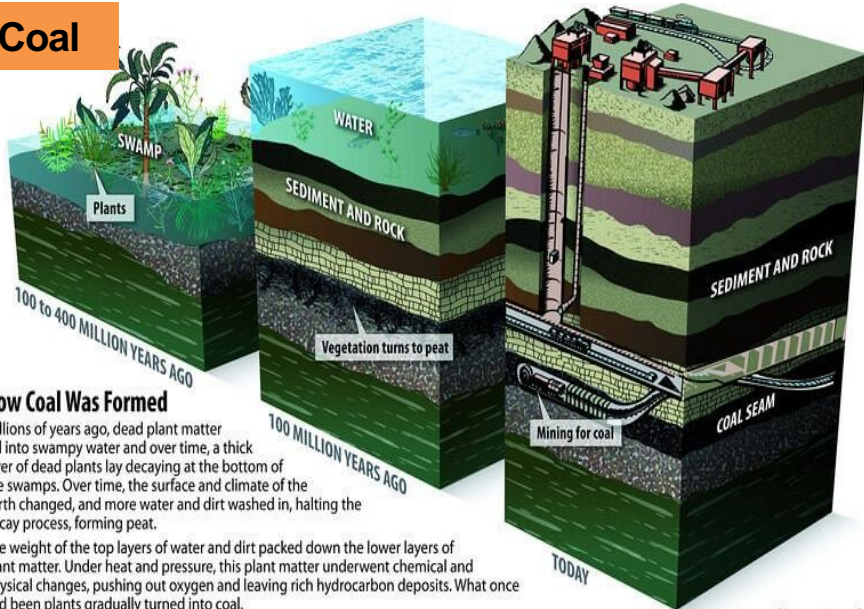


Coal Regions World+ India

By Sudarshan Gurjar

1. Formation of Coal



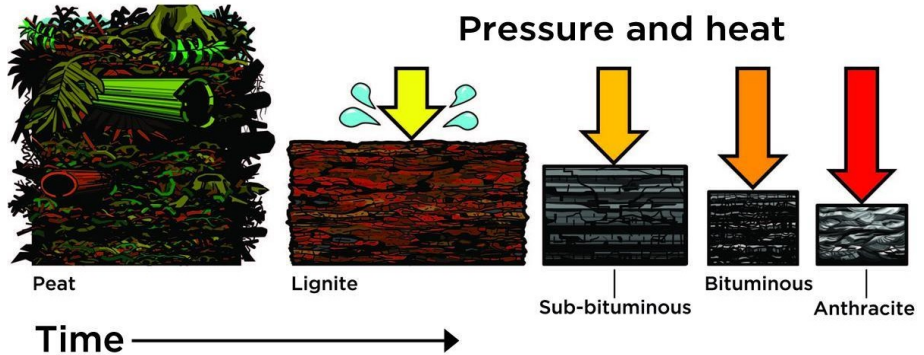
How Coal Was Formed

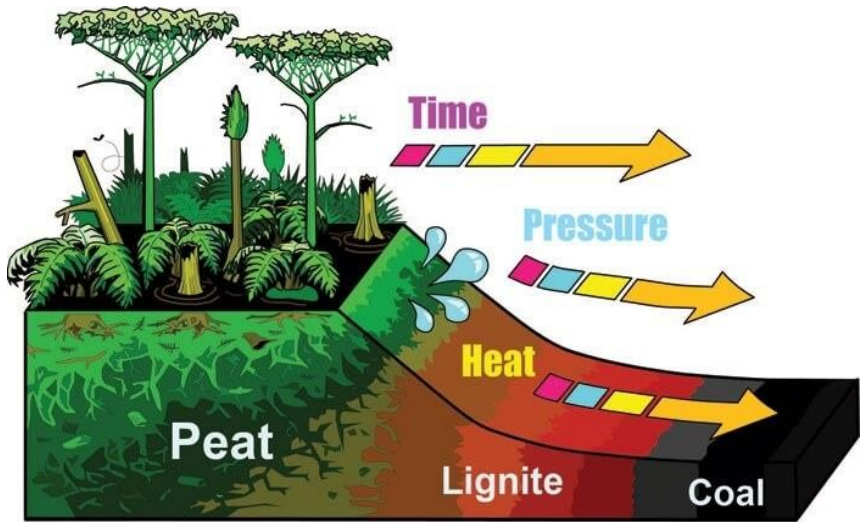
Millions of years ago, dead plant matter fell into swampy water and over time, a thick layer of dead plants lay decaying at the bottom of the swamps. Over time, the surface and climate of the Earth changed, and more water and dirt washed in, halting the decay process, forming peat.

The weight of the top layers of water and dirt packed down the lower layers of plant matter. Under heat and pressure, this plant matter underwent chemical and physical changes, pushing out oxygen and leaving rich hydrocarbon deposits. What once had been plants gradually turned into coal.

Coal can be found deep underground (as shown in this graphic), or it can be found near the surface.

Note: not to scale





- **Stages of coal formation**

Stages of Coal Formation *(compression and carbonization)*



1st Stage:
Peat
(decay of
vegetative material)

2nd Stage:
Lignite
(compressed peat)

3rd Stage:
Bituminous Coal
(compressed lignite)

4th Stage:
Anthracite Coal
(considered by some
to be a type of
metamorphic rock)

1. Classification of coal

- **Coals are classified into** peat, lignite, bituminous coal, and anthracite.



Peat –

Contains less than 40 to 55 per cent carbon (has more impurities).

- **Contains sufficient volatile matter and** lots of moisture (**gives out a lot of smoke when burnt → pollution**).
- **Left to itself, it burns like** wood, **gives less heat**, emits more smoke **and** leaves a lot of ash.



2.Lignite (brown coal)

- **Contains** 40 to 55 per cent carbon.
- **Moisture content is high (over 35 per cent).**
- **It undergoes** spontaneous combustion **(this is undesirable because it creates fire accidents in mines).**
- **Distribution: Rajasthan, Lakhimpur (Assam), and Tamil Nadu.**



3.Bituminous Coal (black coal)

Bituminous Coal is soft, dense, compact coal with 40 to 80 per cent carbon.

Bituminous Coal is the most widely available and used coal.

- **Distribution: Jharkhand, Odisha, West Bengal, Chhattisgarh and Madhya Pradesh.**

- Anthracite Coal

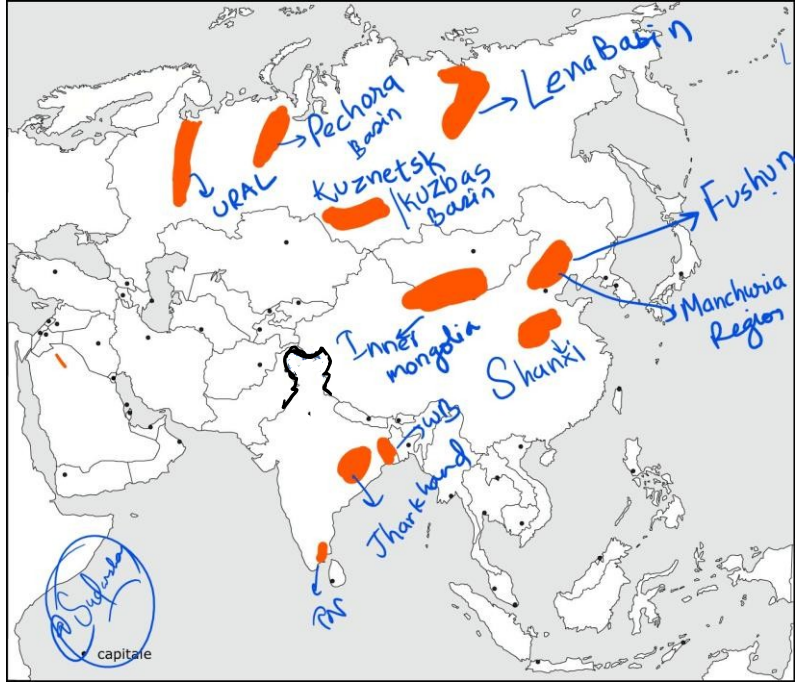
- Anthracite coal is the best quality, hard coal with 80 to 95 per cent carbon.
- It ignites slowly and hence there is less loss of heat (highly efficient).
- In India, it is found only in Jammu and Kashmir in small quantity.



Coal - Africa



Coal - Asia



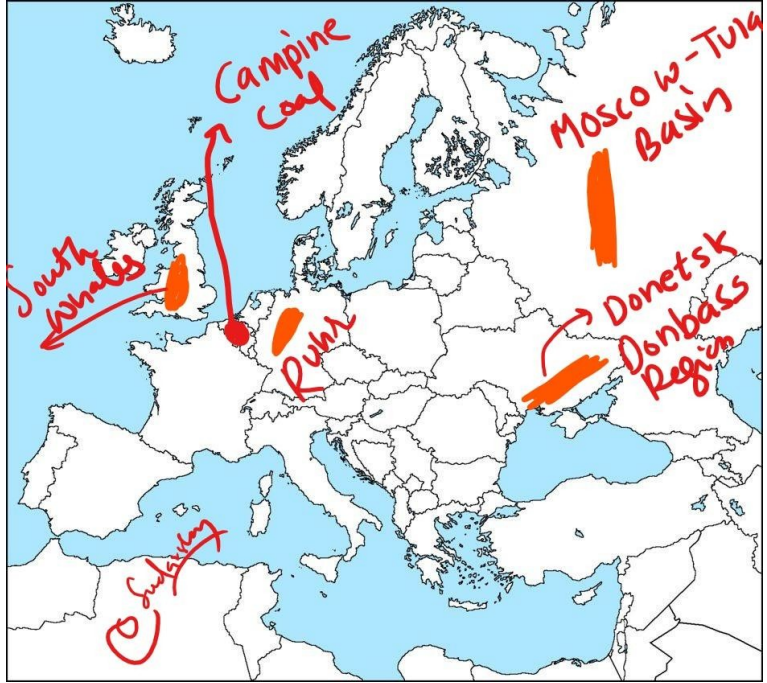
Coal - Australia



Coal – South America

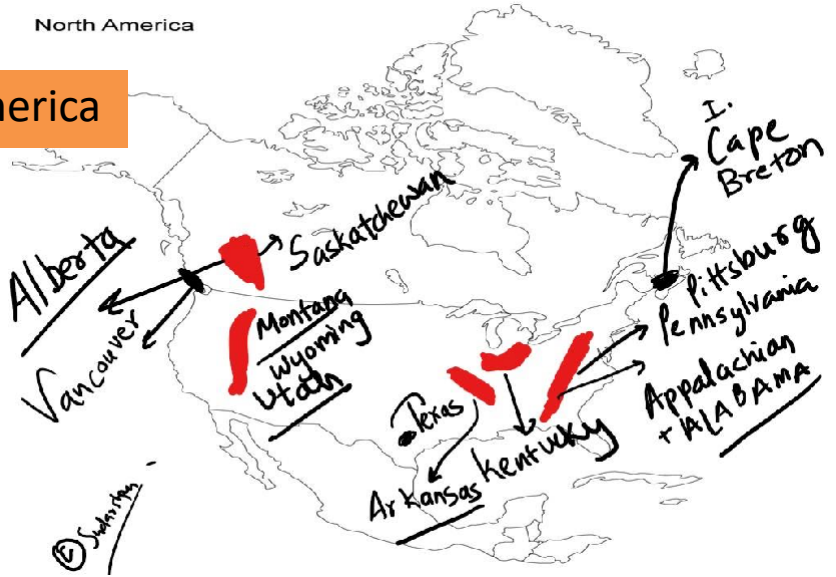


Coal – Europe



North America

Coal – North America



Distribution of Coal across the World

USA

- Appalachian Mountains have enormous coal deposits.
- Carboniferous coal of Great Lakes and Appalachians region helped USA become a leading industrialized nation.
- The North Antelope Rochelle Coal Mine located in the Powder River Basin of Wyoming is the world's biggest coal mine.

China

- China is the largest producer and consumer of coal in the world.
- China's coal is of poor quality. It imports metallurgical grade coal from Australia.

Russia

- Ural region and the Donbass Basin are important mining regions.
- Most of the Russia's coal in Siberian Region is untapped.

Distribution of Coal across the World

Europe

- Coal reserves in Ruhr and Rhineland region coupled with rich iron deposits have made Germany a leading industrial superpower of Europe.
- England too benefited immensely from its coal reserves of South Wales, Yorkshire, Manchester, Liverpool etc. Industrial revolution began here mainly due to rich coal reserves.

Brazil

- Brazil is a leading coal producer in South America.

Australia

- Australia is a leading producer of coal. Most of its coal is exported to China, Japan etc.
- Australia has rich coking coal deposits. India imports coking coal mainly from Australia.

Africa

- South Africa is the only region in Africa with significant amount of coal reserves.

- **Global Coal Reserves**

- **Total proved recoverable reserves of coal are about 1.14 trillion tons.**

1. **United States – 22%**

2. **Russia – 16%**

3. **Australia – 14%**

4. **China – 13%**

5. **India – 9%**

Top coal producers in the world

Country	
1. China	
2. USA	
3. India (Bituminous + Lignite)	
4. Australia (Bituminous & Brown coal)	
5. Indonesia (Anthracite & Bituminous)	
6. Russia	
7. South Africa (Anthracite & Bituminous)	

1. Distribution of Coal in India

State-wise coal reserves in India			State-wise raw coal production in India		
State	Reserves (billion tons)		State	2016-17	2017-18
1. Jharkhand	80.71	26.8 %	1. Odisha	139	143
2. Odisha	75.07	24.9 %	2. Chhattisgarh	128	132
3. Chhattisgarh	52.53	17.4 %	3. Jharkhand	118	112
4. West Bengal	31.31	10.4 %	4. Madhya Pradesh	85	91
5. Madhya Pradesh	25.67	8.5 %	5. Maharashtra	40	41
6. Telangana & AP	22.48	7.5 %	6. West Bengal	25	26
7. Maharashtra	10.98	3.6 %	7. Uttar Pradesh	16	18

Jharkhand

- Jharia coal field - SW of Dhanbaad
- Jayanti - Dhanbad
- Bokaro coal field Hazaribagh
- Girdih Coal fields also known as Karharbari.
- Karanpura & Ramgarh Coal Fields - West of Bokaro.
- Auranga Coal Fields - Palamu
- Hutar Coal Field Palamu
- Daltengunj Coal Fields
- Devgarh Coal Fields Dumka

JHARKHAND



By Sudarshan Gurjar

Madhya Pradesh

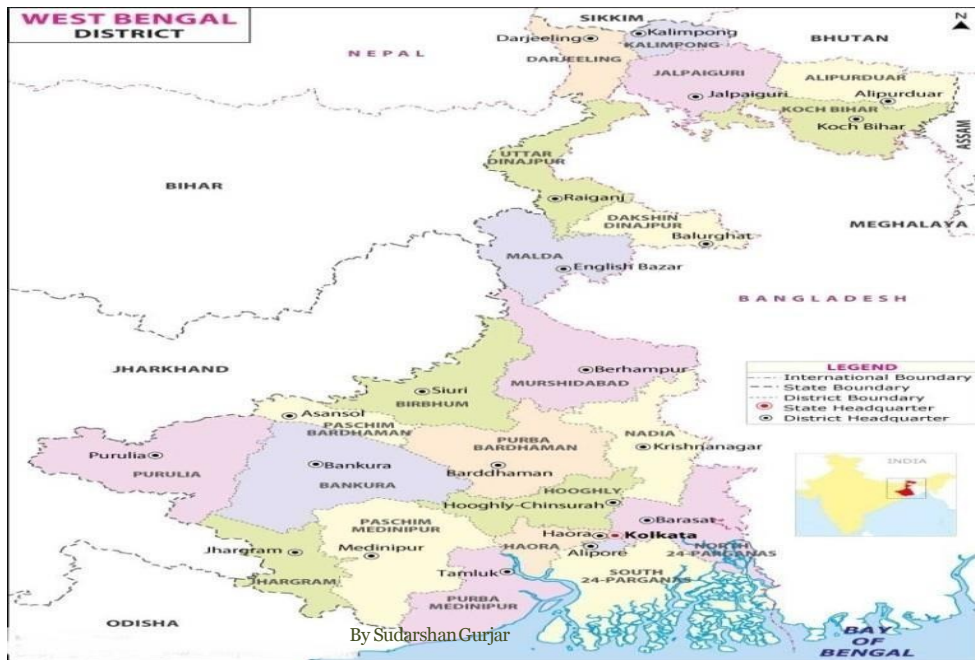
- Singrauli (Waidhian) coalfield Sidhi and Shandol districts
- Pench-Kanhan-Tawa Chhindwara district
- Sohagpur coalfield Shandol district
- Umaria coalfield



By Sudarshan Gurjar

West Bengal

- Darjeeling and Jalpaiguri are the chief producing districts.
- **RANIGANJ** is the largest coalfield of West Bengal.
- Raniganj Coal Fields Bardhaman, Bankura and Purulia districts



Odisha

- Talcher field Talcher in Angul ,Dhenkanal and Sambalpur districts
- Rampur-Himgir coalfields Sambalpur and Sundargarh
- Ib river coalfield Sambalpur and Jharsuguda district

ODISHA MAP

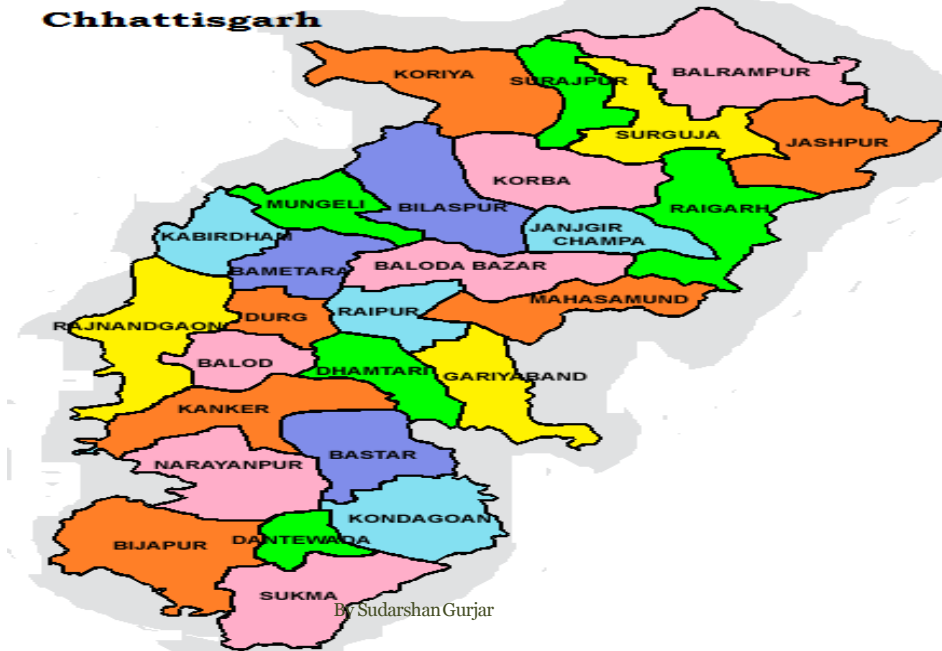


By Sudarshan Gurjar

Chhattisgarh

- Korba coalfield Korba district.
- Birampur coalfield Surguja district.
- Hasdo-Arand coalfield Surguja district
- Chirmiri coalfield Surguja district
- Lakhanpur coalfield Surguja district
- Jhilmili coalfield Koriya district
- Johilla coalfield Johilla valley
- Sonhat coalfield Surguja district
- Tatapani-Ramkota coalfields Surguja district

Chhattisgarh



By Sudarshan Gurjar

➤ Lignite in Tamil Nadu

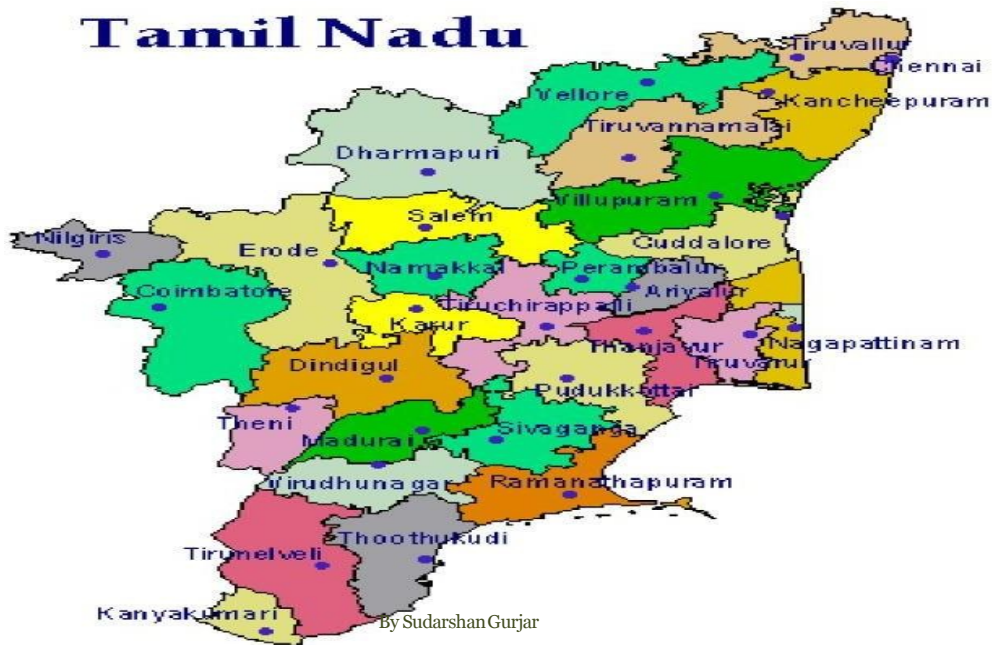
90 per cent of the reserves.

57 per cent of the production

Neyveli Lignite fields of Cuddalore district.

These are the largest deposits of lignite in south - east Asia

Tamil Nadu



By Sudarshan Gurjar

Assam

- Makum coalfield in Tinsukia district is the most developed field.
- Upper Assam Coal belt extends eastwards as Namchik-Namrup coalfield (Arunachal Pradesh).



