

## 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.

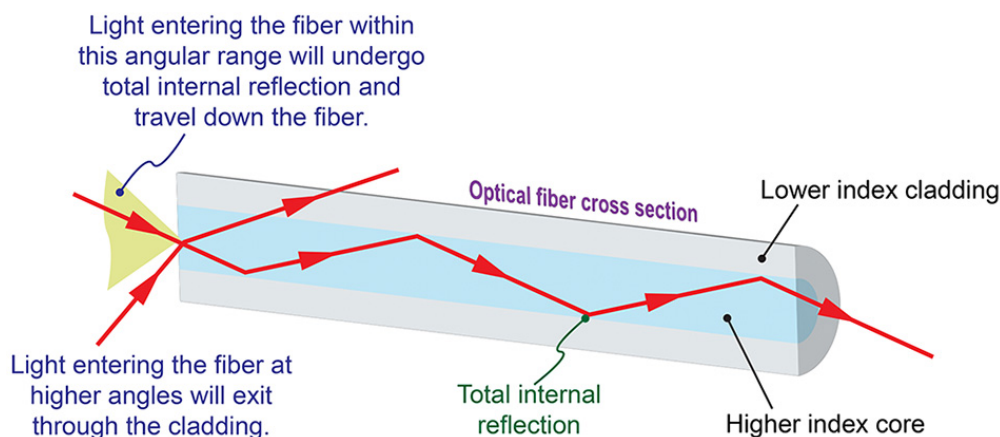
***Refractive index*** is a measure of the bending of a ray of light when passing from one medium into another that determines how fast light can travel in it.

***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.

#### Basic Operation of an Optical Fiber



- **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 1<sup>st</sup> 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.

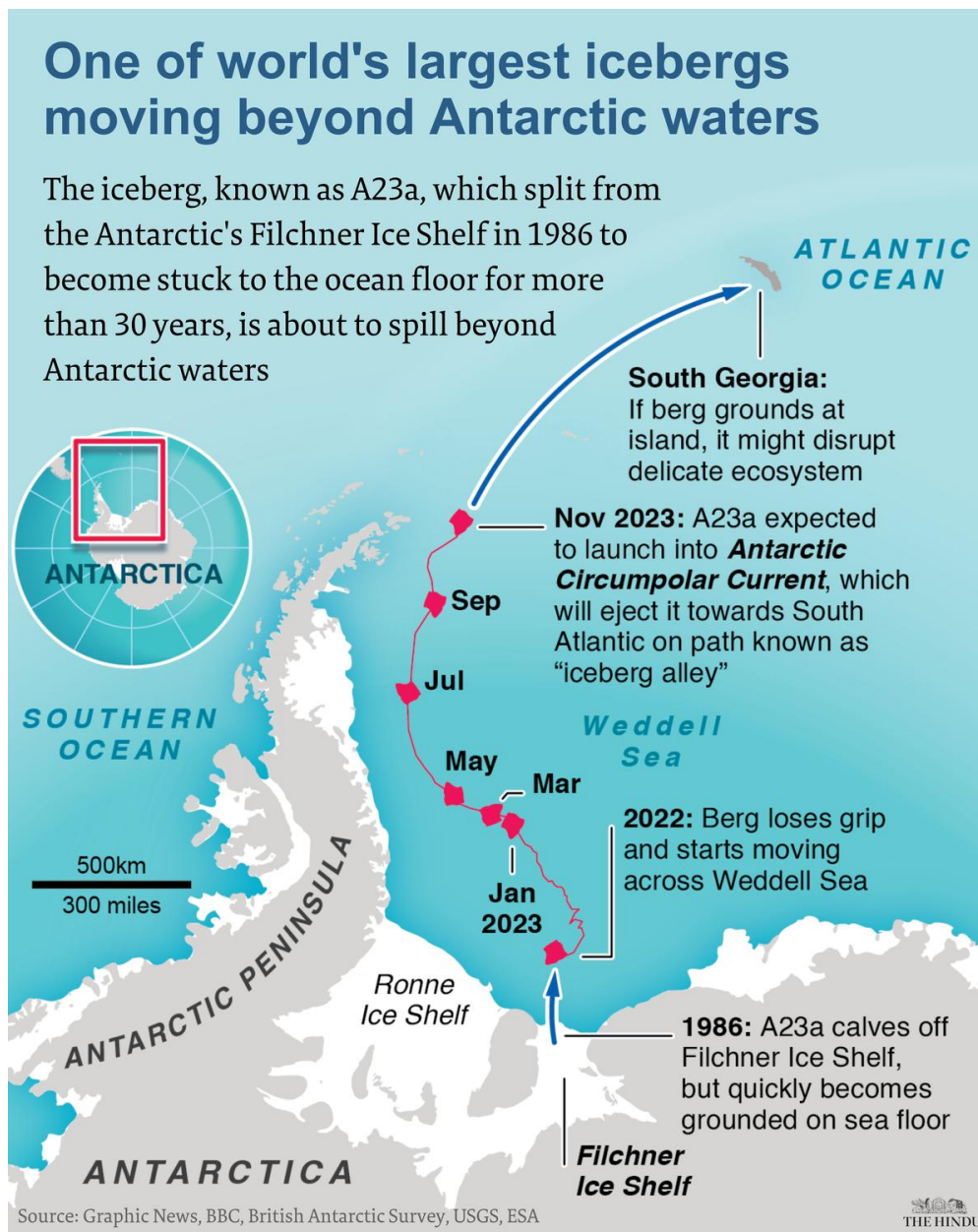
## Reference

[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.



- 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 sikhism

<b>Udaasis</b>	It is a religious, ascetic sect, sampradaya (tradition) which considers itself as denomination of Sikhism, and focuses on the teachings of its founder, <b><i>Sri Chand (1494-1643)</i></b> , son of Guru Nanak Dev.
<b>Nagar Kirtan</b>	Sikhs celebrate Guru nanak jayanti with a procession called Nagar Kirtan.
<b>Janamsakhis</b>	Biographies of Guru Nanak, the founder of Sikhism.
<b>Kaba</b>	It is a cube-shaped structure in Mecca that is considered holy.
<b>Langar</b>	It is a place where people contribute their labour and help the needy through acts such as cooking food for them at the gurudwaras.
<b>Angad</b>	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.
<b>Ntim</b>	Word
<b>Dan</b>	Charity
<b>Isniin</b>	Ablution
<b>Sevii</b>	Service
<b>Simran</b>	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 1<sup>st</sup> 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 2<sup>nd</sup> 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 **1<sup>st</sup> 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.