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Daily PIB Summary

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1.COAL PLAYING IMPORTANT ROLE IN THE ENERGY SECURITY OF THE COUNTRY

• Coal continues to remain the backbone of India's energy sector, contributing the largest share in electricity generation.
• The government has reiterated its focus on enhancing domestic production to meet rising industrial and power demands.
• Despite global shifts toward renewable energy, coal remains critical for base-load power stability.
• India aims to balance energy security with climate commitments through cleaner coal technologies.
• Reduced reliance on imports strengthens economic resilience and energy independence.
• Policy thrust reflects the dual objective of growth and sustainability in the energy sector.
• The development has implications for infrastructure, environmental governance, and economic planning.

BACKGROUND / CONTEXT

Constitutional & Policy Framework

• Energy falls under the **Concurrent List**, enabling both Centre and States to legislate.
• Key policy initiatives include National Electricity Policy and Integrated Energy Policy.

Coal Sector in India

• India is the second-largest coal producer globally.
• Dominated by Coal India Limited.
• Major coal reserves located in Jharkhand, Odisha, Chhattisgarh, and West Bengal.

Energy Security Concept

• Refers to uninterrupted availability of energy at affordable prices.
• Coal ensures **base-load power**, unlike intermittent renewables like solar and wind.

Environmental Considerations

• Coal combustion contributes to greenhouse gas emissions.
• India promotes **clean coal technologies** such as supercritical and ultra-supercritical plants.

International Context

• Global energy crisis (post-pandemic, geopolitical tensions) has revived coal usage worldwide.
• India balances commitments under the Paris Agreement with domestic energy needs.

KEY HIGHLIGHTS

• **Production Push:** Government targeting record coal output to meet domestic demand.

• **Import Reduction:** Focus on reducing coal imports to save foreign exchange.

• **Institutional Mechanism:** Commercial coal mining opened to private sector participation.

• **Strategic Significance:** Coal ensures grid stability and supports industrial growth.

• **Environmental Impact:** High emissions remain a concern despite cleaner technologies.

• **Challenges:** Land acquisition issues, environmental clearances, and logistics bottlenecks.

• **Way Forward:** Transition toward renewable energy while improving coal efficiency and adopting carbon capture technologies.

PRELIMS BOOSTER BOX

• **Article 246:** Distribution of legislative powers (Union, State, Concurrent Lists).
• **Coal Mines (Special Provisions) Act, 2015:** Enables allocation of coal mines.
• **Commercial Mining:** Introduced in 2020 for private players.
• **India's Coal Share:** ~70% of electricity generation.
• **Largest Producer:** Coal India Limited.
• **Clean Coal Tech:** Supercritical & ultra-supercritical thermal plants.
• **Paris Agreement Goal:** Limit global warming to well below 2°C.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Coal provides base-load power which is not dependent on weather conditions.
2. Commercial coal mining in India is restricted only to public sector companies.
3. Coal-based energy contributes significantly to India's electricity generation.

Which of the statements given above is/are correct?

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

Answer: (b)

2.DEVELOPMENT OF MUSEUMS IN INDIA: PRESERVING HERITAGE AND PROMOTING CULTURAL DIPLOMACY

• The government is undertaking large-scale initiatives to modernize museums and make them more interactive and accessible.
• Emphasis is being laid on digitization, virtual galleries, and use of emerging technologies like AR/VR.
• Museums are being repositioned as cultural hubs contributing to tourism, education, and soft power.
• Development of theme-based and national museums reflects efforts to showcase India's diverse heritage.
• Public-private partnerships and capacity building are being encouraged.
• The initiative strengthens cultural governance while contributing to economic growth via tourism.
• It also enhances India's global cultural footprint and heritage diplomacy.

BACKGROUND / CONTEXT

Institutional Framework

• Museums in India are administered by the Ministry of Culture.
• Key institutions include the National Museum and Indian Museum.
• Autonomous bodies and state governments also manage several regional museums.

Historical Evolution

• Museum development in India dates back to the colonial period (e.g., Indian Museum, 1814).
• Post-independence, museums became tools for nation-building and heritage preservation.

Role of Museums

• Preservation and conservation of artifacts.
• Promotion of education, research, and public awareness.
• Platforms for cultural exchange and diplomacy.

Technological Integration

• Adoption of digital archives, virtual tours, and interactive exhibits.
• Enhances accessibility, especially for younger audiences and global visitors.

International Linkages

• Collaboration with global institutions for exhibitions and knowledge exchange.
• Aligns with UNESCO conventions on cultural heritage protection.

KEY HIGHLIGHTS

• **Digital Transformation:** Integration of AR/VR, virtual tours, and online collections.

• **Infrastructure Upgrade:** Modernization of existing museums and development of new ones.

• **Cultural Preservation:** Focus on safeguarding tangible and intangible heritage.

• **Tourism Boost:** Museums as key drivers of cultural tourism and local economies.

• **Institutional Mechanism:** Central schemes supporting state and autonomous museums.

• **Challenges:** Funding constraints, lack of skilled manpower, and low visitor engagement.

• **Way Forward:** Public-private partnerships, capacity building, and global collaborations.

PRELIMS BOOSTER BOX

• **Indian Museum, Kolkata:** Oldest museum in India (est. 1814).
• **National Museum:** Located in New Delhi.
• **UNESCO Convention (1972):** Protection of World Cultural and Natural Heritage.
• **Museology:** Study of museum management and curation.
• **Virtual Museums:** Digital platforms showcasing artifacts online.
• **Key Scheme:** Museum Grant Scheme by Ministry of Culture.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Museums in India are exclusively managed by the central government.

2. Digital technologies like AR/VR are being used to enhance museum accessibility.

3. Museums play a role in cultural diplomacy and tourism promotion.

Which of the statements given above is/are correct?

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

Answer: (a)

3.WEATHER FORECASTING FOR AGRARIAN STATES: STRENGTHENING CLIMATE-RESILIENT AGRICULTURE

• The government is strengthening weather forecasting systems to support agriculture-dependent states.
• Agro-meteorological advisories are being disseminated to farmers for informed decision-making.
• Improved forecasting helps mitigate risks from extreme weather events like droughts, floods, and unseasonal rains.
• Integration of technology, satellite data, and mobile platforms enhances outreach and precision.
• The initiative contributes to climate-resilient agriculture and food security.
• It also supports efficient resource use, including water, fertilizers, and crop planning.
• The effort reflects governance focus on farmer welfare and disaster risk reduction.

BACKGROUND / CONTEXT

Institutional Framework

• The India Meteorological Department operates under the Ministry of Earth Sciences.
• Agro-meteorological services are delivered under the **Gramin Krishi Mausam Sewa (GKMS)**.

Agro-Meteorological Advisory Services (AAS)

• Provide district-level weather forecasts and crop-specific advisories.
• Disseminated through SMS, mobile apps, radio, and extension services.

Scientific Basis

• Use of satellite observations, Doppler Weather Radars, and numerical weather prediction models.
• Integration with climate models for seasonal forecasting.

Role in Agriculture

• Helps farmers decide sowing, irrigation, harvesting, and pest control.
• Reduces crop losses and enhances productivity.

Climate Change Context

• Increasing frequency of extreme weather events necessitates robust forecasting systems.
• Supports India's adaptation strategies under global climate frameworks.

KEY HIGHLIGHTS

• **Institutional Mechanism:** IMD and Ministry of Earth Sciences lead forecasting initiatives.

• **Technological Integration:** Use of satellites, radars, and AI-based models for precision forecasting.

• **Farmer Outreach:** Advisories disseminated via SMS, apps, and mass media platforms.

• **Strategic Significance:** Enhances resilience of agrarian states against climate variability.

• **Economic Impact:** Reduces crop losses and improves farm incomes.

• **Challenges:** Last-mile connectivity, language barriers, and limited awareness among farmers.

• **Way Forward:** Strengthening local-level forecasting, improving accuracy, and expanding digital access.

PRELIMS BOOSTER BOX

• **India Meteorological Department (IMD):** Established in 1875.
• **Ministry of Earth Sciences:** Nodal ministry for weather and climate services.
• **Gramin Krishi Mausam Sewa (GKMS):** Provides agro-advisories to farmers.
• **Doppler Weather Radar:** Tracks precipitation and storm movement.
• **Numerical Weather Prediction (NWP):** Mathematical models for forecasting.
• **Monsoon Forecasting:** Crucial for India's agriculture (over 50% rain-fed area).

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Agro-meteorological advisories are aimed at helping farmers make crop-related decisions.
2. The India Meteorological Department functions under the Ministry of Agriculture.
3. Doppler Weather Radars are used in weather forecasting.

Which of the statements given above is/are correct?

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

Answer: (a)

4.QR CODE-ENABLED IDENTITY CARDS & DIGITALLY TRACEABLE FOOD PACKETS IN INDIAN RAILWAYS

• Indian Railways has launched a digital verification mechanism for catering staff and food services onboard trains.
• QR code-enabled identity cards allow passengers to verify authorised vendors in real time.
• Digitally traceable food packets ensure accountability across the catering supply chain.
• The move aims to eliminate unauthorised vendors, improving hygiene and passenger trust.
• It aligns with broader digital governance initiatives and service delivery reforms.
• Enhances consumer protection and strengthens regulatory oversight in public transport systems.
• Reflects a shift towards technology-driven transparency and accountability in public services.

BACKGROUND / CONTEXT

Institutional Framework

• Catering services in railways are managed by the Indian Railway Catering and Tourism Corporation.
• Policy governed under railway catering policies and service standards.

Need for Reform

• Persistent issues of unauthorised vendors and substandard food quality.
• Lack of traceability and accountability in catering supply chains.

Digital Governance Push

• QR codes enable quick verification and authentication.
• Integration with mobile platforms supports real-time passenger feedback.

Consumer Protection Angle

• Ensures hygienic food and verified service providers.
• Strengthens grievance redressal mechanisms.

Technological Basis

• Use of QR codes for identity verification and supply chain tracking.

• Enables data-driven monitoring and enforcement.

KEY HIGHLIGHTS

• **Digital Verification:** QR code-enabled ID cards for authorised catering staff.

• **Traceability Mechanism:** Food packets digitally tagged for supply chain tracking.

• **Institutional Mechanism:** Implemented by Indian Railways and IRCTC.

• **Consumer Protection:** Ensures hygienic and verified food services.

• **Transparency:** Real-time verification reduces fraud and malpractice.

• **Challenges:** Implementation across a vast railway network and ensuring compliance.

• **Way Forward:** Integration with passenger apps, stricter enforcement, and awareness campaigns.

PRELIMS BOOSTER BOX

• **Indian Railways:** One of the world's largest rail networks.
• **IRCTC:** Handles catering, tourism, and online ticketing services.
• **QR Code:** Machine-readable code storing information for quick access.
• **Digital India Initiative:** Promotes e-governance and digital service delivery.
• **Consumer Protection Act, 2019:** Safeguards consumer rights in India.
• **Traceability:** Ability to track product movement across supply chain stages.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. QR code-enabled identity cards can help verify authorised service providers in real time.
2. IRCTC is responsible for managing catering services in Indian Railways.
3. Digitally traceable food packets eliminate the need for any regulatory oversight.

Which of the statements given above is/are correct?

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

Answer: (a)

5.REDUCTION OF CARBON EMISSIONS IN PORT OPERATIONS: TOWARDS GREEN AND SUSTAINABLE MARITIME INFRASTRUCTURE

पत्तन, पोत परिवहन एवं जलमार्ग मंत्रालय
MINISTRY OF PORTS, SHIPPING AND WATERWAYS
सत्यमेव जयते

• India is actively working to decarbonize its port operations through adoption of green technologies and renewable energy.
• Initiatives include electrification, use of shore power, and transition to cleaner fuels.
• Ports play a crucial role in trade; hence sustainable operations have both economic and environmental significance.
• The move supports India's climate goals while improving efficiency and reducing operational costs.
• Enhances global competitiveness of Indian ports by aligning with international sustainability standards.
• Promotes innovation in logistics, infrastructure, and energy use within the maritime sector.
• Reflects integrated governance approach combining economic growth with environmental sustainability.

BACKGROUND / CONTEXT

Institutional Framework

• Ports are governed by the Ministry of Ports, Shipping and Waterways.
• Major ports operate under the **Major Port Authorities Act, 2021**.

Green Port Concept

• Focus on reducing carbon footprint through energy efficiency and renewable energy adoption.
• Includes waste management, pollution control, and sustainable logistics.

Key Initiatives

• **Shore Power Supply:** Ships use onshore electricity instead of onboard fossil fuels.
• **Electrification:** Replacement of diesel equipment with electric alternatives.
• **Renewable Energy:** Solar and wind energy installations at ports.

International Linkages

• Aligned with International Maritime Organization goals for emission reduction.
• Supports commitments under the Paris Agreement.

Environmental Significance

• Ports contribute to air pollution and greenhouse gas emissions.
• Decarbonization reduces

environmental impact and improves coastal ecosystem health.

KEY HIGHLIGHTS

• **Energy Transition:** Shift towards renewable energy and electrification in port operations.

• **Technological Adoption:** Use of shore power and energy-efficient equipment.

• **Institutional Mechanism:** Governed under the Ministry of Ports and Major Port Authorities Act.

• **Strategic Significance:** Enhances sustainability and global competitiveness of ports.

• **Environmental Impact:** Reduction in greenhouse gas emissions and air pollution.

• **Challenges:** High initial investment, technological gaps, and infrastructure limitations.

• **Way Forward:** Increased investment, policy incentives, and international collaboration.

PRELIMS BOOSTER BOX

• **Major Port Authorities Act, 2021:** Provides autonomy to major ports.
• **Shore Power (Cold Ironing):** Supplying electricity to docked ships from shore.
• **International Maritime Organization (IMO):** Regulates global shipping standards.
• **Green Ports:** Ports adopting sustainable and eco-friendly practices.
• **India's Climate Goal:** Net-zero emissions target by 2070.
• **Renewable Energy in Ports:** Solar rooftops, wind installations.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Shore power allows ships to switch off their engines while docked and use electricity from the port.
2. The Major Port Authorities Act, 2021 provides complete control of ports to private entities.
3. Green port initiatives aim to reduce the environmental impact of port operations.

Which of the statements given above is/are correct?

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

Answer: (a)