Current affairs 16th and 17th March 2025 by Saurabh Pandey Sir

Long-billed Vulture

Species Characteristics

 Species Name: Long-billed Vulture, also known as Indian long-billed vulture due to its longer beak.

 Native Region: Found primarily in the Asian region, specifically in India, Pakistan, and Nepal.

 Diet: Medium-sized scavenger that primarily feeds on the carcasses of dead animals.

♀ Sexual Dimorphism: Females are smaller than males in size.

 Habitat: Typically inhabits savannas and open areas near villages, cities, and cultivated lands.

⚠ Conservation Status: Listed as Critically Endangered on the IUCN Red List.

 Threats: The text implies significant threats to their population, leading to their endangered status.

Ramadevarabetta in Ramanagara, Karnataka, is India's only vulture sanctuary, established in 2012 to protect the critically endangered Indian white-backed and long-billed vultures, among others

The Hindu

Immigration and Foreigners Bill, 2025 Overview

Key Provisions of the Bill

Severe Penalties:

Forged Documents: Using forged passports or visas could lead to a jail term of up to seven years and fines up to ₹10 lakhs.

Mandatory Reporting:

Institutions Involved: Hotels, universities, and hospitals must report information about foreigners to track overstaying individuals.

✈ **Passenger Manifest Requirement:**

International Compliance: Airlines and ships must provide passenger and crew manifests at Indian ports.

Imprisonment for Invalid Entry:

Penalties: Foreigners entering without valid documents may face imprisonment of up to five years and fines up to ₹5 lakh.

Comprehensive Legislation:

Regulatory Scope: The Bill aims to regulate all matters related to foreigners and immigration, replacing four existing laws.

⚖️ **Simplification of Laws:**

Government Goals: Aligns with the goal of simplifying laws, easing business operations, and minimizing compliance burdens while ensuring national security.

🗓️ **Registration Requirement:**

Long-term Visas: Foreigners on visas over 180 days must register with authorities within 14 days of arrival.

Shock and awe

An artist performs the 'Gomira' dance during the Chanchala Kali Mata Puja at Balurghat in Dakshin Dinajpur in West Bengal on Sunday. PTI

The Gomira dance

The Gomira dance is a masked ritual dance from North Bengal, believed to have origins in Mahayana Buddhism

🎶 **It is often accompanied by music that enhances its cultural significance.**

🌍 **The dance is rooted in specific cultural or regional traditions.**

👥 **Participants typically wear traditional attire while performing the dance.**

🎉 **The Gomira dance is often performed during festivals or special occasions.**

🕺 **It involves specific movements and rhythms characteristic of the culture it represents.**

📜 **The dance may have historical or storytelling elements embedded in its performance.**

What is the EPIC Number on the Voter ID Card?

EPIC stands for Electors Photo Identification Card and the EPIC number is the voter ID card number. Issued by the Election Commission of India, the voter ID card serves as identification proof for Indian citizens over the age of 18. The voter ID card also allows Indians to cast their vote in municipal, state, and national elections

The Hindu

India's Solar Energy Challenges and Future Projections

☀️ **India's Solar Potential**

300 sunny days annually, but deteriorating sunlight quality due to air pollution.

🌫 Global Dimming and Brightening

Solar radiation at Earth's surface shows long-term variations known as global dimming and brightening.

🌧 Factors Affecting Air Quality

Air quality is influenced by:

Clouds

Aerosols

Particulate matter

Water vapor

Gases like ozone

These factors reduce solar radiation reaching solar panels.

⚡ Impact on Solar Efficiency

Mid-century: Solar panel efficiency expected to decline by 2.3%. This results in a loss of at least 840 gigawatt-hours of electricity annually.

🛌 Operational Lifespan of Solar Plants

Photovoltaic power plants have a lifespan of 20 to 25 years. The 2040s are a critical period for analysis.

📉 Electricity Generation Loss

Predicted efficiency drop leads to significant annual electricity generation losses based on current solar output levels.

Summary: India's solar energy efficiency is projected to decline by 2.3% by mid-century due to

pollution, resulting in substantial electricity generation losses.

Light Refraction and Birefringence in Optical Applications. Understanding Light Refraction and Birefringence

🌬 Refraction: Light bends when passing through a glass prism due to refraction, influenced by the material's refractive index.

📏 Refractive Index Values: Varies by material:

Vacuum: 1

Air: 1.0003

Glass: 1.5

Diamond: 2.4

🔍 Birefringent Materials: Exhibit multiple refractive indices based on light direction; examples include:

Natural: Mica, Quartz

Synthetic: Barium Borate, Lithium Niobate

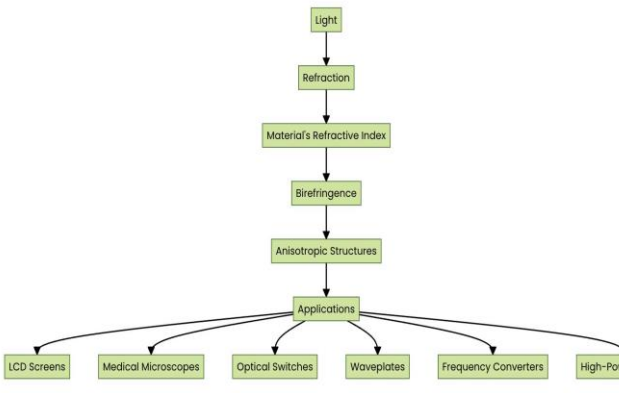
⚙ **Inducing Birefringence: Can be induced or modified by physical stress or exposure to electric/magnetic fields.**

Anisotropic Structures: Occur in materials with different crystal structures in different directions, affecting light's path based on its polarization.

Applications: Utilized in technologies like LCD screens, medical microscopes, optical switches, waveplates, frequency converters, and high-power lasers.

⚡ **Polarization: Light's behavior in birefringent materials is influenced by its polarization, referring to the direction of the electric field oscillation.**

Summary: Light refraction and birefringence in materials like glass and diamond are crucial for various optical applications, influenced by the material's structure and polarization.



Starlink: Revolutionizing Connectivity Across the Globe

Starlink is not just a name; it's a beacon of hope for millions craving reliable internet access.

With a sprawling constellation of over 7,000 satellites, Starlink, owned by Elon Musk's

SpaceX, endeavors to connect the unconnected across the globe. But what exactly is Starlink? Let's unravel this technological marvel.

What is Starlink?

Starlink represents a groundbreaking venture into low-earth orbit satellite internet.

Satellite Constellation: Over 7,000 satellites are strategically positioned to blanket the Earth's surface, ensures that connectivity is available as long as there's visibility to the sky.

Global Reach: Currently operational in about 40 countries, Starlink is making strides in regions where traditional internet infrastructure is non-existent or unreliable.

Speed and Efficiency: Users can experience internet speeds comparable to many wired connections, averaging around 100 megabits per second.

How Starlink Works

The mechanics behind Starlink are as fascinating as the technology itself.

Ground Terminals: Users require a Starlink dish, which connects wirelessly to the satellites overhead.

Speed vs. Latency: While speeds are impressive, latency can be higher than traditional wired services, making it less ideal for applications needing real-time responsiveness.

Visibility: A clear line of sight to the sky is essential for maintaining a robust connection.

Starlink's Impact on Rural Connectivity

One of the most significant advantages of Starlink is its potential to revolutionize connectivity in rural areas.

Immediate Access: For regions lacking solid internet infrastructure, Starlink can provide nearly instant connectivity.

Case Studies: In various rural locations, Starlink has proven to be a game-changer, allowing for educational and business opportunities previously thought impossible.

Urban Limitations: However, in urban centers with robust 5G and wired broadband, Starlink faces stiff competition

Future Prospects and Challenges

The horizon for Starlink is filled with possibilities, yet challenges persist.

Expansion Plans: Starlink aims to broaden its service area, catering to more users.

Technological Advancements: Future innovations could enhance speed and reduce latency.

Market Competition: As more players enter the satellite internet market, Starlink must continue to adapt.

Madhav National Park: A New Dawn as India's 58th Tiger Reserve.

Introduction

On March 9, Environment Minister Bhupender Yadav made a significant announcement that

has wildlife enthusiasts buzzing with excitement.

The Madhav National Park in Madhya Pradesh has officially been declared as the country's 58th Tiger Reserve. This makes it the ninth tiger reserve in Madhya Pradesh, which now holds the record for the highest number of tiger reserves among Indian states.

With Maharashtra trailing behind with six reserves, and Rajasthan, Tamil Nadu, and Karnataka each having five, Madhya Pradesh is leading the charge in tiger conservation.

The Significance of Tiger Reserves

Historical Context of Tigers in India

Tigers have long been a symbol of India's rich biodiversity. Historically, these majestic creatures roamed freely across the subcontinent. The 20th century saw a dramatic decline in their numbers due to various factors.

The Decline of Tiger Populations

- **By the early 1960s, the tiger population plummeted from an estimated 40,000 at the turn of the century to a mere 2,000 to 4,000.**
- **Rampant hunting, poaching, and forest exploitation were the primary causes.**
- **The proliferation of gun licenses post-independence exacerbated the situation.**

The Birth of Project Tiger

- **In 1969, the Indian Board for Wild Life recommended a total ban on the export of wild cat skins.**
- **This led to the establishment of Project Tiger in 1973, initiated by then Prime Minister Indira Gandhi.**
- **The project aimed to create protected areas for tigers, starting with nine reserves across India.**

What Does Establishing a Tiger Reserve Entail?

Management Plans and Guidelines

- **Establishing a tiger reserve is no small feat.**
- **The National Tiger Conservation Authority (NTCA) has laid down specific guidelines that each reserve must follow.**
- **These guidelines ensure that reserves are managed according to a site-specific management plan.**

Core Zones and Buffer Zones

Every tiger reserve is divided into core and buffer zones. The core zone is strictly protected, while the buffer zone allows for some human activity.

This coexistence is vital for local communities and wildlife.

Tiger Conservation Plans

The NTCA emphasizes the importance of Tiger Conservation Plans.

Focus areas include habitat management, protection of prey

species, and addressing local community livelihood concerns.

Funding for Tiger Reserves

Financial Contributions from the Centre and States. Funding is crucial for the success of tiger reserves.

Under Project Tiger guidelines, the Centre provides 60% of the funds.

The remaining 40% is covered by the respective state.

In Northeastern and Himalayan states, the Centre covers 90% of the costs.

The Importance of Madhav National Park

Overview of Madhav National Park

Established in 1956, Madhav National Park spans an area of 165.32 sq km.

It has been expanded to include a core area of 355 sq km, making it a vital habitat for tigers.

The Role of Madhav as a Corridor Madhav: National Park serves as a crucial connecting corridor between the Ranthambore Tiger Reserve in Rajasthan and Kuno National Park.

This connectivity is essential for maintaining genetic diversity and ensuring the survival of these species.

Future Prospects for Madhav National Park

The Potential for Lion Relocation

Exciting plans are underway to introduce lions from Gir National Park in Gujarat to Kuno National Park.

This move has raised concerns about potential conflicts between the lions and the cheetahs.

If successful, this could lead to increased funding for conservation efforts in the region.

Conclusion

The declaration of Madhav National Park as a tiger reserve is a significant step towards preserving India's wildlife heritage. With the right management and funding, this reserve has the potential to thrive and contribute to the overall conservation of tigers in India.