

Bauxite

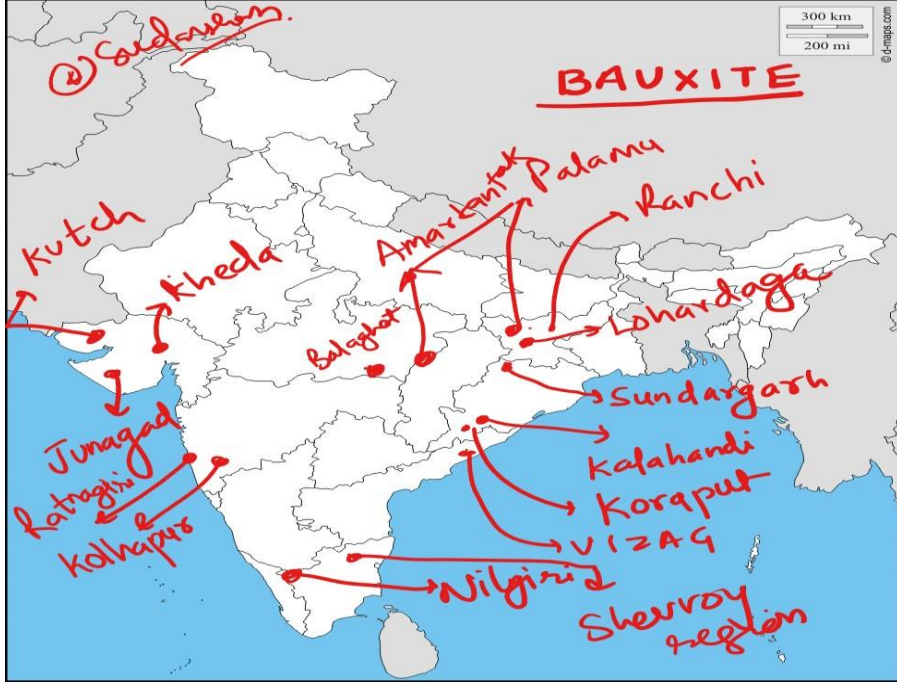


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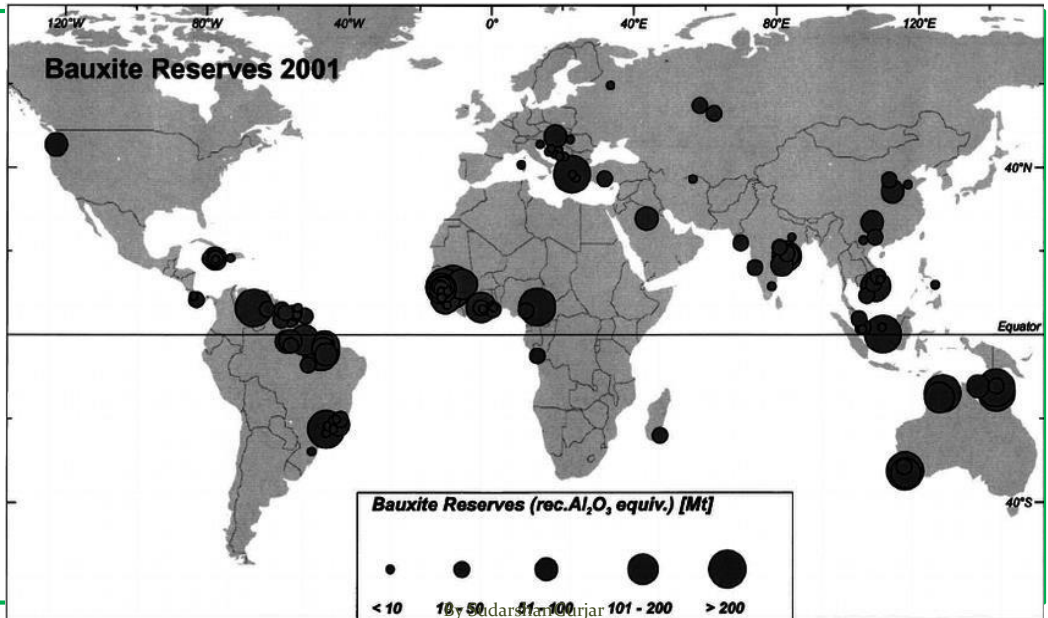
Bauxite ore is the primary source of aluminium. The ore is chemically processed to produce aluminium oxide.

Odisha	<ul style="list-style-type: none">• Largest bauxite producing state.• Major mines: Koraput, Kalahandi districts.• Others: Sundargarh, Sambalpur districts.• The deposits extend further into the state of Andhra Pradesh.
Chhattisgarh	<ul style="list-style-type: none">• Second largest producer.• Maikala range in Bilaspur, Durg districts and the Amarkantak plateau regions of Surguja, and Bilaspur are some of the areas having rich deposits of bauxite.
Maharashtra	<ul style="list-style-type: none">• Third largest producer.• Largest deposits occur in Kolhapur district.• Kolhapur district contain rich deposits with alumina content 52 to 89 per cent.• Other districts: Ratnagiri, Thane, Satara and Pune.

Jharkhand	<ul style="list-style-type: none"> • Ranchi, Lohardaga, Palamu districts. • High grade ore occurs in Lohardaga.
Gujarat	<ul style="list-style-type: none"> • The most important deposits occur in a belt lying between the Gulf of Kachchh and the Arabian sea through Jamnagar, Bhavnagar, Junagadh and Amreli districts.
Madhya Pradesh	<ul style="list-style-type: none"> • Amarkantak plateau area, the Maikala range in Shandol, Mandla and Balaghat districts and the Katni area of Jabalpur district are the main producers.
Tamil Nadu	<ul style="list-style-type: none"> • Nilgiri and Salem are the main bauxite producing districts.



Bauxite Reserves in India		Bauxite Production in India		
State	% share	State	Production (MT) 2017-18	
1. Odisha	51%	1. Odisha	7.8	52%
2. Andhra Pradesh	16%	2. Jharkhand	2.1	14%
3. Gujarat	9%	3. Chhattisgarh	2	13.3%
4. Jharkhand	6%	4. Gujarat	1.6	10.7%
Total	3.9 BT	Total	15 MT	



World's Bauxite Reserves

Country	Reserves (BT)
1.Guinea	7.4
2.Australia	6
3.Vietnam	3.7
4.Brazil	2.6
Total	~ 30 BT

World's Bauxite Production

Country	Production (MT)
1.Australia	89
2.China	65
3.Guinea	47
4.Brazil	38
5.India	15

Copper

- Copper is one of the few metals that **occurs in nature in directly** usable metallic form (native metals). Copper is a malleable and ductile metal with very high thermal and **electrical conductivity**.

Copper ore reserves in India				
State	Ore Reserves (MT)		Metal Reserves (MT)	Major districts with ore reserves
1. Rajasthan	813	54%	4.5	Jhunjhunu (Khetri-Singhana)
2. Jharkhand	295	19.5%	3.2	Singhbhum
3. Madhya Pradesh	283	18.8%	3.4	Balaghat (Malanjkhand copper mines)
Total	1.51 BT		12.1 MT	
Copper Ore and Coper Metal production in India in 2017-18				
State		Copper Ore Production (MT)		Copper Metal Production (TT)
Madhya Pradesh		2.3		20
Rajasthan		1.1		11.2
Jharkhand		0.18		1.5
Total		3.68 MT		33 TT



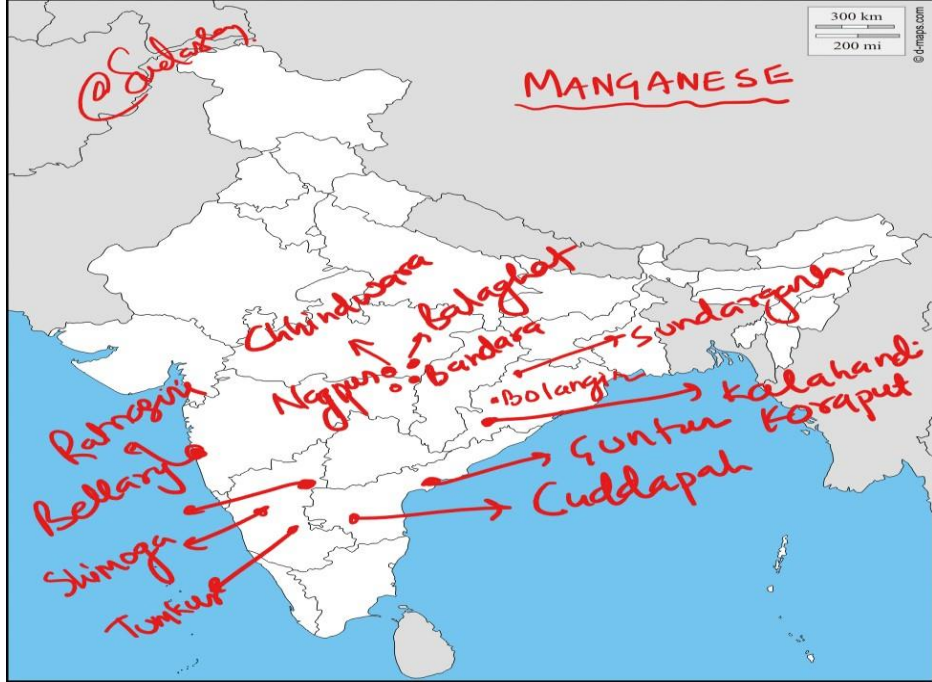
Escondida Mine -Chile

World's Copper Reserves in MT		World's Copper Production in MT	
Country	Reserves	Country	2017
1. Chile	170	Chile	5.5
2. Australia	88	Peru	2.4
3. Peru	83	China	1.7
World Total	830 MT	USA	1.3

Manganese

- Manganese is very hard and brittle in nature.
- It is always available in combination with iron, laterite and other minerals.
- Manganese is added to steel to increase its strength.

India's Manganese Ore Reserves as of 2015 have been placed at 496 MT		India's Manganese Ore Production 2017-18 in TT	
State	% Share	State	Production
Odisha	44%	Madhya Pradesh	831
Karnataka	22%	Maharashtra	731
Madhya Pradesh	12%	Odisha	517
Maharashtra	7%	Karnataka	294
Goa	7%	Andhra Pradesh	167
Andhra Pradesh	4%	Total	2.6 MT



Madhya Pradesh (**Balaghat & Chhindwara** districts),
Maharashtra (**Bhandara & Nagpur** districts),
Gujarat (Panchmahal district)
Odisha (**Sundargarh district, Kalahandi, Koraput**)
Andhra Pradesh (**Srikakulam** district).

World's Manganese Ore Reserves in MT		World's Manganese Ore Production in MT	
Country	Reserves	Country	Production
South Africa	230	South Africa	13.8
Ukraine	140	China	12.5
Brazil	110	Australia	6
Australia	99	Gabon	4
India	33	Ghana	3
World Total	760 MT	India	2.5

Gold

Karnataka	<ul style="list-style-type: none"> • Gold mines are located in Kolar (Kolar Gold Field), Dharwad, Hassan and Raichur (Hutti Gold Field) districts. • Kolar Gold Fields is one of the deepest mines of the world. (Usually, gold mines are the deepest mines in the world. Mponeng Gold Mine in South Africa is one of the deepest mine in the world (3.9 km deep))
Jharkhand	<ul style="list-style-type: none"> • Sands of the Subarnarekha (gold streak) river have some alluvial gold.
Andhra Pradesh	<ul style="list-style-type: none"> • Ramagiri in Anantapur district is the most important gold field in AP

World's Gold Reserves (in MT)		World's Production of Gold in 2017 (in TT)		
Country	Reserves	Country	Production	
Australia	9.8	China	426	13%
South Africa	6	Australia	294	9%
Russia	5.3	Russia	270	8%
USA	3	USA	237	7%
Peru	2.6	Canada	176	5%
Indonesia	2.5	Peru	151	5%
Brazil	2.4	Ghana	137	4%
Canada	2	South Africa	137	4%
China	2	Mexico	127	4%
World Total	54 MT	World Total	3.3 MT	

Major gold mines

- The Muruntau mine, Uzbekistan
- Kalgoorlie Gold Mine, Western Australia.
- Boddington Gold Mine, Western Australia.
- Grasberg mine, Indonesia.

Lead, Zinc, Silver

- Lead is a **corrosion-resistant, ductile** (can be drawn out into a thin wire) and **malleable** (can be hammered into shape without breaking) blue-grey metal. It is a **bad conductor**.
- World-wide largest single use of lead today is in the manufacture of batteries.
- Other major uses of lead are in the manufacture of storage batteries, paints.

World's Lead Reserves (in MT)		World's Lead Production (in thousand tons)		World's Zinc Reserves (in MT)		World's Zinc Production (in thousand tons)	
Country	Reserves	Country	Year 2017	Country	Reserves	Country	Year 2017
Australia	24	China	2300	Australia	64	1.China	4300
China	18	Australia	459	China	44	2.Peru	1473
Russia	6.4	Peru	307	Peru	21	3.Australia	841
World Total	83 MT			World	230 MT	4. India	784

State	Reserves (MT)		Major Mines in Rajasthan
Rajasthan	670	89%	<ul style="list-style-type: none"> Bhilwara district Ajmer district Rajsamand district Zawar group of mines (Udaipur district),
Andhra Pradesh	22.7	3%	
Madhya Pradesh	14.8	2%	
Bihar	11.4	1.5%	
Maharashtra	9.3	1.24%	

- Almost the entire production of zinc and lead comes from **Rajasthan**.

World's Silver Reserves (in TT)		World's Production of Silver in 2017 (in TT)	
Country	Reserves	Country	Production
Peru	110	3.Mexico	5.8
Poland	110	2.Peru	4.3
Australia	89	3'China	3.5
World Total	560	India	0.5 TT

Chromite

- More than 96% resources of chromite are located in **Odisha** (**Jajpur, Kendujhar and Dhenkanal** districts).
- Minor deposits are scattered over **Manipur, Nagaland, Karnataka**, etc.

World's Chromium Metal Reserves in MT		World's Chromite Production in MT	
Country	Reserves	Country	2017
1. Kazakhstan	230	1. South Africa	16.5
2. South Africa	200	2. Turkey	6.6
3. India	100	3. Kazakhstan	6.3
World Total	560	4. India	3.4

Mica

- Mica is a naturally occurring non-metallic mineral that is based on a collection of **silicates**.
- Mica is a very good insulator that has a wide range of applications in electrical and electronics industry.

Total resources of Mica in India in MT

State	Reserves
Andhra Pradesh	41%
Rajasthan	21%
Odisha	20%
Maharashtra	15%
Total	110 TT



Asbestos

It is widely used for making **fire-proof** cloth, rope, etc

- **Rajasthan (59% – Ajmer, Udaipur, Bhilwara) and Karnataka (36% – Chikkamagaluru, Hassan,)** have the highest reserves.
- **Russia**, China, and Brazil have 99% of the asbestos reserves.

Limestone

Limestone is sedimentary rock composed mainly of **calcium carbonate** (CaCO_3). The most important constituents of limestone are **calcite**, **magnesite (magnesium carbonate)** and **dolomite (calcium magnesium carbonate)**.

India’s Limestone Reserves			India’s Production of Limestone (2017-18) in MT			
State	Reserves		State	Production		Regions
Karnataka		27%	Rajasthan	75	22%	Almost all districts
Andhra Pradesh		12%	Madhya Pradesh	44	13%	Jabalpur, Satna, Betul
Rajasthan		12%	Andhra Pradesh	37	11%	Kurnool, Guntur
Gujarat		10%	Chhattisgarh	37	11%	Bastar, Durg, Raipur
Meghalaya		9%	Karnataka	31	9%	Kalburgi, Shimoga

China – largest producer

Dolomite

Limestone with more than 10 per cent of magnesium is called dolomite.

State	Reserves	Production	Major Districts
Madhya Pradesh	27%	Orissa (29%)	Sundargarh, Sambalpur and Koraput districts
Andhra Pradesh	15%	Chhattisgarh (28%)	Bastar, Bilaspur, Durg and Raigarh districts
Chhattisgarh	11%	Jharkhand	Singhbhum district and Palamu district
Odisha	10%	Rajasthan	Ajmer, Alwar, Bhilwara, Jaipur, Jaisalmer district
Total	8.4 BT	Karnataka	Belgaum, Bijapur districts

- **Rajasthan** is by far the largest producer of gypsum in India (99 per cent of the total production of India).
- The main deposits occur in Jodhpur, Nagaur and Bikaner.

Uranium

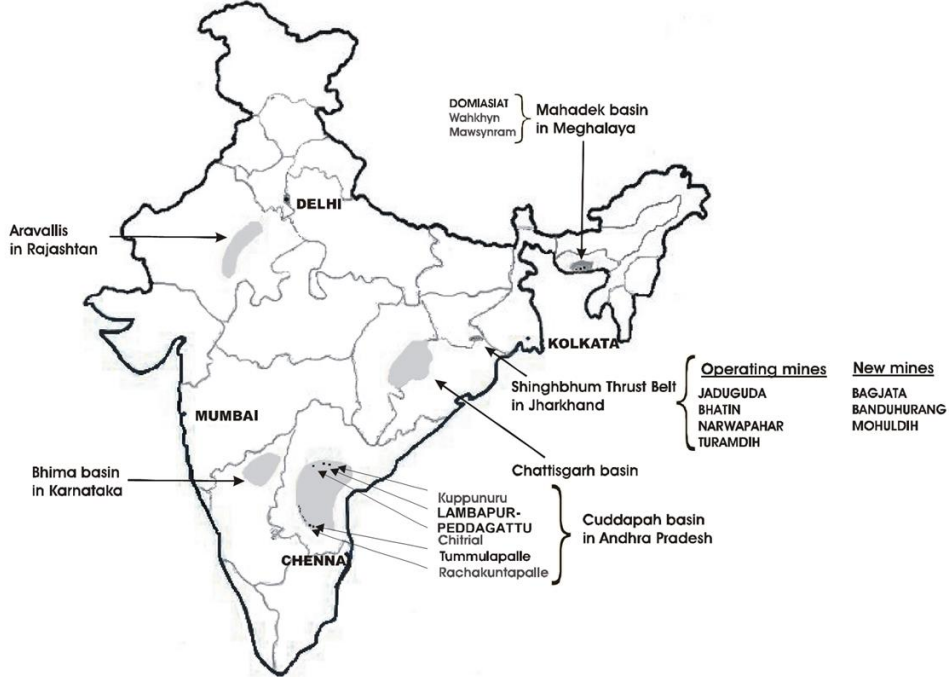
Uranium is a silvery-grey metallic radioactive chemical element.

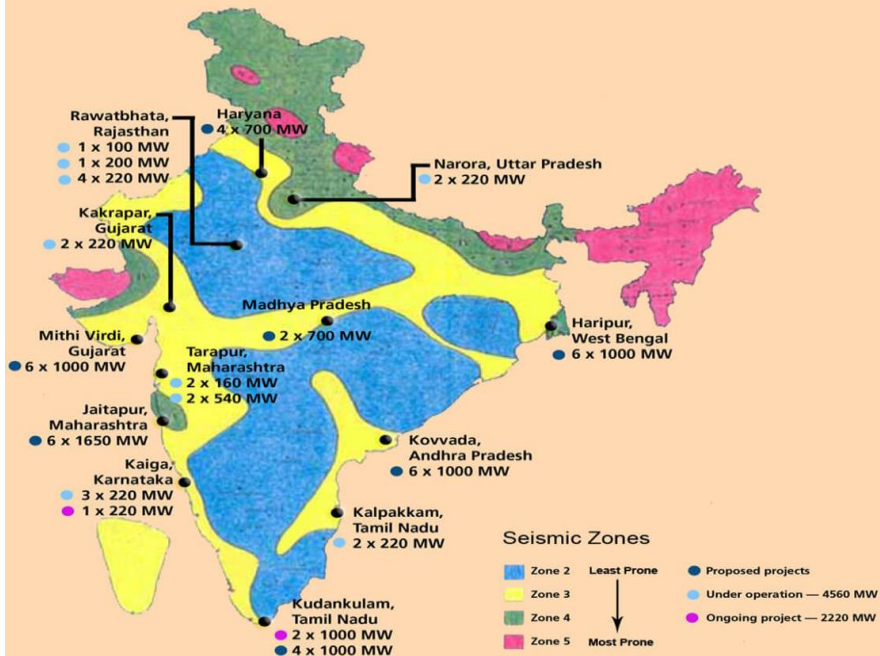
World's Uranium (U) Reserves (TT)			World's Uranium (U) Production (TT) in 2017		
Country	Reserves as of 2015		Country/Region	Production	
Australia	1780	23%	Kazakhstan	23.3	39.2%
Kazakhstan	941	12%	Canada	13.1	22.1%
Canada	703	9%	Australia	5.8	9.9%
Namibia	463	6%	Namibia	4.2	7.1%
India	139	2%	India	0.4	0.7%
Total	7641 TT		World	59 TT	

- Olympic Dam and the Ranger mine in Southern Australia are important mines in Australia

Uranium deposits occur in **Jaduguda in Singhbhum Thrust Belt** and **Hazaribagh districts of Jharkhand, Gaya district of Bihar, Cuddapah basin of Andhra Pradesh, Aravallis, & Mahadek basin of Meghalaya**

- The state of **Andhra Pradesh** is the largest producer of uranium in India.
- Tummalapalle village located in the **Kadapa (Cuddapah) district of Andhra Pradesh** is considered as one of the largest uranium reserves in India.





Thorium

- Monazite contains 2.5% thorium and is scattered along the Kerala Coast.

World's Thorium Reserves (2011)		India's Thorium Reserves (2016)	
Country	Reserves in TT	State	Reserves
India	963	Andhra Pradesh	31%
United States	440	Tamil Nadu	21%
Australia	300	Odisha	20%
Canada	100	Kerala	16%
South Africa	35	West Bengal	10%

