

STATE REVIEWS



Indian Minerals Yearbook 2015

(Part- I)

54th Edition

**STATE REVIEWS
(Arunachal Pradesh)**

(FINAL RELEASE)

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MINISTRY OF MINES
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ARUNACHAL PRADESH

Mineral Resources

The most important mineral resource of the State is **petroleum & natural gas** and its chief occurrence is reported in Ningru and Dam Duma areas. These hydrocarbon deposits are located in the Assam Arakan Fold Belt (AAFB) and Upper Assam basin in the State. The State also reports resources of **coal** in Namchick-Namphuk and Miaobum Coalfields; **dolomite** in West Kameng district; **fuller's earth** in Tirap district; **graphite**

in Lohit, Upper Siang and Upper Subansiri districts; **limestone** in Dibang Valley, Lohit, Upper Siang and Upper Subansiri districts and **quartzite** in West Kameng district (Tables - 1 and 2).

Exploration & Development

Exploration activities carried out by GSI for base metal, graphite and iron ore during the year 2014-15 are furnished in Table-3. National Oil Companies (NOC) continued their operations for exploration of oil and gas in the State during 2014-15.

Table – 1 : Reserves/Resources of Minerals as on 1.4.2010/1.4.2013* : Arunachal Pradesh

Mineral	Unit	Total Reserves (A)	Remaining Resources			Total Resources (A+B)	
			Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)
Dolomite*#	'000 tonnes	-	204	77633	-	77837	77837
Fuller's earth	tonne	-	10700	20000000	-	20010700	20010700
Graphite*	tonne	-	-	-	72758257	72758257	72758257
Limestone	'000 tonnes	-	49220	433575	-	482795	482795
Quartzite#	'000 tonnes	-	-	5270	-	5270	5270

Figures rounded off.

* Reserves/Resources as on 1.4.2013.

Declared as minor mineral vide Gazette notification dated 10.02.2015.

Note: The proved and indicated balance recoverable reserves of crude oil and natural gas as on 1.4.2015 are 1.63 million tonnes and 0.78 billion cu m, respectively.

Table – 2 : Reserves/Resources of Coal as on 1.4.2015: Arunachal Pradesh

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total	31.23	40.11	18.89	90.23
Namchik-Namphuk	31.23	40.11	12.89	84.23
Miaobum	-	-	6.00	6.00

Source: Coal Directory of India, 2014-15.

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Table – 3 : Details of Exploration Activities in Arunachal Pradesh, 2014-15

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI							
Base metal							
	Pakke- Kessang area	-	51	-	-	82	Large scale mapping was done around Pakke-Kessang area, covering an area of 51 sq km, detailed mapping around Ningcho covering an area of 0.5 sq km was investigated. The mapped area consists of Palaeoproterozoic rocks of Bomdila Group having meta-sedimentary enclaves of Khetabari Formation within the Ziro Gneiss. About 2-3 m wide sulphide rich zones with intermittent barren zones have been identified over an extent of 150 m wide zone within the garnetiferous-quartz-biotite schist interbanded with thin bands of ferruginous quartzite, southeast of Pakke-Kessang. The thickness of the quartzite bands ranges from 7 cm - 3 m. The main mineralised zone having 2 m wide oxidised band, is 15 m wide and has been traced up to 60 m in strike continuity, whereas the entire zone having schistose quartzite and garnetiferous-quartz-mica schist is 30 m wide. The zone is marked by ferruginisation, limonitisation, sericitisation and malachite stains with a few specks of chalcopyrite. Available analytical data of trench samples indicate 1,502 ppm to 2,498 ppm Cu, with an average of 0.196% Cu over a width of 6 m. Analytical results of other samples are awaited
	Around Ningcho	-	0.5	-	-	-	
Graphite							
Siang	Tai-Badak- Yagri area	1:12500	55	2	400	-	G4 stage investigation for graphite deposits in Khetabari and Ragidoke Formation of Bomdila Group was carried out. A total of 50 cu m of pitting and trenching have been undertaken up to March 2015. Large-scale mapping has been done in Tai-Badak-Yagri area covering 55 sq km. Detailed mapping has been carried out for 0.75 sq km in Tai area. Exploration by way of scout drilling for 400 m has been done in two inclined boreholes to test the strike continuity and depth persistency of graphite schist, exposed on the surface. In the first Borehole TA-1, graphite schist with carbonaceous phyllite was intersected at depths of 12.5-13.0 m, 16-20 m, 21-29 m, 36-36.70 m, 40-41 m and 103-106 m along the borehole and at vertical depths from 8-30 m and 55 m. Small specks of pyrite, pyrrhotite, chalcopyrite and occasional arsenopyrite occur associated with quartz-carbonate veins at various
	Tai area	1:2000	0.75	-	-	-	

(Contd.)

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Table – 3 (Concl.d.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Iron ore							depths from 126-195 m and at higher concentration at 174.5 - 184 m along borehole depth. In the second Borehole TA-2, rich zones of graphite schist were intersected at 9.5-10.5 m, 12-15 m, 16.5-18.0 m, 28.5-30 m, 32-36 m, 42-48 m, 56-59 m, 63.5-69 m, 71-76 m and 83-91 m along the borehole depths and at vertical depths varying from 8-76 m. Sulphide mineralisation in the form of disseminations of pyrite and subordinate chalcopyrite was intersected from 42-80 m, within carbonaceous phyllite associated with graphite schist, along the borehole. Available results of spot bedrock samples of carbonaceous phyllite associated with graphite schist indicate 10.59% to 11.70% fixed carbon (proximate analysis from NEIST, Jorhat).
West Siang	Jaiyor-Yomgum-Gamkak area	-	-	3	-	-	G4 stage investigation was carried out in the area. Bands of magnetite quartzite were mapped by detailed mapping. Three inclined scout boreholes with depths ranging from 100-150 m (total 400 m) were drilled for establishing the depth persistence of the magnetite quartzite and associated ironstone bands. In the first Borehole YJ-1, manifestation of iron mineralisation and disseminated sulphides were observed from 38.50 m to 150 m depth. A zone of magnetite with relatively higher concentration is observed from 62.90 m to 94.50 m along borehole depth and at a vertical depth of 35 m. A rich zone of sulphide mineralisation (pyrite, chalcopyrite, pyrrhotite, bornite) was intersected from 38.85-39.30 m along the borehole depth. The second Borehole YJ-2 has intersected the iron mineralised zone at the depths of 52-58 m, 82.35-88 m and 93.50-97.00 m along the borehole. Sulphide mineralisation occurs in the form of disseminations, specks, veinlets/stringers and smears of pyrite and chalcopyrite from 38.10-82 m along the borehole and rich zones are intersected at 38.10-46 m, 49-61 m, 73-82 m, 88.10-88.15 m and 122.0-124.0 m. In the third Borehole YJ-3, highly ferruginised quartz-mica schist (\pm garnet) is observed from 24.55-50.00 m. Magnetite-bearing quartzite is intersected at borehole depth of 84.0-86.0 m and 97.20-100 m, magnetite occurs as disseminations and also as stretched grains along the foliation. Sulphide-mineralised zone is intersected at 50.00-58.50 m along the borehole.

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Production

The value of mineral production (excludes atomic mineral and value for February and March in respect of 31 minerals declared as minor mineral vide Gazette notification dated 10.02.2015) in Arunachal Pradesh at ₹ 189 crore in 2014-15 decreased by 27% as compared to that of the pre-

vious year. The value of the mineral production in the state was dominated by petroleum (crude) with a share of 73% and natural gas (utilised) 15% during 2014-15 (Table - 4).

The value of production of minor minerals was estimated at ₹ 23 crore for the year 2014-15.

There was only a single mine of coal that was reported during both the years.

**Table – 4 : Mineral Production in Arunachal Pradesh, 2012-13 to 2014-15
(Excluding Atomic Minerals)**

(Value in ₹ '000)

Mineral	Unit	2012-13			2013-14			2014-15 (P)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
All Minerals		1		3186826	1		2585578	1		1891535
Coal	'000t	1	100	483600	1	-	-	1	-	-
Natural Gas (utilised)	m c m	-	41	339075	-	41	339075	-	34	281184
Petroleum (crude)	'000t	-	121	2199269	-	111	2017511	-	76	1381359
Minor Minerals [@]		-	-	164882	-	-	228992	-	-	228992

Note : The number of mines for petroleum (crude), natural gas (utilised) and minor minerals is not available.

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