

STATE REVIEWS



Indian Minerals Yearbook 2018

(Part- I)

57th Edition

STATE REVIEWS
(West Bengal)

(FINAL RELEASE)

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WEST BENGAL

Mineral Resources

West Bengal is the principal holder of country's apatite resources. It is said to possess 57% apatite and 14% china clay resources of the country. Important minerals that occur in the State are: **apatite** in Purulia district; **coal** in Bardhaman, Bankura, Birbhum, Darjeeling, Jalpaiguri and Purulia districts; **china clay** in 24-Parganas, Bankura, Birbhum, Bardhaman, Hoogly, Midnapur and Purulia districts; and **fireclay** in Bankura, Birbhum, Bardhaman and Purulia districts.

Other minerals that occur in the State are **barytes, copper, gold, kyanite, pyrite** and

titanium minerals in Purulia district; **dolomite** in Jalpaiguri district; **felspar** in Bankura and Purulia districts; **granite** in Bankura, Birbhum and Purulia districts; **lead-zinc** in Darjeeling district; **limestone** in Bankura and Purulia districts; **manganese ore** and **sillimanite** in Midnapur district; **quartz/silica sand** in Bankura, Hoogly and Purulia districts; and **tungsten & vermiculite** in Bankura district (Table-1). Reserves/resources of coal and lignite along with details of coalfields/districts are provided in Table-2 & Table -3.

Exploration & Development

Exploration activities as reported by GSI during the year 2017-18 are provided in Table-4.

Table – 2 : Reserves/Resources of Coal as on 1.4.2018: West Bengal

(In million tonnes)

| Coalfield | Proved | Indicated | Inferred | Total |
|--------------|-----------------|-----------------|----------------|-----------------|
| Total | 14155.57 | 12868.81 | 4642.86 | 31667.24 |
| Raniganj | 13954.78 | 7125.31 | 3726.52 | 24806.61 |
| Barjora | 200.79 | - | - | 200.79 |
| Birbhum | - | 5743.50 | 901.34 | 6644.84 |
| Darjeeling | - | - | 15.00 | 15.00 |

Source: Coal Directory of India, 2017-18.

Table –3 : Reserves/Resources of Lignite as on 1.4.2018: West Bengal

(In million tonnes)

| District | Proved | Indicated | Inferred | Total |
|----------------------|----------|-------------|-------------|-------------|
| Total | - | 1.13 | 2.80 | 3.93 |
| Rakshitpur | - | 0.29 | 0.86 | 1.15 |
| Gourangapur- Bankati | - | - | 0.96 | 0.96 |
| Mahalla | - | 0.64 | - | 0.64 |
| Dhobbanpur | - | 0.20 | 0.78 | 0.98 |
| Djara | - | - | 0.20 | 0.20 |

Source: Coal Directory of India, 2017-18.

Table – 1 : Reserves/Resources of Minerals as on 1.4.2015: West Bengal

| Mineral | Unit | Reserves | | | | | Remaining Resources | | | | | Total resources (A+B) | |
|-----------------|-------------|-------------------|----------|--------|-----------------------|-----------------|---------------------|--------------------|---------------------|--------------------|--------------------------|-----------------------|--------------|
| | | Proved STD 111 | Probable | | Feasibility STD211 | Pre-feasibility | | Measured STD331 | Indicated STD332 | Inferred STD333 | Reconnaissance STD334 | | Total (B) |
| | | | STD121 | STD122 | | STD221 | STD222 | | | | | | |
| Apatite | tonne | - | - | - | 1385734 | 491818 | 1225345 | 120000 | 8845250 | 852605 | 666646 | 13587398 | 13587398 |
| Barytes# | tonne | - | - | - | - | - | - | - | 433000 | - | - | 433000 | 433000 |
| China clay# | '000 tonnes | 1476 | 727 | 754 | 3617 | 248 | 857 | 38 | 332236 | 79923 | 5793 | 422712 | 425669 |
| Copper | | | | | | | | | | | | | |
| Ore | '000 tonnes | - | - | - | - | - | - | - | 113 | - | - | 113 | 113 |
| Metal | '000 tonnes | - | - | - | - | - | - | - | 2.09 | - | - | 2.09 | 2.09 |
| Dolomite# | '000 tonnes | - | - | - | 12528 | - | 48000 | - | 73226 | 104275 | - | 238029 | 238029 |
| Feldspar# | tonne | 70906 | 54375 | 0 | 135639 | 200000 | - | 900000 | 3400000 | 201250 | - | 4836889 | 4962170 |
| Fire clay# | '000 tonnes | 981 | - | 377 | 201 | 580 | 1349 | - | 419 | 11114 | 958 | 14622 | 15981 |
| Gold | | | | | | | | | | | | | |
| Ore | tonne | - | - | - | - | - | - | - | - | - | - | 12833333 | 12833333 |
| (Primary) | | | | | | | | | | | | | |
| Metal | tonne | - | - | - | - | - | - | - | - | - | 0.65 | 0.65 | 0.65 |
| (Primary) | | | | | | | | | | | | | |
| Granite## | | | | | | | | | | | | | |
| (Dim. Stone) | '000 tonnes | 3658 | - | - | - | - | - | 19827 | 1140 | 8802 | - | 29769 | 33427 |
| Kyanite | tonne | - | - | - | - | - | - | - | - | 26520 | - | 26520 | 26520 |
| Lead-Zinc | | | | | | | | | | | | | |
| Ore | '000 tonnes | - | - | - | - | - | - | - | 3371 | 335 | - | 3706 | 3706 |
| Lead metal | '000 tonnes | - | - | - | - | - | - | - | 130.07 | 10 | - | 140.07 | 140.07 |
| Zinc metal | '000 tonnes | - | - | - | - | - | - | - | 130.42 | 13 | - | 143.42 | 143.42 |
| Limestone | '000 tonnes | - | - | - | - | - | - | 7104 | 15482 | 22120 | - | 44706 | 44706 |
| Manganese ore | '000 tonnes | - | - | - | - | - | - | - | - | 200 | - | 200 | 200 |
| Pyrite | '000 tonnes | - | - | - | - | - | - | - | - | 2500 | - | 2500 | 2500 |
| Quartzite# | '000 tonnes | - | - | - | 24 | - | 21 | - | - | 21 | - | 66 | 66 |
| Quartz- | | | | | | | | | | | | | |
| Silica sand# | '000 tonnes | 2853 | 400 | 939 | 310 | 151 | 229 | - | - | 4896 | - | 5586 | 9779 |
| Sillimanite | tonne | - | - | - | - | - | - | - | - | 1653000 | - | 1653000 | 1653000 |
| Tungsten | | | | | | | | | | | | | |
| Ore | tonne | - | - | - | - | - | 173063 | - | 190739 | 400000 | - | 763802 | 763802 |
| Contained | | | | | | | | | | | | | |
| WO ₃ | tonne | - | - | - | - | - | 450 | - | 80.84 | 1000 | - | 1530.84 | 1530.84 |
| Vermiculite | tonne | - | - | - | - | - | - | - | 490 | 5076 | - | 5566 | 5566 |

Figures rounded off.
Declared as Minor Mineral vide Gazette Notification dated 10.02.2015
Minor Mineral before Gazette Notification dated 10.02.2015

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Production

During the year 2017-18 production of coal, natural gas (ut.) and sulphur was reported from West Bengal.

The value of minor minerals' production was estimated at ` 146 crore for the year 2017-18.

Details are furnished in Table- 5.

Mineral-based Industry

The present status of each mineral-based industry is not readily available. However, important mineral-based industries located in the State with their total installed capacities are furnished in Table - 6.

Table – 4: Details of Exploration Activities in West Bengal, 2017-18

| Agency/ Mineral/ District | Location | Mapping | | Drilling | | Sampling (No.) | Remarks Reserves/Resources estimated |
|--|--|---------|-----------------|---------------------|----------|-------------------|---|
| | | Scale | Area (sq km) | No. of boreholes | Meterage | | |
| GSI | | | | | | | |
| Coal and Lignite Bardhaman | Rakshitpur, north block Raniganj Coalfield | 1:10000 | 4 | 4 | 2179.90 | - | General exploration for coal and lignite was carried out in this block. A total of four boreholes were drilled to a cumulative depth of 2,179.90 m. Raniganj Formation hosts four regional coal seam/ seam zones (R-IX, R-VIII, R-VII & R-Basal) with cumulative thickness ranging from 0.67 m to 5.10 m and these were intersected in the depth range of 298.65 m to 710.35 m. One lignite seam of 0.40 m thickness had been encountered at the depth of 194.10 m in borehole no. RRKN-3. A fossiliferous zone of 6.10 m thickness had been intersected at the depth of 50.60 m in borehole no. RRKN-3. Large-scale mapping of 4 sq.km on 1:10000 scale was also carried out. |
| Coal | | | | | | | |
| Birbhum Agaya block Dholkatha- Garia area | - - - | 5 | 2550.05 | - | - | - | A general exploration for Gondwana Coal under the cover of Rajmahal Formation was carried out in Agaya block within Dholkatha-Garia area, Rajmahal-Birbhum Coalfield, Birbhum district. A total of five boreholes were drilled to a total depth of 2,550.05 m. Regional Coal Seam Zone I and II have been encountered within the coal-bearing Barakar Formation in the depth range of 197.70 m to 462.11 m. A total of 147.32 m cumulative coal thickness have been intersected in five boreholes with thickest coal seam of 13.05 m. The maximum thickness of different formations reported in five boreholes are alluvium 9.20 m, Rajmahal Formation 192.80 m, Infratrapeans 24.78 m, Dubrajpur Formation 3.20 m, Barakar Formation |

Table-4 (Concl'd)

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| Agency/ Mineral/ District | Location | Mapping | | Drilling | | Sampling (No.) | Remarks Reserves/Resources estimated |
|--------------------------------------|--|---------|-----------------|---------------------|----------|-------------------|--|
| | | Scale | Area (sq km) | No. of boreholes | Meterage | | |
| | | | | | | | 325.79 m, Talchir Formation 13.50 m, Basement metamorphic ~ 6 m and intrusive dyke +54 m. |
| Gold and associated basemetal | | | | | | | |
| Purulia | Bara Urma-Puriara-Damda-Bamundiha area | 1:12500 | 100 | - | - | 246 | Reconnaissance Survey for gold and associated base metal mineralisation was carried out within granite gneiss and amphibolite of Chhotanagpur gneissic complex in and around Bara Urma-Puriara-Damda-Bamundiha area. Large-scale mapping of about 100 sq.km area on 1:12,500 scale was carried out along with the collection of 246 samples. Disseminated oxides and sulphides was noticed in the meta-basic rocks exposed near Kandoya. The quartz vein exposed near Rajapela also bears considerable sulphides and oxides. Sulphide minerals present are mainly represented by chalcopyrite, pyrite and arsenopyrite, whereas, oxides are magnetite and ilmenite. The analytical results of 08 nos. of BRS from amphibolites and calc-silicate rock show Au values ranging between 50 ppb and 58 ppb. The Au values of 4 soil samples collected from smoky quartz vein and amphibolite ranges between 50 ppb and 70 ppb. Out of 16 nos. of unit cell samples 7 nos. of samples, from unit cell 111 and 112, show Au value ranging from 50 ppb to 65 ppb. |

Table – 5 : Mineral Production in West Bengal, 2015-16 to 2017-18 (Excluding Atomic Minerals)

| Mineral | Unit | 2015-16 | | | 2016-17 | | | 2017-18 (P) | | |
|-----------------------------|--------|--------------|-------|---------------------|--------------|-------|---------------------|--------------|-------|-----------------------|
| | | No. of mines | Qty | Value ^{\$} | No. of mines | Qty | Value ^{\$} | No. of mines | Qty | Value ^{\$\$} |
| All Minerals | | 1 | | 1455113 | 1 | | 1455113 | 1 | | 1455113 |
| Coal | '000 t | - | 25751 | - | - | 27667 | - | - | 29241 | - |
| Natural Gas (ut.) | m cu m | - | 392 | - | - | 564 | - | - | 735 | - |
| Apatite | t | 1 | - | - | 1 | - | - | 1 | - | - |
| Sulphur [#] | t | - | 46343 | - | - | 38580 | - | - | 40653 | - |
| Minor Minerals [@] | | - | - | 1455113 | - | - | 1455113 | - | - | 1455113 |

Note : The number of mines excludes fuel minerals and minor minerals.

\$ Excludes the value of petroleum (crude) & natural gas (ut.).

\$\$ Excluding fuel minerals. + Coal-bed Methane, Includes Jharkhand and Madhya Pradesh.

#Recovered as by-product from oil refinery.

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

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Table – 6 : Principal Mineral-based Industries in West Bengal

| Industry/plant | Capacity ('000 tpy) |
|--|---|
| Asbestos Products | |
| Everest Building Products Ltd, Kolkata. | NA |
| Ramco Industries Ltd, Haratara, Distt Paschim Medinipur. | NA |
| UAL Industries Ltd, Tungadhowa, Distt Paschim Medinipur. | 150 |
| Abrasives | |
| Carborandum Universal Ltd, Gopalpur. | NA |
| K.L.Thirani & Co. Ltd, Kolkata. | NA |
| Cement | |
| ACC Ltd (Damodar Cement), Purulia (G). | 750 |
| Ambuja Cement Ltd, Sankrail, Distt Howrah (G). | 2400 |
| Ambuja Cement Ltd, Farakka, Distt Murshidabad (G). | 1250 |
| Birla Corporation Ltd (Durgapur Cement Works & Durga Hitech Cement), Durgapur (G). | 2300 |
| Burnpur Cement, Asansol, Distt Burdwan (G). | 300 |
| Century Textiles, Sonar Bangala Grinding Unit, Distt Murshidabad | 1500 |
| Lafarge Cement Pvt Ltd, Mejia (G). | 1500 |
| Ramco Cement (formerly Madras Cement), Kolaghat, Distt Purba Medinipur (G). | 950 |
| Swasata Cement Ltd, Purulia. | 1500 |
| Ultra-Tech Cement Works, Hoogly, West Bengal | 1600 |
| Ceramics | |
| WBCDC Ltd, Kolkata. | 0.18 |
| Chemical | |
| Hindustan Heavy Chemicals Ltd, Khardah, Distt 24-Parganas. | 14.8 (caustic soda) 6 (Cl), 9.8 (HCl) 4.5 (ferric alum) 18.7 (H ₂ SO ₄) |
| Electrodes | |
| Graphite India Ltd, Kolkata. | NA |
| Fertilizer | |
| Tata Chemicals Ltd, Haldia. | 675 (DAP) |
| Tata Chemicals Ltd (Phosphatic Division), Haldia, Medinipur. | 160 (SSP) |
| Teesta Agro Industries Ltd, Rajganj, Jalpaiguri. | 165 (SSP) |

Table - 6 (Contd)

| Industry/plant | Capacity ('000 tpy) |
|--|---|
| Jay Shree Chemicals & Fertilizers, Khardah, 24 Parganas. | 132 (SSP) 62.70 (H ₂ SO ₄) |
| The Phosphate Company Ltd, Rishra, Hoogly. | 112.8 (SSP) |
| Sai Fertilizers Pvt. Ltd, Dewanmara, Paschim Medinipur. | 132 (SSP) |
| Glass | |
| Hindustan National Glass & Industries Ltd, Rishra. | 680 TPD |
| Iron & Steel | |
| Durgapur Steel Plant, SAIL, Durgapur. | 3009 (sinter) 2088 (pig iron) 1800 (crude/liquid steel) |
| IISCO Steel Plant, SAIL, Burnpur, Distt Bardhaman. | 550 (pig iron) 2500 (crude/liquid steel) 3800 (sinter) |
| Alloy Steel Plant, SAIL, Durgapur. | 264 (crude/liquid steel) |
| Rohit Ferrotech Ltd, Bishnupur. | 100 (stainless steel) 71.4 (ferro alloys) |
| Rashmi Metaliks Ltd, Gokulpur, Paschim Medinipur | 1800 (pellets) 580 (sinter) |
| Pig Iron | |
| Electrosteel Castings Ltd, Khardah. | 400 |
| Kajaria Iron Castings Ltd, Durgapur. | 110 326 (sinter) |
| Tata Metaliks Ltd, Kharagpur. | 345 528 (sinter) |
| Sponge Iron | |
| Adhunik Corporation Ltd, Angadpur, Durgapur. | 60 |
| Aryavrata Steel Pvt. Ltd, Lohamelya Distt Paschim Medinipur. | 36 |
| Howrah Gasses Ltd, Raniganj, Distt Bardhaman. | 60 |
| Jai Balaji Sponge Ltd, Raniganj, Distt Bardhaman. | 105 |
| Rashmi Ispat (Pvt) Ltd, Jhargram Distt Paschim Medinipur. | 150 |
| Shyam Sel Ltd, Dewabdighi, Burdwan. | 100 |
| Sunil Sponge Iron Ltd, Kolkata. | 115 |
| Ferro-alloys | |
| Kartik Alloys Ltd, Durgapur. | 10.7 |
| Bhaskar Shraci Alloys Ltd, Durgapur. | 40 |
| Corporate Ispat Alloys Ltd (Abhijit Group), Durgapur. | 74 |
| Dimension Steel and Alloys Pvt Ltd, Bakura. | 38 |

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Table - 6 (Contd)

| Industry/plant | Capacity ('000 tpy) |
|---|---------------------|
| Jai Balaji Industries Ltd, Durgapur (JBIL Group). | 106 |
| Maithan Alloys Ltd, Bardhaman. | 49 MVA |
| Modern India Con-Cast Ltd, Bishnupur, Distt Bankura. | 75 |
| Modern India Cone-Cost Ltd, Haldia. | 100 |
| Rohit Ferro-Tech Ltd, Haldia. | 100.6 |
| Shyam Ferro Alloys Ltd, Burdwan. | 100 (50 MVA) |
| Shyam Ferro Alloys Ltd, Durgapur. | 100 (50 MVA) |
| Shri Vasavi Industries Ltd, Bishnupur, Distt Bankura. | 45 |
| Srinivasa Ferro Alloys Ltd, Durgapur, Distt Bardhaman. | 84.2 |
| Shri Goyatri Minerals Pvt. Ltd, Bishnupur, Distt Bankura. | 24 |
| Refractory Alcoa-ACC Industrial Chemicals Ltd, Kalatalahat. | 10 |

(Contd)

Table - 6 (Concl'd)

| Industry/plant | Capacity ('000 tpy) |
|---|---------------------|
| Barakar Refractories (P) Ltd, Barakar, Distt Bardhaman. | 3.6 |
| Kero Rajendra Monolithics Ltd, Banjora. | NA |
| Saswat International Ltd, Kulti, Distt Bardhaman. | NA |
| Vesuvius India Ltd, Kolkata. | 96.5 |
| Coke Oven Batteries IISCO Burnpur Works, Burnpur, Distt Bardhaman. | 1084 |
| Petroleum Refinery IOCL, Haldia. | 7500 |
| TiO₂ Pigment Kolmak Chemicals Ltd, Kalyani, Distt Nadia. | 4.8 |

*(G): Grinding units.**Note: Data, not readily available for fertilizer and cement Industries on respective websites, is taken from Indian Fertilizer Scenario, 2015/FAI Statistics, 2015-16 and Survey of Cement Industry & Directory, 2016 respectively.*