



50th Foundation Day of Coal India Limited

For Prelims: [Coal India Limited \(CIL\)](#), [Maharatna](#), [Strategy Report on Coal and Lignite Exploration](#), [Mine Closure Portal](#), [Raniganj Coalfield](#), [Damodar River](#), [National Coal Development Corporation \(NCDC\)](#), [Non-Coking Coal](#), [District Mineral Fund](#), [National Mineral Exploration Trust](#), [Corporate Social Responsibility \(CSR\)](#), [Acid Rain](#), [Smog](#), [Renewable Energy Capacity](#).

For Mains: Significance of coal sector in Indian economy. Associated challenges and way forward.

Source: [PIB](#)

Why in News?

Recently, [Coal India Limited \(CIL\)](#) marked its **50th Foundation Day**, established as the **apex holding company** of the nationalised coking coal (1971) and non-coking mines (1973).

- CIL functions under the [Ministry of Coal](#) and is headquartered in **Kolkata**.

What are the Key Facts About Coal India Limited?

- **About:** CIL is a **state-owned coal mining corporation** in India, responsible for producing and managing coal resources in the country.
 - It was founded in **1975** and is the **world's largest coal producer**.
- **Organisational Structure:** CIL is classified as a '[Maharatna](#)' **public sector enterprise** and operates through **8 subsidiaries** like Eastern Coalfields Limited (ECL), Bharat Coking Coal Limited (BCCL).
 - **Mahanadi Coalfields Limited (MCL)** is CIL's largest coal-producing subsidiary.
- **Strategic Importance:** Over half of India's **installed power capacity** is coal-based, with **CIL** supplying around **78%** of the country's total coal production.
 - Coal also accounts for **40% of India's primary commercial energy needs**.
- **Mining Capacity:** Across **eight Indian states**, CIL operates in **84 mining areas**, and manages a total of **313 active mines**.
- **Recent Developments:** CIL recently unveiled the **Strategy Report on Coal and Lignite Exploration**, along with the **Mine Closure Portal**.
 - It also announced the development of a **50 MW solar power plant at the Nigahi project (Singrauli, MP)** that outlines a framework for coal and lignite exploration.

Note:

A **Public Sector Undertaking (PSU)** is eligible for "**Maharatna**" status if it has "**Navratna**" status, is listed on **Indian stock exchanges**, complies with **minimum shareholding norms**, and has an average **annual turnover exceeding Rs 25,000 crore**, net worth over **Rs 15,000 crore**, and **net profit over Rs 5,000 crore in the last three years**, along with significant **global presence**.

What are the Key Points Related to the Coal Sector in India?

- **Pre- Independence:** Coal mining in India began in **1774** by **M/s Sumner and Heatly** in the **Raniganj Coalfield** along the river **Damodar**.
 - The introduction of steam locomotives in **1853** significantly boosted demand.
- **Post-Independence:** Founded in **1956**, the **National Coal Development Corporation (NCDC)** played a vital role in the systematic and scientific development of the coal industry.
- **Nationalisation of Coal Mines:** The nationalisation process occurred in **two phases**:
 - **Coking coal mines** were nationalised first in **1971-72**.
 - **Non-coking coal mines** followed in **1973**.
- **Current Production:** India achieved coal production of **997.83 million tonnes (MT)** in **2023-24**. CIL's production reached **773.81 MT**, with a growth of **10.04%**.
 - **Small quantities** of coal are also produced by **TISCO, IISCO, DVC** and others.
- **Coal Import:** In the year 2022-23, **total import** of coal was **237.668 MT** compared to 208.627 MT in 2021- 22, thus showcasing an **increase of 13.92%** over 2021-22.
 - Coal was mainly imported from **Indonesia, Australia, Russia, South Africa, US, Singapore and Mozambique**.
 - Sectors such as **Steel, power, cement, and coal traders** import **non-coking coal** to meet their supply needs.

Classification of Coal

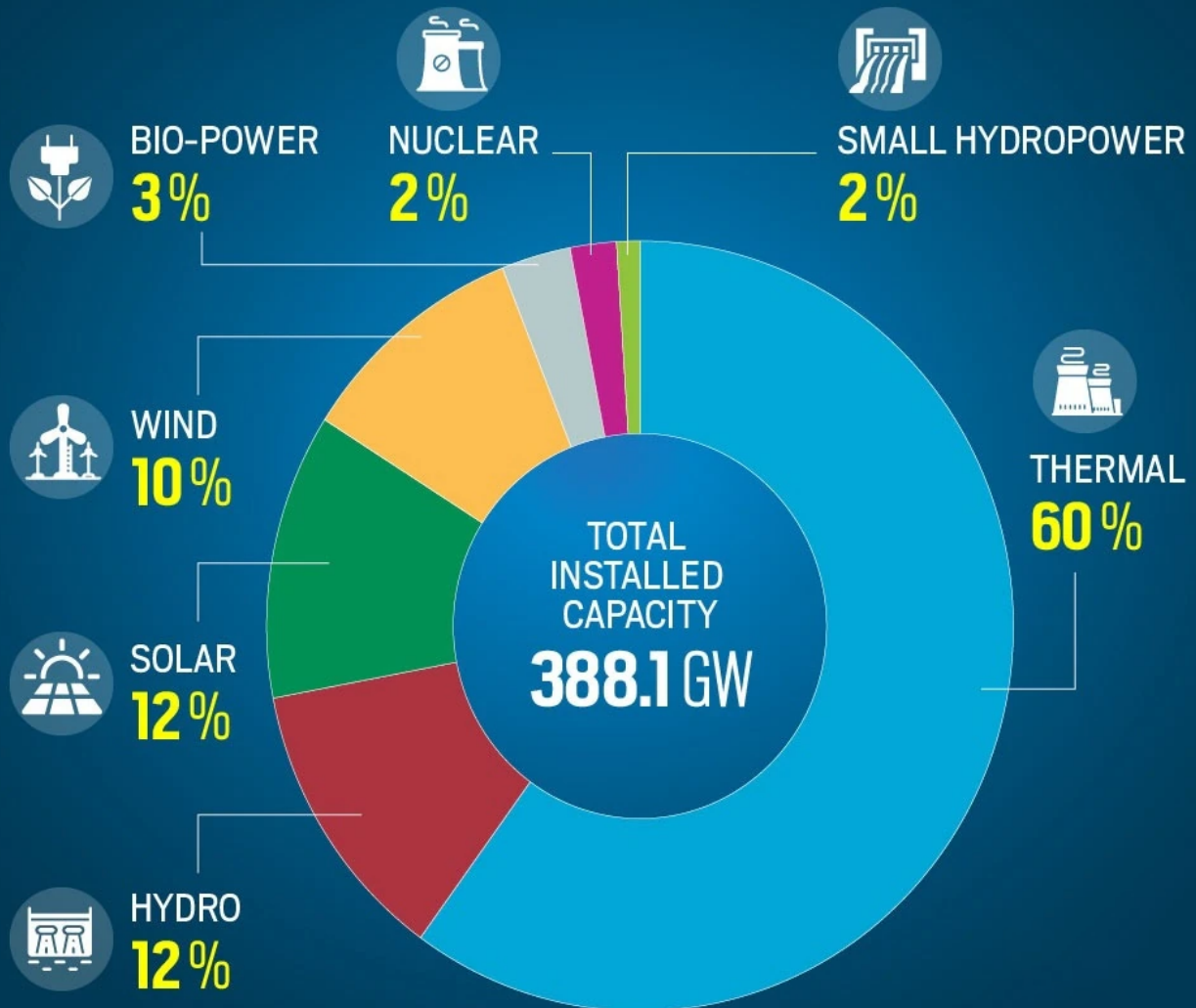
- **Anthracite:** Highest quality coal, **80-95% carbon**, high calorific value, **burns with blue flame**, found in small amounts in **Jammu and Kashmir**.
- **Bituminous:** **60-80% carbon**, high calorific value, low moisture; found in **Jharkhand, West Bengal, Odisha, Chhattisgarh, and Madhya Pradesh**.
- **Lignite:** **40-55% carbon**, brown, high moisture, produces smoke; deposits in Rajasthan, **Assam (Lakhimpur)**, and **Tamil Nadu**.
- **Peat:** Early coal form, **<40% carbon**, low calorific value.

What is the Economic Significance of the Coal Sector?

- **Energy Backbone:** Coal is the **primary energy source** of energy which predominantly fuels **thermal power plants** and fulfils over half of India's primary energy needs.
 - Coal demand is projected to rise to **1,462 million tonnes (MT) by 2030 and 1,755 MT by 2047**, highlighting its ongoing importance for electricity generation.
- **Railway Freight:** Coal is the **single largest contributor** to railway freight in India, accounting for nearly **49%** of total freight income.
- **Revenue Generation:** The coal sector contributes over **Rs. 70,000 Crore** annually to central and state governments through various **taxes, royalties, and GST**.
 - Funds collected from the **District Mineral Fund** and the **National Mineral Exploration Trust** supports socio-economic and infrastructure projects, especially in coal-producing regions.
- **Employment Opportunities:** The coal sector is a significant source of **employment**, providing jobs to over **2 lakh** individuals in Coal India Ltd and its subsidiaries, along with thousands of **contractual workers**.
- **Corporate Social Responsibility (CSR):** Coal sector PSUs, particularly **Coal India Ltd**, invests in **healthcare, education, water supply, and skill development** in coal-producing regions, demonstrating the sector's commitment to community welfare.

INDIA'S ENERGY MIX

SHARE OF TOTAL CAPACITY



What are Challenges in India's Coal Sector?

- **Environmental Challenges:**
 - **Air Pollution:** Burning of coal results in emissions of **Sulphur dioxide, Nitrogen oxides, Particulate Matters** among others, which results in **acid rain, smog, haze, and respiratory illnesses**.
 - **Poor Water Quality:** High levels of **dissolved solids** are detected in nearby water bodies. Excessive pumping of groundwater further exacerbates **water scarcity** issues.
 - **Land Degradation:** **Open-cast mining** which requires significant land acquisition, leads to **deforestation** and **loss of biodiversity**.
- **High Cost of Production:** Reports indicate that the average cost of production is

approximately **Rs 1,500 per ton**, which is **relatively high** compared to other coal-producing countries.

- **Coal Quality:** A significant portion of the coal produced in India is of **inferior quality**, which impacts efficiency.
 - According to CIL, **30-40%** of domestic coal is classified as **non-coking coal**, which is less efficient for power generation.
- **Investment in Renewables:** India aims to increase its **renewable energy capacity** to **500 GW** by 2030. The coal sector's dominance poses a challenge to this goal.
 - Investments in coal **competes** with investment in **growth of renewable technologies**.
- **Monopolistic Market Structure:** The nationalised structure of the coal industry, dominated by CIL, has led to concerns about **monopolistic practices**, including one-sided supply agreements that disadvantage consumers.

How to Address Challenges in India's Coal Sector?

- **Mitigating Environmental Challenges:** Installation of **scrubbers, Flue Gas Desulfurization** and **Electrostatic Precipitators (ESPs)** can reduce sulphur dioxide, nitrogen oxides, and **particulate matter emissions**.
 - Adopt **water recycling, rainwater harvesting**, and measures to improve the quality of water bodies affected by mining activities.
- **Promoting Competition:** Allow **private players** to participate in coal mining and distribution more freely to encourage competition and enhance consumer choice.
- **Investment Diversification:** Create a clear roadmap for transitioning from coal to renewable energy sources, ensuring that investments in renewables do not stagnate due to coal sector dominance. **E.g., Greening Initiatives**
- **Cost Management Initiatives:** Explore measures to reduce the cost of coal production through technological advancements, improved mining techniques, and better resource management.

Drishti Mains Question:

Analyse the challenges faced by the coal sector in India and suggest comprehensive measures to address these issues.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q.Consider the following statements: (2019)

1. Coal sector was nationalised 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)

Q. In India, the steel production industry requires the import of (2015)

- (a) saltpetre
- (b) rock phosphate
- (c) coking coal
- (d) All of the above

Ans: (c)

Q. Which of the following is/are the characteristics/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)**