



Coal Logistics Plan and Policy

For Prelims: Coal Logistics Plan and Policy, [Coal Sector in India](#), Types of Coal, [Coking Coal](#), [Greenhouse gas emissions](#), [COP28](#), [Carbon capture and storage](#)

For Mains: Challenges Related to Coal for India, Coal as a Cornerstone of India's Energy Sector

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Why in News?

India has taken a groundbreaking step in its [coal sector](#) with the unveiling of the "**Coal Logistics Plan and Policy**," a transformative initiative aimed at **modernising coal transportation**.

What is the Coal Logistics Plan and Policy?

- **Background:** Coal logistics has long been a persistent issue in India, particularly during the **summer months** when power plants face shortages of coal amid rising electricity demand.
 - **Transportation of coal** has frequently posed challenges, leading to the need for railways to implement special measures to prevent supply disruptions.
- **About:** The Coal Logistics Plan and Policy aims to enhance coal logistics by making it more **affordable, efficient, and environmentally friendly**.
 - It encompasses various aspects such as storage, loading, unloading, and delivery of coal to power plants, steel mills, cement factories, and washeries.
 - It proposes a strategic shift towards a **railway-based system in First Mile Connectivity (FMC) projects**, aiming for a 14% reduction in rail logistic costs, and an annual cost-saving of Rs **21,000 Crore**.
- **Expected Outcomes:** It is expected to minimise air pollution, alleviate traffic congestion, and reduce carbon emissions by approximately 100,000 tonnes per annum.
 - Moreover, a **10% saving** in the average turnaround time of wagons nationwide is expected.

What is the Status of the Coal Sector in India?

- **Coal:** Coal is a naturally occurring, combustible [sedimentary rock](#) composed primarily of carbon, along with hydrocarbons.
 - It forms through the accumulation and decomposition of plant material over millions of years. Under pressure and heat, this organic matter undergoes physical and chemical changes, **transforming into coal**.
- **Coal Reserves in India:** India's coal reserves are concentrated in the eastern and central parts of the country.
 - The major coal-producing states are **Odisha, Chhattisgarh and Jharkhand**, along with parts of **Madhya Pradesh**, and they account for 75% of domestic raw coal dispatches in India.
- **Types of Coal and Clusters in India:**
 - **Anthracite:** With a **carbon content ranging from 80% to 95%**, it is present in limited

quantities primarily in Jammu and Kashmir.

- **Bituminous coal:** Containing between **60% to 80% carbon**, it is predominantly found in regions such as Jharkhand, West Bengal, Odisha, Chhattisgarh, and Madhya Pradesh.
- **Lignite:** It is characterised by its **carbon content of 40% to 55%** and high moisture levels, and is primarily found in areas including Tamil Nadu, Puducherry, Gujarat, Rajasthan and Jammu & Kashmir.
- **Peat:** With a **carbon content below 40%**, it represents the earliest stage of the transformation from organic matter, such as **wood, into coal**.
- **Significance of Coal for India:** Coal is the most important and abundant fossil fuel in India. It accounts for **55% of the country's energy needs**.
 - The country's industrial heritage was built upon indigenous coal. Currently, **70%** of India's power demand is met by thermal power plants, which are mostly powered by **coal**.
 - Over the past four decades, commercial primary energy consumption in India has surged by approximately **700%**.
 - Current per capita consumption stands at around **350 kilograms of oil equivalent per year**, still lower than developed countries.
- **Coal Imports in India:** Present import policy allows for the **unrestricted import of coal under Open General License**.
 - Consumers, including the steel, power, and cement sectors, as well as coal traders, can import coal based on their commercial requirements.
 - Steel sector primarily imports **coking coal** to supplement domestic availability and improve quality.
 - Other sectors like power and cement, along with coal traders, import **non-coking coal** to meet their respective needs.

What are the Challenges Related to Coal for India?

- **Environmental Impact:** Coal mining and combustion contribute to **air and water pollution, greenhouse gas emissions, deforestation**, and habitat destruction. Addressing these environmental impacts while ensuring energy security is a significant challenge.
- **Health Risks:** Exposure to **coal dust, particulate matter, and harmful emissions from coal-fired power plants** poses health risks to communities living near coal mines and power plants, leading to respiratory diseases and other health issues.
- **Land Acquisition and Rehabilitation:** Acquiring land for coal mining projects often involves displacement of communities and disruption of livelihoods.
 - Proper rehabilitation and resettlement of affected populations remain a challenge, with many communities facing social and economic hardships.
- **Technological Constraints:** Despite advancements in clean coal technologies, such as **carbon capture and storage (CCS)**, the widespread adoption of these technologies in India remains limited due to high costs and technical challenges.
- **Transition to Renewable Energy:** The coal sector in India faces challenges amidst the country's commitment to transitioning to renewable energy sources and reducing greenhouse gas emissions.
 - Finding a balance between ensuring energy security and meeting climate change mitigation objectives is a significant hurdle.
 - At **COP28**, India advocated for a **"phase down" of coal power instead of a complete "phase out."**

Why India Advocates for Phasing Down Coal Instead of Phasing Out?

- **Energy Security:** Coal currently plays a crucial role in India's energy security, providing a significant portion of the country's electricity generation.
 - Phasing out coal abruptly could lead to **disruptions in energy supply, impacting industries, businesses, and households**.
- **Economic Considerations:** **Coal mining** and related industries support millions of jobs and contribute significantly to India's economy.
 - A sudden shift away from coal could result in job losses and economic instability in coal-dependent regions.
 - Also, currently, renewable energy sources like **solar and wind are not as cost-effective**

as coal.

- **Infrastructure Investment:** India has made substantial investments in coal-based infrastructure, including power plants and associated facilities.
 - Phasing out coal prematurely would lead to **stranded assets and wasted investments**, adversely affecting the economy.

Way Forward

- **Improving Energy Efficiency:** Enhancing energy efficiency across the coal value chain, from **mining and transportation** to power generation and consumption, can reduce energy consumption and environmental impact.
 - Also, implementing **high-efficiency, low-emission (HELE) technologies in coal-fired power plants** can significantly reduce emissions in the coal value chain while enhancing energy efficiency.
- **Diversification of Energy Sources:** India should prioritise diversifying its energy mix by increasing investments in renewable energy sources such as **solar, wind, hydro, and biomass**.
 - This diversification will reduce reliance on coal and contribute to a more sustainable and resilient energy system.
- **Transition to Clean Coal Technologies:** Investing in research, development, and deployment of clean coal technologies, including **carbon capture, utilisation, and storage**, can help mitigate the environmental impact of coal-based power generation.
- **Promoting Sustainable Mining Practices:** Implementing environmentally sustainable mining practices, including **land reclamation, water conservation, and biodiversity conservation**, can minimise the environmental footprint of coal mining operations.
 - Strengthening regulations and enforcement mechanisms to ensure compliance with environmental standards is essential.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

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)

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)**

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