Prelim Bits 29-01-2024 | UPSC Daily Current Affairs

Nitrogen Hypoxia

Alabama carried out the 1st ever execution using nitrogen gas in the United States.

Nitrogen
• It is denoted by *symbol 'N'*. • **Physical properties** – It is a colourless and odourless gas. • **Importance** – It is the *most abundant element in our atmosphere, approximately 78%* of the atmosphere. • It is a *constituent of all living tissues* as it is a component of DNA and part of a genetic code, it is an essential element of life. • It is found in *nitrates and nitrites in soil and water*. • Generally, it is inhaled by humans from the air and clearly, *the gas itself is harmless*.

- **Execution method** – Forcing the inmate ***to breathe in pure nitrogen*** which ***deprives the body of oxygen*** needed to maintain bodily functions and ultimately causes death.

  The Alabama attorney general's office had reported that the nitrogen gas will cause unconsciousness within seconds, and cause death within minutes.

- **Technology used** – NIOSH approved '***Type-C full face piece supplied air respirator***', a type used in industrial settings to deliver life-preserving oxygen was used to deliver the nitrogen.
- **Issues** – Human rights advocates criticise it as a method of *cruel and inhumane action*.

  Execution by Nitrogen hypoxia marks the United States' 1st execution using the method, and the 1st time in over 4 decades that a new method of execution was introduced, since lethal injection was 1st used in 1982.

Reference

The Indian Express| Execution by Nitrogen Hypoxia

75th anniversary of Supreme Court

Recently, Prime Minister of India inaugurated Diamond Jubilee celebration of Supreme Court (SC).

- **SC** – It is the ***apex judicial body*** under the Constitution of India.

  Article 124 *of the Indian constitution states that 'there shall be a Supreme Court of India'.*

- **Establishment** – It came into ***existence on 26 January 1950*** with the coming into force of the Constitution.
- **Inauguration** – ***28 January 1950***, 2 days after India became a Sovereign Democratic Republic.
- **Location** – It *initially functioned from the old Parliament* building where the Federal Court of India sat for 12 years from 1937 to 1950.
- It moved to the ***present building in New Delhi in 1958*** which encloses a *life size figure of Mahatma Gandhi* and a *7-foot tall statue of Dr. B.R. Ambedkar*.
- Strength of SC – ***34 Judges***, including Chief Justice of India.

  Harilal J. Kania is the 1st Chief Justice of India.

- **75th Anniversary** – *3 new initiatives* have been launched.
- **Digital Supreme Court Reports (Digi SCR)** – It has 36,308 cases of SC since 1950, accessible *to the public in the digital format*.
- **Digital Courts 2.0** – It enables access of *court records to the Judges of the district courts* in digital form, it is coupled with the use of AI for *transcribing speech to text on a real-time basis*.
- **New website of the SC** – It will be in *bilingual format in English and Hindi* and has been redesigned with a user-friendly interface.

Measures taken by India for improving judicial system

- Over Rs. 7,000 crore has been disbursed since 2014 for *bettering physical infrastructure*.
- A fund of Rs 800 crore had been approved for the *expansion of the Supreme Court building and other facilities.*
- Initiatives to translate *SC judgments into regional languages*.
- *Abolished the outdated colonial criminal laws* and introduced new legislation such as the Bhartiya Nagrik Suraksha Samhita, Bhartiya Nyaya Samhita, and Bhartiya Sakshya Adhiniyam.
- Enacted the *Jan Vishwas Bill* to help in reducing the number of pending cases, thereby alleviating pressure on the judiciary.

References

1. PIB| Diamond Jubilee celebration of SC of India
2. SC of India| History of SC of India
3. Business Standard| Initiatives for SC of India

E Ink Displays

E Ink displays are a special type of screen technology often used in e-readers like the Amazon Kindle.

- **Development** – In 1990s at MIT, now owned by E Ink Corporation.
- **Working** – It is made of a *thin film on top of millions of microcapsules* filled with particles floating in a clear fluid.
- They are *charged black or white particles* which are set to *move around depending on what type of electric charge* they receive.
    - **For example**, black will rise when exposed to a negative charge, and white will rise when exposed to a positive charge.
- Rising of particles to the surface creates the text and images on the display.

	E Paper	E Ink
Design	It uses a low-power LCD with a reflective layer to look like paper.	It uses tiny microcapsules filled with charged particles suspended in a clear fluid.
Example	Pebble smartwatch	Amazon Kindle

- **Other applications** – In Mobile devices, bus stop displays, walking direction signs and E Ink menu boards in restaurants.
- **Advantages** - They *consume very little power* compared to LCD and OLED displays, draws power only when the image is changed.
- It cause *less eye strain* for the user as there is no backlight.
- The matte surface and high contrast also make them *easily readable outdoors and under bright light*.
- **Disadvantages** – It has a *slow refresh rate* compared to LCD and OLED displays, making them unsuitable for video or animation.
- It has *limitations on colour and resolution* compared to others.
- The niche nature of E Ink manufacturing means the displays *remain expensive,* which limits their use to mostly e-readers and a handful of other products.

References

The Indian Express| E Ink Displays

Modified PKC-ERCP Link Project

Recently, a MoU was signed for implementation of the Modified Parbati-Kalisindh-Chambal-ERCP (Modified PKC-ERCP) Link Project.

- An ***integration of PKC link project with ERCP*** of Rajasthan.
- It is the ***2nd project under the national perspective plan (NPP)*** of interlinking of rivers (ILR) program of India.

- **Signing parties** – Rajasthan, Madhya Pradesh with the Union Ministry of Jal Shakti.
- **Objectives** – To provide *drinking and industrial water in 13 districts* of eastern Rajasthan, Malwa and Chambal regions of Madhya Pradesh.
- To provide *irrigation in 2.8 lakh ha. area* (or more) each in both the states (total of 5.6 lakh ha or more) including *supplementation of enroute tanks* in the states.

Background
• **Eastern Rajasthan Canal Project (ERCP)** – To meet the *drinking and irrigation needs* of the 13 districts of south-eastern *Rajasthan* by harvesting surplus water available during the rainy season in the rivers like Chambal and its tributaries. • **Parbati-Kalisindh-Chambal (PKC) link Project** – It envisages diversion of *surplus water of Parbati, Newaj and Kalisindh river* for *irrigation* by connecting to the Gandhi Sagar or Rana Pratap Sagar reservoir built across *river Chambal*. • It will traverse *through Madhya Pradesh and Rajasthan* states. • **National Perspective Plan (NPP)** – It was prepared by the then Ministry of Irrigation (now Ministry of Jal Shakti) in August 1980 for water resources development through *inter basin transfer of water*, for transferring water from water surplus basins to water-deficit basins.

- **Significance** – *Optimal and economical utilization* of the available water resources of Chambal basin.
- Achievement of consensus amongst both the states strengthens *inter-state cooperation and cooperative federalism*.

River Chambal
• **Origin** – It rises from the *Vindhyan ranges in Madhya Pradesh*. • It is the largest *tributary of the Yamuna*. • **Interstate river** – It has a catchment area of 1,32,508 sqkm covering parts of Madhya Pradesh, Rajasthan and Uttar Pradesh. • **Kalisindh River** – A *principal tributary* which originates in Madhya Pradesh and joins the river Chambal in Rajasthan. • **Parbati River** – *3rd largest tributary* of Chambal River rising in MP and joins with River Chambal in Rajasthan. • **Newaj River** – It is a left bank tributary of the river Parwan, a right bank *principal tributary of the Kalisindh River*.

References

1. PIB| MoU on Modified PKC-ERCP Link Project
2. NWDA| River Chambal

White Rhinoceros

An international team of researchers from BioRescue, a consortium backed by the German government announced the 1st successful embryo transfer in a white rhinoceros.

- **2 distinct subspecies** – Northern and southern white rhinos.
- **Northern white rhinos** – Despite their name, they are *actually grey*.
- Once roamed freely in several countries in east and central Africa, their numbers fell

sharply due to *poaching for their horns*.

The last male northern white rhino 'Sudan' died in 2018 with only 2 female members remaining, neither are able to carry a calf to term.

- **Southern white rhinos** - They are *more abundant* than northern sub species, *roughly 20,000 remain in Africa*.

IUCN Protection Status of Rhinos
• There are totally *5 species of rhinoceros* globally. • **Critically Endangered** – *3 species*, Black, Javan and Sumatran. • **Near Threatened** – White Rhino (Northern White is Critically Endangered). • **Vulnerable** – Greater One Horned Rhino.

***World Rhino Day** is celebrated each year on 22 September.*

In-vitro fertilization of Northern White Rhinos

- The *eggs of female northern white rhinos* were harvested and *sperm from dead northern male rhinos* of the subspecies was used to produce embryos.
- The embryo was successfully ***transferred to southern white rhino surrogate mothers***.
- It was the ***world's first IVF rhino pregnancy***.
- **Significance** – It offers hope for *saving the critically endangered northern white rhino subspecies* from extinction.

References

The Hindu| World's 1st White Rhino IVF Pregnancy

Other Important Topics

Laughing gull (Leucophaeus atricilla)

• Laughing gull, a migratory bird from North America, has been sighted for the ***1st time in the Chittari (highly dynamic) Estuary*** in Kasaragod district, Kerala.
• The bird is known for its unique ***laughter-like calls***, which sounds like "ha-ha-ha-ha-ha-haah-haah-haah".
• It is a ***diurnal, coastal bird*** that are rarely found inland.
• **Conservation Status**
  - **IUCN** – Least Concern

Operation Black Gold

• Operation Black Gold is a ***DRI (Directorate of Revenue Intelligence) operation*** that seized an alloy containing gold and silver.

Western Equine Encephalitis Virus (WEEV)

• ***International Health Regulations National Focal Point (IHR NFP)*** in Argentina alerted World Health Organization of a human case of WEEV infection recently.
• Western equine encephalitis (WEE) is a ***rare viral disease*** that affects humans and equines (related to horse).
• It is caused by the western equine encephalitis virus (WEEV), which is a member of the ***Togaviridae family*** of viruses.
• WEE is primarily spread by the ***Culex tarsalis mosquito*** and transmitted to birds, and other vertebrate hosts in an enzootic cycle.

Homi.J.Bhabha

• Homi Jehangir Bhabha (1909 - 1966) was an Indian nuclear physicist and ***the "father of the Indian nuclear program".***
• He established the ***Tata Institute of Fundamental Research (TIFR)*** in 1945 to conduct nuclear science research.
• He was the ***1st Indian to receive the Adams prize*** most prestigious prizes instituted by Cambridge university.
• He was the chairman of ***India's first Atomic Energy Commission***.

Halwa ceremony

• Ahead of the ***Union Budget 2024 presentation***, the halwa ceremony was performed recently.
• The Halwa ceremony is performed around a week ahead of the Union Budget every year.

Golden tiger

• Rare golden tiger sighted in Kaziranga National Park in Assam recently.
• It is a rare color variant of the Bengal tiger, also known as ***"Tabby tigers" or "Strawberry tigers".***
• **Conservation Status**
  - **IUCN - *Critically endangered.***
• Kaziranga National Park a ***world heritage site*** and is famous for the Great Indian one horned rhinoceros.

Indigenous paddy varieties in Kerala

• There are some 840 native varieties were documented as indigenous paddy varieties in kerala.
• Some important varieties are
  - Chenkazhama, Cheruvellari, Chettadi, Chitteni, Gandhakasala, Jeerakasala, Kattamodan, Kuttadan, Rakthasali, Thavalakannan, Thekkan, Vellari and Velutha Navara, Jyothi and Kanchana.
  - Nagasampige, karingajavili, raktasali, jugul and rajamudi.
  - Swarna, Sambha, Basmati, Kuzhiadichan, Karungkuruvai.

Singchung Bugun Village community reserve

• The Singchung Bugun Village Community Reserve (SBVCR) is a biodiversity hotspot in ***Arunachal Pradesh***.
• It was established in ***2017***.
• It is home to critically endangered species such as the passerine bird ***Bugun Liocichla (Liocichlabugunorum),*** which is named after the tribe.
• It is also home to endangered species such as the ***red panda (ailurusfulgens)*** and many other varieties of flora and fauna.

Jaitapur Nuclear power plant

• The Jaitapur Nuclear Power Plant (JNPP) is a proposed nuclear power plant, that would be the ***world's largest nuclear*** power generating station.
• The plant would have a capacity of 9,900 MW and would be located 400 km south of *Mumbai, in Ratnagiri, Maharashtra*.
• The project is part of a civil nuclear cooperation agreement between ***France and India***.

Nitish kumar, CM of Bihar

• Nitish Kumar took oath as ***Bihar's Chief Minister*** for the 9th time recently.

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