

Air Pollution Crisis

Delhi's persistent air pollution crisis has highlighted the severe impact of air pollution on public health, the environment, and socio-economic conditions, emphasizing the urgency for collective measures to mitigate this issue.

What is Air Pollution?

Air pollution refers to the contamination of the atmosphere by harmful substances, such as gases, particulates, and biological molecules, which pose risks to human health, ecosystems, and climate stability.

Categorization of Pollution:

- **Primary Pollutants:** Emitted directly into the air (e.g., carbon monoxide, sulfur dioxide).
- **Secondary Pollutants:** Formed through chemical reactions in the atmosphere (e.g., smog, ground-level ozone).

Sources of Air Pollution:

- **Industrial Emissions:** Burning fossil fuels for energy and manufacturing processes.
- **Vehicle Emissions:** Exhaust from automobiles contributes to urban air pollution.
- **Domestic Combustion:** Burning wood, coal, or biomass for cooking and heating.
- **Agricultural Practices:** Stubble burning and fertilizer use release harmful chemicals.
- **Natural Sources:** Dust storms, forest fires, and volcanic eruptions.

Impacts of Air Pollution:

- **Health:**
 - Respiratory diseases (asthma, [bronchitis](#)).
 - Cardiovascular issues and reduced life expectancy.
 - Cognitive impairments, especially in children.
- **Environment:**
 - Damage to ecosystems and biodiversity.
 - Acid rain affecting soil and water quality.
 - Contribution to climate change through greenhouse gases.
- **Economy:**
 - Increased healthcare costs.
 - Reduced agricultural productivity.
 - Property and infrastructure damage.

Government Measures:

1. **Legislative Steps:**
 - **National Clean Air Programme (NCAP):** Targets reducing air pollution by 20-30% by 2024.

- **Pollution Under Control (PUC) Certificate:** Mandatory for vehicles.
- 2. **Technological Interventions:**
 - Adoption of **CNG** for public transport in Delhi.
 - Encouragement of electric vehicles and renewable energy sources.
- 3. **Awareness Campaigns:**
 - Promoting individual actions like tree plantation and reduced vehicle usage.
- 4. **Infrastructure Development:**
 - Installation of air quality monitoring systems.
 - Development of green belts in urban areas.

Role of Multinational Cooperation:

- **Shared Solutions:** Transboundary pollution necessitates collaborative efforts among South Asian nations.
- **Technology Sharing:** Exchange of air pollution mitigation technologies.
- **Policy Coordination:** Joint regulations to control industrial and vehicular emissions.
- **Global Initiatives:** Participation in frameworks like the Paris Agreement and Climate Action Plans.

Way Ahead:

- **Stronger Implementation:** Enforcing stricter regulations and penalties for non-compliance.
- **Public Participation:** Encouraging citizen-driven initiatives like carpooling and waste composting.
- **Sustainable Practices:** Promoting renewable energy and efficient waste management systems.
- **Regional Collaboration:** Developing joint air quality management plans with neighboring countries.

Conclusion:

Addressing air pollution demands a comprehensive, multi-faceted approach involving government policies, technological innovation, and global cooperation. Only through concerted efforts can we ensure clean air and a sustainable future.

CAG Report on Bihar's Healthcare

The Comptroller and Auditor General (CAG) report on Public Health Infrastructure and Management of Health Services (2016-22) highlights critical gaps in **Bihar's healthcare** system, including a shortage of doctors, paramedical staff, and issues with blood banks and drug supplies.

Key Findings of CAG Report (2016-22):

| <u>Category</u> | <u>Key Findings</u> |
|-----------------------------|--|
| Shortage Doctors | of 53% fewer doctors than WHO norms; only 58,144 doctors available against the required 1,24,919. |
| Vacancies Healthcare | in 61% (primary), 56% (secondary), 49% (tertiary), and 82% (AYUSH) positions vacant. Overall, 60% shortage. |
| Blood Banks | Many operating without valid licenses due to critical equipment shortages. |
| Drug Supply Issues | 35%-74% shelf life remaining for medicines supplied; cases of near-expiry drugs not withdrawn. |
| Ambulance Shortfalls | None of the 25 inspected ambulances had the required equipment, medicine, or consumables. |

Nayakkarpatti Tungsten Block

Tamil Nadu's Nayakkarpatti Tungsten Block, auctioned to Hindustan Zinc Ltd., faces controversy over its overlap with the Arittapatti Biodiversity Heritage Site, raising ecological and cultural concerns.

Nayakkarpatti Tungsten Block:

- **Location:** Spread across 20.16 sq. km in Tamil Nadu, covering villages like Kavattayampatty, Ettimangalam, and Arittapatti.
- **Critical Mineral:** Tungsten is categorized as a critical and strategic mineral, essential for national development.
- **Clearances Required:** Mining can only proceed after obtaining forest and environmental clearances, excluding sensitive areas like biodiversity sites.

Arittapatti Biodiversity Heritage Site:

- **District:** Madurai.
 - Includes Arittapatti and Meenakshipuram villages.
- **Ecological Importance:**
 - Home to 250 bird species, including **Laggar Falcon, Shaheen Falcon,** and Bonelli's Eagle.
 - Wildlife includes Indian Pangolin, Slender Loris, and Pythons.
- **Water Resources:**
 - Notable waterbody: **Anaikondan Lake**, built during the Pandiyan era.
- **Cultural Significance:**
 - Hosts megalithic structures, Tamil Brahmi inscriptions, Jain beds, and rock-cut temples.

About Tungsten:

- **Properties:**
 - Known for its high melting point (highest among metals) and exceptional strength.
 - Resistant to corrosion and thermal expansion, making it ideal for industrial applications.
- **Uses:**
 - Used in manufacturing cutting tools, heavy machinery, and electrical components.
 - Essential for defense (armor-piercing projectiles) and aerospace industries.
 - Key component in lighting (filaments) and electronics.
- **Global Supply:**
 - China dominates global tungsten production, contributing over 80% of the supply.
 - Tungsten is categorized as a critical mineral due to its strategic importance.
- **Indian Resources:**

- Major reserves in Karnataka (42%), Rajasthan (27%), Andhra Pradesh (17%), and Maharashtra (9%).
- Smaller deposits in Tamil Nadu, Haryana, Uttarakhand, and West Bengal.
- **Recent Auctions in India:**
 - First tungsten blocks successfully auctioned in 2024 at Nayakkarpatti (Tamil Nadu) and Balepalyam (Andhra Pradesh).
 - Hindustan Zinc Limited won mining rights, marking a milestone in India's critical mineral strategy.

Color Coded Alerts for Cyclone

Cyclone Fengal is expected to make landfall near Puducherry on Saturday afternoon, bringing heavy rainfall and strong winds to several districts in Tamil Nadu and Puducherry.

About Color-Coded Alerts of IMD:

- **Green (All is well):** Indicates no severe weather; no action required.
- **Yellow (Be Aware):** Warns of potential disruptions due to moderately bad weather; advises caution.
- **Orange (Be Prepared):** Highlights the likelihood of extremely bad weather with significant disruptions to transport, power, and daily life.
- **Red (Take Action):** Signals certainty of hazardous weather posing risks to life, demanding urgent action and preparedness.

Cyclone Warning Stages:

- **Pre-Cyclone Watch (72 hours):** Early alert of a potential cyclone, issued by the Director General of Meteorology.
- **Cyclone Alert (48 hours):** Details the storm's location, direction, and areas likely to be affected.
- **Cyclone Warning (24 hours):** Includes specific landfall details, expected intensity, and safety advisories.
- **Post-Landfall Outlook (12 hours):** Predicts the storm's inland movement and associated adverse weather impacts.

Asiatic Lions

Asiatic Lions, with their entire population of 674 residing in Gujarat, exemplify a unique model of human-wildlife coexistence driven by cultural, economic, and legal factors.

Why Asiatic Lions Are Only Found in Gujarat?

- **Historic Habitat Shrinkage:** Asiatic Lions, once widespread from the Middle East to India, are now confined to Gujarat's **Gir Forest** due to hunting, habitat loss, and poaching.
- **Legal Protection:** Gir National Park and nearby areas ensure strict legal safeguards for the lions.
- **Cultural Acceptance:** Gujarat's **Maldhari herders** revere lions due to cultural ties and income from wildlife tourism.
- **Abundant Prey Base:** Old livestock and carrion outside protected areas sustain the lions.
- **Lack of Translocation:** Supreme Court orders to relocate lions to Madhya Pradesh remain unimplemented due to political and logistical challenges.

About Asiatic Lion (*Panthera leo persica*):

- **Distribution:**
 - Historically ranged from southwest Asia to northern India.
 - Currently found only in Gir National Park and surrounding areas in Gujarat, India.
- **Protection Status:**
 - **IUCN Red List:** Endangered
 - **CITES:** Appendix I
 - **Wildlife Protection Act (India):** Schedule I
- **Physical Characteristics:**
 - Slightly smaller than African lions; males weigh 160–190 kg, females 110–120 kg.
 - Distinct fold of skin along the belly, less developed mane, and visible ears in males.
 - Fur varies from tawny to sandy-grey with a silvery sheen in some lights.
 - Larger tail tuft and less inflated auditory bullae compared to African lions.
- **Habitat and Behavior:**
 - Adapted to dry deciduous forests and savannas.
 - Preys on deer, antelope, and livestock; scavenges on carrion.
 - Coexists with humans in Gujarat through cultural tolerance and conservation measures.

Flexible Degree Option

The University Grants Commission (UGC) has introduced flexible degree completion options for undergraduate students, allowing them to accelerate or extend the duration of their programs.

About Flexible Degree Options by UGC:

- **Accelerated Degree Programme (ADP):**
 - Enables exceptional students to graduate early by earning additional credits.
 - Three-year programs can be completed in five semesters; four-year programs in six or seven semesters.
- **Extended Degree Programme (EDP):**
 - Allows students facing challenges (personal, financial, or academic) to extend their degree by up to **two semesters**.
 - Requires fewer credits per semester for flexibility.
- **Equivalence:**
 - Degrees completed early or late are considered equal to standard-duration degrees.
- **HEI Role:**
 - Institutions evaluate eligibility for ADPs and EDPs through committees based on credit performance.
 - Up to **10%** of student intake is allocated for ADPs.

Great Stupa at Sanchi

The two-day Mahabodhi Mahotsav is being held at the Great Stupa at Sanchi, Madhya Pradesh, a UNESCO World Heritage Site.

- The event includes religious ceremonies honoring the relics of Lord Buddha's chief disciples, **Sariputra and Maudgalyayana**, highlighting the cultural and spiritual significance of Sanchi Stupa.

About Sanchi Stupa:

- **Historical Significance:** Commissioned by Emperor Ashoka in the 3rd century BCE and later expanded by Shunga and Satavahana rulers.
- **Architectural Features:**
 - Large hemispherical dome (**Anda**) symbolizing the universe.
 - **Chatras** (umbrella structures) on top, signifying royalty and divine protection.
 - **Harmika** (balcony) atop the dome representing the abode of the gods.
 - **Medhi** stores relics and serves as the base of the stupa.
 - **Toranas:** Four elaborately carved gates depicting Buddha's life events and Jataka tales, pointing to four cardinal directions.
 - **Vedica:** Railings enclosing the stupa for sacred protection.
 - **Paradakshinapatha:** Pathways for circumambulation by devotees.
- **Symbolism:** Early Buddhist aniconism; Buddha represented through symbols like footprints, wheels, or empty thrones rather than direct depictions.
- **Inscriptions:** Includes Ashokan Lion Capital and inscriptions in Brahmi and Kharosthi scripts.
- **UNESCO Status:** Declared a [World Heritage Site](#) in 1989.

Notre-Dame Cathedral

Notre-Dame Cathedral in Paris, a renowned symbol of French Gothic architecture and cultural heritage, is set to reopen on December 7, 2024, after extensive renovations following the devastating fire in April 2019.

About Notre-Dame Cathedral:

- **Location:** Situated on an island in the Seine River, Paris, France.
- **Architecture:** An iconic example of French Gothic style, featuring rib vaults, flying buttresses, stained-glass windows, and carved gargoyles.
- **Historical Significance:**
 - Construction began in 1160 and completed by 1260.
 - Hosted Napoleon I's coronation as Emperor in 1804.
 - Holds the Holy Crown of Thorns and relics from the crucifixion of Jesus.
- **Cultural Importance:** Setting of Victor Hugo's *The Hunchback of Notre-Dame* and celebrated worldwide in literature and film.