



Daily PIB Summary

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1. INDIA ACHIEVES 1 BILLION TONNE COAL PRODUCTION MILESTONE AGAIN, STRENGTHENING ENERGY SECURITY



- India has achieved **over 1 billion tonne coal production**, marking a significant milestone in its energy sector.
- The achievement highlights the country's **increasing self-reliance in coal**, reducing dependence on imports.
- Coal continues to play a **dominant role in India's energy mix**, especially in electricity generation.
- The milestone indicates improved **efficiency, capacity expansion, and policy push** in the coal sector.
- It strengthens **energy security**, ensuring reliable fuel supply for power, steel, and core industries.
- However, it also raises concerns regarding **environmental sustainability and climate commitments**.
- The development reflects the balancing act between **economic**

growth and clean energy transition.

BACKGROUND / CONTEXT

Role of Coal in India's Energy Mix

- Coal accounts for **over 50% of India's energy needs** and around **70% of electricity generation**.
- India is among the **largest producers and consumers of coal globally**.

Institutional Framework

- **Ministry of Coal**: Nodal ministry for policy and regulation.
- **Coal India Limited**: World's largest coal producer contributing majority of output.
- Private sector participation has increased through **commercial coal mining reforms (2020 onwards)**.

Energy Security Concept

- Refers to **uninterrupted availability of energy sources at affordable prices**.
- Domestic coal production reduces vulnerability to **global supply shocks and price volatility**.

KEY HIGHLIGHTS

- **Production Milestone:** India crosses **1 billion tonne coal output** again, sustaining growth trajectory.
- **Energy Security:** Reduces reliance on imports and ensures stable supply for thermal power plants.
- **Economic Significance:** Supports **core sectors** – power, steel, cement, and manufacturing.
- **Policy Push:** Reforms like **commercial mining, ease of doing business, and faster clearances** have boosted output.
- **Employment Impact:** Coal sector generates **direct and indirect employment**, especially in mining regions.
- **Environmental Concerns:** High coal dependency contributes to **carbon emissions and air pollution**.
- **Way Forward:** Transition towards **clean coal technologies**, renewables integration, and gradual decarbonisation.

PRELIMS BOOSTER BOX

- **Coal Share in Power:** ~70% of India's electricity generation.
- **Largest Producer:** Coal India Limited contributes ~75–80% of domestic production.
- **Commercial Mining Reform:** Introduced in **2020** to allow private participation.
- **Types of Coal (India):** Anthracite, Bituminous, Lignite (major share).

- **Energy Security:** Availability + affordability + reliability of energy supply.
- **Import Dependence:** Mainly for **coking coal** used in steel sector.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Coal contributes to more than two-thirds of India's electricity generation.
2. Commercial coal mining in India is restricted only to public sector companies.
3. Increasing domestic coal production can reduce vulnerability to global energy price fluctuations.

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. MODERN-DAY WARFARE TRANSCENDS BORDERS: ROBUST MILITARY AND PREPARED CITIZENS ESSENTIAL FOR NATIONAL SECURITY



- The Defence Minister highlighted the **evolving nature of warfare**, extending beyond traditional battlefields into cyber, space and information domains.
- He stressed the need for a **robust and technologically advanced military** to tackle multi-dimensional threats.
- A key emphasis was on **civilian preparedness**, including awareness, resilience and participation in national security efforts.
- The statement reflects a shift towards **whole-of-nation approach** in defence preparedness.
- It underscores the importance of **hybrid warfare readiness**, including misinformation and psychological operations.

- The approach aligns with India's push for **self-reliance in defence (Atmanirbhar Bharat)** and modernisation of armed forces.
- It has implications for governance, internal security, and civil-military coordination.

BACKGROUND / CONTEXT

Changing Nature of Warfare

- Traditional wars (land, sea, air) are now supplemented by **cyber warfare, space warfare, and information warfare**.
- Non-state actors and asymmetric threats have increased, blurring **war and peace distinctions**.

Hybrid Warfare

- Combines **conventional military force with cyber attacks, disinformation, economic pressure, and proxy actors**.
- Seen in global conflicts where **state and non-state actors operate simultaneously across domains**.

Civil Defence & Citizen Role

- Civilian participation includes **disaster preparedness, cybersecurity awareness, information verification, and resilience during crises**.

- Countries increasingly adopt a **“whole-of-society” defence model**.

India’s Defence Reforms

- Focus on **theatre commands, indigenisation, and modernisation** of armed forces.
- Promotion of **domestic defence manufacturing ecosystem** under Atmanirbhar Bharat.

KEY HIGHLIGHTS

- **Multi-Domain Warfare:** Conflicts now span land, sea, air, cyber, and space domains.
- **Whole-of-Nation Approach:** Emphasis on synergy between military strength and civilian preparedness.
- **Technological Edge:** Importance of AI, drones, cyber defence, and space capabilities.
- **Citizen Awareness:** Need for informed citizens to counter misinformation and psychological warfare.
- **Strategic Autonomy:** Push for indigenous defence production to reduce external dependence.
- **Internal Security Linkage:** Blurring of external and internal threats requires coordinated response.
- **Way Forward:** Strengthen civil defence systems, cyber literacy, and military-civil cooperation.

PRELIMS BOOSTER BOX

- **Hybrid Warfare:** Combination of conventional and non-conventional methods (cyber, info, proxy war).
- **Cyber Warfare:** Attacks on digital infrastructure like power grids, banking systems.
- **Information Warfare:** Use of misinformation/propaganda to influence public opinion.
- **Atmanirbhar Bharat (Defence):** Policy for indigenous production of defence equipment.
- **Civil Defence:** Measures to protect civilians during emergencies and war situations.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Hybrid warfare includes the use of both conventional military force and non-military tools such as cyber attacks and misinformation.
2. In modern warfare, civilian preparedness has no significant role in national security.
3. Cyber and space domains are increasingly important in contemporary conflicts.

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)

3. INDIAN NAVY SET TO COMMISSION ITS LATEST STEALTH FRIGATE 'TARAGIRI'



- **INS Taragiri** is part of the advanced **Project 17A stealth frigate programme**, representing next-generation naval platforms.
- The commissioning reflects India's progress in **indigenous defence manufacturing** under Atmanirbhar Bharat.
- Equipped with **stealth features, modern weapons, and network-centric warfare systems**, it enhances operational readiness.
- It significantly boosts the Navy's capability in **blue-water operations** and maritime dominance.
- The warship will play a key role in safeguarding **Sea Lines of**

Communication (SLOCs) and regional stability.

- It strengthens India's position in the **Indian Ocean Region (IOR)** amid growing geopolitical competition.
- The development highlights synergy between **defence policy, industry, and technological advancement**.

BACKGROUND / CONTEXT

Project 17A

- Follow-on programme to **Shivalik-class (Project 17)** frigates.
- Involves construction of **7 advanced stealth frigates** with improved design and automation.
- Built by Indian shipyards including Mazagon Dock Shipbuilders Limited and Garden Reach Shipbuilders & Engineers.

What are Stealth Frigates?

- Warships designed to **reduce radar, infrared, and acoustic signatures**.
- Enable **surprise, survivability, and reduced detection** in combat situations.

Strategic Maritime Context

- India's maritime doctrine emphasises **sea control**,

deterrence, and safeguarding trade routes.

- Increasing presence of extra-regional powers in the **Indian Ocean Region** necessitates stronger naval capabilities.

KEY HIGHLIGHTS

- **Platform Type:** Advanced stealth guided-missile frigate under Project 17A.
- **Indigenisation:** High indigenous content supporting **Atmanirbhar Bharat in defence.**
- **Stealth Capability:** Reduced radar cross-section, enhanced survivability.
- **Combat Systems:** Equipped with **modern sensors, weapons, and electronic warfare systems.**
- **Operational Role:** Anti-air, anti-surface and anti-submarine warfare (multi-role).
- **Strategic Significance:** Enhances India's maritime security and regional influence in IOR.
- **Industrial Boost:** Promotes domestic shipbuilding ecosystem and defence manufacturing.

PRELIMS BOOSTER BOX

- **Project 17A:** Programme to build **7 stealth frigates** for the Indian Navy.
- **Predecessor: Shivalik-class frigates (Project 17).**

- **Shipbuilders:** Mazagon Dock Shipbuilders Limited and Garden Reach Shipbuilders & Engineers.
- **Frigate Role:** Medium-sized warship for **escort, patrol, and multi-role combat operations.**
- **Stealth Feature:** Reduction of **radar, acoustic and infrared signatures.**
- **Indian Ocean Region (IOR):** Critical for global trade and India's strategic interests.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Project 17A is a programme for building stealth frigates with improved design over earlier Shivalik-class ships.
2. Stealth frigates are designed to increase radar visibility to deter adversaries.
3. Mazagon Dock Shipbuilders Limited and Garden Reach Shipbuilders & Engineers are involved in constructing Project 17A ships.

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)

4. BHARAT INNOVATES DEEP-TECH PRE-SUMMIT INAUGURATED AT IIT BOMBAY



- The pre-summit aims to **accelerate India's deep-tech ecosystem** by bringing together academia, startups, investors and policymakers.
- Focus areas include **AI, quantum computing, semiconductors, space tech, and biotechnology**.
- It provides a platform for **early-stage startups to showcase innovations and secure funding support**.
- The initiative aligns with India's push for **technology-led economic growth and strategic autonomy**.
- It highlights the need to bridge the gap between **research and commercialization**.
- The summit promotes **public-private partnerships and innovation ecosystems**.
- It strengthens India's ambition to become a **global hub for deep-tech innovation**.

BACKGROUND / CONTEXT

What is Deep-Tech?

- Deep-tech refers to technologies based on **advanced scientific research and engineering innovations**.
- Examples: Artificial Intelligence, Quantum Technologies, Robotics, Space Tech, Advanced Materials.

India's Innovation Ecosystem

- India has a growing startup ecosystem supported by initiatives like **Startup India, Digital India, and Atmanirbhar Bharat**.
- Institutions like IIT Bombay act as hubs for **research, incubation and innovation**.

Need for Deep-Tech Focus

- Deep-tech is critical for **strategic sectors (defence, semiconductors, space)**.
- Requires **long-term funding, skilled manpower, and strong R&D ecosystem**.

KEY HIGHLIGHTS

- **Platform Creation:** Brings together startups, academia, investors, and policymakers.

- **Focus Areas:** AI, quantum tech, semiconductors, biotech, and space technologies.
- **Startup Support:** Enables funding access, mentorship, and scaling opportunities.
- **Research Commercialisation:** Bridges gap between lab innovation and market deployment.
- **Strategic Significance:** Enhances technological self-reliance and global competitiveness.
- **Collaboration Model:** Promotes academia-industry-government synergy.
- **Way Forward:** Strengthen funding, IP ecosystem, and global partnerships.

PRELIMS BOOSTER BOX

- **Deep-Tech:** Science-based innovations with high R&D intensity and long gestation period.
- **IIT Bombay:** Premier engineering institute and innovation hub in India.
- **Key Sectors:** AI, Quantum Computing, Semiconductors, Space Tech, Biotechnology.
- **Startup India:** Flagship initiative to promote entrepreneurship.
- **Atmanirbhar Bharat:** Policy push for self-reliance in strategic sectors.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. Deep-tech innovations are primarily based on advanced scientific research and engineering.
2. Deep-tech startups generally require shorter development cycles compared to conventional startups.
3. Deep-tech sectors are crucial for strategic autonomy in areas like defence and semiconductors.

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)

5. NATIONAL ZOOLOGICAL PARK MARKS INTERNATIONAL DAY OF FORESTS WITH EDUCATIONAL OUTREACH AND PLANTATION DRIVE



- The event aimed to **sensitise students and visitors** about the importance of forests and biodiversity.
- Activities included **plantation drives, awareness sessions, and interactive outreach programmes**.
- It highlights the role of urban institutions like zoos in **environmental education and conservation advocacy**.
- The initiative aligns with India's commitment to **sustainable development and ecological balance**.
- Such programmes promote **community participation in conservation efforts**.
- It strengthens the integration of **education, conservation and citizen engagement**.
- The move reflects increasing emphasis on **public awareness as**

a tool for environmental governance.

BACKGROUND / CONTEXT

International Day of Forests

- Observed annually on **21 March**, proclaimed by the United Nations General Assembly.
- Aims to raise awareness about the **importance of forests and sustainable management**.

Role of Zoological Parks in Conservation

- Modern zoos function as **centres for conservation, research and education**.
- They contribute to **biodiversity awareness, species protection and environmental education**.

Forests and Sustainability

- Forests provide **ecosystem services** – carbon sequestration, biodiversity habitat, water regulation.
- Central to achieving climate goals under frameworks like the **Paris Agreement**.

KEY HIGHLIGHTS

- **Awareness Initiative:** Educational outreach programmes conducted for students and visitors.
- **Plantation Drive:** Tree plantation undertaken to promote green cover and ecological awareness.
- **Institutional Role:** National Zoological Park as a hub for conservation education.
- **Global Linkage:** Celebration aligned with International Day of Forests.
- **Community Participation:** Encourages citizen involvement in environmental protection.
- **Environmental Impact:** Promotes sustainable practices and biodiversity conservation.
- **Way Forward:** Strengthen urban environmental awareness programmes and eco-education.

PRELIMS BOOSTER BOX

- **International Day of Forests:** Observed on **21 March**.
- **Declared By:** United Nations General Assembly.
- **Forest Functions:** Carbon sink, biodiversity habitat, climate regulation.
- **Zoological Parks:** Centres for **ex-situ conservation and environmental education**.
- **India's Forest Policy Goal:** Maintain **33% forest and tree cover**.

PadhAI-GENERATED UPSC MCQ

Consider the following statements:

1. International Day of Forests is observed on 21 March every year.
2. Zoological parks play no role in biodiversity conservation.
3. Forests contribute to carbon sequestration and climate regulation.

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)