

STATE REVIEWS



Indian Minerals Yearbook 2022

(Part- I)

61st Edition

**STATE REVIEWS
(Uttar Pradesh)**

(ADVANCE RELEASE)

**GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES**

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UTTAR PRADESH

Mineral Resources

The State is the principal holder of country's andalusite & diaspore resources and possesses 78% andalusite, 37% diaspore, 17% sillimanite and 10% pyrophyllite. Important minerals occurring in the State are: **coal** in Singrauli coalfields, Sonbhadra district; and **diaspore & pyrophyllite** in Hamirpur, Jhansi, Lalitpur and Mahoba districts. Naini area of Allahabad district has good resources of high quality **silica sand**, an important source of glass sand, that contains 98% SiO₂ and a very low Fe₂O₃. It is found at Shankargarh and Lohargarh in Allahabad district and also Bargarh in Banda district. Silica sand is also found in Aligarh and Chitrakoot districts.

Other minerals that occur in the State are **andalusite & calcite** in Mirzapur district; **bauxite** in Banda, Varanasi & Lalitpur districts; **china clay & dolomite** in Banda and Sonbhadra districts; **felspar** in Jhansi district; **fireclay, limestone, potash & sillimanite** in Sonbhadra district; **ochre** in Banda district; **granite** in Banda, Hamirpur, Lalitpur &

Mahoba districts; **iron ore (haematite)** and **rock phosphate** in Lalitpur district (Table -1). The reserves/resources of coal along with details of coalfield are provided in Table-2.

Exploration & Development

During 2021-22 the details of exploration carried out by GSI in the State are furnished in Table-3.

Production

Coal, Limestone and Sulphur were the mineral items produced in Uttar Pradesh during 2021-22.

The value of minor minerals' production was estimated at ₹ 5,614 crore for the year 2021-22.

The number of reporting mines in Uttar Pradesh was 2 in 2021-22 in case of MCDR minerals (Table-4).

Mineral-based Industry

The present status of each mineral-based industry is not readily available. However, the important mineral-based industries in the Organised Sector in the State are furnished in Table - 5.

Table -2 : Reserves/Resources of Coal as on 1.4.2023 : Uttar Pradesh

(In million tonnes)				
Coalfield	Proved	Indicated	Inferred	Total
Total/Singrauli	884	178	–	1062

Source: Coal Directory of India, 2022-23.

Table – 1 : Reserves/Resources of Minerals as on 1.4.2020: Uttar Pradesh

Mineral	Unit	Reserves				Remaining Resources					Total resources (A+B)	
		Proved STD 111	Probable STD121 STD122	Total (A)	Feasibility STD211	Pre-feasibility STD221 STD222	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)
Andalusite	'000 tonnes	-	-	-	-	-	58040	56210	-	-	114250	114250
Bauxite	'000 tonnes	-	-	-	-	-	10390	8018	-	-	18908	18908
Gold												
Ore												
(Primary)	tonne	-	-	-	-	-	-	-	-	13000000	13000000	13000000
Metal												
(Primary)	'000 cu. m	-	-	-	-	-	-	-	2.08	2.08	2.08	2.08
Iron ore												
(Haematite)	'000 tonnes	-	-	-	-	20000	-	66330	-	-	86330	86330
Limestone	'000 tonnes	3720	-	3720	-	111910	142763	43540	-	439723	443443	443443
Potash	million tonnes	-	-	-	-	-	-	198	685	893	893	893
Platinum Group												
of metals	tonne	-	-	-	-	-	-	3.35	-	3.35	3.35	3.35
Rare-earth-												
Elements ^{6/}	'000 tonnes	-	-	-	-	-	-	-	2948	2948	2948	2948
Rock												
Phosphate	tonne	-	-	-	-	432898	-	740000	21481960	-	25773444	25773444
Sillimanite	tonne	-	-	-	-	-	2100000	9350000	-	-	11450000	11450000

Figures rounded off.

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Table –3 : Details of Exploration Activities in Uttar Pradesh, 2021-22

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI							
Gold							
Sonbhadra	Hasra - Raigarh - Kurkuti area	1:12500	105	-	-	100	An area of 105 sq. km has been mapped on 1:12500 scale in Hasra -Raigarh-Kurkuti area. The mapped area was seen covered by rocks of Parsoi Formation and Agori Formation of Mahakoshal Group. The study area has been thoroughly sampled to assess the potential zones for gold and associated base metal mineralisation. Au values above 0.05 ppm obtained in seven bed-rock samples varied from 0.05 to 0.21 ppm. Cu varied from 5 ppm to 67 ppm with an average of 26.3 ppm, Pb varied from 20 ppm to 206 ppm with an average of 63.60 ppm, Zn varied from 5 ppm to 124 ppm with an average of 89.5 ppm. Co varied from 11 ppm to 39 ppm with an average of 29.7 ppm. Au concentration in 50 channel and 50 trench samples obtained values below 0.05 ppm.
Diamond							
Lalitpur	Barayatha block	-	-	-	-	-	The investigated area falls in the Toposheet number 54L/15. Geologically, the Barayatha block comprises Bundelkhand Granite Massif in the northern part whereas the southern part was occupied by Bijawar, Vindhyan, and Deccan Trap. An integrated litho-structural lineament map was prepared by the processing of various data sets including ASTER images, ETM, LISS-III, RSAS data, NGLM data, aero geophysical and ground geophysical maps, and also topographic/tonal differences defined by linearity from Google images. During the fieldwork, delineated PGRS lineaments in the map were checked in-ground as structural lineaments, intersections that seemed favorable for the emplacement of kimberlite/lamproite. Besides field traverses, systematic stream sediment sampling was carried out with the help of a drainage map. Sample processing was done for recovering heavy mineral concentrate (HMC) which were examined for kimberlite indicator minerals under the stereo-

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Table – 3 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							microscope. During field traverses a few ultramafic rock units were been identified. Based on petro-graphic study two dykes were con-firmed as hornblendite. Soil sam-pling was also carried out on the yellow and green-toned soil around Barayatha, Mandawra, Hanumatgarh, Lahar and other ar-eas for getting KIMs as well as to know their affinity towards kimberlite/lamproite. At present, most of the lab results are awaited.
Molybdenum							
Banda	patauda	-	-	-	-	-	The main stratigraphy units of the study area are Bundelkhand Grani-toid Complex (BGC), Vindhyan Su-pergroup and Banda Alluvium. The area comprised wide extent of rocks i.e. older supracrustals and metamorphics, gneiss, migmatites, granitoids, rhyolite, mafic dykes, quartz reefs which are mainly part of BGC and different sedimentary rocks of Semri and Kaimur Group of Vindhyan Supergroup which rep-resents both carbonaceous and arenaceous lithounits. Occurrences of molybdenite as specks were ob-served mainly within the quartz and quartzo-feldspathic veins near Korari, Gonda, Gonda ka Pahar, Karin Pathar ka Pahar area which were exposed mainly at the rock quarry. At places molybdenite was associated with other sulphides i.e. pyrite, chalcopyrite which were been confirmed during ore micros-copy study. The quartz veins were mainly ENE-WSW to E-W trend-ing. These quartz veins were seen intruded in the migmatite. Sulphide mineralisation in the form of py-rite, chalcopyrite and few a bornite specks were observed along the E-W to NE-SW trending slip plane which are parallel to the joint sets. As per the received analytical results, in seven samples including BRS, pit sample, Cu value ranged from 550 ppm to 1,140 ppm. The occur-rences of all the sulphides present in the study area were exposed at or near the surface.

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Table – 3 (concl'd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							These were mostly observed at an average depth of 15-20 m from the surface and mostly observed in the quarry sections. The sulphide minerals mainly occurred as disseminated forms. Three bands of banded iron formation (BHQ) were observed near south of village Nardaha having 100m length and 0.5m width with total Fe content analysed up to 37%.
Tin Mahoba	Bilkhi and Bara areas	1:12500	100	-	-	104	A G4 stage investigation involving large scale mapping of 100 sq. km on 1:12500 scale was carried out along with collection of 54 bedrock samples and 50 trench samples. Night survey with the help of UV lamp was carried out in Gopalpur, Bilkhi, Murani and Bara areas. Bright fluorescent green minerals which may be REE phase/radioactive minerals and Powellite (Ca (MoO ₄)) in pegmatite veins with bluish white fluorescence were observed. Molybdenite (MoS ₂) and sulphide phases do not show any fluorescence. In BRS samples, the Cu value ranged from <5 ppm to 2,084 ppm (maximum in quartz vein intruded in medium-grained granite). Mn values ranged from 13ppm to 1,326 ppm and Pb values ranges from <20 ppm to 1,320 ppm (maximum in quartz reef of Bilrahi RF). Chemical results for Zn, Sn, Mo and W have not shown any encouraging values. Only one BRS sample showed 247.41 ppm Mo. Out of 50 trench samples, chemical results for base metal viz. Cu value ranged from <5 ppm to 2,478 ppm, Pb value ranged from <20 ppm to 129 ppm and Zn value ranged from 17 ppm to 109 ppm. In Trench-1 from Medium grained K- feldspar granite Mn of 1132 ppm was obtained. four samples from Trench-3 excavated in Tola Shyam quartz reef showed Cu values as 1,194, 1,316, 2,478 and 2,472 ppm respectively. Analytical results for Sn, W and Mo values were not very encouraging.

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**Table – 4: Mineral Production in Uttar Pradesh, 2019-20 to 2021-22
(Excluding Atomic Minerals)**

(Value in '000)										
Mineral	Unit	2019-20			2020-21			2021-22 (p)		
		No. of mines	Qty	Value ^{\$}	No. of mines	Qty	Value	No. of mines	Qty	Value ^{\$}
All Minerals		2		57073325	2		57036657	2		56816008
Coal	'000t	-	18030	-	-	17016	-	-	18073	-
Limestone	'000t	2	2804	932764	2	2574	896096	2	2809	675447
Sulphur #	t	-	47955	-	-	54234	-	-	60307	-
Minor Minerals @		-	-	56140561	-	-	56140561	-	-	56140561

Note: The number of mines excludes Fuel and Minor minerals.

\$ Excluding the value of Fuel minerals.

Recovered as by-product from oil refinery.

@ Figures for earlier years have been repeated as estimates because of non-receipt of data.

Table-5 : Principal Mineral-based Industries

Industry/plant	Capacity ('000 tpy)
Abrasives	
John Oakey and Mohan Ltd, Ghaziabad	NA
Micro Lapping Abrasive, Near Munni Devi Temple, Seohra, Dhampur	0.08 (Abrasive powder)
Aluminium	
Hindalco Industries Ltd, Renukoot	700 (alumina) 345 (aluminium)
Asbestos Product	
Asbestos Cement Ltd, Raibareli	NA
Uttar Pradesh Asbestos Product Ltd, Mohanlalganj, Lucknow	NA
Cement	
ACC Ltd, Tikaria, Distt Sultanpur (G)	3000
Ambuja Cement, Dadri, Gautam Budh Nagar (G)	1800
Raebareli Cement Works, Birla Corporation (G)	1300
Heidelberg Cement (Diamond Cement), Madora Jhansi (G)	2700
Jaypee Cement, Sadvakhurd (Blending Unit)	600
Kanodia Cement, Bulandsahar	330
Shree Cement, Sikandarabad (G), Bulandsahar	2000
The KCP Ltd., Dalla Cement Factory, Dalla Distt Sonebhadra	500
Jaypee Cement, Chunar Cement Factory, Chunar, Distt Mirzapur (G)	2500

(contd)

Table - 5 (contd)

Industry/plant	Capacity ('000 tpy)
Jaypee Cement, Tanda, Ayodhya, Distt Faizabad (G)	1000
Jaypee Cement, Churk Mirzapur (G)	1500
Birla Corp. Ltd.(Erstwhile Reliance Cement), Kundanganj, Distt Raebareli	2000
UltraTech Cement, Dadri (G)	1300
UltraTech Cement, Aligarh (G)	1300
UltraTech Cement Ltd. Ayodhya, Ambekar Nagar	1000
UltraTech Cement Ltd. Bara , Allahabad	4000
UltraTech Cement Ltd. Dallakolta, Robertsonganj	500
Mangalam Cement, Aligarh (G)	750
Electrode	
Ankit Sangal, Sujroo, Muzaffernagar	0.85(electrode no 10) 0.15(electrode no 8)
Fertilizer	
Asian Fertilizers Ltd, Deokahia, Gorakhpur	66 (SSP)
Coromandel International Ltd (Formerly Liberty Phosphate Ltd), Raebareli	132 (SSP)
Jubilant Agri and Consumer Products Ltd (Formerly Vam Organic Chemicsls Ltd), Bhartiagram, Gajraula	165 (SSP)
IFFCO, Phulpur (Unit I & II), Distt Allahabad	1697.8 (Urea)
IFFCO, Aonla (Unit I & II)	1999.8 (Urea)
Indo Gulf Fertilizer Ltd (a unit of Aditya Birla Nuva Ltd), Jagdishpur	1105.5 (Urea)
Kanpur Fertilizer & Cement, (formerly Duncan India Ltd), Kanpur	722 (Urea)

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Table - 5 (contd)

Industry/plant	Capacity ('000 tpy)
Khaitan Chemicals & Fertilizers Ltd, Goramachhia, Jhansi.	132 (SSP) 52.8 (H ₂ SO ₄)
Khaitan Chemicals & Fertilizers Ltd, Malwan, Fatehpur.	115 (SSP) 52.8 (H ₂ SO ₄)
KRIBHCO Shyam Fertilizer, Piprola Shahajahanpur.	864.6 (Urea)
Madan Madhav Fertilizers & Chems Pvt. Ltd, Fetehtarh.	24 (SSP)
Natraj Organics Ltd, Muzaffarnagar.	60 (SSP)
Tata Chemicals Ltd, Babrala, Distt Badaun.	1155 (Urea)
V. K. Phosphates Ltd, Bartara , Shahjahanpur	33 (SSP)
Natraj Organics Ltd, Muzaffarnagar.	60 (SSP)
Tata Chemicals Ltd, Babrala, Distt Badaun.	1155 (Urea)
V. K. Phosphates Ltd, Bartara , Shahjahanpur	33 (SSP)

(Contd)

Table - 5 (concl'd)

Industry/plant	Capacity ('000 tpy)
Ferroalloys	
Hindustan Ferro Alloys, Hamirpur.	3.2
The India Thermit Corpn. Ltd, Kanpur.	0.3
Iron & Steel	
Malvika Steel Ltd, Jagdishpur.	511 (pig iron) 600 (saleable steel)
Sponge Iron	
RLJ Concast Pvt.Ltd, Baragaon Chunar	60
S. A.Iron & Alloy Pvt.Ltd.Jeewanthpur, Mughalsarai	90
Petroleum Refinery	
IOCL, Mathura.	8000

(G); Grinding Unit

Note: Data, not readily available for fertilizer and cement Industries on respective websites, is taken from Indian Fertilizer Scenario, FAI Statistics, and Survey of Cement Industry & Directory, respectively.