical area of India has been covered under exploration. Regarding the reasons behind the slow pace of exploration and the steps that the Ministry is planning to take in this regard, the following have been submitted.

- The entire country has been mapped on 1:50,000 scale through which GSI has been able to comprehensively identify all the possible high grade non-bulk minerals with surface manifestation. However, the challenge is to target deep seated/ concealed deposits of low grade-high tonnage deposits.
- Exploration is a continuous process depending on changes in cut-off based on development of beneficiation and metallurgical technology as well as mineral economics.
- Based on the geological mapping, known mineral belts and exploration data acquired, GSI had demarcated around 6.88 lakh sq.km area which is potential for such mineralization and GSI has prioritized geochemical and geophysical mapping over this area. In accordance to the thrust given by the Government, GSI has increased its mineral exploration activities over the years and the exploration activities of GSI has increased from 251 programmes in 2020-21 to 451 programmes in 2025-26 in the potential areas for mineralization in the country.
- Till March 2025, GSI has covered around 61% of the total identified and accessible potential areas for mineralization by reconnaissance stage mineral exploration using Large Scale Mapping (LSM) on 1: 12,500 scale. With the advent of newer technologies and evolving concepts, GSI is carrying out exploration for concealed and deep-seated deposits within as well as outside the potential mineralised areas.
- GSI is planning to cover through LSM based reconnaissance stage mineral exploration of the accessible potential areas with an enhanced minimum target of 20,500 Sq. Km/Year.
- GSI has adopted several strategies to intensify the search to delineate mineral target in the entire country, within and beyond the identified potential mineralized areas through different mineral discovery projects viz. National Geophysical Mapping, National Aero-Geophysical Mapping, Specialized Thematic Mapping with Mineral bias, drone based geophysical mapping, Magneto Telluric survey, Multispectral/ Hyperspectral mapping etc. and with the infusion of new technologies

viz. AI/ML, 3D predictive modelling etc. that will help to expedite the survey activities and also to narrow down target areas for further exploration within and outside the identified potential domains.

Indian Bureau of Mines

4.29 Indian Bureau of Mines (IBM) is a subordinate office under the Ministry of Mines. It is engaged in the promotion of scientific development of mineral resources of the country, conservation of minerals, protection of environment in mines, other than coal, petroleum and natural gas, atomic minerals and minor minerals. It performs regulatory functions with respect to the relevant provisions of Mines and Minerals (Development and Regulation) Act, 1957 and enforcement of the rules framed there under, namely Mineral Conservation and Development Rules, Ministry of Mines Annual Report 2024-25 102 Attached / Subordinate Offices 1988/2017 and Mineral Concession Rules, 1960/2016 and Environmental (Protection) Act, 1986 and Rules made there under. It undertakes scientific, technoeconomic, research-oriented studies in various aspects of mining, geological studies, ore beneficiation and environmental studies.

4.30 IBM has entered into a Memorandum of Understanding (MoU) with National Remote Sensing Centre (NRSC), for a pilot project “SudoorDrushti” to demonstrate the feasibility of using High-Resolution Satellite imagery and Digital Elevation Model (DEM) in monitoring mining activities/changes over a period of time over selected group of mines. 3.13 The Ministry of Mines has begun use of Geo-spatial technologies such as GIS and Satellite imagery to monitor and prevent illegal mining activities. The Ministry of Mines has launched the Mining Surveillance System (MSS) in October 2016. It aims at developing a system for detection of incidence of illegal mining by use of space technology and surveillance of area up to 500m outside the lease boundary to check incidences of illegal mining. The MSS has been developed through Indian Bureau of Mines (IBM) in collaboration with Ministry of Electronics and Information Technology (MeitY) and Bhaskaracharya Institute for Space Applications and Geoinformatics (BISAG) Gandhinagar. Since, the inception of MSS in 2016-17, the project was implemented in major mineral rich states which includes State Government of Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Rajasthan, Tamil Nadu, Telangana and Uttar Pradesh; in total 5 phases. The MSS analyzes land pattern changes within a 500-meter radius of mining leases. If discrepancies are detected, alerts are generated and sent to the respective State

Government for ground verification. A mobile app has also been developed and launched to facilitate reporting of cases of illegal mining.).

4.31 As per National Mineral Inventory maintained by IBM, state-wise/ mineral-wise reserve/ resources as on 01.04.2020 is given in **Annexure-IV.**

4.32 In this context, on being pointed out by the Committee that there are large number of illegal mining cases across various states and what actions are being taken, the Ministry in their written submission stated as under:-

> "Section 23C of the MMDR Act, 1957 empowers the State Government to frame rules to prevent illegal mining, transportation and storage of minerals (both major minerals and minor minerals) and for purposes connected therewith. Therefore, prevention and control of illegal mining is the primary responsibility of the concerned State Government. The Central Government supports and augments efforts of State Governments through policy initiatives from time to time.
>
> Altogether, 21 State Governments namely, Andhra Pradesh, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Nagaland, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttaranchal, and West Bengal have framed rules under section 23C of MMDR Act, 1957 to curb illegal mining. Further, total 22 States have set up Task Forces specially constituted to control illegal mining and review the action taken by member departments for checking the illegal mining activities at state and district levels.
>
> The Ministry of Mines, through IBM, has developed the Mining Surveillance System (MSS), in coordination with BISAG and MEITY, to use space technology for curbing illegal mining activity in the country. MSS is a satellite-based monitoring system which aims to establish a regime of responsive mineral administration, through public participation, by curbing instances of illegal mining activity.
>
> The Central Government has also observed a significant rise in complaints and references regarding illegal mining reported by general public, foundations, NGOs etc. In this regard, recently, the Central Government has issued an advisory dated 31.01.2025 to all major mining states requesting them to take immediate and stringent measures for prevention and control of illegal mining. This may include enhancing surveillance, conducting regular inspections and ensuring strict enforcement of the provisions of the MMDR Act, 1957 and rules notified there under."

Star Rating of Mines

4.33 The Star Rating System is a governance initiative, designed as a tool for mapping of mining footprints from the view point of Sustainability. The Star rating has been mandated by

Rule 35 of Mineral Conservation and Development Rules (MCDR), 2017. Every holder of a mining lease is required to submit online, its self-assessment report before the 1st day of July every year for the previous financial year to IBM.

4.34 All the mine operators are mandated to achieve at least three-star rating within a period of four years with effect from the date of notification of the Rules (i.e. 27th February, 2017) or four years from the date of commencement of mining operations, as the case may be, and thereafter maintain the same on year-on-year basis, failing which mining operations are liable to be suspended.

4.35 Based on evaluation of the performance of mining lease holders on the various parameters encompassed by the principals of the Sustainable Development Framework (SDF), validation of self-assessed templates is carried out by IBM and accordingly final ratings are awarded. Selected five star rated mines are recommended for award by Technical Evaluation Committee.

4.36 The Ministry of Mines developed a credible system of evaluation of mining footprints and instituted the Sustainable Development Framework (SDF) for taking up mining activity under its umbrella, encompassing inclusive growth, without adversely affecting the social, economic and environmental well-being, at present and also in future generation. Further, to implement the Sustainable Development Framework (SDF), Ministry has evolved a system of Star Rating of Mines. It has been instituted as a two-tier system providing self-evaluation templates to be filled in by the mine operator followed by validation through Indian Bureau of Mines**.**

4.37 As per the information available the IBM has received 2476 requests regarding Star rating and out of which 1260 has been published and 1226 are in process.

g) Plan for Production of key minerals in line with increasing demand and role of Public Sector Undertakings under the Ministry

4.38 There are three Public Sector Undertakings under the Ministry of Mines, namely:- National Aluminium Company Limited (NALCO), Bhubaneswar; Hindustan Copper Limited (HCL), Kolkata; and Mineral Exploration and Consultancy Limited (MECL), Nagpur.

NALCO

4.39 National Aluminium Company Limited (NALCO), a 'Navratna' company under the Schedule 'A' category, was founded on January 7, 1981, with its registered office in Bhubaneswar. It is one of the country's largest complexes integrating bauxite, alumina, aluminium production, and power generation. Currently, the Indian government owns 51.28% of NALCO's equity capital. The Company has been operating its captive Panchpatmali Bauxite Mines for the pit head Alumina refinery at Damanjodi, in the District of Koraput in Odisha and Aluminium Smelter & Captive Power Plant at Angul. As a part of green initiative, NALCO has installed 198 MW Wind Power Plants at various locations in India and 850 kWp roof top Solar Power Plants at its premises to join hands for carbon neutrality.

HCL

4.40 Hindustan Copper Limited (HCL), a Miniratna Category-I, Government of India (GoI) Enterprise under the administrative control of the Ministry of Mines, was incorporated on 9th November 1967 under the Companies Act., 1956. It was established as a Govt. of India Enterprise to take over all plants, projects, schemes and studies pertaining to the exploration and exploitation of copper deposits from National Mineral Development Corporation Ltd. It is the only company in India engaged in mining of copper ore and owns all the operating mining lease of Copper ore. Major activities of HCL include mining, ore beneficiation and converting of refined copper metal into continuous cast rod (CCR) as downstream product. HCL have five units - one each in the states of Rajasthan, Jharkhand, Madhya Pradesh, Gujarat and Maharashtra. HCL is a listed company on BSE and NSE, with 66.14 % equity owned by the Government of India.

MECL

4.41 Mineral Exploration and Consultancy Limited (Formerly Mineral Exploration Consultancy Limited) was established in 1972 as a Central Public Sector Enterprise under the under the aegis of Ministry of Mines, Government of India. MECL plays a pivotal role in unlocking the potential of India's vast mineral resources. As a premier Ministry of Mines Annual Report 2024-25 152 Central Public Sector Undertakings exploration agency, MECL is tasked with the identification and evaluation of mineral deposits, conducting geological surveys and providing consultancy services that enable informed decision-making for sustainable resource management. With over five decades of expertise, MECL has been

instrumental in advancing the country's exploration capabilities, thereby contributing to India's economic growth and industrial development. MECL is at the forefront of mineral exploration, offering comprehensive services in regional and detailed exploration across a diverse range of mineral categories, including energy minerals, ferrous and non-ferrous metals, industrial and fertilizer minerals, precious and rare minerals, as well as critical minerals.

4.42 On being asked regarding the mining operations of the PSUs and whether they are ready to tie up with the private enterprises to scale up mining operations, the Ministry has replied that NALCO, a mining and metal PSU, is executing expansion projects for its growth in the Aluminium value chain. In the areas of mining, the company has started Coal mining from Utkal D&E coal blocks recently. The Company has engaged a private agency in MDO Mode for its Coal Mining operation. The Company is also in the process of engaging an Agency through MDO contract for its new Pottangi Bauxite Mines operation. HCL is moving as per its strategies and expansion plan. To achieve these targets in a time bound efficient manner, long term mining contracts in MDO mode are being awarded. Development of Rakha-Chapri mine at Ghatshila, Jharkhand through MDO mode has been taken up by HCL. Besides,at all other units of HCL also the mining operations are being carried out through outsourced agencies(private agencies).

4.43 Regarding the plan for Production of key minerals viz. aluminium, copper, zinc, bauxite, etc in line with increasing demand by the PSUs, the Ministry has replied that in the case of Copper, *vide* Gazette Notification dated 9th August 2023, Ministry of Mines, GoI has incorporated the Copper bearing minerals in the Seventh Schedule of MMDR Amendment Act, 2023 due to its essential role in energy transition, electric vehicles, infrastructure, and electronics industry. In light of increasing demand and the widening gap between production and consumption, the Ministry has laid out several initiatives to ramp up domestic copper production:

a) Ministry of Mines, GoI is monitoring the mine expansion projects of HCL, the only copper miner to the nation, to increase the copper ore production from its mines located at Madhya Pradesh, Rajasthan & Jharkhand. In this regard, following key developments at HCL over the last one year include:

   i. The company had successfully transitioned from Open cast mining to underground mining at Malanjkhand Mine (Dist- Balaghat) at Madhya Pradesh.

ii. Re-started ore production from discontinued Surda underground mine at Jharkhand (District-East Singhbhum) after obtaining statutory clearances & extension of mining lease & its execution.

iii. Successfully appointed MDO (Mine Developer cum Operator) for re-opening of the existing Rakha underground Mining Lease, development and ore production from adjacent Greenfield Chapri block under Rakha mining lease and installation & commissioning of matching capacity state-of-the-art Concentrator Plant.

iv. HCL has intensified exploration at Khetri region of Rajasthan to establish presence of ore body at depth in order to chalk out plan to enhance ore production.

b) Ministry of Mines, GoI has prioritized exploration, investment, and domestic production in copper sector. The Ministry promotes private sector involvement and offers incentives for exploring and mining essential minerals including copper.

c) The Ministry is collaborating with State Governments to identify and auction additional copper-rich blocks.

d) Geological Survey of India (GSI), Mineral Exploration and Consultancy Limited (MECL), and other agencies are intensifying exploration activities using advanced geophysical methods to discover new copper deposits.

e) The Ministry is promoting private investment in copper smelters and refineries through policy incentives and faster clearances. Recent developments include:
   - Kutch Copper Limited setting up a smelter/refinery complex in Mundra, Gujarat, with plans to double capacity.
   - JSW announcing a major investment plan for a copper smelter/refinery complex in Odisha.
   - Hindalco planning to invest in secondary copper processing (recycling) at Dahej, Gujarat.

f) Collaboration initiatives with international agencies and countries rich in copper have already been initiated. HCL signed an strategic MoU with CODELCO, Chile to enhance collaboration in Mining & critical minerals by sharing knowledge and best practices to facilitate exploration, mining and mineral benefits as well as for training employees.

g) Basic customs duty on copper scrap has been reduced to zero to encourage copper recycling industries in India.

Additionally, Ministry has prepared a Copper Vision Plan for India which will be released in near future.

4.44 For Aluminium, NALCO currently operates its captive Bauxite mines which gives the raw material to its Alumina Refinery. At present, the Bauxite production of the company is about 75 Lakh Tonnes Per Annum (TPA). Further, to increase Bauxite production, the company has signed a lease deed for new Pottangi Bauxite Mines, which will increase the capacity by 35 Lakh TPA. The bauxite from the Pottangi mines will feed the new 5th stream Alumina Refinery expansion. A vision plan for the whole Aluminium value chain including Bauxite requirement is currently under final stage of preparation. The vision plan identifies the probable demand in the future and suggests steps for meeting the increased demand.

CHAPTER -V

FUTURE DEMAND SCENARIO FOR MINERALS

5.1 Ministry of Mines has highlighted key actions taken by the Government to strengthen India's position in securing self reliance in minerals including critical minerals for a sustainable energy transition and to meet India's Net Zero targets. The exploration and mining of critical minerals is vital to power the economic growth, national security and the transition to a low-carbon economy through development/ deployment of the renewable technologies that will be required to meet the 'Net Zero' commitment of India by 2070.

5.2 In response to the query as to what is the future demand scenario for minerals and which sectors are likely to see the growth in demand for minerals and how is the degree of self-sufficiency arrived at, the Ministry replied as under:

> "The mining sector plays an important role in the country's economic growth, standing at the beginning of most value chains. Being a critical supplier of essential raw materials for key industrial sectors such as steel, cement, fertilizers, chemicals, electronics, the mining sector drives growth in multiple economic segments.
>
> Continued growth in production of iron ore reflects the robust demand conditions in the user industry viz. steel. Coupled with growth in aluminium and copper, these growth trends point towards continued strong economic activity in user sectors such as energy, infrastructure, construction, automotive and machinery.
>
> Additionally, transition to clean and renewable energy systems in the form of Electric vehicles (EVs), energy storage, solar PV, wind energy will see an increase in demand of critical minerals like Cadmium, Cobalt, Copper, Gallium, Germanium, Graphite, Lithium, Molybdenum, Nickel, etc. Sectors such as defence, space, aeronautics, electronics, semiconductor and fertilizer will see an increased demand for critical minerals like Antimony, Potash, Phosphorous, Titanium, Strontium, Zirconium.

A. Recovery of minerals and metals from e-waste

5.3 In reply to the query as to how does the Ministry plan to recover minerals and metals from e-waste, the Ministry has replied as under:

> "Ministry of Mines had issued National Non-ferrous Metal Scrap Recycling Framework, 2020 to promote a formal and well organized recycling ecosystem by adopting energy efficient processes for recycling leading to lower carbon footprints and to work towards sustainable development and intergenerational equity. Recently, with the approval by the Union Cabinet on 29.01.2025, the National Critical Mineral Mission has been set up, comprising several key

components such as increasing exploration and auction of critical mineral blocks to increase domestic production, acquisition of critical mineral assets abroad, recycling, skilling, R&D, etc. Specifically, as per the NCMM, an incentive scheme for the recycling of critical minerals, with the quantum of incentive pegged at Rs. 1,500 crores, has been envisaged. The scheme aimed to provide financial incentives to the industry to develop recycling capacity for critical materials in the country for the separation and recovery/ production of critical minerals from secondary sources (including e-waste) through recycling."

B. Upskilling Programmes to Meet Industry Requirements

5.4 When asked about the problem of skilled manpower is present in nearly all sectors and the efforts that the mining companies and making for up-skilling and re-skilling of manpower, the Ministry of Mines stated that the Ministry with cooperation of the Ministry of Skill Development and Entrepreneurship (MSDE) has undertaken steps for skill development for increasing productivity and accelerated, sustainable and inclusive growth in the mining sector. The process of skill development started with signing of Memorandum of Understanding (MoU) by MoM, along with its PSUs (NALCO, HCL and MECL), with MSDE and the National Skill Development Corporation (NSDC). The apprenticeship training initiative undertaken by the CPSEs for the last 3 years is given in Table below:

Apprenticeship training initiative undertaken by the CPSEs for last 3 years

CPSE	2021-22		2022-23		2023-24		2024-25	
	No. of apprentices engaged	% of total manpower	No. of apprentices engaged	% of total manpower	No. of apprentices engaged	% of total manpower	No. of apprentices engaged	% of total manpower
NALCO	1135	20.56	1394	26.85	1135	23.29	1450** (expected)	30.29
HCL	128*	1.93	146*	1.97	137*	1.8	214* (till Nov 2024)	2.76
MECL	65	2.7	47	2.9	45	2.7	6 (till Jan 2025)	2.31

**Operations at Indian Copper Complex, Ghatsila, Jharkhand suspended, hence no apprentice engaged and the same has been informed to respective Regional Directorate of Skill Development & Training (RDAT).*

*** In NALCO, no contractual staff engaged directly in its role.*

Ministry of Mines has engaged the Skill Council for Mining Sector (SCMS) to undertake a study on Skill Plan for Indian mining sector for the period 2025-30. The objective of the study is to assess the status of employment and skilling in mining and non-ferrous metal sector and new-age skill sets required for the critical mineral sector in the country. This study will also generate estimates on skill requirements and skill gaps at State and all-India level along with policy framework to address the issues pertaining to skill-ecosystem of mining sector

including future skill requirements, budget, training and infrastructure needed to address these issues.

C. Mineral acquisition and exploration abroad

5.5 The Ministry of Mines has already taken significant steps to diversify and strengthen India's institutional capability for mineral acquisition and exploration abroad.

> "In this context, the Ministry has established a Joint Venture company, Khanij Bidesh India Limited (KABIL), comprising NALCO, HCL, and MECL. KABIL has been specifically tasked with identifying, assessing, and acquiring critical and strategic mineral assets overseas to ensure long-term mineral security for the country. The company plays a complementary role to GSI by focusing on strategic international acquisitions, particularly in minerals such as lithium, cobalt, and nickel, which are essential for emerging technologies and the energy transition.
>
> Further, the Ministry of Mines is actively pursuing international collaborations to secure access to critical mineral and rare strategic mineral resources. Efforts are being focused on resource-rich countries, particularly in Latin America (Argentina, Chile, Bolivia, Brazil etc.) and Africa (Zambia, Mozambique, Malawi, South Africa, etc.). The Ministry is engaging in Memoranda of Understanding (MoUs) with these countries and is seeking opportunities for exploration, mining, and processing through both Government-to-Government(G2G) and Business-to-Business (B2B) frameworks. Indian Public Sector Undertakings(PSUs) and private companies are being encouraged to participate in overseas mineral projects to ensure long-term resource security.
>
> The Ministry is in discussions with resources rich countries and is endeavoring to provide a platform to PSUs and Private sector companies for undertaking overseas mineral acquisition. Ministry of Mines is also engaging on various multilateral and bilateral platforms such as Minerals Security Partnership (MSP), the Indo-Pacific Economic Framework (IPEF) and initiatives on Critical and Emerging Technologies (iCET) for strengthening the critical minerals value chain."

D. Minerals Security Partnership (MSP)

5.6 Minerals Security Partnership is an ambitious new US-led multilateral partnership to secure supply chains of critical minerals, aimed at reducing dependency on China. In June 2023, India became newest partner (14th member country) in MSP, to accelerate the development of diverse and sustainable critical energy minerals supply chains globally while agreeing to the principles of the MSP including environmental, social and governance standards. A list of 32 MSP projects has been shared for consultation and India's participation in MSP projects. Ministry of Mines attended the several VC meetings held under MSP platform. An Indian delegation led by Additional Secretary, Ministry of Mines attended the Mineral Security Partnership (MSP) Principals' meeting and MSP Forum Meeting on 26th September 2024 in New York, USA.

5.7 In this regard, the Secretary, Ministry of Mines intimated that:

> *"It is a group of 14 countries in which India is also a part of it. It is called Minerals Security Partnership. Through those efforts, we are coordinating with those 10/15 countries."*

****

(Aspects pertaining to acquisitions abroad and foreign collaborations in detail will be dealt in a separate report by the Committee.)

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PART II

OBSERVATIONS/RECOMMENDATIONS OF THE COMMITTEE

Journey Towards Self-Reliance in the Minerals and Metals Sector

1. The Committee note that self-reliance in the minerals and metals sector is indispensable for achieving the vision of *Viksit Bharat* and *Atmanirbhar Bharat*. Despite being endowed with abundant mineral wealth, India remains significantly dependent on imports for several critical and strategic minerals. India produces as many as 95 minerals, comprising fuel, metallic, non-metallic, atomic, and minor minerals. While metallic minerals contribute about 91% of the total value of mineral production constituting the backbone of India's industrial economy, led by iron ore, zinc, and bauxite, non-metallic minerals, though lower in value, are equally vital. The Committee also note that whereas Indian is 100% self-reliant in iron ore, Critical minerals and Rare Earths which are essential for modern technologies and national security, India continues to depend significantly on imports. The Committee while appreciating the Government's initiative to launch the National Critical Mineral Mission (NCMM) in 2025 to achieve self reliance in critical minerals hope that such initiatives and policy changes will handhold India's journey towards self-reliance in the minerals and metals sector.

(Recommendation No.1)

Enhancing Public–Private Collaboration in the Mineral Sector

2. The Committee observe that India has 1,206 working and 1,789 non-working mines, with production highly concentrated in eight States contributing nearly 98% of the total value. Private sector accounts for over 60% of the value of mineral production, with a dominant presence in non-ferrous metals and industrial minerals. At the same time public sector companies continue to play a crucial role in strategic minerals such as copper, gold, and phosphorite. Hence, the Committee are of the view that there exists scope for deeper collaboration between the two sectors and therefore framework for such partnership be explored, leveraging the strengths of PSUs and the private sector.

(Recommendation No.2)

Converting Global Mineral Rankings into Strategic Advantage for India

3. The Committee are happy to note India's respectable global ranks across several minerals, viz. 2nd in limestone/steel, 4th in iron ore, 3rd–4th in zinc/chromite, 5th–6th

in bauxite/manganese, positions India as a significant global producer in a number of key minerals. However, in terms of world production, countries like Australia, China, Brazil, South Africa, Guinea, Chile, etc. hold very large shares when compared to India's relatively small share of about 2–11%. In this backdrop, the Committee emphasise that India's position in global rankings is a useful indicator of capability but must be complemented with policies to increase absolute world share, deepen downstream value addition, and strengthen supply-chain resilience. A combination of better data, targeted exploration and processing investment, resource diplomacy, and cluster development will convert global ranking into genuine strategic advantage for Viksit Bharat.

(Recommendation No.3)

Strengthening Domestic Mineral Availability to Meet Increasing Industry Demand and Domestic Consumption

4. The Committee recognize that India has achieved self-sufficiency or near self-sufficiency in important minerals like bauxite, chromite, iron ore, kyanite, limestone, sillimanite, etc. The Committee are pleased to note that the Iron ore production reached a record 289 million metric tonnes (MMT) in FY 2024-25 and India being the 2nd largest producer of primary Aluminium in the world has seen record production level of 42 lakh tonne (LT) in FY 2024-25. However, India is deficient in some minerals viz. magnesite, manganese ore, rock phosphate, etc. which continue to be imported to meet the domestic demand. The domestic demand for minerals is also expected to rise, for instance, limestone production is projected to rise to 730 MMT to meet the demand of cement industry, while bauxite production is projected to increase to 37 MMT to meet Aluminium sector's demand by 2030. In non-ferrous metals, the demand for zinc for corrosion protection will rise with the boost in demand for steel while minerals such as aluminium, copper, lead, nickel, tin, and zinc will remain central to sectors such as energy, infrastructure, construction, automobile and machinery. The Committee further note that India has limited copper reserves/resources making the country a consistent importer of copper ore & concentrate, a situation which is expected to improve with the full operationalization of Kutch Copper Limited's 5 LT capacity plant. Likewise, India's low grade domestic rock phosphate deposits unsuitable for direct use in most phosphatic fertilizer and phosphoric acid plants necessitate imports. There is negligible availability of superior grade of limestone, which is primarily used in steel making. In view of the above, and to supplement the steps already being taken, the Committee suggest the Ministry of Mines to urge mining

companies to enhance production capacities of various minerals or operate to full capacity to meet the increasing demand. The Committee further suggest fostering public-private partnerships, for faster exploration and development of mineral reserves by combining government support with the private sector expertise. The Committee emphasise that since industries such as high-tech electronics, telecommunications, transport, defence, green technologies etc. rely heavily on these minerals, growth in these sectors would lead to job creation, income generation, and innovation.

(Recommendation No.4)

Strengthening Critical Mineral Security Through Coordinated National Efforts

5. The Committee note that critical minerals are essential for development and national security of the country, but their supply remains vulnerable due to factors like limited availability and concentration in specific regions. These have significant usage in many sectors including electronics, telecommunications, transport defence, energy etc., and self-reliance in the mineral sector including critical minerals is vital for the country's economic growth and technological development. The Committee also note that the future global economy will be driven by technologies that depend on minerals such as lithium, graphite, cobalt and rare earth elements (REE). Government has made several policy reforms and steps to boost the mineral production in the country and make India *Aatmanirbhar* in Mineral sector. In this regard, the Committee appreciate that the Government has identified 30 critical minerals, with 24 included in Part D of Schedule I of Mines and Minerals Development and Regulation Act, 1957 (MMDR Act, 1957) which means that the Central Government now has the exclusive authority to auction mining leases and composite licenses for these specific minerals. In addition, several other policy initiatives have been taken up by the Ministry to promote 'Ease of Doing Business'. The Committee feel that the drive towards *"Atmanirbhar Bharat"* by placing a strong emphasis on self reliance will go a long way in securing a sustainable supply chain of critical minerals and enhancing industrial competitiveness of the country. But, coordination among different ministries is essential for these policies to be effective. The Committee, therefore, suggest that, alongside the Ministry of Mines which is leading these efforts, all ministries concerned, State governments and agencies should work in close alignment to ensure that the country remains competitive in the critical mineral sector.

(Recommendation No. 5)

Addressing the Concentration of Global Critical Minerals Supplies

6. The Committee note that the critical mineral resources are concentrated in a few countries and presently at least 55% of each of the identified critical minerals are found in only 15 countries. The Democratic Republic of Congo (DRC) has almost 50% of the world's cobalt reserves, Indonesia and the Philippines have abundant nickel and cobalt reserves, China produces about 60% of rare earth elements (REE) and molybdenum while Australia remains the world's leading producer of lithium. The Committee further observe that India is 100 per cent dependent on imports for lithium, cobalt, and nickel; 25 per cent for graphite and remains heavily reliant on foreign supplies for potash and phosphorus. This heavy dependence on imports to meet its critical mineral needs, makes the country vulnerable for their availability due to market fluctuations, geopolitical risks and supply disruptions. The Committee, therefore, stress the need for a cohesive and unified strategy that brings together the government and policymakers, industry, and academic and research institutes to build a resilient critical minerals ecosystem in India to tide over global price shocks, trade restrictions, and supply disruptions.

(Recommendation No. 6)

Addressing Domestic Processing Capabilities for Critical Minerals

7. The Committee observe that processing and refining constitute the most crucial stage in the critical minerals value chain, that converts raw ore/mineral into usable material by removing impurities and recovering valuable elements. They note that global processing and refining capabilities are even more concentrated than production, indicating global dependence on few countries. The Committee, therefore, emphasise the urgent need to accelerate domestic processing capabilities and make refining of critical minerals more cost effective as compared to availability through import. The Committee suggest that India's existing expertise, mineral-refining techniques and infrastructure be suitably modified and utilised for critical mineral processing wherever feasible. The Committee are of the view that developing domestic processing capabilities and incentivising such efforts will help reduce import dependence of the country to a great extent.

(Recommendation No. 7)

Strengthening the Rare Earth Elements Ecosystem

8. Rare Earth minerals broadly are a group of metallic elements that are difficult and expensive to extract and process because they are rarely found in high concentrations. They play a critical role in clean energy applications like wind energy turbines, hybrid car batteries/electric motors, solar energy, defence applications, etc. The Committee note that in the MMDR Act, rare earths minerals not containing Uranium and Thorium are classified as critical and strategic minerals under Part-D of First Schedule, whereas minerals containing Uranium and Thorium are atomic minerals under Part-B of the First Schedule regulated by the Department of Atomic Energy (DAE). They also observe that IREL operates under the administrative control of DAE. In view of the increasing demand of REEs due to their extensive use in various applications and India's dependence on imports, the Committee urge the Government to develop implementation strategies based on the analysis of their availability, identification, exploration, economic viability etc. The Committee also suggest that the Government should consider strengthening existing institutions like IREL through targeted budgetary allocations to prioritise the exploration and mining of rare earth elements. The Committee also suggest the Ministry of Mines to consider exploring international collaborations for transfer of technological knowhow and mineral processing capabilities in the rare earth minerals sector.

(Recommendation No. 8)

Policy Initiatives and Challenges for Self- Reliance in Minerals

9. The Committee acknowledge that significant policy reforms have been undertaken during the period from 2015-2023 to modernise the regulatory framework governing India's mineral sector. These include important amendments to the Mines and Minerals (Development and Regulation) Act, 1957 such as introduction of the auction method for grant of mineral concessions, uniform lease period of 50 years for all leases in place of provision of renewal of lease period, notification of private exploration agencies, and amendments in Offshore Areas Mineral (Development and Regulation) Act, 2002 by introducing auction as the method for allocating operating rights in offshore areas. Since 2015, 486 mineral blocks have been successfully auctioned - 462 by State Governments and 24 by the Central Government. The Committee, note that although policy initiatives and simplification of exploration norms for auction of mineral blocks are in place, the Committee feel that lengthy process of regulatory clearances, inadequate exploration, Forest Clearance

requirement even at the exploration stage, considerable time lag between auction of mines and their operationalization, etc. needs to be looked into. In view of these persistent challenges, the Committee desire to explore the possibility of setting up an Inter-Ministerial Group for monitoring post-auction progress of both mineral and critical mineral projects with the mandate to fast-track operationalization of allocated mines. Penalties for delayed operationalisation and incentives for fast-track production may also be considered to improve compliance and efficiency. The Committee emphasise that projects related to Critical Minerals should be given priority in necessary statutory clearances.

(Recommendation No. 9)

Accelerating Technological Advancement and R&D Capacity in the Mining Sector

10. The Committee observe that India's mining technologies and industrial practices may be brought at par with global standards, by focusing on aspiring technology upgradation improved automation and adoption of AI etc. as used in developed countries. Deep-sea and offshore mining initiatives are in their early stages in India, while global leaders employ sophisticated technologies. Though the efforts by the Geological Survey of India and ongoing R&D projects under Science and Technology Programme of Ministry of Mines are commendable, the outcome of research and development technologies in the country has limited ability to support commercial-scale challenges or deliver solutions which are globally competitive. The Committee, therefore, recommend that R&D in the mining sector be significantly strengthened to catch up with advanced manufacturing and energy transition needs. This requires greater coordination between scientific institutions, laboratories, IITs, universities, and industries. The Committee further recommend that, given the rapid pace of technological change, R&D centres and pilot projects should increasingly incorporate AI automation for lab-scale innovations and other advanced tools. This will enable faster process validation at a commercial scale to give impetus to commercially viable technologies which can be adopted by the domestic industries.

(Recommendation No. 10)

Fast Tracking of Operations and Innovation by Geological Survey of India (GSI)

11. The Committee acknowledge that over the years, GSI has expanded its activities to include a wide range of geoscientific activities, significantly contributing to the field of geosciences and, consequently, to India's development. The primary functions of

GSI include creating and updating national geoscientific data and assessing mineral resources. The Committee further note that National Geoscience Data Repository (NGDR) portal launched by the Ministry of Mines in 2023 provides free access to all the baseline and exploration related geoscientific data for all users to enhance the mineral exploration in the country. GSI has also launched the Hackathon initiative aimed to harness state-of-the-art techniques and application of emerging technologies like Artificial Intelligence/Machine Learning, with the results made available in the public domain for free access by private exploration agencies who may take up exploration projects based on those leads. Further, GSI is in the process of establishing a Data Processing, Interpretation and Integration Center (DPIIC) in Bengaluru. The Committee, emphasize feel that given the urgency of achieving self-reliance in critical mineral sector, speed, efficiency and timely delivery by GSI are absolutely critical to achieve a level of development and progress that is comparable to that of more globally competitive nations. While the launch of the National Geoscience Data Repository Portal online platform is laudable, the Committee believe that broader participation in data sharing and analysis is crucial and therefore recommend the Ministry of Mines and GSI to ensure wide stakeholder participation by encouraging public and private exploration agencies as well as State units to share data and ensure active and timely contribution to the NGDR platform.

(Recommendation No. 11)

Proactive role by Indian Bureau of Mines (IBM) in the Critical Mineral Sector

12. The Committee have been apprised that Indian Bureau of Mines (IBM) performs regulatory functions with respect to the relevant provisions of Mines and Minerals (Development and Regulation) Act, 1957 and is responsible for the promotion of scientific development and conservation of minerals resources. IBM also undertakes scientific, technoeconomic, research-oriented studies in various aspects of mining and geological studies. The Committee have been informed that the Ministry of Mines, through IBM, has developed the Mining Surveillance System (MSS), a satellite-based monitoring mechanism which aims to establish a regime of responsive mineral administration, through public participation, by curbing instances of illegal mining activity. The Committee however note that there has been a significant rise in complaints and references regarding illegal mining being received from general public, foundations, NGOs etc. The Committee desire that stringent measures for prevention of illegal mining should be taken and IBM may strengthen coordination with the State

Governments and regulatory agencies to ensure compliance for systematic mining in the States. Besides this, the Committee feel that the role played by IBM in the critical minerals sector has been limited and desire that IBM should play a direct, proactive, extensive role by providing quality technical assistance for critical minerals. The Committee would like to be apprised of the specific steps taken by IBM in this regard.

(Recommendation No. 12)

Star rating of Mines

13. The Committee note that Star rating has been mandated by Rule 35 of Mineral Conservation and Development Rules (MCDR), 2017. The Star rating of mines are based on evaluation of the performance of mining lease holders on the various parameters encompassed by the principals of the Sustainable Development Framework (SDF). Validation of self-assessed templates is carried out by IBM and accordingly, final ratings are awarded. The Star rating of mines is an initiative of the IBM which helps to promote sustainable Mining practice and resource efficiency which in turn contribute to Self-reliance in Minerals and Metals in the Country. The Committee note that IBM has received 2476 requests regarding Star rating out of which 1260 has been published and 1226 are in process. The Committee observe that around 50% of the requests are still under process and yet to be finalised. The Committee, therefore, desire that the Ministry/ IBM should take necessary steps towards completing the remaining 1226 requests as this system will contribute to healthy competition among the operators of Mines towards more efficient mineral extractions which is significant for the country's Mineral self-sufficiency. The Committee, therefore, emphasise that IBM should keep on strengthening the Sustainable Development Framework (SDF) to encourage Miners to achieve higher star ratings to boost self-reliance while focusing on various parameters like environment, safety, social responsibility and best mining practices.

(Recommendation No. 13)

Recycling and Recovery of Minerals for Resource Efficiency

14. The Committee note that the Government has launched several initiatives to strengthen recycling of minerals including the Rs.1,500 crore incentive scheme for critical mineral recycling and the promotion of energy-efficient recovery processes. The Committee emphasise that scrap recycling and the circular economy are crucial for the country's self-reliance in minerals, especially critical minerals. The Committee, hence, recommend that the concept of Urban mining be promoted by recovering valuable materials from waste like e-waste, industrial scrap, electric vehicles, batteries, etc. This will create a robust domestic and secondary source of critical minerals, such as lithium, cobalt, and rare earth elements. The Committee also urge the Government

to consider accelerating scrap collection and setting up environmentally compliant shredding centres across the country to reduce reliance on new greenfield extraction projects and improve resource efficiency. This approach will not only reduce import dependence but also strengthen supply chains and promotes sustainability by treating waste as a valuable resource. The Committee also suggest to provide incentives for companies, including start-ups, to set up and expand recycling facilities.

(Recommendation No. 14)

Upskilling Programmes to Meet Industry Requirements

15. The Committee are pleased to note the momentum gained in skill development through the signing of Memorandum of Understanding (MoU) by Ministry of Mines and the CPSEs (NALCO, HCL and MECL), with the National Skill Development Corporation (NSDC) as well as through the Apprenticeship training initiatives undertaken by the CPSEs. Further, the Ministry of Mines has engaged the Skill Council for Mining Sector (SCMS) to undertake a study on Skill Plan for Indian mining sector for the period 2025-30 with the objective to assess the status of employment and skilling in mining and non-ferrous metal sector and new-age skill sets required for the critical mineral sector in the country. Recognising that the minerals & metals sector is one of India's largest employers, the Committee recommend that the Ministry of Mines and the CPSEs undertake joint projects and invest in skill development programmes. These should focus on training unskilled and semi-skilled employees, and creating fresh skilling opportunities for youth, women, etc. to ensure the workforce can handle advanced technologies and processes in the mining sector. The mining companies should allocate a defined percentage of their Corporate Social Responsibility funds each year for development of upskilling programmes to meet industry requirements. The Committee also suggest the Ministry of Mines to take up with the Indian Bureau of Mines to fast-track operationalising national -level standards and frameworks for skill development in the mining industry.

(Recommendation No. 15)

NEW DELHI;
15 December, 2025
24 Agrahayana, 1947(Saka)

ANURAG SINGH THAKUR
Chairperson
Standing Committee on Coal, Mines and Steel

Annexure I

Mineral production of top 5 countries and % Share in year 2024 in respect of Key minerals

Mineral	Country	Unit	Production	% Share in World Total
Iron Ore	Australia	Thousand Tonnes (metric)	930000	37
	Brazil		440000	18
	China		270000	11
	India		270000	11
	Russia		91000	4
	World Total		2500000	100
Bauxite	Guinea	Thousand Tonnes (metric)	130000	29
	Australia		100000	22
	China		93000	21
	Brazil		33000	7
	Indonesia		32000	7
	World Total		450000	100
Lead & Zinc Ore				
Zinc	China	Thousand Tonnes (metal content)	4000	33
	Peru		1300	11
	Australia		1100	9
	India		850	7
	USA		750	6
	World Total		12000	100
Lead	China	Thousand Tonnes (Metal Content)	1900	44
	Australia		430	10
	USA		300	7
	Peru		270	6
	India		220	5
	World Total		4300	100
Manganese Ore	South Africa	Thousand Tonnes (metric)	7400	37
	Gabon		4600	23
	Australia		2800	14
	Ghana		820	4
	India		800	4
	World Total		20000	100
Copper ore	Chile	Thousand Tonnes (metric)	5300	23
	Congo (Kinshasa)		3300	14
	Peru		2600	11
	China		1800	8
	Indonesia		1100	5
	World Total		23000	100
Chromium ores & conc.	South Africa	Thousand Tonnes (metric)	21000	45
	Turkey		8000	17
	Kazakhstan		6500	14
	India		4100	9
	Finland		1900	4
	World Total		47000	100

Annexure – II

Cumulative resource augmented by GSI at various cut-off and grades since MMDR Amendment Act, 2015 for REE

Sl. No.	State	District	Year	Commodity	Block	UNFC Stage	Resource in Million Tonne (MT)	Grade
1	Maharashtra	Nagpur	2016-17	REE	Nawegaon-Goreghat Block	G3	0.046272	451 ppm
2	Bihar	Banka	2019-20	REE	Dhawa	G3	2.41025	589.3662 ppm
3	Bihar	Banka	2019-20	REE	HethChandan	G3	3.43	375.52 ppm at cut off of 300 ppm
4	Karnataka	Raichur	2015-16	REE	Mincheri Block	G3	0.67	at 0.5% total REE.
5	Karnataka	Koppal	2019-20	REE	Budihalu	G3	88458 Tonnes	0.3% total REE
6	Gujarat	Chhota Udepur	2018-19	REE, Niobium	Ambadongar Carbonatite Complex, Kawant Taluka	G2	106	Average grade 0.4% @ cutoff 0.25% TREE
7	Uttar Pradesh	Sonbhadra	2019-20	REE+Y	Nawatola - Laband	G3	0.342	at 0.105% REE+Y (334 category resource)
8	Bihar	Banka	2017-19	REE	Belhariya	G3	4305.6 tonnes	at 481 ppm tREE
9	Jharkhand	Godda	2020-21	REE	Hupnatola	G3	9234 tonnes	at 388.64 ppm
10	Gujarat	ChhotaUdepur	2019-20 & 2020-21	REE, Niobium	Nakhal block	G3	0.73	0.57% ΣREE @ 0.50% cut off
11	Gujarat	ChhotaUdepur	2020-21	REE	Gogadev-Janiyara Area	G3	6.0783	0.083107 % tREO at 500ppm Cut off
12	Gujarat	ChhotaUdepur	2019-20	REE-RM	Southern Ambadungar block	G2	15.87	0.79% ΣREE
13	West Bengal	Purulia	2020-21	REE	Kalapathar-Raghudih Block	G3	0.67	0.19% TREE including 0.18% LREE and 86 ppm HREE (at 0.1% TREE cut off)
14	Assam	KarbiAnglong	2021-22	REE	Lakhojan	G4	30.51	Avg. REE grade of 818.84 ppm

Sl. No.	State	District	Year	Commodity	Block	UNFC Stage	Resource in Million Tonne (MT)	Grade
								(at cutoff grade ∑REE 500 ppm)
15	Gujarat	ChhotaUdepur	2021-22	REE, Niobium	Central block of Ambadungar	G2	64	Average grade 5000 ppm / (0.5%) @ cutoff 2500 ppm/ (0.25%)
16	Bihar	Banka	2021-22	REE	Arpathal	G3	6.75	706.5 ppm at > 500 ppm cut-off
17	Bihar	Banka	2021-22	REE	Jogmaran	G3	2.88	689.03 ppm at >500 ppm cut-off
18	Bihar	Banka	2021-22	REE	Karada	G3	0.68	1189 ppm at >1000 ppm cut-off
19	Bihar	Bhagalpur	2021-22	REE, clay, aluminous laterite	Batesarthan-Kasri-Jagarnathpur	G3	64.16	1794.25 ppm at 1000 ppm cut-off
20	Bihar	Banka	2021-22	REE	LattuPahar	G3	3.48	640 ppm at 500ppm cut-off
21	Arunachal Pradesh	Papum Pare	2019-21	REE	Lodoso East	G3	2.15	1.08% avg. Grade of TREE at 0.2% cut-off

Annexure – III

Details of the 13 Offshore Mineral Blocks

Sl. No.	Mineral Block Name	Mineral Name	Offshore Region	Coast/Sea	PL/CL	Reserve Price
1.	Kollam CS Block-1	Construction Sand	Off Kerala	West Coast, Arabian Sea	CL	01.00%
2.	Kollam CS Block-2	Construction Sand	Off Kerala	West Coast, Arabian Sea	CL	01.00%
3.	Kollam CS Block-3	Construction Sand	Off Kerala	West Coast, Arabian Sea	CL	01.00%
4.	Porbandar LM Block-1	Limemud	Off Gujarat	West Coast, Arabian Sea	CL	01.00%
5.	Porbandar LM Block-2	Limemud	Off Gujarat	West Coast, Arabian Sea	CL	01.00%
6.	Porbandar LM Block-3	Limemud	Off Gujarat	West Coast, Arabian Sea	CL	01.00%
7.	West Sewell Ridge PMNC Block-1	Polymetallic nodules and crusts	Off Great Nicobar Island	Andaman Sea	CL	01.00%
8.	West Sewell Ridge PMNC Block-2	Polymetallic nodules and crusts	Off Great Nicobar Island	Andaman Sea	CL	01.00%
9.	West Sewell Ridge PMNC Block-3	Polymetallic nodules and crusts	Off Great Nicobar Island	Andaman Sea	CL	01.00%
10.	West Sewell Ridge PMNC Block-4	Polymetallic nodules and crusts	Off Great Nicobar Island	Andaman Sea	CL	01.00%
11.	West Sewell Ridge PMNC Block-5	Polymetallic nodules and crusts	Off Great Nicobar Island	Andaman Sea	CL	01.00%
12.	West Sewell Ridge PMNC Block-6	Polymetallic nodules and crusts	Off Great Nicobar Island	Andaman Sea	CL	01.00%
13.	West Sewell Ridge PMNC Block-7	Polymetallic nodules and crusts	Off Great Nicobar Island	Andaman Sea	CL	01.00%

Annexure – IV

State wise Reserves/resources of Major Minerals as on 1.4.2020

1. Andhra Pradesh

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Apatite	Tonne	29395	200163	229558
Asbestos	Tonne	0	797995	797995
Bauxite	000 Tonnes	0	615267	615267
Chromite	000 Tonnes	0	#	#
Copper				
Ore	000 Tonnes	0	7582	7582
Metal	000 Tonnes	0	113.7	113.7
Diamond	Carat	0	1822955	1822955
Garnet	Tonne	0	17267129	17267129
Gold				
Ore (Primary)	Tonne	3258100	12472898	15730998
Metal (Primary)	Tonne	5.3	41.87	47.17
Graphite	Tonne	0	1138275	1138275
Iron Ore(Heamatite)	000 Tonnes	44744	350872	395616
Iron Ore(Magnetite)	000 Tonnes	0	1472383	1472383
Kyanite	Tonne	0	32004228	32004228
Lead-Zinc Ore				
Ore	000 Tonnes	0	22689	22689
Lead metal	000 Tonnes	0	836.88	836.88
Zinc metal	000 Tonnes	0	63.16	63.16
Limestone	000 Tonnes	3256690	26582132	29838822
Magnesite	000 Tonnes	0	80	80
Manganese Ore	000 Tonnes	8088	21756	29844
Pyrite	000 Tonnes	0	880	880
Sillimanite	Tonne	1670025	9395739	11065764
Silver				
Ore	Tonne	0	16950000	16950000
Metal	Tonne	0	128.13	128.13
Titanium	Tonne	0	76733874	76733874
Tungsten				
Ore	Tonne	0	14802300	14802300
Contained WO_3	Tonne	0	20262.57	20262.57
Vermiculite	Tonne	74193	117908	192101

Figures rounded off
negligible

2. **Arunachal Pradesh**

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Copper				
Ore	000 Tonnes	0	10	10
Metal	000 Tonnes	0	0.02	0.02
Graphite	Tonne	0	76318257	76318257
Limestone	000 Tonnes	0	482796	482796

Figures rounded off

3. **Assam**

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Iron Ore(Heamatite)	000 Tonnes	0	30890	30890
Iron Ore(Magnetite)	000 Tonnes	0	15380	15380
Limestone	000 Tonnes	188130	1683540	1871670
Sillimanite	Tonne	0	4604700	4604700

Figures rounded off

4. **Bihar**

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Bauxite	000 Tonnes	0	4114	4114
Gold				
Ore	Tonne	0	222884860	222884860
Metal	Tonne	0	37.6	37.6
Iron Ore(Heamatite)	000 Tonnes	0	55	55
Iron Ore (Magnetite)	000 Tonnes	0	49439	49439
Lead-Zinc Ore				
Ore	000 Tonnes	0	11435	11435
Lead metal	000 Tonnes	0	24	24
Zinc metal	000 Tonnes	0	38.75	38.75
Limestone	000 Tonnes	11807	994188	1005995
Potash	Million Tonnes	0	230	230
Pyrite	000 Tonnes	0	1574561	1574561
Rare Earth Elements	Tonne	0	1459	1459

Figures rounded off

5. Chhattisgarh

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Bauxite	000 Tonnes	23695	968860	992555
Diamond	Carat	0	1304000	1304000
Fluorite	Tonne	0	545455	545455
Garnet	Tonne	0	28800	28800
Gold				
Ore (Primary)	Tonne	0	4841033	4841033
Metal (Primary)	Tonne	0	5.51	5.51
Graphite	Tonne	5282	1330	6612
Iron Ore(Heamatite)	000 Tonnes	1593732	2998379	4592111
Iron Ore(Magnetite)	000 Tonnes	75876	30045	105921
Limestone	000 Tonnes	1486351	11724867	13211218
Tin				
Ore	Tonne	2101	29795176	29797277
Metal	Tonne	973.99	15909.58	16883.57

Figures rounded off

6. Daman & Diu

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Limestone	000 Tonnes	0	128670	128670

7. Goa

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Bauxite	000 Tonnes	9613	58244	67857
Iron Ore (Heamatite)	000 Tonnes	117235	1080322	1197557
Iron Ore (Magnetite)	000 Tonnes	4990	261345	266336
Manganese Ore	000 Tonnes	65	34436	34501

Figures rounded off

8. Gujarat

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Apatite	Tonne	0	351000	351000
Bauxite	000 Tonnes	101230	295797	397027
Copper				
Ore	000 Tonnes	0	12613	12613
Metal	000 Tonnes	0	200.74	200.74
Diatomite	000 Tonnes	0	811	811
Fluorite	Tonne	0	14355280	14355280

Graphite	Tonne	0	3355805	3355805
Lead-Zinc Ore				
Ore	000 Tonnes	0	5682	5682
Lead metal	000 Tonnes	0	208.45	208.45
Zinc metal	000 Tonnes	0	261.4	261.4
Lead-Zinc metal	000 Tonnes	0	0.9	0.9
Limestone	000 Tonnes	903115	21929169	22832284
Manganese Ore	000 Tonnes	695	2180	2875
Marl	Tonne	68145000	31053477	99198477
Perlite	000 Tonnes	0	2406	2406
Rare Earth Elements	Tonne	0	424000	424000
Rock Phosphate	Tonne	0	314820	314820
Vermiculite	Tonne	0	1960	1960
Wollastonite	Tonne	0	1990000	1990000

Figures rounded off

9. Haryana

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Copper				
Ore	000 Tonnes	0	53816	53816
Metal	000 Tonnes	0	179.01	179.01
Limestone	000 Tonnes	0	74677	74677
Tin				
Ore	Tonne	0	53910000	53910000
Metal	Tonne	0	86220.6	86220.6
Tungsten				
Ore	Tonne	0	2230000	2230000
Contained WO_3	Tonne	0	3568	3568

Figures rounded off

10. Himachal Pradesh

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Antimony				
Ore	Tonne	0	10588	10588
Metal	Tonne	0	174	174
Limestone	000 Tonnes	1022012	5597134	6619146
Magnesite	000 Tonnes	0	298	298
Pyrite	000 Tonnes	0	2560	2560
Rocksalt	000 Tonnes	3860	8920	12780

Figures rounded off

11. Jammu& Kashmir

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Bauxite	000 Tonnes	0	2725	2725
Borax	Tonne	0	74204	74204
Graphite	Tonne	0	62740555	62740555
Limestone	000 Tonnes	185490	2242071	2427561
Magnesite	000 Tonnes	0	4145	4145
Sapphire	Kilogram	0	450	450
Sulphur (Native)	000 Tonnes	0	210	210

Figures rounded off

12. Jharkhand

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Andalusite	000 Tonnes	0	11800	11800
Apatite	Tonne	0	7270000	7270000
Asbestos	Tonne	0	154893	154893
Bauxite	000 Tonnes	39972	249272	289244
Chromite	000 Tonnes	0	736	736
Cobalt	Million Tonnes	0	9	9
Copper				
Ore	000 Tonnes	9150	242313	251463
Metal	000 Tonnes	107.45	2672.21	2779.66
Emerald	Kilogram	0	55869	55869
Garnet	Tonne	0	110071	110071
Gold				
Ore (Primary)	Tonne	0	10076527	10076527
Metal (Primary)	Tonne	0	15.43	15.43
Graphite	Tonne	2604079	17402288	20006367
Iron Ore(Heamatite)	000 Tonnes	534677	4175469	4710146
Iron Ore (Magnetite)	000 Tonnes	0	10667	10667
Kyanite	Tonne	331193	7943367	8274560

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Limestone	000 Tonnes	10687	610078	620765
Manganese Ore	000 Tonnes	1059	13691	14749
Nickel	Million Tonnes	0	9	9
Potash	Million Tonnes	0	152	152
Rare Earth Elements	Tonne	0	4	4
Rock Phosphate	Tonne	0	107370000	107370000
Sillimanite	Tonne	0	83000	83000
Silver				
Ore	Tonne	0	23840000	23840000
Metal	Tonne	0	5.22	5.22
Titanium	Tonne	0	26603767	26603767
Vermiculite	Tonne	0	30048	30048

Figures rounded off

13. Karnataka

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Asbestos	Tonne	0	8282457	8282457
Bauxite	000 Tonnes	5207	41242	46449
Chromite	000 Tonnes	499	1317	1817
Copper				
Ore	000 Tonnes	0	41499	41499
Metal	000 Tonnes	0	245.86	245.86
Gold				
Ore (Primary)	Tonne	20470000	82538506	103008506
Metal (Primary)	Tonne	87.46	163.71	251.17
Graphite	Tonne	0	992632	992632
Iron Ore (Heamatite)	000 Tonnes	1043212	1792781	2835992
Iron Ore (Magnetite)	000 Tonnes	318	7801853	7802171
Kyanite	Tonne	181600	12991460	13173060
Limestone	000 Tonnes	2271221	53899236	56170457

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Magnesite	000 Tonnes	1027	4516	5543
Manganese Ore	000 Tonnes	15464	108508	123972
Molybdenum				
Ore	Tonne	0	1320900	1320900
Contained MoS_2	Tonne	0	1718.7	1718.7
Nickel Ore	Million Tonnes	0	0.23	0.23
Pt. Group Of Metals	Tonne	0	1.5	1.5
Pyrite	000 Tonnes	0	3000	3000
Rare Earth Elements	Tonne	0	3734	3734
Sillimanite	Tonne	0	982725	982725
Silver				
Ore	Tonne	22120000	3813612	25933612
Metal	Tonne	5.43	4.29	9.72
Titanium	Tonne	0	13862094	13862094
Tungsten				
Ore	Tonne	0	36677818	36677818
Contained WO_3	Tonne	0	6235	6235
Vanadium				
Ore	Tonne	0	19384430	19384430
Contained V_2O_5	Tonne	0	49497.55	49497.55
Vermiculite	Tonne	0	162240	162240

Figures rounded off

14. Kerala

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Bauxite	000 Tonnes	0	19449	19449
Garnet	Tonne	0	198861	198861
Gold				
Ore (Primary)	Tonne	0	558460	558460
Metal (Primary)	Tonne	0	0.2	0.2
Ore (Placer)	Tonne	0	26121000	26121000
Metal (Placer)	Tonne	0	5.86	5.86
Graphite	Tonne	15443	1419532	1434975
Iron Ore(Magnetite)	000 Tonnes	0	83435	83435
Kyanite	Tonne	0	184733	184733

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Limestone	000 Tonnes	10540	184059	194599
Magnesite	000 Tonnes	0	40	40
Pt. Group Of Metals	Tonne	0	0.18	0.18
Sillimanite	Tonne	553000	6366167	6919167
Titanium	Tonne	2370712	117607659	119978371
Zircon	Tonne	156509	1240355	1396864

Figures rounded off

15. Madhya Pradesh

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Antimony				
Ore	Tonne	7503	592	8095
Metal	Tonne	75	5.92	80.92
Bauxite	000 Tonnes	18564	167695	186259
Copper				
Ore	000 Tonnes	120353	266312	386665
Metal	000 Tonnes	1571.04	2095.82	3666.86
Diamond	Carats	847559	27749477	28597036
Gold				
Ore (Primary)	Tonne	0	7692934	7692934
Metal (Primary)	Tonne	0	8.25	8.25
Graphite	Tonne	0	12640000	12640000
Iron Ore (Heamatite)	000 Tonnes	54129	302870	356999
Lead-Zinc Ore				
Ore	000 Tonnes	0	19067	19067
Lead metal	000 Tonnes	0	36.29	36.29
Zinc metal	000 Tonnes	0	470.53	470.53
Limestone	000 Tonnes	1692431	7960747	9653178
Manganese Ore	000 Tonnes	19558	40499	60057
Molybdenum				
Ore	Tonne	0	8000000	8000000
Contained MOS_2	Tonne	0	5020	5020
Potash	Million Tonnes	0	1244	1244
Rock Phosphate	Tonne	9031093	49425938	58457031
Sillimanite	Tonne	0	101600	101600
Silver				
Ore	Tonne	0	3216000	3216000
Metal	Tonne	0	159.86	159.86
Vermiculite	Tonne	0	329	329

Figures rounded off

16. Maharashtra

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Bauxite	000 tonnes	38472	193958	232430
Chromite	000 tonnes	5	533	538
Copper				
Ore	000 tonnes	0	17755	17755
Metal	000 tonnes	0	158.08	158.08
Fluorite	tonne	386142	100000	486142
Gold				
Ore (Primary)	tonne	0	1627000	1627000
Metal (Primary)	tonne	0	3.64	3.64
Graphite	tonne	0	1160000	1160000
Iron ore (Haematite)	000 tonne	15241	286304	301544
Iron ore (Magnetite)	000 tonne	578	1210	1788
Kyanite	tonne	332389	3063615	3396004
Lead-zinc				
Ore	000 tonnes	0	9272	9272
Zinc metal	000 tonnes	0	589.67	589.67
Limestone	000 tonne	701349	3107044	3808392
Manganese ore	000 tonne	17733	41303	59036
Rare Earth Elements	tonne	0	2090	2090
Sillimanite	tonne	181748	30580	212328
Silver				
Ore	tonne	0	235000	235000
Metal	tonne	0	0.23	0.23
Titanium	tonne	303551	3980786	4284337
Tungsten				
Ore	tonne	0	10122250	10122250
Contained WO_3	tonne	0	18590.72	18590.72
Vanadium				
Ore	tonne	0	384630	384630
Contained V_2O_5	tonne	0	1538.52	1538.52

Figures rounded off

17. Manipur

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Chromite	000 Tonnes	0	6657	6657
Limestone	000 Tonnes	0	46053	46053

Figures rounded off

18. Meghalaya

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Apatite	Tonne	0	1300000	1300000
Bauxite	000 Tonnes	0	4300	4300
Copper				
Ore	000 Tonnes	0	880	880
Metal	000 Tonnes	0	9	9
Iron Ore (Heamatite)	000 Tonnes	0	225	225
Iron Ore (Magnetite)	000 Tonnes	0	3380	3380
Lead-Zinc Ore				
Ore	000 Tonnes	0	880	880
Lead metal	000 Tonnes	0	16.5	16.5
Zinc metal	000 Tonnes	0	14	14
Limestone	000 Tonnes	251043	23583945	23834988
Rock Phosphate	Tonne	0	1311035	1311035
Sillimanite	Tonne	82512	55807	138319
Silver				
Ore	Tonne	0	880000	880000
Metal	Tonne	0	19.8	19.8
Titanium	Tonne	0	3345000	3345000

Figures rounded off

19. Nagaland

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Chromite	000 Tonnes	0	3200	3200
Cobalt	Million Tonnes	0	5	5
Copper				
Ore	000 Tonnes	0	2000	2000
Metal	000 Tonnes	0	15	15
Iron Ore (Magnetite)	000 Tonnes	0	5280	5280
Limestone	000 Tonnes	0	1752200	1752200
Nickel Ore	Million Tonnes	0	5	5

Figures rounded off

20. Odisha

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Asbestos	Tonne	0	56700	56700
Bauxite	000 Tonnes	409740	1647284	2057024
Chromite	000 Tonnes	78031	240237	318269
Cobalt	Million Tonnes	0	31	31
Copper				

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Ore	000 Tonnes	0	11991	11991
Metal	000 Tonnes	0	97.03	97.03
Garnet	Tonne	8330046	1177318	9507364
Graphite	Tonne	2838414	17142707	19981121
Iron Ore (Heamatite)	000 Tonnes	2798749	6610582	9409331
Iron Ore (Magnetite)	000 Tonnes	0	242	242
Lead-Zinc Ore				
Ore	000 Tonnes	0	1750	1750
Lead metal	000 Tonnes	0	76.96	76.96
Limestone	000 Tonnes	468580	1727424	2196004
Manganese Ore	000 Tonnes	11470	160058	171528
Nickel Ore	Million Tonnes	0	175	175
Pt. Group of Metals	Tonne	0	14.2	14.2
Rare Earth Elements	Tonne	0	25493	25493
Ruby	Kilogram	0	5349	5349
Sillimanite	Tonne	5640985	12062208	17703193
Silver				
Ore	Tonne	0	1749500	1749500
Metal	Tonne	0	64.91	64.91
Tin				
Ore	Tonne	0	15618	15618
Metal	Tonne	0	652.73	652.73
Titanium	Tonne	12654141	53019062	65673202
Vanadium				
Ore	Tonne	0	4864795	4864795
Contained V_2O_5	Tonne	0	13557.94	13557.94
Zircon	Tonne	476672	390247	866919

Figures rounded off

21. Puducherry

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Limestone	000 tonnes	0	15732	15732

Figures rounded off

22. Rajasthan

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Apatite	Tonne	0	1067521	1067521
Asbestos	Tonne	0	13615710	13615710

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Bauxite	000 Tonnes	0	528	528
Copper				
Ore	000 Tonnes	34388	833461	867849
Metal	000 Tonnes	483.08	4152.52	4635.6
Diatomite	000 Tonnes	0	2074	2074
Fluorite	Tonne	18099	5587504	5605603
Garnet	Tonne	207888	842923	1050811
Gold				
Ore (Primary)	Tonne	0	125913720	125913720
Metal (Primary)	Tonne	0	234.56	234.56
Graphite	Tonne	0	1913554	1913554
Iron Ore (Heamatite)	000 Tonnes	7314	28166	35480
Iron Ore (Magnetite)	000 Tonnes	121060	673866	794926
Kyanite	Tonne	0	23703	23703
Lead-Zinc Ore				
Ore	000 Tonnes	103275	581381	684656
Lead Metal	000 Tonnes	1900.19	9431.73	11331.92
Zinc Metal	000 Tonnes	7438.05	23827.97	31266.02
Lead-Zinc Metal	000 Tonnes	0	142.23	142.23
Limestone	000 Tonnes	4804154	24157095	28961249
Magnesite	000 Tonnes	0	54091	54091
Manganese Ore	000 Tonnes	568	1790	2359
Potash	Million Tonnes	0	20572	20572
Pyrite	000 Tonnes	0	90876	90876
Rock Phosphate	Tonne	21845000	72003769	93848769
Sillimanite	Tonne	0	819	819
Silver				
Ore	Tonne	148326020	342383997	490710017
Metal	Tonne	7701.64	21940.57	29642.21
Tungsten				
Ore	Tonne	0	23928294	23928294
Contained WO_3	Tonne	0	93707.94	93707.94
Vermiculite	Tonne	0	104125	104125
Wollastonite	Tonne	2680978	20433955	23114933

Figures rounded off

23. Sikkim

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Copper				
Ore	000 Tonnes	0	958	958
Metal	000 Tonnes	0	21.47	21.47
Lead-Zinc Ore				
Ore	000 Tonnes	0	950	950
Lead Metal	000 Tonnes	0	8.58	8.58
Zinc Metal	000 Tonnes	0	20.07	20.07
Limestone	000 Tonnes	0	2380	2380
Silver				
Ore	Tonne	0	949623	949623
Metal	Tonne	0	56.69	56.69

Figures rounded off

24. Tamil Nadu

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Apatite	Tonne	0	240000	240000
Bauxite	000 Tonnes	0	24112	24112
Chromite	000 Tonnes	0	282	282
Copper				
Ore	000 Tonnes	0	790	790
Metal	000 Tonnes	0	3.81	3.81
Garnet	Tonne	52538	25831356	25883894
Gold				
Ore (Primary)	Tonne	0	67000	67000
Metal (Primary)	Tonne	0	1	1
Graphite	Tonne	3100193	6605086	9705279
Iron Ore (Magnetite)	000 Tonnes	0	528901	528901
Kyanite	Tonne	1683	247829	249512
Lead-Zinc Ore				
Ore	000 Tonnes	0	790	790
Lead metal	000 Tonnes	0	7.74	7.74
Zinc metal	000 Tonnes	0	36.52	36.52
Limestone	000 Tonnes	547024	1577025	2124049
Magnesite	000 Tonnes	55084	100402	155486
Molybdenum				
Ore	Tonne	0	17882498	17882498
Contained MOS_2	Tonne	0	10151.86	10151.86
Pt. Group Of Metals	Tonne	0	1.69	1.69
Pyrite	000 Tonnes	0	24	24
Sillimanite	Tonne	134030	17218747	17352777

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Silver				
Ore	Tonne	0	790000	790000
Metal	Tonne	0	42.55	42.55
Titanium	Tonne	670221	113677284	114347505
Tungsten				
Ore	Tonne	0	250000	250000
Contained WO_3	Tonne	0	50	50
Vermiculite	Tonne	1516803	343051	1859854
Wollastonite	Tonne	0	3533	3533
Zircon	Tonne	36285	43833	80118

Figures rounded off

25. Telangana

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Chromite	000 Tonnes	0	186	186
Copper				
Ore	000 Tonnes	0	666	666
Metal	000 Tonnes	0	9.12	9.12
Garnet	Tonne	0	1960196	1960196
Graphite	Tonne	0	219455	219455
Iron Ore (Heamatite)	000 Tonnes	0	105627	105627
Iron Ore (Magnetite)	000 Tonnes	0	87366	87366
Kyanite	Tonne	0	48350000	48350000
Limestone	000 Tonnes	1214127	16438327	17652454
Manganese Ore	000 Tonnes	342	4162	4503

Figures rounded off

26. Uttar Pradesh

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Andalusite	000 Tonnes	0	114250	114250
Bauxite	000 Tonnes	0	18908	18908
Gold				
Ore (Primary)	Tonne	0	13000000	13000000
Metal(Primary)	Tonne	0	2.08	2.08
Iron Ore (Heamatite)	000 Tonnes	0	86330	86330
Limestone	000 Tonnes	3720	439723	443443

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Potash	Million Tonnes	0	893	893
Pt. Group of Metals	Tonne	0	3.35	3.35
Rare Earth Elements	Tonne	0	2948	2948
Rock Phosphate	Tonne	0	25773444	25773444
Sillimanite	Tonne	0	11450000	11450000

Figures rounded off

27. Uttarakhand

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Asbestos	Tonne	0	311	311
Copper				
Ore	000 Tonnes	0	4220	4220
Metal	000 Tonnes	0	60.04	60.04
Graphite	Tonne	0	10700	10700
Lead-Zinc Ore				
Ore	000 Tonnes	0	5620	5620
Lead metal	000 Tonnes	0	182.6	182.6
Zinc metal	000 Tonnes	0	266.83	266.83
Limestone	000 Tonnes	0	1575771	1575771
Magnesite	000 Tonnes	9959	229476	239434
Rock Phosphate	Tonne	0	24178386	24178386
Silver				
Ore	Tonne	0	3390000	3390000
Metal	Tonne	0	138.59	138.59
Tungsten				
Ore	Tonne	0	658000	658000
Contained WO_3	Tonne	0	705	705

Figures rounded off

28. West Bengal

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Apatite	Tonne	0	10652220	10652220
Copper				
Ore	000 Tonnes	0	113	113
Metal	000 Tonnes	0	2.09	2.09
Gold				
Ore (Primary)	Tonne	0	12833333	12833333
Metal(Primary)	Tonne	0	0.65	0.65
Kyanite	Tonne	0	26520	26520

Mineral	Unit	Reserves (A)	Remaining Resources (B)	Total Resources (A+B)
Lead-Zinc Ore				
Ore	000 Tonnes	0	3706	3706
Lead metal	000 Tonnes	0	140.07	140.07
Zinc metal	000 Tonnes	0	143.42	143.42
Limestone	000 Tonnes	0	44706	44706
Manganese Ore	000 Tonnes	0	200	200
Pyrite	000 Tonnes	0	2500	2500
Sillimanite	Tonne	0	1653000	1653000
Titanium	Tonne	0	2279000	2279000
Tungsten				
Ore	Tonne	0	763802	763802
Contained WO_3	Tonne	0	1530.84	1530.84
Vermiculite	Tonne	0	5566	5566

Figures rounded off

ANNEXURE V

MINUTES OF THE EIGHTEENTH SITTING OF THE STANDING COMMITTEE ON COAL, MINES AND STEEL (2024-2025) HELD ON 15.4.2025 FROM 1150 HRS. TO 1345 HRS. IN COMMITTEE ROOM 'B', PARLIAMENT HOUSE ANNEXE, NEW DELHI.

PRESENT

Shri Anurag Singh Thakur- Chairperson

Lok Sabha

2. Shri Sukhdeo Bhagat
3. Smt. Roopkumari Choudhary
4. Smt. Kamlesh Jangde
5. Smt. Bharti Pardhi
6. Dr. Manna Lal Rawat
7. Dr. Rajkumar Sangwan
8. Shri Shatrughan Prasad Sinha
9. Smt. Pratibha Suresh Dhanorkar
10. Shri Aditya Yadav

Rajya Sabha

11. Shri Manas Ranjan Mangaraj
12. Shri Rwngwra Narzary
13. Shri Devendra Pratap Singh
14. Dr. Fauzia Khan

SECRETARIAT

1. Shri Srinivasulu Gunda - Joint Secretary
2. Smt. Sunanda Chatterjee - Deputy Secretary

MINISTRY OF MINES

1. Shri V.L. Kantha Rao, Secretary
2. Shri Sanjay Lohiya, Additional Secretary
3. Shri Dinesh Mahur, Joint Secretary
4. Shri Shakil Alam, Economic Advisor
5. Shri Mustaq Ahmad, Director
6. Shri Sukhdeep Singh, Director

2. At the outset, the Chairperson welcomed the Secretary and other representatives of the Ministry of Mines and its Public Sector Undertakings (PSUs) to the Sitting of the Committee convened for Briefing on the subject "Self-reliance in Minerals and Metals".

3. The Chairperson then drew their attention to Direction 55(1) of the Directions by the Speaker, Lok Sabha regarding confidentiality of the proceedings. Thereafter, he directed the representatives to introduce themselves.

4. The Secretary, Ministry of Mines during his presentation gave an overview of the mining sector as well initiatives taken by the Ministry towards achieving "Self-Reliance in Minerals and Metals." The Secretary, informed the Committee that the subject "Self-Reliance in Minerals and Metals" is very pertinent especially in the changing world order in respect of trends that are happening in Trade, export import and tariffs. He also briefed the Committee about the total number of auctioned and running mines in the country. He also elaborated about the minor minerals, critical minerals and their production, India's position in the world vis-à-vis top mineral producing countries with respect to some important minerals, top mining companies in India in both public and private sector

5. Thereafter, some members raised their queries/questions regarding the future roadmap for self-reliance in minerals including critical minerals, dependence on import of Lithium, Nickel, Cobalt, Molybdenum, Gallium, Germanium, Potash, Rare Earth Elements (REE) and how to overcome it. Members also raised the issue of illegal mining and steps being taken to curtail the same, activities being performed by Geological Survey of India's (GSI) and possibilities of expansion of GSI or creation of other units/ Autonomous body like GSI, increased demand for metals and minerals as raw materials for various industries vis-à-vis supply, exploration by private parties, functioning of Khanij Bidesh India Limited (KABIL) etc.

6. The representatives of the Ministry informed that they have created Copper Vision, Aluminium Vision, for standardization of minerals. They also informed that apart from KABIL, Ministry is collaborating with Coal India, ONGC Videsh Ltd, OIL and NMDC for oversees mining. In India, 20 critical mines are in auction stage, 20 nodal officers have been appointed by the Ministry of Mines and 10 MOUs have been signed by the Ministry. They are also exploring mining activities in Zambia for Copper and Cobalt.

7. The Chairperson then directed the representatives of the Ministry of Mines to furnish written replies to the queries raised by the Members which remained unanswered during the Sitting of the Committee.

8. The Committee also tentatively decided to undertake an on-the-spot study visit to North-eastern States in the month of May, 2025 on the subjects selected for examination during the year 2024-25.

9. Hon'ble Chairperson thanked the Members of the Committee and Officials of the Ministry and PSUs for their active participation in the Sitting of the Committee.

10. The witnesses then withdrew.

A copy of verbatim record of the Sitting of the Committee has been kept separately.

The Committee then adjourned.

ANNEXURE VI

MINUTES OF THE TWENTIETH SITTING OF THE STANDING COMMITTEE ON COAL, MINES AND STEEL (2024-2025) HELD ON 27.05.2025 FROM 1110 HRS. TO 1310 HRS. IN COMMITTEE ROOM No.1, PARLIAMENT HOUSE ANNEXE EXTENSION BUILDING, NEW DELHI.

PRESENT

Shri Ananta Nayak- In the chair

Lok Sabha

2. Shri Sukhdeo Bhagat
3. Shri Vijay Kumar Hansdak
4. Smt. Jyotsna Charandas Mahant
5. Dr. Manna Lal Rawat
6. Dr. Rajkumar Sangwan
7. Shri Shatrughan Prasad Sinha
8. Smt. Pratibha Suresh Dhanorkar
9. Shri S. Venkatesan

Rajya Sabha

10. Smt. Mahua Maji
11. Shri Anil Kumar Yadav Mandadi
12. Shri Deepak Prakash
13. Shri Aditya Prasad
14. Shri Pradip Kumar Varma
15. Dr. Fauzia Khan

SECRETARIAT

1.	Shri Srinivasulu Gunda	-	Joint Secretary
2.	Smt. Jagriti Tewatia	-	Director
3.	Smt. Sunanda Chatterjee	-	Deputy Secretary

MINISTRY OF MINES

1. Shri V.L. Kantha Rao, Secretary
2. Shri Sanjay Lohiya, Additional Secretary
3. Shri Asit Saha, Director General, Geological Survey of India
4. Shri Peeyush Narayan Sharma, Controller General, IBM

2. At the outset, the Joint Secretary (Incharge) of the Committee informed that Shri Anurag Singh Thakur, Hon'ble Chairperson is out of India on official delegation. Thus, in terms of Rule 258(3) of the Rules of Procedure and Conduct of Business in Lok Sabha the Committee chose Shri Ananta Nayak, MP to act as the officiating Chairperson for the sitting.

3. Thereafter, the Chairperson, welcomed the Secretary and other representatives of the Ministry of Mines and its attached office GSI & subordinate office IBM to the Sitting of the Committee convened for taking Oral Evidence on the subject 'Self Reliance in Minerals and Metals.'

4. The Chairperson then drew their attention to Direction 55(1) of the Directions by the Speaker, Lok Sabha regarding confidentiality of the proceedings. Thereafter, he directed the representatives to introduce themselves.

5. The Secretary, Ministry of Mines, through a Power Point Presentation first explained about the activities being carried out by GSI and informed that mining sector contributes 1% of total GDP of the country as compared to higher percentage of GDP contributed by major mining economies. Thereafter, the Secretary briefed about the Indian Bureau of Mines being a regulatory body and its functions, the details of Mining leases under the jurisdiction of IBM, National Critical Mineral Mission, the 3 centres of excellence proposed under the mission, star rating of Mines and sustainable mining initiatives etc.

6. Members raised certain queries on joint venture in mining sector, use of lithium in Electric Vehicles, time limit for auctioning of mines after survey, issues relating to bio-diversity especially in tribal belt area, effect on population, other related issues like technology advancement for mining, Geo mapping & exploration etc. Members also raised issues regarding specific strategies adopted by GSI to improve exploration success for concealed and deep-seated critical mineral deposits, Extended Producer Responsibility (EPR) rules for batteries/e-waste to be considered and coordinated with MoEFCC, traceability, waste collection, and private sector participation in mining etc.

7. The Chairperson then directed the representatives of the Ministry of Mines to furnish written replies to the queries raised by the Members which remained unanswered during the Sitting of the Committee.

8. Hon'ble Chairperson thanked the Members of the Committee and Officials of the Ministry and PSUs for their active participation in the Sitting of the Committee.

9. The witnesses then withdrew.

A copy of verbatim record of the Sitting of the Committee has been kept separately.

The Committee then adjourned.

ANNEXURE VII

MINUTES OF THE TWENTY FIRST SITTING OF THE STANDING COMMITTEE ON COAL, MINES AND STEEL (2024-2025) HELD ON 06.06.2025 FROM 1120 HRS. TO 1350 HRS. IN COMMITTEE ROOM No. 1, PARLIAMENT HOUSE ANNEXE EXTENSION BUILDING, NEW DELHI.

PRESENT

Shri Anurag Singh Thakur- Chairperson

Lok Sabha

2. Shri Sukhdeo Bhagat
3. Smt. Roopkumari Choudhary
4. Smt. Kamlesh Jangde
5. Smt. Bharti Pardhi
6. Dr. Manna Lal Rawat
7. Dr. Rajkumar Sangwan
8. Shri Kali Charan Singh
9. Shri Shatrughan Prasad Sinha
10. Shri S. Venkatesan
11. Shri Aditya Yadav

Rajya Sabha

12. Smt. Mahua Maji
13. Shri Aditya Prasad
14. Shri Pradip Kumar Varma

SECRETARIAT

1. Shri Srinivasulu Gunda - Joint Secretary
2. Smt. Jagriti Tewatia - Director

MINISTRY OF MINES

1. Shri Sanjay Lohiya, Additional Secretary
2. Shri Vivek Kumar Bajpai, Joint Secretary, Ministry of Mines
3. Shri Brijendra Pratap Singh, CMD, NALCO
4. Shri Sanjiv Kumar Singh, CMD, HCL
5. Shri Indra Dev Narayan, CMD, MECL

2. At the outset, the Chairperson welcomed the Additional Secretary and other representatives of the Ministry of Mines and Heads of its CPSEs *viz.* HCL, NALCO and MECL to the Sitting of the Committee convened for oral evidence on the subject “Self-reliance in Minerals and Metals”.

3. The Chairperson then drew their attention to Direction 55(1) of the Directions by the Speaker, Lok Sabha regarding confidentiality of the proceedings. Thereafter, he directed the representatives to introduce themselves.

4. The Secretary, Ministry of Mines had requested Chairperson for exemption from the Sitting of the Committee and the same was acceded to by the Hon'ble Chairperson. The Additional Secretary, Ministry of Mines, thus, briefed the Committee on the subject "Self-Reliance in Minerals and Metals."

5. First, CMD, MECL, presented a brief PPT and informed the Committee that MECL has expertise in systematic exploration and geoscientific consultancy, End to end exploration services for both Government and private clients, has Pan India presence with more than 70 running blocks and has successfully executed 1700+ exploration projects across energy, metallic, fertilizer and critical minerals. The Committee was also apprised that MECL aims to provide high quality, cost effective and time bound geo-scientific services for exploration and exploitation of minerals and MECL is also working for Bauxite, Copper, Lead and Zinc, Gold, Iron. He further informed that 51 Blocks explored by MECL has been already auctioned, another 56 blocks will be auctioned soon.

6. Thereafter, NALCO, in their PPT gave an overview about the Aluminium Industry and also apprised that NALCO is a one of the leading net foreign exchange earning CPSEs, and lowest-cost producer of Bauxite and Alumina globally. The CMD, NALCO apprised the Committee about the performance of NALCO, present global and domestic scenario with respect to production of aluminium and steps taken by the CPSE for achieving self-reliance in the Aluminium. He informed the Committee that during Financial Year 2024-25 NALCO has achieved highest ever Bauxite Excavation of 76.48 L Tonnes, highest ever Revenue of Rs.16788 crores from Operations and also Net Profit of Rs.5325 crores., highest ever Q4 Net Profit of Rs.2078 crores. He also informed that the Bauxite Reserve in India is about 646 Million Tonnes and globally India has the 8th Largest Bauxite Reserve.

7. Then CMD, Hindustan Copper Limited briefed the Committee through PPT about HCL and its performance, world copper reserve and resources and production pattern, India's copper reserve resources, Copper Ore and Refined Copper Production, Growth Potential of India's copper consumption, Strategy of HCL towards India's Self-Reliance in Copper. He further informed that average per capita consumption of Copper in the world is 3.2 Kg and India is having only 0.6 Kg which will be increased to 12 kg by the financial year 2030-31, by expanding their existing mines and their capacities. HCL highlighted the strategy of the Company towards India's self-reliance in copper, includes expected capacity of 0.25 Million

Tonnes Kendadih mines by December 2025, which also includes increase in capacity of its exiting Mines and restart of Rakha mine, etc. alongwith few other initiatives.

8. Members raised their queries about challenges being faced by CPSEs, benefit drawn post formation of KABIL, R&D initiatives and funding by NMET, reasons for delay in commissioning and expansion of few greenfield and brownfields projects. Reply to some of the points were answered by the Additional Secretary, Ministry of Mines and other Heads of HCL, NALCO and MECL. The Chairperson then directed the representatives of the Ministry of Mines to furnish written replies to the queries raised by the Members which remained unanswered during the Sitting of the Committee.

9. The Committee also tentatively decided to undertake an on-the-spot study visit to Southern States in the month of July, 2025 on the subjects selected for examination during the year 2024-25.

10. Hon'ble Chairperson thanked the Members of the Committee and Officials of the Ministry and PSUs for their active participation in the Sitting of the Committee.

11. The witnesses then withdrew.

A copy of verbatim record of the Sitting of the Committee has been kept separately.

The Committee then adjourned.

ANNEXURE VIII

MINUTES OF THE TWENTY FIFTH SITTING OF THE STANDING COMMITTEE ON COAL, MINES AND STEEL (2024-2025) HELD ON 25.07.2025 FROM 1500 HRS. TO 1700 HRS. IN COMMITTEE ROOM 'B', PARLIAMENT HOUSE ANNEXE, NEW DELHI.

PRESENT

Shri Anurag Singh Thakur- Chairperson

Lok Sabha

2. Shri Sukhdeo Bhagat
3. Smt. Roopkumari Choudhary
4. Shri Vijay Kumar Hansdak
5. Smt. Kamlesh Jangde
6. Shri Bidyut Baran Mahato
7. Shri Harish Chandra Meena
8. Shri Ananta Nayak
9. Dr. Manna Lal Rawat
10. Dr. Rajkumar Sangwan
11. Shri Shatrughan Prasad Sinha
12. Smt. Pratibha Suresh Dhanorkar
13. Shri Aditya Yadav

Rajya Sabha

14. Shri Rwngwra Narzary
15. Shri Deepak Prakash
16. Shri Aditya Prasad
17. Shri Devendra Pratap Singh
18. Shri Pradip Kumar Varma

Secretariat

1. Shri Srinivasulu Gunda - Joint Secretary
2. Smt. Jagriti Tewatia - Director
3. Smt. Sunanda Chatterjee - Deputy Secretary

REPRESENTATIVES OF CONFEDERATION OF INDIAN INDUSTRY, PUBLIC POLICY DEPARTMENT

1. Dr Hanuma Prasad, Member, CII National Committee on Mining and MD, Deccan Gold Mines Ltd

2. Mr Rajat Verma, Member, CII National Task Force on Advanced Material, Critical Minerals and Metals and CEO, Lohum Cleantech Pvt Ltd

REPRESENTATIVES OF PHD CHAMBER OF COMMERCE AND INDUSTRY (PHDCCI)

1. Mr Praneet Khanna, Co-Chair, Minerals & Metals Committee, PHDCCI

2 Mr Sanjay Singh, IAS (Retd), Director, Strategy & External Relations, Jindal Steel & Power Ltd.

REPRESENTATIVES OF FEDERATION OF INDIAN CHAMBERS OF COMMERCE AND INDUSTRY

1. Mr. Pankaj Satija – Chair, FICCI Taskforce on Coal and Co-Chair, FICCI Mining Committee
2. Mr. Ranjan Dhar – Co-Chair, FICCI Steel Committee

2. At the outset, the Chairperson welcomed the Secretary and other representatives of the CII, FICCI and PHDCCI to the Sitting of the Committee convened for Briefing on the subject "Self-reliance in Minerals and Metals".

3. The Chairperson then drew their attention to Direction 55(1) of the Directions by the Speaker, Lok Sabha regarding confidentiality of the proceedings. Thereafter, he directed the representatives to introduce themselves.

4. First, members from CII briefed the Committee about the subject of the sitting, "Self Reliance in Minerals and Metals." In their PPT they gave an overview of the mineral sector, geographical location/ concentration of critical minerals in few countries, auction process of blocks including small blocks which are sometimes not economically viable, lack of adequate geological data, lengthy process of regulatory clearances, especially from Ministry of Environment and Forests, need for formation of an Inter Ministerial Group for monitoring progress in critical minerals projects and related issues.

The members from PHDCCI gave a brief presentation which was mainly focused on iron ore and steel sector.

Thereafter, the representatives from FICCI in their presentation highlighted on the strategic importance of mining and metals, dominance by China over mineral production and processing, demand for minerals expected to increase manifold from current levels as well as other issues and challenges which hamper the growth path to a self-reliant nation.

The members also raised queries regarding critical minerals, simplification of procedure for obtaining clearances, acquisition of mineral assets abroad, etc

5. The members of Committee raised queries regarding time taken between auction of site to operationalization of mines in India vis-à-vis the world over, the hindrances in operationalization of mines, changes required in policy to improve implementation, efforts made by GSI towards mineral exploration etc.

6. The Chairperson then directed the representatives of the CII, FICCI and PHDCCI to furnish written replies to the queries raised by the Members within 15 days which remained unanswered during the Sitting of the Committee.

7. Hon'ble Chairperson thanked the Members of the Committee and Officials of the CII, FICCI and PHDCCI for their active participation in the Sitting of the Committee.

8. The witnesses then withdrew.

A copy of verbatim record of the Sitting of the Committee has been kept separately.

The Committee then adjourned.

ANNEXURE - IX

MINUTES OF THE ELEVENTH SITTING OF THE STANDING COMMITTEE ON COAL, MINES AND STEEL (2025-26) HELD ON 15 DECEMBER, 2025 FROM 1800 HRS TO 1820 HRS IN COMMITTEE ROOM NO. 1, PARLIAMENT HOUSE ANNEXE EXTENSION BUILDING, NEW DELHI

PRESENT

Shri Anurag Singh Thakur - Chairperson

Lok Sabha

2. Shri Sukhdeo Bhagat
3. Smt. Roopkumari Choudhary
4. Shri Vijay Kumar Hansdak
5. Smt. Kamlesh Jangde
6. Smt. Jyotsna Charandas Mahant
7. Shri Harish Chandra Meena
8. Shri Ananta Nayak
9. Smt. Bharti Pardhi
10. Dr. Rajkumar Sangwan
11. Shri Shatrughan Prasad Sinha
12. Smt. Dhanorkar Pratibha Suresh
13. Shri Aditya Yadav

Rajya Sabha

14. Shri Anil Kumar Yadav Mandadi
15. Shri Deepak Prakash
16. Shri Aditya Prasad
17. Shri Devendra Pratap Singh
18. Shri Pradip Kumar Varma
19. Shri Sajjad Ahmad Kichloo

SECRETARIAT

1. Shri Harish Chandra Bist - Joint Secretary
2. Smt. Reena Gopalakrishnan - Director
3. Smt. Sunanda Chatterjee - Deputy Secretary

2. At the outset, the Chairperson welcomed the Members to the sitting of the Committee.

3. The Committee, thereafter, considered and adopted the following draft Reports without any modifications:-

(i) Draft Report on the subject 'Self-Reliance in Minerals and Metals' pertaining to the Ministry of Mines.

(ii) xxxxx xxxxx xxxxx xxxxx

4. The Committee then authorized the Chairperson to finalize the Report in light of the factual verification received from the Ministry of Mines and present and lay the same in the Lok Sabha and Rajya Sabha respectively.

The Committee, then, adjourned.