



INDIAN BUREAU OF MINES

Proposal for Undertaking of Geochemical Analysis of Samples from Quartz , Mica & Feldspar Mines and Other Mineral Commodities through NMEDT Funding

27.08.2026

Reviewer

TCC – I Committee

National Mineral Exploration and
Development Trust, Ministry of Mines

Presented By

Indian Bureau of Mines



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Background

- ❑ Govt. of India is strengthening focus on **critical & strategic minerals** essential for modern technologies and national development; with improved mining/processing and depletion of rich ores, **mine wastes** are now seen as valuable secondary resources.
- ❑ IBM submitted a proposal for its **first-of-its-kind nationwide geochemical study** across the mining-to-metal value chain for **10 major commodities**, funded through NMEDT.
- ❑ Results showed wastes host significant critical elements (**Ni, Co, Ga, Sc, In, Sb, REEs, PGEs, Nb, Ta**, etc.), often at grades higher than primary ore; **final report submitted on 12th Dec 2025**.
- ❑ **Phase-II:**
 1. Nationwide sampling and geochemical analysis of **Limestone and Iron Ore mines** is currently in progress; final report proposed for September 2026.
 2. **Siwana Ring Complex (SRC), Rajasthan:** Targeted geochemical investigations of granite and masonry stone leases demonstrated significant enrichment of REEs, HFSEs and associated critical elements, with TREE+Y $\approx$ 0.63 wt.%. The report was submitted to NMEDT on 15.07.2026.
- ❑ In continuation of the above initiatives, it is proposed to undertake the next phase of nationwide sampling and geochemical analysis covering **Quartz, Mica and Feldspar mines**, along with other remaining major mineral commodities across the country consisting of **Vermiculite, Kyanite, Magnesite, Diamond, Phosphorite, Sillimanite, Garnet and Wollastonite**.



Proposal

- ❑ IBM proposes to undertake a systematic programme of sampling and comprehensive geochemical analysis of mine samples from Quartz, Mica and Feldspar mines and other selected mineral commodities across the country.
- ❑ India has a total of approximately 1,920 operating **Quartz, Mica and Feldspar mines**. Out of these, **400 mines** will be selected from different geological provinces and mineral belts of the country to ensure representative coverage of the major deposit types and ore characteristics.
- ❑ Further, **41 working mines** of various commodities i.e., are also proposed to be covered under the study. **Vermiculite , Kyanite, Magnesite, Diamond, Phosphorite, Sillimanite, Garnet and Wollastonite.**
- ❑ Sampling will be carried out exclusively within mining leases, covering: mine faces, ROM material, waste dumps, sub-grade dumps, mineral stacks, and tailing ponds (where present).
- ❑ All sampling will be conducted by IBM officers following standard sampling protocols to ensure data quality and representativeness.



Quantum of Work

S. No.	Target Sites (Mine Face, Dump, Mineral Reject, Screen Reject, Tailing Ponds, Tailing dump, Mineral stack etc.)	No. of Mines/ Leases	No. of samples to be generated
1	Quartz, Mica and Feldspar Mines	400	1200
2	Other Mineral Commodities (Vermiculite, Kyanite, Magnesite, Diamond, Phosphorite, Sillimanite, Garnet and Wollastonite)	41	164
	Sub total		1364
3	Check Samples (~10%)		136
4	Final number of samples	441	1500



Geochemical Analysis

Lab proposed for analysis :

- ☐ Mineral processing division of IBM
- ☐ Outsourced laboratories i.e., **Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC), Nagpur and Mineral Exploration and Consultancy Limited (MECL), Nagpur.**

Radicals proposed to be analysed :

S. No.	Types	Parameters / Elements Proposed for Analysis
1	Major & Minor Elements	SiO ₂ , Al ₂ O ₃ , Fe ₂ O ₃ , MnO, MgO, CaO, Na ₂ O, K ₂ O, TiO ₂ , P ₂ O ₅
2	Critical & Strategic Elements other than REEs	Ga, U, Ta, Ge, Be, Hf, Sn, As, Th, Sc, Y, Nb, Li, W, Ni, Co, Zr
3	Rare Earth Elements (REEs)	La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu
4	Other Trace Elements	Ba, Cu, Pb, Zn, Cr, Rb, Sr, V



Timeline of the project

Timelines for sampling and analysis (4 months from the Approval Date of PSC)					
S. No.	Activities	September	October	November	December
1	Collection of Samples from Mines				
2	Sub-Sampling and Geochemical Analysis of the samples collected				
3	Data Compilation & Final Report Preparations				

❑ *Final report submission is proposed by 31st December 2026.*



Cost Estimation : Geochemical analysis

2.0	Laboratory Studies						
2.1	Major Oxides (WD XRF) - (oxides + Traces-24 elements)	per sample	4.1.17a	4,200	1440	60,48,000	
2.2	Analysis of one rock sample for quantitative analysis of 14 REE elements + 9 trace elements (U, Ta, Ge, Be, Hf, Sn, As, Rb, Th) by ICP-MS	per sample	4.1.15	7,400	1440	1,06,56,000	
2.3	For each additional trace elements by ICP-MS	per sample	4.1.17b	842	1440	12,12,480	Li, W
Sub-Total 2						1,79,16,480	
Total Estimated Cost without GST						1,99,41,480	
Provision for GST (18%)			CGST (@ 9%)		17,94,733.20		GST will be reimbursed as per actual and as per notified prescribed rate
			SGST (@9%)		17,94,733.20		
			IGST		—		
Total GST (CGST+SGST+IGST)						35,89,466.40	
Gross Value						1,99,41,480	
Tax Value						35,89,466.40	
Final Amount (Gross Value + Tax Value)						2,35,30,946.40	
Round off						2,35,30,946	
Amount in words		Two Crore Thirty-Five Lakh Thirty Thousand Nine Hundred Forty-Six Only.					



Summary of Cost Estimates

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S.N o.	Item	Total Estimated Cost (Rs.)
1	Geologist man-days sampling and Sample preparations	20,25,000
2	Laboratory studies	1,79,16,480
3	Sub Total (1 to 2)	1,99,41,480
4	GST 18%	35,89,466.40
	Total:	2,35,30,946.40
	Round off	2,35,30,946
	Say Rs. In Lakh	₹235.30 Lakh



Thank You

