

STATE REVIEWS



# Indian Minerals Yearbook 2013 (Part- I)

**52<sup>nd</sup> Edition**

**STATE REVIEWS  
(Uttar Pradesh)**

**(FINAL 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 is said to possess 78% andalusite, 37% diaspore 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 contains high quality **silica sand**, an important source of glass sand, containing 98% SiO<sub>2</sub> and a very low Fe<sub>2</sub>O<sub>3</sub> is found in Shankargarh, Lohargarh in Allahabad district and also Bargarh in Banda district. It is also found in Aligarh and Chitrakoot districts.

Other minerals that occur in the State are **andalusite** and **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 (hematite)** 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

GSI carried out exploration for gold in Mahakoshal Group, Dudhi Granitoid complex and Parsoi district Sonbhadra. ONGC pursued their seismic survey and drilling for exploration for petroleum & natural gas. In 2011-12, ONGC covered 20.21 sq km area for 3D geophysical data and 363.26 for 2D (GLK/LK) data. Details of exploration for gold by GSI and other agencies are furnished in Table-3.

### Production

The value of mineral production in Uttar Pradesh at ₹7,624 crore in 2012-13 increased 2% as compared to the previous year. Coal alone accounted for 47% of the total value of mineral production in the state. Uttar Pradesh was the leading producer of diaspore and second leading producer of pyrophyllite with 55% and 13% contribution in the total output of respective minerals in the country. Among the important minerals, production of sulphur increased 21% and limestone 10 percent. However, for coal it decreased marginally and that of pyrophyllite by 8%, diaspore by 25% and for silica sand 36% during the year under review.

The production value of minor minerals was estimated at ₹3,992 crore for the year 2012-13. (Table- 4).

The number of reporting mines in Uttar Pradesh was 21 as against 25 in the previous year.

The index of mineral production in Uttar Pradesh for 2012-13 (base 2004-05 = 100) was 95.5 as compared to 96.1 in the previous year.

**Table –2 : Reserves/Resources of Coal as on 1.4.2013 : Uttar Pradesh**

(In million tonnes)				
Coalfield	Proved	Indicated	Inferred	Total
<b>Total/Singrauli</b>	<b>884.04</b>	<b>177.76</b>	<b>-</b>	<b>1061.80</b>

*Source: Coal Directory of India, 2012-13.*

**Table – 1 : Reserves/Resources of Minerals as on 1.4.2010 : Uttar Pradesh**

Mineral	Unit	Reserves					Remaining resources					Total resources (A+B)				
		Proved STD 111	Probable STD121	Total (A) STD122	Feasibility STD211	Pre-feasibility STD221	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)					
													STD111	STD121	STD122	STD211
Andalusite	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	14450	14450	14450	
Bauxite	'000 tonnes	-	-	-	-	-	-	-	500	10390	8018	-	18908	18908	18908	
Calcite	tonne	-	-	-	-	-	-	-	-	-	11000	-	11000	11000	11000	
China clay	'000 tonnes	-	-	-	-	-	-	-	3447	11600	10018	-	25065	25065	25065	
Diaspore	tonne	750078	543478	109215	1402771	136057	328230	138907	-	545	224183	-	827921	2230692	2230692	
Dolomite	'000 tonnes	-	-	-	-	-	12622	-	-	3500	66230	-	82352	82352	82352	
Felspar	tonne	-	-	-	-	-	-	-	-	-	200000	-	200000	200000	200000	
Fireclay	'000 tonnes	-	-	-	-	-	-	-	-	-	3221	-	3221	3221	3221	
Granite																
(Dim. stone)	'000 cu m	-	-	-	-	-	-	-	-	-	494819	-	494819	494819	494819	
Iron ore																
(Hematite)	'000 tonnes	-	-	-	-	-	-	-	-	-	38000	-	38000	38000	38000	
Limestone	'000 tonnes	-	-	-	45130	135590	21050	142763	40000	31200	31200	-	415733	415733	415733	
Ochre	tonne	-	-	-	-	-	-	25000	35000	10000	10000	-	70000	70000	70000	
Potash	million tonnes	-	-	-	-	-	-	-	-	-	190	-	190	190	190	
Pyrophyllite	tonne	948617	605071	454154	2007842	522104	1201221	502246	66512	378450	911508	43200	3625241	5633083	5633083	
Quartz-																
Silica Sand	'000 tonnes	8042	14530	3977	26549	1946	15482	3071	6290	957	51590	-	79337	105886	105886	
Phosphorite/Rock																
Phosphate	tonne	-	-	-	-	-	432898	3118586	740000	-	21481960	-	25773444	25773444	25773444	
Sillimanite	tonne	-	-	-	-	-	-	-	9350000	2100000	-	-	11450000	11450000	11450000	

Figures rounded off.

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**Table – 3: Details of Exploration Activities in Uttar Pradesh, 2012-13**

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Metreage		
<b>GSI</b>							
<b>Gold</b>							
Sonbhadra	Mahakoshal Group & Dudhi Granitoid Complex	-	-	-	-	6	Reconnaissance stage investigation (G-4) was carried out for gold and tungsten mineralisation at the contact zone of Mahakoshal Group and Dudhi Granitoid complex. Night surveys with UV lamp have indicated the incidences of scheelite and powellite in pink granite. The analytical results of grab samples indicate very low gold values varying from <50 ppb to 85 ppb while the tungsten values range from <50 ppm to 894.2 ppm. The maximum 894.2 ppm value of tungsten is recorded from quartz veins within andalusitic phyllite. In stream sediment sample, one sample yielded high value of tungsten 384.9 ppm. Five samples of granite yielded high values of REE. The value of Lanthanum (La) ranges from 103.73 ppm to 353.21 ppm and that of Cerium (Ce) ranges from 194.42 ppm to 622.19 ppm. The investigation has been completed.
Sonbhadra	Parsoi area	1:12,500 1:2,000	-	6	-	-	Prospecting stage investigation (G-3) was carried out to assess the auriferous mineralised zones in this area. The investigation involved Large Scale Mapping, detailed Mapping & drilling. Mapping has established three discontinuous sulphide bearing mineralised lenses with arsenopyrite, scorodite, been located in Parsoi area. The surface manifestations of mineralisation are marked by scorodite, pyrite along with galena in Rohinohwa-Magardah- Nayatola area. The lenses vary from 50 m-650 m in strike length with width of 5 m -10 m. Sulphide mineralisation is predominantly in quartz veins. In the detailed map prepared for Paphrakund area, two sulphide bearing mineralised lenses having width of 4 m to 8 m and individual length of 8 m to 20 m were delineated over an extent of 350 m and 500 m. Analytical values of Au vary from <50 ppb to 2.7 ppm in Paphrakund area. Drilling has been done in mineralised lenses. Available results indicate an Au zone of 1.05 g/t x 1.96 m, between inclined depths of 147 m and 149 m in BH-1. The investigation will be continued in F. S. 2013-14.

(Contd.)

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Table – 3 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Metreage		
<b>DGM</b>							
<b>Asbestos</b>							
Jhansi	Mauranipur	1:2,000	0.22	3	126.0	86	Asbestos mineralisation was found in 2 sq km area, which is associated with talc-tremolite-actinolite schist. About 0.3 m tonnes resources were estimated tentatively.
<b>Gold</b>							
Lalitpur	Girar	-	-	-	-	-	The rocks exposed in this area belong to Berwar formation of proterozoic, which are highly, deformed & metamorphosed to greenschist facies. Girar iron formation is inter-bedded with basic & ultrabasic enclaves of pyroxenite, gabbro, dolerite and amphibolites. The cross cutting quartz veins and NNE-SSW trending dykes have been emplaced along the major weak zones of major shear passing through Karitoran-Girar-Sonrai which forms thrust between BGC and Bijawars. This forms the prominent channelways for gold associated sulphide mineralisation.
Sonbhadra	Hardi area	-	-	-	-	-	Basal conglomerate of Vindhyan Supergroup was exposed in this area in Hardi, Charkghaghia & Bagisoti areas in 4 km, 750 m & 500 m strike length, respectively. A sub unit of basal conglomerate named pebble conglomerate is 6 m - 25 m thick in Hardi area. About 250 kg resources were estimated tentatively.
<b>Platinum</b>							
Lalitpur	Ikauna	1:1,000	0.40	2	339.26	279	In this area rocks of Madawara & Rajaula formation were exposed. Madawara formation comprises altered peridotite, talc-actinolite schist, chlorite schist, diorite, dolerites which is underlain by Rajaula formation. About 0.01 million tonnes resources were estimated tentatively.

(Contd.)

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Table – 3 (Concl.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Metreage		
<b>DGM</b>							
<b>Potash</b>							
Chitrakoot	Itwa	-	-	-	-	-	The glauconite sandstone of this area occurs in two zones Panna Shale of Rewa group which forms extensive outliers south of Markundi & Tikaria. The glauconitic sandstone is cross laminated and contains innumerable glauconite, mud pellets & laminae, which can easily be crushed into green sand. The weathered surface presents yellow, brown & black shades due to leaching of potash content. About 50 million tonnes resources were estimated tentatively.
-do-		-	-	-	-	-	Reconnaissance stage investigation (G-4) was carried out in Bundelkhand Granitoid complex, to assess tungsten and associated mineralisation of the area. Disseminations of fine specks of chalcopyrite and pyrite occur discontinuously in quartz reef in Habupura area over an extent of 200 m with a width of 10 cm - 50 cm. Night surveys with UV lamp indicated bluish white fluorescence of scheelite in the quartz reef from Bhasneh area. The analytical results indicate very low tungsten values ranging from <0.5 ppm to 1001.24 ppm, the maximum value recorded from the quartz reef of Bhasneh area. The values of rare earth elements are also recorded to be low. The investigation has been completed.
<b>Rare Earth Element</b>							
Jhansi	Khajraha Buzweg	1:10,000	1.6	-	-	-	Carbonate vein has been traced between mota nala to gaddan ka nala up to a strike length of 550 m with 10 m-20 m width. At the eastern contact pink granite are highly altered & fenitised. A small hillock of syenite rock exposed 100 m east of carbonate body & shows fenitisation at margins.

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**Table – 4 : Mineral Production in Uttar Pradesh, 2010-11 to 2012-13  
(Excluding Atomic Minerals)**

(Value in ₹'000)

Mineral	Unit	2010-11			2011-12			2012-13 (P)		
		No. of mines	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
<b>All Minerals</b>		<b>24</b>		<b>47781553</b>	<b>25</b>		<b>74848321</b>	<b>21</b>		<b>76242649</b>
Coal	'000t	5	15526	15122300	4	16178	34369500	4	16090	35844200
Diaspore	t	*	14917	22752	*	11703	20278	*	8755	14069
Limestone	'000t	1	3312	500514	1	2997	514918	2	3304	445122
Pyrophyllite	t	10	31076	8810	13	33857	8358	13	31186	8787
Silica Sand	t	8	167109	36486	7	65584	13118	2	42051	8322
Sulphur#	t	-	38856	-	-	36005	-	-	43574	-
Minor Minerals@		-	-	32090691	-	-	39922149	-	-	39922149

*Note: The number of mines excludes minor minerals.**\* Associated with pyrophyllite.**# Recovered as by-product from oil refinery.**@ Figures for earlier years have been repeated as estimates, wherever necessary, because of non-receipt of data.***Mineral-based Industry**

The important large and medium-scale mineral-based industries in the Organised Sector in the State are given in Table - 5.

**Table –5 : Principal Mineral-based Industries in Uttar Pradesh**

Industry/plant	Capacity ('000 tpy)
<b>Abrasives</b>	
John Oakey and Mohan Ltd, Ghaziabad.	NA
<b>Aluminium</b>	700 (alumina)
Hindalco Industries Ltd, Renukoot.	345 (aluminium)
<b>Cement</b>	
ACC Ltd, Tikaria, Dist.Sultanpur (G).	2000
Ambuja Cement, Dadri, Gautam Budh Nagar.	1500
Birla Cement, Raibareli (G).	630
Diamond Cement, Jhansi (G).	500
Jaypee Cement, Sadvakhurd (G).	600
Jaypee Cement, Churk, Dist. Sonbhadra.	475
Jaypee Cement, Dalla, Dist. Sonbhadra.	432
Jaypee Cement, Chunar, Dist. Sonbhadra (G).	1680
Jaypee Cement, Ayodhya, Dist. Faizabad (G).	1000
<b>Ceramics</b>	
BHEL, Porcelain Insulator Division, Sultanpur.	NA
Kajaria Ceramics Ltd, Sikandrabad, Dist. Bulandshahar.	9.7 (million sq m)
Orients Ceramics & Industry Ltd, Sikandrabad.	95
UP Ceramics & Potteries Ltd, Ghaziabad.	4.8

(Contd.)

Table - 5 (Concl'd.)

Industry/plant	Capacity ('000 tpy)
<b>Chemical</b>	
Kanoriya Chemicals Ltd, Renukoot.	48 (caustic soda)
<b>Fertilizer</b>	
Duncan Industries Ltd, Kanpur.	722 (urea)
IFFCO-Phulpur, Dist. Allahabad.	1687.90 (urea)
IFFCO, Aonla.	795.40 (N <sub>2</sub> )
IGCL-Jagdishpur.	397.70 (N <sub>2</sub> )
Khaitan Chemical & Fertilizers Ltd, Gora Machia, Dist. Jhansi.	132 (SSP) 52.8 (H <sub>2</sub> SO <sub>4</sub> )
Malwan, Dist. Fatehpur.	113.5 (SSP) 52.8 (H <sub>2</sub> SO <sub>4</sub> )
Mahadeo Fertilizers Ltd, Fatehpur.	113.5 (SSP) 52.8 (H <sub>2</sub> SO <sub>4</sub> )
OCF-Shahajahanpur.	397.70 (N <sub>2</sub> )
Tata Fertilizer Works, Babrala, Dist. Badaun.	864.6 (urea)
<b>Ferro Alloys</b>	
Hindustan Ferro Alloys, Hamirpur.	3.2
The India Thermit Corpn. Ltd, Kanpur.	0.3
<b>Iron &amp; Steel</b>	
Malvika Steel Ltd, Jagdishpur.	511 (pig iron) 600 (saleable steel)
<b>Glass</b>	
Hind Lamps Ltd, Shikohabad.	NA
Mohan Crystal Glass Works, Mohan Nagar Dist. Ghaziabad.	40.9
Universal Glass Co., Ghaziabad.	60
<b>Petroleum Refinery</b>	
IOCL, Mathura.	8000