

# Factly Weekly

**Compilation**

2024

**For UPSC CSE Prelims  
Exam**

**1st Week**

**December 2024**

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## Red-breasted Flycatcher

**News:** The Red-Breasted Flycatcher, a migratory bird from Eastern Europe, was recently spotted at Ameenpur Lake in Hyderabad.

### About Red-breasted Flycatcher



Figure 1. Source- The Hindu

1. **Scientific name**-Ficedula parva

2. It is a small (11-12 cm) *passerine bird* in the Old World flycatcher family.

3. It can be found occasionally feeding on figs (banyan, peepal) in our urban gardens.

4. **Appearances:**

- **Males have a reddish-orange throat** that extends till the upper breast, whereas the **females are overall brown**. Both have creamy-white underparts.

- They can be distinguished from other

orders by the arrangement of their toes — three pointing forward and one backward, a design that helps them to cling onto branches efficiently.

5. **Migration**– It generally *migrates from Eastern Europe* to avoid the harsh winters and thrive in South Asia's moderate climate with abundant food.

6. **Breeding:**

- The bird *breeds from spring to summer*, in the *deciduous mixed forests of Eastern Europe and across Central Asia*.
- *In winter months* (September to March mostly), it migrates to forests, woodlands, orchards, parks, and roadside trees of the *Indian Subcontinent*.

7. **Conservation Status:**

- **IUCN:** Least Concern

### About Ameenpur Lake

1. It is a small lake in the Sangareddy district of Telangana, *located on the outskirts of Hyderabad*.

2. It is the *first body of water in India to be designated as a Biodiversity Heritage Site*, as well as the first biodiversity site to be approved in an urban area.

3. The lake is *man-made* and was reportedly built over 300 years ago during the reign of *Ibrahim Qutb Shah* (1550–1580 AD).

4. **Wildlife:**

- The lake brims with life: *bar-headed geese, cormorants, ruddy shelducks, and grey herons*.
- The checkered keelback snake catches fish, while buffaloes lounge in the deeper parts of the water.
- *Flamingoes are the most common birds* found here.

## Achanakmar Tiger Reserve

**News:** A tiger from Kanha Tiger Reserve in Madhya Pradesh's Mandla district was spotted 400 km away in Achanakmar Tiger Reserve, Chhattisgarh.

### About Achanakmar Tiger Reserve



Figure 2. Source-Naidunia

- **Location**– It is situated in Bilaspur district of Chhattisgarh.
- Achanakmar Wildlife Sanctuary was established in 1975 and was declared a tiger reserve in 2009.
- It is **part of the huge Achanakmar-Amarkantak Biosphere Reserve**.
- It has a corridor **linking Kanha and Bandhavgarh Tiger Reserves** and plays a key role in the movement of tigers between them.
- **Rivers**– The Maniyari River flows through the centre of the reserve, serving as the forest's lifeline.
- **Tribe**: The reserve is home to the **Baigas**, a forest-dwelling tribal community recognized as a "**Particularly Vulnerable Tribal Group (PVTG)**." Within the core area of 626 hectares, there are 25 forest villages, with around 75% of the population being from the Baiga tribe.

- **Vegetation**: Tropical moist deciduous vegetation covers the majority of the area.
- **Flora**– Sal, **Saja, Tinsa, Bija, Bamboo**
- **Fauna**– **Tiger**, leopard, bison, **flying squirrel, Indian giant squirrel, chinkara**, wild dog, hyena, sambar, chital and over 150 species of birds.

## Ratapani Tiger Reserve



**News:** The Madhya Pradesh government has officially notified the Ratapani Wildlife Sanctuary as a Tiger Reserve. Ratapani is now the state's eighth tiger reserve. **Ratapani Tiger Reserve**

### About Ratapani Tiger Reserve

- **Location**– It is situated in the Vindhyaachal Mountain Ranges across Raisen and Sehore districts of Madhya Pradesh.
- **Origin:** It was first declared a wildlife sanctuary in 1976, extended in 1983, and received approval from the NTCA to become a tiger reserve in 2008.
- **Rivers**- It runs parallel on the northern side of the *Narmada River*. The *Kolar River forms the western boundary* of the Sanctuary.
- **Vegetation**– Dry deciduous and moist deciduous type
- **Flora**– Teak (*55 percent of area is covered by teak*), Bamboo etc.
- **Fauna**– Tiger, leopard, *Chinkara*, sloth bear, hyena, spotted deer, sambar deer, *paradise flycatcher* (the state bird of Madhya Pradesh) among others.
- **Significance**– The Sanctuary has *Bhimbetka*, a group of rock shelters and rock paintings, which is one of the " *World Heritage Site* " declared by UNESCO.

### About Tiger Reserves of India



Source- NTCA

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- The tiger reserves in India were *established under Project Tiger*, launched in 1973.
- They are administered by the *National Tiger Conservation Authority (NTCA)* of the Government of India.
- As of December 2024, there are 57 protected areas that have been designated as tiger reserves.
- Tiger reserves *consist of a core area*, which includes parts of protected areas like national parks or wildlife sanctuaries, *and a buffer zone*, which is a combination of forested and non-forested land.
- *State governments notify areas as tiger reserves* based on the NTCA's recommendations.
- The *tiger reserve designation enables the state to receive funding from the NTCA*. It will ensure better management and conservation efforts for wildlife.

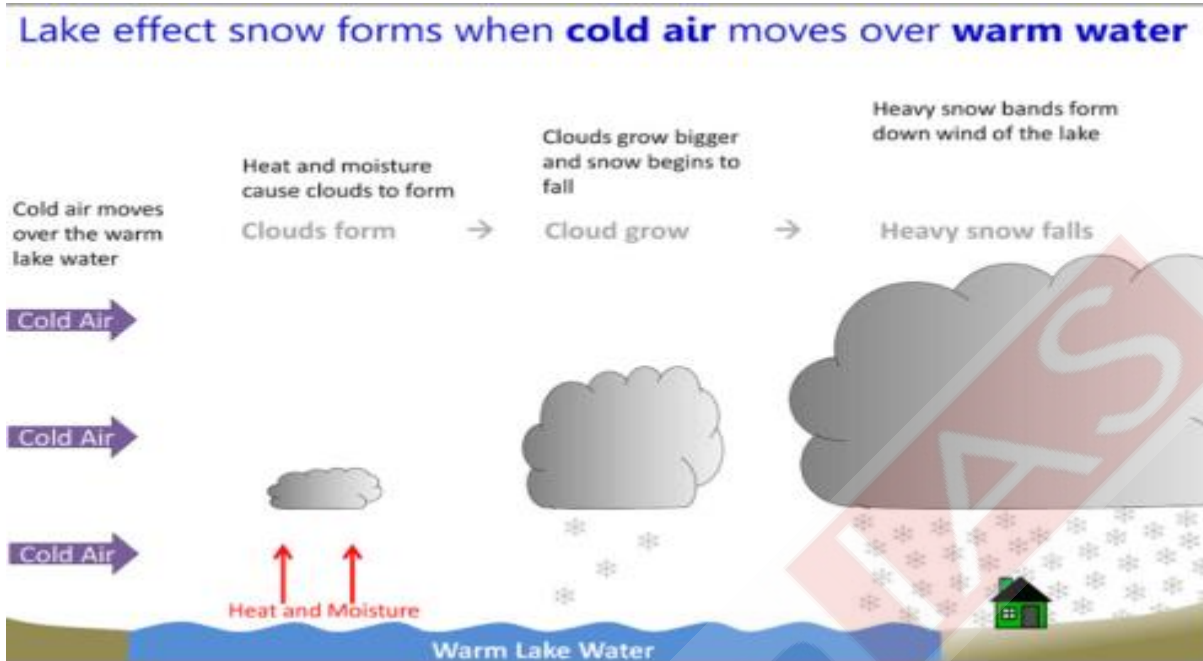
### Lake Effect Snow



**News:** The Great Lakes region in the United States is experiencing extreme winter weather, with heavy lake-effect snow and freezing temperatures.

#### About Lake Effect snow

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Source- National weather service

- It is a localized weather phenomenon that causes heavy snowfall due to the *interaction between cold air and the warmer waters of large lakes*.
- This phenomenon is *common in areas near the Great Lakes in the United States*, especially in states such as New York, Michigan, Ohio, and Pennsylvania.
- **Formation process:**
  - Cold air, usually from Canada, flows over the warmer, unfrozen waters of the Great Lakes.
  - The warm water transfers heat and moisture to the lower atmosphere.
  - As the air rises and cools, it forms narrow bands of clouds that produce snowfall at rates of 2–3 inches per hour or more.
- **Contributing factors:**
  - **Wind direction:** Determines the areas that will experience snowfall.
  - **Cold air:** The intensity of the snow depends on how much colder the air is compared to the lake's surface temperature.
  - **Geography:** Physical Features such as the size of the lake, the depth of the water, and the landscape around the lake (like mountains or valleys) can influence how much snow is produced.

#### About Great Lakes of North America



Source- Britannica

- The Great Lakes of North America are a *group of large, interconnected freshwater lakes*.
- They are **linked to the Atlantic Ocean through the Saint Lawrence River** and to the Mississippi River basin via the Illinois Waterway.
- The five great lakes are—*Superior, Michigan, Huron, Erie, and Ontario*.
- Four of the Great Lakes are on the border between Canada and the United States of America. The other, **Lake Michigan, is completely inside the United States**.
- Hydrologically, Michigan and Huron form a single body of water, connected at the Straits of Mackinac.
- The Great Lakes are the largest freshwater lake system in the world by total area and the second-largest by volume, holding 21% of the Earth's surface freshwater.



## Hornbill Festival



**News:** The Nagaland government is organising the popular Hornbill festival from December 1 to December 10, 2024.

### About Hornbill Festival



Figure 3. Source- Wikipedia

1. The Hornbill Festival is also referred to as the "***Festival of Festivals***" in Nagaland as it showcases the vibrant culture, language and traditions of the ethnic tribes of the state.
2. It is an ***annual festival*** celebrated for the ***first ten days of December***. The festival coincides with the ***Statehood Day of Nagaland (1st December)***, which adds to its significance.
3. The festival is celebrated at the ***Kisama Heritage Village***, located 12km south of Kohima, the capital of Nagaland.
4. It is named after the ***Hornbill Bird***, which represents strength, vitality and respect for nature. The bird is also revered for its beauty and significance in local folklore, culture and customs.
5. The festival features an exhibition of ***Nagaland's traditional art and handicrafts***. The artisans display their works like wood carvings, textiles, jewelry.
6. It has enhanced the ***state's tourism brand*** by attracting tourists from all over the world, promoting cultural heritage, food and cuisine, music and architecture of the state.
7. A key highlight of the festival is that it ***brings 17 major tribes of the state on a single platform***, displaying their folk dances, rituals, traditional attire, music and culture.

### Great Hornbill

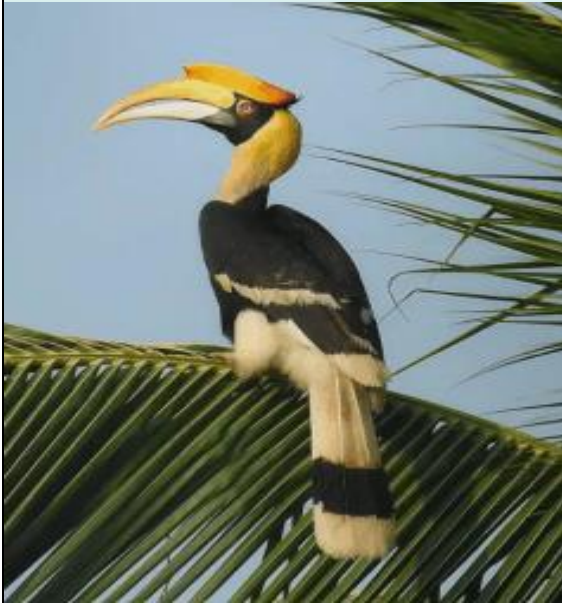


Figure 4 Source- Indian Express

- In India, Great Hornbills are found in **Western Ghats and Himalayas**.
- Generally, they occupy the **canopy of tall trees in evergreen and moist deciduous forests**.
- They are **mostly herbivores**, feeding largely on fruits, figs, berries.
- Great Hornbill is the **state bird of Kerala and Arunachal Pradesh**.
- **Protection Status**
  - IUCN: Vulnerable
  - WPA, 1972: Schedule 1

### Laysan albatross

**News:** Wisdom, a 74-year-old Laysan albatross and the world's oldest known wild bird, has laid what experts believe to be her 60th egg.

#### About Laysan albatross



Figure 5.Source- The Hindu

- Laysan Albatross (*Phoebastria immutabilis*) is a pelagic bird **found predominantly in the North Pacific Ocean**.
- Approximately 99.7% of the population nests in the **Northwestern Hawaiian Islands**, with **Midway Atoll National Wildlife Refuge** serving as a critical breeding ground.
- **Key Characteristics:**
  - It is a medium-sized seabird with a **gull-like appearance** and long, slender wings for long flights.
  - It has blackish-brown backs and upper wings, with white primary feathers.
  - It primarily feeds on squid, fish, and crustaceans.
  - Laysan albatrosses are **monogamous** and usually **mate for life**, laying **one egg each year**.
  - Their typical **lifespan is around 68 years** with some individuals like Wisdom reaching 74 years.
- **IUCN Red List:** Near Threatened

## Sacred Groves

**News:** Sacred groves can preserve biodiversity and function as carbon sink, enabling India to achieve her carbon goals. Unfortunately, most of them are under threat today.

### About Sacred Groves



Figure 6 Source- Tamil Nadu Biodiversity Board

- Sacred groves are **areas of forest or woodland** that are considered sacred by local communities, often due to their **spiritual, cultural, or religious significance**.
- They are usually **preserved from human exploitation**, such as logging, hunting, or farming based on traditional beliefs and rituals.
- They serve as an **important site for worship, community rituals and conservation of biodiversity**, often supporting rare or endangered species of plants and animals.
- They help to **maintain the ecological balance** by acting as vital airshed areas, protecting against soil erosion and helping to regulate local microclimate.
- India has well **over 13,000 documented sacred groves**, with Maharashtra, Jharkhand, West Bengal, Kerala, Tamil Nadu, Meghalaya, Rajasthan having rich abundance of groves.

### Sacred Groves in different states

#### Kerala

- The **Kaavu system** is prevalent in Kerala.
- Some of the famous groves include **Sree Deviote Kavu, Iringole Kavu, Kammadam Kavu**.

#### Maharashtra

- Sacred groves in Maharashtra are known as **Devrai**, meaning the forest of God.
- The **Sahyadri mountains** in Maharashtra are home to numerous sacred groves.

#### Rajasthan

- Sacred Groves in Rajasthan are known as **Dev Van**.
- Sacred groves around **Udaipur and Mount Abu** are good examples.

## Windfall tax



**News:** The government recently removed the windfall tax on domestically produced crude oil and exports of petrol, diesel, and aviation turbine fuel after a decline in international oil prices.

### About Windfall tax

- Windfall tax is a tax imposed by governments on **companies that have earned unexpectedly high profits** due to favorable market conditions, policy shifts, or external factors.
- It is typically imposed on industries like oil, gas, and mining.
- The aim is to seize a portion of the exceptional profits earned by companies and redirect it for the **benefit of the public**.
- India introduced windfall profit taxes on July 1, 2022 to curb profits made by oil & gas companies during Russia-Ukraine war.
- It is levied in the form of Special Additional Excise Duty (SAED).
- The tax rates are **reviewed every two weeks** based on the average oil prices from the previous fortnight.

## Copper Industry in India

**News:** Copper industry in India faces a major copper shortage following the implementation of the Quality Control Order (QCO) on refined copper from December 1, 2024.

Japan, which supplies 80% of India's copper imports, is still awaiting BIS certification, causing a potential supply disruption.



Figure 7Source- ET

### About Copper

- Copper is a reddish-brown metal known for its **high thermal** and **electrical conductivity**.
- **Properties:**
  - **Malleability and Ductility:** Copper can be easily shaped into wires and sheets without cracking.
  - **Corrosion Resistance:** When exposed to air, copper develops a protective layer of copper oxide that prevents further corrosion.
  - **Recyclability:** Copper is one of the few materials that can be recycled repeatedly without any loss of quality, making it

an eco-friendly metal.

### Copper mining and processing

- **Open-pit Mining:** Used for extracting surface-level copper deposits.
- **Underground Mining:** Applied for deeper copper reserves.
- **Leaching:** A chemical method to extract copper from ores.
- **Refining:** Involves smelting and electrolytic refining to produce pure copper.

### Applications of Copper

- **Electrical Industry:** Copper's excellent conductivity makes it ideal for wiring, motors, generators, transformers etc.
- **Plumbing:** Copper pipes are durable, corrosion-resistant, and commonly used in water supply lines and refrigeration systems.
- **Construction:** Used in roofing, cladding, gutters, and decorative elements due to its durability, aesthetic appeal, and ability to form alloys like brass and bronze.
- **Electronics:** Copper is essential in devices like smartphones, computers, and TVs. Its thermal conductivity helps manage heat from electronic circuits.

### Major Copper mines in India

- Malanjkhand Mine- largest copper mine in India (Madhya Pradesh)
- Kolihan Mine (Rajasthan)
- Khetri Mine (Rajasthan)
- Banwas Mine (Rajasthan)
- Surda Mine (Jharkhand)

### Largest Copper Exporters Worldwide

- **Chile:** Leads with over 30% of global copper production.
- **Peru:** Renowned for vast copper mines.

### Current issues with copper industry in India

- India imports 30-40% of its refined copper, with Japanese suppliers accounting for 80% of imports.
- **Reasons for Copper Shortage:**
  - **Quality Control Order (QCO):** Imports of refined copper are stalled due to pending BIS certification, causing potential supply issues.
  - **Sterlite Plant Closure:** The shutdown of Tamil Nadu's Sterlite smelter, which once supplied 36% of India's copper, has reduced domestic production.
- **Consequences of Supply Shortage:**
  - **Production Disruptions:** Industries like wire, cable, and electrical equipment manufacturing may face operational halts, rising input costs, and project delays.
  - **Economic Impact:** The shortage is likely to heavily affect domestic industries, particularly small and medium enterprises reliant on refined copper.

## Foreign Currency Non-Resident (Banks) Deposits



**News:** The Reserve Bank of India has decided to increase the interest rate ceilings on Foreign Currency Non-Resident (Banks) Account deposits to support foreign inflows into the country. **Foreign Currency Non-Resident (Banks) Deposits**

### About Foreign Currency Non-Resident (Banks) Deposits

- It is a deposit scheme that enables the Non-Resident Indians (NRIs), Persons of Indian Origin (PIOs) and Overseas Citizens of India (OCIs) to invest their foreign earnings in Indian fixed deposit accounts.
- The deposit is held in foreign currencies like the US dollar, British pound sterling, Australian dollar, Euro and Canadian dollar.
- The FCNR deposit can be held as a term deposit, ranging from 1 year to 5 years.
- The interest rate ceiling for the FCNR deposits is set by the Reserve Bank of India and the individual banks set the interest rate within that ceiling.

### Benefits of the FCNR(B) Deposits

- It helps NRIs to avoid the risk of currency fluctuations as the principal and interest are held in foreign currency, rather than the Indian Rupee.
- FCNR deposits tend to offer higher interest rates than those offered on regular savings accounts, making them an attractive investment option.
- The principal and interest are freely repatriable, allowing NRIs to transfer the funds to their residential country.
- The interest on FCNR deposits is not taxable in India.

## PM e-Vidya

**News:** Recently, the Union Minister for Education launched the DTH 24×7 Channel No. 31, as a part of PM e-Vidya initiative, to provide education through Indian Sign Language for students who have hearing disabilities.

### About PM e-Vidya



Figure 8. Source- PIB

The scheme was launched in **May 2020**, as part of the **Atmanirbhar Bharat Abhiyaan**, by the **Ministry of Education**.

It aims to promote **inclusive, accessible and high-quality education** through **digital platforms** to minimise learning loss, particularly in the aftermath of the pandemic.

The scheme **aligns with the vision of the National Economic Policy (NEP) 2020**, aiming to provide equitable and quality education throughout the country.

The scheme **utilises technology** to ensure education is accessible to all students, thereby **bridging the digital divide** for learners across the country.

### Key components of PM e-Vidya

**DIKSHA:** It serves as a **national repository of digital content**, including e-learning modules, textbooks, and teaching resources for teachers and students.

**PM e-Vidya DTH TV Channels:** Includes 200 DTH channels, enabling students to access educational content in multiple Indian languages for classes 1-12 across States/UTs.

**SWAYAM (Study Webs of Active Learning for Young Aspiring Minds):** A national MOOC platform providing **free online courses for students from schools to university levels**.

**Radio, Community Radio & CBSE Podcast- Shiksha Vani:** These platforms are used to **deliver educational content to a broader audience**, particularly in regions with limited internet connectivity.

**Digitally Accessible Information System (DAISY):** E content tailored for visually and hearing-impaired students such as audiobooks, sign language videos, and talking books, is available on the NIOS website and Youtube.

## Bima Sakhi Yojana

**News:** Yesterday, Prime Minister launched the **Bima Sakhi Yojana** of Life Insurance Corporation (LIC).

### About Bima Sakhi Yojana



Source- Wikipedia

- It is an **initiative of LIC** to appoint **over two lakh woman insurance agents** over the **next three years**.
- The **aim** is to empower women aged 18-70 years who are Class X pass.
- To promote **financial literacy and institutional awareness**, women agents will be provided with **specialised training** and a **stipend for the first three years**.
- **Stipend Amount:** The woman agents will get a stipend of Rs. 7000 per month for the first year, Rs. 6000 per month in the second year and Rs. 5000 per month in the third year.
- Bima Sakhis will also receive the **benefit of commission**.

#### About LIC

- It came into existence in **September 1956** after the **Life Insurance of India Act** was passed by the Parliament. This Act also nationalised the private insurance sector in the country.
- Its **mission** is to ensure financial security by providing products and services with competitive returns and by rendering resources for economic development.
- It is India's **largest government owned life insurance and investment corporation**, investing the mobilised fund in global financial markets and different government securities.
- **Key objectives** of LIC
  - Spread insurance across the country, particularly to rural areas and vulnerable section of society.
  - Making insurance linked savings attractive
  - Act as trustees of insured public
  - Meeting the various life insurance needs of the community
- It is **headquartered** in Bombay, Maharashtra.



## PRAGATI Platform

**News:** A recent Oxford study has praised India's PRAGATI platform for its outstanding role in digital governance, particularly in infrastructure and social development.

### About PRAGATI Platform



Source- PMIndia

- PRAGATI (Pro-Active Governance And Timely Implementation) was launched on March 25, 2015.
- It is a multipurpose and multi-modal platform designed to **address public grievances**. It also **monitors and reviews key programs** and **projects of the Government of India**, along with those identified by **State Governments**.
- The PRAGATI platform **combines three advanced technologies**: digital data management, video conferencing, and geo-spatial technology.

### Key features

- It is a **three-tier system** (PMO, Union Government Secretaries, and Chief Secretaries of the States)
- **Prime Minister will hold a monthly programme** where he will interact with the Government of India Secretaries, and Chief Secretaries through Video-conferencing enabled by data and geo-informatics visuals.
- Issues to be flagged before the PM are picked up from the available database regarding Public Grievances, on-going Programmes and pending Projects.

### Significance

- It is a robust system for bringing **e-transparency** and **e-accountability** with real-time presence and exchange among the key stakeholders.
- It **promotes cooperative federalism** by bringing together Government of India Secretaries and State Chief Secretaries on a single platform.

## Inner Line Permit (ILP) system



**News:** Recently, the Manipur government began reviewing the ILP system due to violations, emphasizing the need for stricter enforcement.

### About Inner Line Permit (ILP)

- It is an **official travel document** issued by the concerned state government to **allow inward travel of an Indian citizen into a protected area for a limited period.**
- It is obligatory for Indian citizens from outside those states to obtain a permit for entering into a protected state.
- **NRIs** (Indians who are staying abroad for more than 6 months), **PIO Card holders**, and **OCI holders are not eligible for Inner Line Permit.**
- **Origin**– Under the Bengal Eastern Frontier Regulation Act of 1873, the British imposed rules to restrict the entry and stay of outsiders in certain areas to protect the Crown's interests.
- **Current governing Law:** Currently regulated under the **Foreigners (Protected Areas) Order, 1958** for foreign tourists and state-specific ILP guidelines for Indian citizens.
- **States under ILP:** Arunachal Pradesh, Nagaland, Mizoram, and Manipur.
- The inner line permit for the foreign tourist is called the **Protected Area Permit (PAP)**, which is different from the inner line permit for domestic tourists.

### Protected and Restricted Areas

- Under the **Foreigners (Protected Areas) Order of 1958**, areas between the 'Inner Line' and the 'International Border of the State' are designated as "**Protected Areas**," while areas between the 'Inner Line' and the 'Territory occupied by indigenous tribes' are classified as "**Restricted Areas**."

- **Currently, Protected Areas are located in the following States:**
  - a. Whole of Arunachal Pradesh
  - b. Parts of Himachal Pradesh
  - c. Parts of Jammu & Kashmir
  - d. Whole of Manipur
  - e. Whole of Mizoram
  - f. Whole of Nagaland
  - g. Parts of Rajasthan
  - h. Whole of Sikkim (partly in Protected Area and partly in Restricted Area)
  - i. Parts of Uttarakhand

Under the Foreigners (Restricted Areas) Order, 1963, Andaman & Nicobar Islands (Entire UT) and Sikkim (Part of the State) are included as '**Restricted**' Areas.

### **Oilfields (Regulation and Development) Amendment Bill, 2024**

**News:** The Rajya Sabha recently passed the Oilfields (Regulation and Development) Amendment Bill, 2024. It enables major changes in India's oil and gas exploration laws.

#### **About Oilfields (Regulation and Development) Amendment Bill, 2024**



Figure 9Source- ET

- The bill seeks to **amend the Oilfields (Regulation and Development) Act of 1948**, with the goal of increasing investment in oil and gas exploration and production.
- The bill regulates the exploration and extraction of petroleum and natural gas.

#### **Salient features of the bill**

##### **Expansion of the definition of mineral oils**

- The amended bill expands the definition of mineral oils to **include petroleum, natural gas, naturally occurring hydrocarbons, coal bed methane, and shale gas/oil**.
- However, it clarifies that mineral oils will **not include coal, lignite or helium**.

#### **Introduction of petroleum lease:**

- The bill also covers mining leases, which include activities such as exploration, prospecting, production, commercialization, and disposal of mineral oils.
- The new bill will **replace mining leases with petroleum leases**, covering similar activities. However, mining leases granted under the previous Act will remain valid.

#### **Central government's authority to make rules**

- It maintains the central government's authority to regulate leases, conservation, and royalties.
- Additionally, it introduces provisions for **lease mergers, sharing of facilities, environmental protection, and dispute resolution**.

#### **Penalties**

- The bill seeks to **decriminalize** certain provisions of the original 1948 law by introducing penalties. For rule violations, it **increases the penalty from the current fine of Rs 1,000 to Rs 25 lakh**.

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- For exploration, prospecting, and production without a valid lease, a penalty of Rs 25 lakh will be imposed, with continued violations attracting a daily fine of Rs 10 lakh.

### Adjudication of penalties

- For dispute resolution, the central government will appoint an officer of joint secretary rank or higher to handle penalty adjudications.
- Appeals against the adjudication officer's decision can be made to the *Appellate Tribunal* under the *Petroleum and Natural Gas Regulatory Board Act, 2006*.

## Anna Chakra & SCAN Portal

**News: The Union Minister of Consumer Affairs, Food, and Public Distribution recently launched two initiatives: 'Anna Chakra' and the SCAN (Subsidy Claim Application for NFSA) portal.**

### About Anna Chakra



Figure 10 Source- PIB

- It is a **Public Distribution System (PDS) Supply chain optimization tool**.
- The Department of Food and Public Distribution leads the initiative to **improve the efficiency of the country's PDS logistics network**.
- It is developed in collaboration with the **World Food Programme (WFP)** and **Foundation for Innovation and Technology Transfer (FITT)**, IIT-Delhi.
- **Key features:**
  - **Advanced algorithms for route optimization** across 30 states which ensures seamless movement of food grains across supply chain nodes.
  - The supply chain involves multiple stakeholders, from farmers to Fair Price Shops (FPSs).
- The tool is **integrated with the Railways' FOIS (Freight Operations Information System)** through the Unified Logistics Interface Platform (ULIP).
- The optimization tool is **also linked to the PM Gati Shakti platform**, which includes geolocations of FPSs and warehouses across the states.
- **Significance:**
  - This initiative enhances the speed and efficiency of the world's largest food security program, benefiting 81 crore people.
  - It **reduces fuel use, time, logistics costs**, and transportation-related **carbon emissions**, offering environmental benefits.

### About SCAN (Subsidy Claim Application for NFSA) portal)

- It is a **single-window portal for states to submit and process subsidy claims** under the National Food Security Act (NFSA).
- **Key features:**
  - Automates the entire workflow for claim scrutiny, approval, and settlement.
  - Utilizes rule-based processing for faster and more efficient subsidy disbursement.
  - Speeds up claim settlements, improving overall efficiency.

## Trade Watch Report

**News:** NITI Aayog's Trade Watch Quarterly Report highlights the challenges being faced by the Indian economy.

### Key Highlights of the Report



Figure 11. Source- NITI Aayog

**India achieved limited success in harnessing the China Plus One strategy.** While countries like Vietnam, Thailand, Cambodia, and Malaysia have emerged as major beneficiaries

- These countries have simplified tax laws, cheap labour, lower tariffs and showcase proactiveness in signing the Free Trade Agreements (FTA).

- **India's share in global trade has fallen for labour intensive sectors**, impacting her export competitiveness.

- There has been a **re-emergence of trade conflict between US and China**, reflecting in the trade restrictions imposed by both the countries.

- This has led to the **fragmentation of global supply chains**, offering opportunities of a **potential economic boom for India**.

- Indian economy is likely to be adversely affected by **European Union's Carbon Border Adjustment Mechanism (CBAM)**, especially the **steel sector**, which represents 23.5% of India's EU export.
  - **Indian firms may incur tariffs of 20-25%**, affecting their export potential to European Union's market.

#### China Plus One Strategy

- It is a global business strategy in which companies diversify their supply by adding alternative countries to China as part of their global operations.
- The idea is to reduce over-reliance on China for manufacturing and sourcing goods, considering risks such as trade tensions, political instability, or supply chain disruptions.

#### Cross Border Adjustment Mechanism

- Carbon Border Adjustment Mechanism aims to prevent carbon leakages and will be imposed on certain carbon intensive goods such as steel, iron, cement, aluminium, electricity, fertilizers, hydrogen products that are imported into the EU.
- It is launched as a part of EU's 'Fit for 55' Package.
- It will be implemented in phases, with transitional phase from 2023 to 2025 and definitive regime beginning from 2026.

## Adhai Din Ka Jhonpra

**News:** An Ajmer court's recent decision to admit a petition for a survey of the Ajmer Sharif Dargah has sparked calls for a similar investigation into the historic Adhai Din Ka Jhonpra.

Ajmer's deputy mayor has claimed that the site was originally a Sanskrit college and Jain temple before being converted into a mosque in the 12th century. **Adhai Din Ka Jhonpra.**



Figure 12. Source- Navbharat times

### About Adhai Din Ka Jhonpra

- It is one of the oldest mosques in the country, **located in Ajmer, Rajasthan**. It is also the second oldest completed mosque in North India, after the Quwwat ul Islam mosque in Delhi.
- It was **commissioned by Qutabuddin Aibak** after the Muhammad of Ghor defeated Prithviraj III (popularly known as Prithviraj Chauhan) in the Second Battle of Tarain.
- The structure was completed in 1199 CE and was **further enhanced by Iltutmish** of Delhi in 1213 CE.

- It is an example of early **Indo-Islamic architecture**.

### Historical Claims

- The site of the mosque originally had another structure.
- According to Jain tradition, this **structure was constructed by Seth Viramdeva Kala in 660 CE as a Jain shrine** to celebrate Panch Kalyanaka ( a five-day celebration to mark the five auspicious events in the life of a Jain tirthankara).
- ASI excavations from 1874-75 at the site uncovered a number of inscriptions which referred to a **Sanskrit college which was built in 1153 by the Chauhan emperor Visaladeva**.
- The original building was partially destroyed and converted into a mosque by Qutb-ud-Din-Aibak of Delhi in the late 12th century.

### Ashtalakshmi Mahotsav

**News:** Prime Minister has inaugurated the first edition of Ashtalakshmi Mahotsav, which is being celebrated from December 6th to 8th 2024 at Pragati Maidan, Delhi.

### About the Ashtalakshmi Mahotsav



Figure 13. Source-PIB

- The festival celebrates the beauty, culture, and diversity of the **8 North-Eastern States** Assam, Arunachal Pradesh, Meghalaya, Manipur, Nagaland, Mizoram, Tripura, and Sikkim.
  - These states are collectively called **Ashtalakshmi**, representing the **eight forms of prosperity** as embodied by **goddess Lakshmi**.
- It **offers a dynamic platform** to display Northeast India's vibrant textile sector, tourism opportunities, traditional craftsmanship and distinctive Geographical Indication (GI) tagged products.
- The festival underlines the **importance of infrastructure development** in Northeast India and its transformative impact on the region.
- **Key highlights** of the event

## Factly Compilation [First Week] December 2024

- Display of **unique handicrafts, handlooms and agri-horticultural products** of the Northeast India.
- Focus on **key development areas** like women's leadership, IT, energy, healthcare etc.
- **Investors roundtable** to promote opportunities in sectors like handicrafts, agriculture and tourism.
- Various **cultural performances**.

### Key Schemes to promote infrastructural development in North Eastern India

#### 1. North East Special Infrastructure Development Scheme (NESIDS)

- It is a **central sector scheme**
- It is implemented by the **Ministry of Development for North Eastern Region**.
- **Two components** of the scheme are: A) NESIDS-Road B) NESIDS-Other Than Road Infrastructure (OTRI)
- The **objective** of the scheme is to support infrastructural development in the identified sectors in the North Eastern States.

#### 2. Prime Minister's Development Initiative for North East (PM-DevINE)

- It is a **central sector scheme**
- It is implemented by the **Ministry of Development for North Eastern Region**.
- **Objectives** of the scheme include:
  - Funding infrastructure
  - Supporting social development projects
  - Creating livelihood opportunities for women and youth
  - Filling development gaps in various sectors

## Turner Prize

News: Recently, Indian origin artist Jasleen Kaur was awarded the prestigious Turner Prize 2024 for her exhibition "Alter Altar" that pays tribute to her family history of migration to Scotland.

### About Turner Prize



Figure 14 Source- Indian Express

### About Turner Prize

- The prize is named after **English painter JMW Turner**, known for his expressive colouring, imaginative landscapes and dramatic depiction of lights.
- The prize was **first awarded in 1984** and founded by a group called the **Patrons of New Art**.
- It is awarded to a **British artist working globally or to an immigrant working in Britain**.
- It is given based on the **recommendation of a jury**, selected every year by **UK's Tate Gallery**.
- The jury comprises gallery directors, curators, critics and writers with at least one member from abroad.
- A prize of **25,000 Pounds** is given to the **winner** while the **shortlisted artists** get **10,000 Pounds**.
- Apart from Jasleen Kaur, the **only other Indian origin artist** to have won the prize was sculptor **Anish Kapoor** in 1991.

## Nano Bubble Technology



**News:** The Union Minister of State for Forest, Environment, and Climate Change launched the innovative 'Nano Bubble Technology' at the National Zoological Park in Delhi.

### About Nano Bubble Technology

- It is an advanced *technique for enhancing water quality* by using extremely small bubbles, known as nanobubbles.
- Nanobubbles are so tiny (less than 200 nanometers in diameter) that they cannot be seen with the naked eye. They can be formed using any gas and injected into any liquid

### Properties of Nanobubbles



Figure 15. Source- moleaer

- **Surface charge**– Nanobubbles have a strong surface charge that enhances microbiological activity, improving processes such as wastewater treatment, lake muck digestion, and fermentation.”
- **Hydrophobic Nature**– Nanobubbles are hydrophobic, *meaning they repel water*. Their surface charge helps lift organic and inorganic materials from surfaces, similar to surfactants.
- **Brownian Motion**– Nanobubbles *remain in the water for a long time*, ensuring a uniform distribution of oxygen and maintaining dissolved oxygen levels for extended periods.



### Benefits of Nanobubbles

Due to the various inherent physical properties of nanobubbles, the ability to transfer gas to liquid is very high, and thus has the following advantages.

- **Improved Water Treatment:** Nanobubbles effectively remove pollutants, bacteria, and contaminants, making water cleaner and safer for use.
- **Enhanced Agriculture and Aquaculture:** Providing oxygen nanobubbles to plants and aquatic organisms boosts their growth, health, and resilience. They also improve nutrient absorption, reduce the need for pesticides and chemicals, and increase crop yields.
- **More Efficient Cleaning:** Nanobubbles penetrate surface pores for thorough cleaning, reducing cleaning time, water use, and harsh chemicals.
- **Enhanced Oil and Gas Recovery:** Nanobubbles can increase the efficiency of oil and gas recovery by improving the flow of fluids and reducing the amount of chemicals needed in the process.
- **Improved Skin and Hair Health:** Nanobubbles enhance skincare product absorption, promoting healthier skin, improving hair texture, and reducing dandruff.

### Extrachromosomal DNA (ecDNA)



## Extrachromosomal DNA

**News:** Extrachromosomal DNA (ecDNA) is gaining attention in the field of cancer research. Recent studies investigate how it forms and its role in cancer progression and drug resistance.

#### Fundamentals of Cells and DNA

- Human cells contain 23 pairs of chromosomes (total 46 chromosomes).
- Chromosomes are thread-like structures located in the cell nucleus, *made of DNA and proteins*.
- DNA (deoxyribonucleic acid) is a molecule in the nucleus that *carries genetic information* in the form of genes, which provide instructions for building and maintaining an organism.
- Most DNA is found in chromosomes (nuclear DNA), but it can also exist as:
  - a. Mitochondrial DNA (mtDNA)
  - b. Extrachromosomal DNA (ecDNA)
  - c. Cell-free DNA (cfDNA)

#### About extrachromosomal DNA (ecDNA)

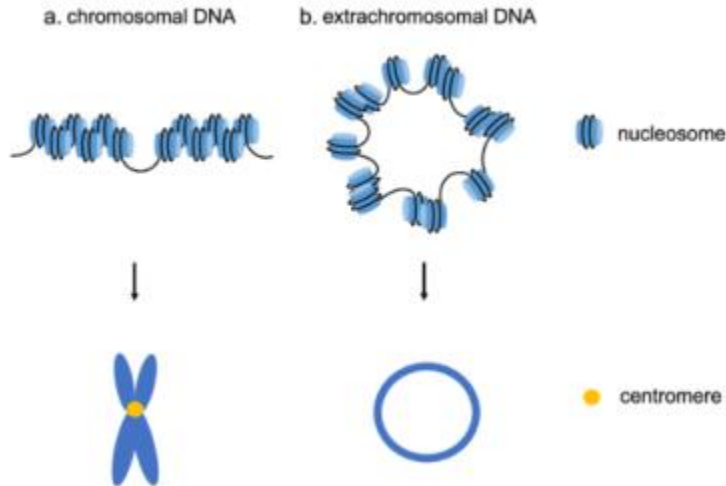


Figure 16. Source-research gate

1. ecDNA are **small circular DNA fragments** that float freely in the nucleus, separate from chromosomes.

2. **Formation of ecDNA:** It forms when **fragments of DNA break away from the main chromosomes** due to processes such as chromosomal damage or replication errors. This can occur through mechanisms like:

**a. Chromothripsis:** A catastrophic event where chromosomes shatter and are reassembled incorrectly,

leaving some fragments detached.

**b. Replication Errors:** Mistakes during DNA replication can result in fragments being excluded from chromosomes.

### 3. Role of ecDNA in Cancer:

- ecDNA is **present in up to 90% of certain tumor types**, such as brain tumors, liposarcomas, and breast cancers.
- It often carries multiple **oncogenes**, which **drive tumor growth** and **contribute to drug resistance**.
  - Oncogenes are mutated genes that can trigger cancer and are essential for activating tumor development.

### 4. Violates Mendel's Third Law:

- Mendel's Law states that genes located on different chromosomes are **inherited independently**, meaning they are passed on randomly to the next generation.
- However, **ecDNA** breaks this rule by **keeping genes grouped together and passing them as a cluster during cell division**. This helps cancer cells inherit beneficial genes more easily, speeding up tumor growth.
- Unlike regular chromosomes, which are distributed randomly, ecDNA is passed along as a package.

## INS Tushil

**News:** The Indian Navy is ready to commission its latest multi-role stealth guided missile frigate, INS Tushil, in Kaliningrad, Russia, on 09 Dec 24.

### About INS Tushil



Source- Republicworld

- It is an upgraded *Krivak III-class frigate of Project 1135.6*.
- **Features**
  - The ship incorporate “*stealth technology*” to reduce radar visibility and underwater noise signatures.
  - The ship is equipped with up to **26% Indian-made components**, including indigenous systems such as surface-to-surface missiles, sonar systems, and more.
  - The **displacement** of the ship is **3900 tons**.

#### About Project 1135.6

- The Indian and Russian governments in October 2016 signed an agreement to construct **four additional P1135.6 class ships**.
- Russia will supply two frigates (INS Tushil and INS Tamala), while India will build the other two.
- Project 1135.6 is **also known as Talwar Class**.
- The **Talwar-class frigates** are a class of **stealth-guided missile frigates**.