



Coal Mines in India Under-Utilised: GEM Report

For Prelims: Coal Mines, Coal Crisis, Types of coal, Net Zero Emissions, Clean Energy

For Mains: Findings of GEM Report on Coal Utilization and its Impact

Why in News?

According to Global Energy Monitor (GEM) Report, India's [Coal Mines](#) are severely under-utilized amid push for new ones.

- GEM is a firm that tracks fuel-source utilization globally. It studies the evolving international energy landscape, creating databases, reports, and interactive tools that enhance understanding.

What is the Background?

- In 2021, India experienced [severe coal crises](#) with more than **100 of 285 thermal power plants seeing coal stocks fall below the critical mark** of 25% of the required stock, leading to power shortages in several States, including **Andhra Pradesh, Jharkhand, Uttarakhand and Madhya Pradesh**.
- The recently released Global Energy Monitor (GEM) report analyzed annual reports from Coal India, the world's largest coal producer, and its subsidiaries.

What are the Findings?

- **New Coal Mines Increasing Risk of Displacement:**
 - This coal shortage prompted the government to start **developing new coal projects, where 99 new coal mines projects are under the pipeline**. These projects have the capacity to **produce 427 million tonnes of coal annually (mtpa)**.
 - This is despite India's pledge to achieve [net zero emissions by 2070](#).
 - These projects will put 165 villages and 87,630 families at risk of displacement. And 41,508 of these families belong to [Scheduled Tribes](#).
- **Coal Mines Under-utilized thus Unnecessary:**
 - Since India's coal mines use is severely underutilized so developing new projects to merely fulfill temporary coal shortage is unnecessary.
 - India's coal mines use **only two-thirds of their capacity on average**, with some large ones using only 1%.
- **Delay in Clean Energy Future:**
 - These new mines will increase India's likelihood of **stranded assets, delay a clean energy future—and in the process pose irreversible impacts** on India's rural communities and environments for the sake of economically precarious mining ventures.
- **Exacerbate Water Shortage:**
 - Water shortages would be **exacerbated by the new coal projects**, increasing demand by 1,68,041 kilolitres per day.
 - Of 427 MTPA in new capacity, 159 MTPA will be located in high-risk water zones, while 230

MTPA is planned for zones with extreme water risk.

Why is it Imperative to Move Away from Coal?

- The threat of global warming is looming large over the planet, and can bring about unprecedented natural calamities.
- An effective way to keep the danger at bay is to **cut the use of fossil fuels — coal, natural gas and oil**.
 - About 80% of the world's energy requirements are met by these three fuels.
- The worst culprit of them all is coal, which emits **nearly twice as much carbon dioxide as natural gas and about 60% more than oil**, on a kilogram-to-kilogram comparison.
- The consequence of these chemical reactions gains great significance because the **power sector in India accounts for 49% of total carbon dioxide emissions**, compared with the global average of 41%.

What is Coal?

- **About:**
 - It is a type of fossil fuel found in a form of **sedimentary rocks and is often known as 'Black Gold'**.
 - It is a conventional source of energy and is widely available. It is used as a domestic fuel, in industries such as iron and steel, steam engines and to generate electricity. Electricity from **coal is called thermal power**.
 - The leading coal producers of the world include **China, US, Australia, Indonesia, India**.
- **Distribution of Coal in India:**
 - **Gondwana coal fields (250 million years old):**
 - Gondwana coal makes up to 98 % of the total reserves and 99 % of the production of coal in India.
 - Gondwana coal forms **India's metallurgical grade as well as superior quality coal**.
 - It is found in Damodar (Jharkhand-West Bengal), Mahanadi (Chhattisgarh-Odisha), Godavari (Maharashtra), and Narmada valleys.
 - **Tertiary coal fields (15 - 60 million years old):**
 - Carbon content is **very low but is rich in moisture and sulphur**.
 - Tertiary coalfields are mainly confined to extra-peninsular regions
 - **Important areas** include Assam, Meghalaya, Nagaland, Arunachal Pradesh, Jammu and Kashmir, Himalayan foothills of Darjeeling in West Bengal, Rajasthan, Uttar Pradesh, and Kerala.
- **Classification:**
 - **Anthracite** (80 - 95% carbon content, found in small quantities in J&K).
 - **Bituminous** (60 - 80% of carbon content and is found in Jharkhand, West Bengal, Odisha, Chhattisgarh and Madhya Pradesh).
 - **Lignite** (40 to 55% carbon content, high moisture content and is found in Rajasthan, Lakhimpur (Assam) and Tamil Nadu).
 - **Peat** (less than 40% carbon content and it is in the first stage of transformation from organic matter (wood) to coal).

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q1. Consider the following statements: (2019)

1. Coal sector was nationalized by the Government of India under Indira Gandhi.
2. Now, coal blocks are allocated on lottery basis.

3. Till recently, India imported coal to meet the shortages of domestic supply, but now India is self-sufficient in coal production.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Ans: (a)

Exp:

- Coal sector was nationalised in two phases under Indira Gandhi Government in 1972. **Hence, statement 1 is correct.**
- The coal blocks are allocated through auctions and not on a lottery basis. **Hence, statement 2 is not correct.**
- The coal sector is the monopolistic sector in India. India holds 5th biggest coal reserves in the world, but due to the incapacity of coal production by monopolistic firms, it imports coal to meet the shortages of domestic supply. **Hence, statement 3 is not correct.**
- Therefore, option (a) is the correct answer.

Q2. Which of the following is/are the characteristic/characteristics of Indian coal? (2013)

1. High ash content
2. Low sulphur content
3. Low ash fusion temperature

Select the correct answer using the codes given below:

- (a) 1 and 2 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (a)

Mains

Q. Despite India being one of the countries of Gondwanaland, its mining industry contributes much less to its Gross Domestic Product (GDP) in percentage. Discuss. **(2021)**

Q. "In spite of adverse environmental impact, coal mining is still inevitable for development". Discuss. **(2017)**

Source: TH