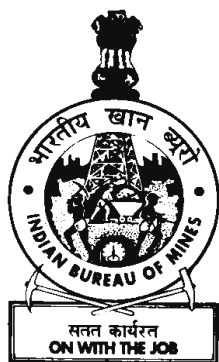


STATE REVIEWS



# Indian Minerals Yearbook 2012

(Part- I)

**51<sup>st</sup> Edition**

**STATE REVIEWS  
(Uttarakhand)**

**(FINAL RELEASE)**

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## UTTARAKHAND

### Mineral Resources

Important minerals that are found to occur in the State are high-grade **limestone** in Almora, Bageshwar, Dehradun, Nainital, Pauri-Garhwal, Pithoragarh & Tehri-Garhwal districts; **magnesite** and **steatite** in Almora, Bageshwar, Chamoli & Pithoragarh districts; and **tungsten** in Almora district.

Other minerals that occur in the State are **asbestos** in Chamoli district; **barytes** and **marble** in Dehradun district; **copper** in Almora, Dehradun & Pithoragarh districts; **dolomite** in Dehradun, Nainital and Tehri-Garhwal districts; **graphite** in Almora district; **gypsum** in Dehradun, Pauri-Garhwal & Tehri-Garhwal districts; **lead-zinc** and **silver** in Dehradun & Pithoragarh districts; and **rock phosphate** in Dehradun & Tehri-Garhwal districts (Table - 1).

### Exploration and Development

GSI carried out exploration for gold around Villages Lameri-Ratura in District Rudraprayag during 2011-12. Details of exploration are furnished in Table-2.

### Production

The value of mineral production in Uttarakhand at ₹ 88 crore in 2011-12 was almost at the same level as compared to the value of previous year. Uttarakhand was the second leading producer of magnesite and talc/soapstone/steatite contributing 29% and 15% in the total output of the respective minerals in country. During the year under review production of magnesite increased 7% while talc/soapstone/steatite decreased 16% over the previous year (Table-3).

The production value of minor minerals was estimated at ₹ 64 crore for the year 2011-12.

The number of reporting mines in Uttarakhand in 2011-12 was 35 as against 40 in the previous year.

The index of mineral production in Uttarakhand (base 2004-05=100) was 128.60 in 2011-12 as compared to 141.42 in the previous year.

### Mineral-based Industry

The important medium and large-scale mineral-based industries in the organised sector in the State are given in Table - 4.

**Table – 2: Details of Exploration Activities in Uttarakhand, 2011-12**

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> Rudra- prayag	Lameri-Ratura	-	-	-	-	-	Reconnaissance stage investigation (G-4) was taken up during FS 2010-12, based on the encouraging results of earlier work and on the proposal from DGM, Uttarakhand to delineate and assess the auriferous mineralised zones. In this area, 16 nos of old workings have been noticed in dolomite with quartz vein in Lameri (Pithoragarh) Formation. In Lameri-Tilni area cluster of five old workings were observed which were in the form of shallow pockets (0.5-1 m x 1-2 m) size and one incline (1.2 m x 1.8 m x 5 m) having malachite stained quartz vein. Brownish grey slag was also observed as dump near the old working site and one retort piece has also been recorded from the site. The sulphide-mineralised lens having old workings and sulphide disseminations is 200 m x 50 m.

(Contd.)

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Table-2 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Metreage		
<b>GSI</b>							
Gold	Tilni- Koteshwar	-	-	-	-	-	In this area, cluster of five old workings were identified in dolomite with malachite stained quartz veins having disseminated pyrite and chalcopyrite specks and fracture filling of galena. The mineralised zone has average width of 5 m and extends up to 120 m, discontinuously and gold flake was identified earlier in quartz vein within dolomite under SEM studies. The sulphide mineralised lens extends up to 500 m discontinuously over an average width of 8 m.
-do-	Kimotha	-	-	-	-	-	In this area a cluster of four old workings were identified at the contact of quartzite and dolomite. In this area mineralisation was observed in quartz vein within dolomite of Lameri Formation and mineralisation is manifested as malachite stain with few pyrites, chalcopyrite disseminations.
-do-	Dharkot1	-	-	-	-	-	In this area two old workings were identified at the faulted contact of quartzite and dolomite. The discontinuous extension of the mineralised zone was observed in Ratura area. The control of mineralisation is structural; mineralisation is generally confined to the quartz veins in fractures trending from 320 to 340. In Lameri-Koteshwar area, fault breccia has been identified at places, in the sympathetic zones.

(Contd.)

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Table-2 (Concl.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Metreage		
<b>GSI</b> Gold (Contd.)	Dharkot	-	-	-	-	-	<p>During stream sediment sampling, visible gold grains were recorded from stream sediment in Alaknanda river and its tributary on right bank (Sari area) and from the banks of Mandakini river in Jugtoli-Tarwari area. On the basis of the available chemical results, in Lameri area, two mineralised zones of Zone I: Cu 0.51% x 6 m and Au 0.09 ppm in 6 m over a strike of 20 m and Zone II: Cu 0.25% x 6 m and Au &lt;50 ppm over a strike of 10 m have been delineated. The Cu mineralised zone in Koteshwar- Machendranath area is 0.19% x 7.5 m over a strike length of 15 m in the sulphide mineralised lens which extends up to 500 m discontinuously over an average width of 8 m, having some significant spot values of 0.39% Cu &amp; 1.64% Cu.</p> <p>In Tilni area, An and Cu are not encouraging but the mineralised zone of Zn 363 ppm x 7 m over a strike of 25 m in carbonaceous slate has been delineated. Here the value of Zn goes up to 988 ppm. The Au values in chlorite schist and meta-gabbro are 124 ppb and 75 ppb, respectively from Jugtoli area. The overall spot values of An in bed rock samples from the area are low and maximum is up to 475 ppb. The stream sediment samples collected from Ratura, Sumerpur area yielded Au 200-300 ppb and one sample has 1.42 ppm Au (Ratura- Dharkot area). Heavy panned residues of samples from the same areas have shown 5 ppm-80 ppm Au. The work has been completed.</p>

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

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)
Asbestos	tonne	-	-	-	-	-	-	-	-	311	-	-	311	311
Barytes	tonne	-	-	-	-	-	-	-	-	-	25000	-	25000	25000
Copper														
Ore	'000 tonnes	-	-	-	-	-	-	-	3170	390	660	-	4220	4220
Metal	'000 tonnes	-	-	-	-	-	-	-	53.45	1.44	5.15	-	60.04	60.04
Dolomite	'000 tonnes	1985	1798	22	3805	224	1052	349	1946	981	199592	-	204144	207950
Graphite	tonne	-	-	-	-	-	-	-	10700	-	-	-	10700	10700
Gypsum	'000 tonnes	-	-	-	-	-	-	35	-	-	2012	-	2047	2047
Lead-zinc														
Ore	'000 tonnes	-	-	-	-	-	-	-	3170	1790	660	-	5620	5620
Lead metal	'000 tonnes	-	-	-	-	-	-	-	138.85	34.25	9.50	-	182.60	182.60
Zinc metal	'000 tonnes	-	-	-	-	-	-	-	151.21	87.99	27.63	-	266.83	266.83
Limestone	'000 tonnes	-	1051	-	1051	5035	91872	59378	29486	164879	1191059	-	1541709	1542760
Magnesite	'000 tonnes	4424	818	3632	8874	162	697	31277	58902	58756	73481	-	223274	232148
Marble	'000 tonnes	-	-	-	-	-	-	-	-	-	6000	-	6000	6000
Phosphorite/Rock phosphate	tonne	-	-	-	-	3063503	-	1734370	2760000	-	16620513	-	24178386	24178386
Silver														
Ore	tonne	-	-	-	-	-	-	-	1600000	1400000	390000	-	3390000	3390000
Metal	tonne	-	-	-	-	-	-	-	134.00	4.20	0.39	-	138.59	138.59
Talc-steatite-soapstone	'000 tonnes	24684	4845	8021	37550	3228	4551	3876	4705	1524	23604	-	41487	79037
Tungsten														
Ore	tonne	-	-	-	-	-	-	-	-	138000	-	520000	658000	658000
Contained WO <sub>3</sub>	tonne	-	-	-	-	-	-	-	-	25	-	680	705	705

Figures rounded off.

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**Table – 3 : Mineral Production in Uttarakhand, 2009-10 to 2011-12  
(Excluding Atomic Minerals)**

(Value in ₹'000)

Mineral	Unit	2009-10			2010-11			2011-12 (P)		
		No. of mines	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
<b>All Minerals</b>		<b>34</b>		<b>867294</b>	<b>40</b>		<b>882009</b>	<b>35</b>		<b>880851</b>
Dolomite	t	-	63	6	-	96	9	-	87	8
Magnesite	t	2	59187	72332	2	58341	74750	2	62124	79068
Talc/soapstone/ steatite	t	32	145770	158589	38	172137	170883	33	145010	165408
Minor Minerals@		-	-	636367	-	-	636367	-	-	636367

*Note: The number of mines excludes minor minerals.**@ Figures for earlier years have been repeated as estimates, because of non-receipt of data.***Table – 4: Principal Mineral-based Industries in Uttarakhand**

Industry/plant	Capacity ('000 tpy)
<b>DBM</b>	
Almora Magnesite Ltd, Matela, Dist. Bageshwar.	2.4
Himalayan Hostambe, Pithoragarh.	20 (DBM) 3 (Calcined magnesite)
Magnesite & Minerals Ltd, Pithoragarh.	4.5
Orissa Industries Ltd, Chandak, Pithoragarh.	4.5
<b>Glass</b>	
Hindustan National Glass & Industries Ltd, Rishikesh.	340 TPD