Prelim Bits 28-11-2023 | UPSC Daily Current Affairs

Rat Hole Mining

Rat hole mining is being done to rescue the workers in collapsed Silkyara-Barkot tunnel in Uttarakhand.

- **Rat hole** – It refers to the narrow pits dug into the ground, typically just large enough ***for 1 person*** to descend using ropes or bamboo ladders to reach the coal seams.
- **Rat hole mining** – It is a ***method of extracting coal*** from narrow, horizontal seams, typically around 3-4 feet depth.
- They are prevalent in ***Meghalaya*** due to challenging terrain and the coal seam here are very thin (less than 2 m) in most cases.
- **Types** – There are 2 types of rat hole mining.
    - **Side cutting** – Narrow tunnels are excavated into the hill slopes and workers enter these openings to locate the coal seam.
    - **Box cutting** – Rectangular openings are created, ranging in size from 10 to 100 square metres
- **Issues -** They lack safety measures such as proper ventilation, structural support, or safety gear for the workers.
- The mining process can cause land degradation, deforestation, and water pollution.
- **Ban** - The National Green Tribunal (NGT) has *banned rat-hole mining in **2014*** citing concerns about its unscientific nature and the safety risks posed to the workers.
- However, in 2019, the Supreme Court set aside the NGT ban and allowed coal mining in Meghalaya through scientific mining methods.

Related link– Rat-hole mining in Meghalaya

Reference

The Indian Express| Rat hole mining to rescue trapped workers

Fibre Optic Network

During the unprecedented COVID-19 pandemic, the one thing that connected us virtually was high-speed internet connections through the fibre optic network.

- **Optical fibres** – They are ***thin cylindrical strands of glass*** whose diameter is close to the *diameter of a human hair.*
- They are surrounded by protectives to make them strong, light, and flexible and thus durable.
- It can carry information like text, images, voices, telephone calls across large

distances almost ***at the speed of light***.

- **Working** – A beam of light falling on a glass surface passes through partially while the rest is reflected away.
- When it passes through, its path bends because the ***refractive index*** of glass is different from that of air.
- When the beam travels from glass to air medium, it will be completely reflected back within the glass and this is called as ***total internal reflection***.
- This is how signals encoded as electromagnetic waves can be fed into one end of an optical fibre.

Refractive index *is a measure of the bending of a ray of light when passing from one medium into another that determines how fast light can travel in it.*

Total internal reflection *is the basis of guiding light across long distances without a significant loss of optical power.*

- **3 parts of a fibre optic communication system**
  - **Transmitter** – It encodes information into optical signals (A form of rapidly blinking light pulses of 0's and 1's).
  - **Optical fibre** – It carries the signal to its destination.
  - **Receiver** – It is placed at destination which reproduces the information from the encoded signal.



- **Advantages**
  - Optical waves *allow a high data-transmission rate*, up to several terabits per second in a single fibre.
  - They are *insensitive to external perturbations* like lightning and bad weather.
  - They are *ideal to be buried underground, drawn underwater*, or bent around a spool.

Physicist Charles Kao was the 1st one to suggest that glass fibres could be a superior medium for telecommunication than copper wires for which he received Nobel Prize in Physics in 2009.

Reference

The Hindu| Optic Fibre Network

Sacred River Festival

Ahilya Fort is to present the 20th Sacred River Festival in February 2024, after a three year gap due to the Covid pandemic.

- It is a 4 day festival celebrated ***annually since 2010***, a confluence of art and history.
- It was ***conceived by Richard Holkar*** of Holkar dynasty to represent the family's refined cultural sensibilities.
- **Venue** – Ahilyabai Fort in Maheshwar, Madhya Pradesh.
- **Presented by** – The Devi Ahilya Bai Holkar Charitable Memorial Trust and Ms. Mary McFadden.
- **Aim** - To create a more inclusive art space that celebrates different identities and communities.
- **Activities** - Music, dance, theatre performances, and craft walks, discussions, food displays and also highlights the Ganga Jamuni tehzeeb (syncretic culture) intrinsic to Awadh.

Safed Baradari *(White Palace) in Uttar Pradesh, is a white-marbled building and a place of Mourning by Wajid Ali Shah, the last nawab of Awadh.*

The Ahilya Fort

- It sits high above the ***sacred river Narmada*** in the central Indian town of Maheshwar in ***Madhya Pradesh.***
- ***Maharani Ahilyabai Holkar*** ruled here from 1765 to 1796 and built Ahilya Wada, her personal residences, offices, and darbaar audience hall, within the fort.
- In the year 2000, her descendant converted his home in Ahilya Wada into ***Ahilya Fort Hotel***.

The Holkar dynasty
• It was a ***Maratha clan*** of nomadic tribes. • It was founded by ***Malhar Rao*** who joined the service of the Peshwa Baji Rao of the Maratha Empire in 1721, and quickly rose to the rank of Subedar. • They later became ***Maharajas of Indore in Central India*** as an independent member of the Maratha Empire until 1818. • The name of the dynasty was associated with the title of the ruler, who was known informally as Holkar Maharaja. • It became a ***princely state*** under the protectorate of British India.

Reference

The Hindu| Sacred River Festival

A23a Iceberg

The British Antarctic Survey says that one of the world's largest icebergs is drifting beyond Antarctic waters after being grounded for more than three decades.

- **Origin** – It split from the *Antarctic's Filchner Ice Shelf in 1986* but got stuck to the ocean floor for many years in the *Weddell Sea*.
- **Size** – Around 4,000 square kilometres (1,500 square miles).

- **Movement** – It has *now ungrounded and is moving* along ocean currents to sub-Antarctic South Georgia.
- It appears to be picking up speed because of wind and ocean currents.

Iceberg
• An ***ice that broke off from glaciers or ice shelf*** and is floating in open water. • **Criteria for Iceberg** - Height must be greater than 16 feet above sea level - Thickness must be 98-164 feet - It must cover an area of at least 5,382 square feet. • **Tabular icebergs** – They have steep sides and a flat top. • **Non-tabular icebergs** – They have different shapes, with domes and spires.

Reference

The Hindu| Drifting of A23a Iceberg

Amplifi 2.0

Amplifi 2.0 portal was launched to facilitate the process of achieving sustainable development by making data available on the crucial issues pertaining to development.

- **Amplifi** – Assessment and Monitoring Platform for Liveable, Inclusive and Future-ready urban India
- It is a platform to *provide raw data across 14 sectors* for 440+ parameters for 250+ cities.
- **Launched by** –Ministry of Housing and Urban Affairs.
- **Aim** – To enable research, analysis, and evidence-based policymaking for government, citizens, academia and industry.
- **Coverage** – ***Currently, 225 urban local bodies (ULB)*** have been on-boarded, and data for 150 cities is available on the portal.
- **Target** – To cover data from ***more than 4,000 ULB***.
- **Data collection** – Through multiple assessment frameworks like
    - Ease of Living Index (EOLI)
    - Municipal Performance Index (MPI)
    - Data Maturity Assessment Framework
    - Climate Smart Cities Assessment Framework
    - Urban Outcomes Framework 2022
- It covers range of information like average annual health expenditure, slum population among others.

Urban Outcomes Framework 2022

- An initiative to ***develop a transparent and comprehensive database*** based on cross-city outcomes across 14 sectors.

- **Designed and developed by** – National Institute of Urban Affairs (NIUA).
- **Aim** – To *democratise data by making it accessible* to all urban stakeholders and providing opportunity to create new frameworks based on open data.
- **Significance** – It shifts the focus from the indices to the data with a comprehensive list of indicators.
- It *streamlines the data* to increase focus on data collection, and disaggregated data can be analysed by domain experts.

By 2030, India is projected to have 60 crore (40%) of the population living in urban areas compared to 37.7 crore (31%) in 2011. According to the 2011 Census, urban India contributed 63% to the country's GDP, and this is projected to increase to 75% by 2030.

References

1. The Hindu| Amplifi 2.0 Portal
2. NIUA| Urban Outcomes Framework

Other Important News

Terminologies related to sikihism

Udaasis	It is a religious, ascetic sect, sampradaya (tradition) which considers itself as denomination of Sikhism, and focuses on the teachings of its founder, ***Sri Chand (1494-1643),*** son of Guru Nanak Dev.
Nagar Kirtan	Sikhs celebrate Guru nanak jayanti with a procession called Nagar Kirtan.
Janamsakhis	Biographies of Guru Nanak, the founder of Sikhism.
Kaba	It is a cube-shaped structure in Mecca that is considered holy.
Langar	It is a place where people contribute their labour and help the needy through acts such as cooking food for them at the gurudwaras.
Angad	Meaning - My own limb , Guru Nanak Dev said that Lehna (one of his disciple) as Angad instead of his own son who is not inclined towards spirituality.
Ntim	Word
Dan	Charity
Isniin	Ablution
Sevii	Service
Simran	Prayer

MQ-9B Predator drone

• India is looking at sealing a landmark deal to procure 31 MQ-9B Predator armed drones from the U.S. under a government-to-government framework by March next year.
• The General Atomics MQ-9 Reaper (sometimes called Predator B) is an unmanned aerial vehicle (UAV, one component of an unmanned aircraft system (UAS)).
• It is capable of remotely controlled or autonomous flight operations, developed by General Atomics Aeronautical Systems (GA-ASI), U.S.

Booker Prize for fiction

• Irish writer Paul Lynch wins Booker Prize with dystopian novel 'Prophet Song' recently.
• **Prophet Song -** It is about a woman's struggle to protect her family as Ireland collapses into totalitarianism and war.
• **Booker Prize** – It is founded in 1969, is open to English-language novels from any country published in the U.K. and Ireland, and has a reputation for transforming writers' careers.

Free visas by Malaysia

• Malaysia will grant a 30-day visa-free entry for Indian and Chinese citizens.
• Thailand and Sri Lanka has already announced free visas to foreigners including India to promote tourism.
• The 30-day visa-free entry is also currently enjoyed by 8 ASEAN countries for the purpose of social visits, tourism and business.

Avdiivka & Robotyne

• Russia was intensely attacking the eastern town of Avdiivka and the southern village of Robotyne in Ukraine recently.
• **Avdiivka** is an industrial hub in Donetsk region. The city is a former coal hub and is home to the large Avdiivka Coke Plant.
• **Robotyne** is a village in Ukraine. It's located in Polohy Raion, Zaporizhzhia Oblast. Robotyne was the 1st Ukrainian breach in Russian lines of defense.

Migrated Butterflies

• Coinciding with the onset of the Northeast monsoon the butterflies from the subfamily ***Danainae*** migrate from the Eastern Ghats and plains towards the Western Ghats was below par this year.
• **Butterflies -**Blue Tiger, Dark Blue Tiger, Double-branded Crow, and Common Crow (commonly known as 'Tigers and Crows').
• **Blue Tiger -** ***Tirumala limniace*** is a Nymohalidae butterfly popularly known as Blue Tiger. It is commonly seen in villages, cities and forests.
• **Dark Blue Tiger -** ***Tirumala septentrionis*** is a Danaid butterfly found in South and Southeast Asia. It is known as Dark Blue Tiger.
• **Double-branded Crow –** ***Euploea sylvester***, the double-branded crow, or two-brand crow in Australia, is a butterfly found in South Asia, Southeast Asia and parts of Australia.
• **Common Crow -** The common crow butterfly (Euploea core) is found in South Asia and Australia. In India, it is also known as the common Indian crow. In Australia, it is called the Australian crow.

Pazhaverkadu (Pulicat) Estuary

• The National Board for Wildlife (NBWL) has given approval to construct training walls at the Pazhaverkadu estuary to stabilise the bar mouth, which often gets closed due to silting.

• Pazhaverkadu or Pulicat is a vast brackish water lake with 3 estuaries situated in Thiruvallur district of Tamilnadu.

• Pulicat Lake is the 2nd largest brackish water lake in South Asia, after the Chilika Lake in Odisha.

Peralassery Subrahmanya Temple pond

• The Peralassery Subrahmanya Temple pond in Kannur, Kerala has found place in the list of ***75 water heritage sites*** of India.

• It is locally known as Aynivyal pond. It is situated on the banks of the ***Anjarakandy River***.

• There is no provision under the Ancient Monuments and Archaeological Sites and Remains Act, 1958 to declare a site as a "Water Heritage Site" under Archaeological Survey of India (ASI).

• However, the Ministry of Jal Shakti had constituted a Committee to identify ***75 Water Heritage Structure (WHS)*** in reference to 75 years of India's Independence.

AI's secure by design

• US, Britain, 18 other countries ink agreement to make AI 'secure by design' recently.

• The agreement is ***non-binding***, carries mostly general recommendations such as monitoring AI systems for abuse, protecting data from tampering and vetting software suppliers.

• 18 countries that signed on to the new guidelines include Germany, Italy, the Czech Republic, Estonia, Poland, Australia, Chile, Israel, Nigeria and Singapore.

Fathima Beevi

• India's ***1st woman Supreme Court Justice*** Fathima Beevi passes away recently.

• She was born in Pathanamthitta, Kerala in 1927. She was appointed to the Supreme Court in 1989.

• She had also served as the ***Governor of Tamil Nadu*** from 1997 to 2001.

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