



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

SEA ANEMONE

Scientists at the ICAR-National Bureau of Fish Genetic Resources (NBFGR) have discovered mass sea anemone bleaching off Agatti island in the Lakshadweep group.

13 MAY - 18 MAY 2024

WEEKLY CURRENT AFFAIRS

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GENERAL STUDIES – 1

Topics: Population and associated issues, poverty and developmental issues.

1. MIGRATION IN INDIA: STATUS, PROSPECTS AND CHALLENGE

Context:

Migration is a crucial aspect of **economic diplomacy, particularly in Asia where India’s growth is expected to lead global expansion**. This growth will drive significant migration to cities, necessitating a focus on urban development.

About Migration in India:

Topic	Description
About Migration	The International Organization for Migration defines a migrant as any person who is moving or has moved across an international border or within a state away from his/her habitual place of residence.
Factors Determining Migration	Migration can be either voluntary or forced movements as a consequence of the increased magnitude or frequency of disasters, economic challenges, extreme poverty, or conflict situations.
Push Factors	Push factors compel a person to leave their place of origin (out-migration) and migrate to another place. These factors can include economic reasons, social reasons, Pandemics and lack of development in a particular place.
Pull Factors	Pull factors attract migrants (in-migration) to a destination area . These factors can include job opportunities, better living conditions, and the availability of basic or high-level facilities.
Migration – 2011 Census	Number of internal migrants (both inter-state and within state) in India: over 45 crores (37% of the country’s population)
Migration – Economic Survey 2016-17	Relatively less developed states (e.g., Bihar and Uttar Pradesh): High net out-migration
	Relatively more developed states (e.g., Goa, Delhi, Maharashtra, Gujarat, Tamil Nadu, Kerala, Karnataka): Reflect net immigration
	Largest recipient region: Delhi (accounted for more than half of migration in 2015-16); Uttar Pradesh and Bihar combined: Account for half of the total out-migrants
Migration in India Report 2020-21	Female migration is more than male migration. Reasons for female migration: Marriage Reasons for male migration: Search for employment
Migration and its Impacts on Cities	According to a report by the World Economic Forum, smaller cities are rapidly growing but struggling to cope with infrastructure demands due to declining civic revenue resources.
2024 World Migration Report	India hosts the largest population of international migrants worldwide, totalling 18 million , predominantly in countries like the UAE, USA, and Saudi Arabia.
	Furthermore, in 2022, India emerged as the foremost recipient of remittances , surpassing the significant milestone of receiving over USD 111 billion, indicative of its substantial role in the global migrant workforce and economy.

Push-factors Countries of origin	Migrants	Pull-factors Countries of destination
<ul style="list-style-type: none"> ⇒ Population growth, young age structure ⇒ Inadequate educational institutions, medicare and social security 	Demographic factors and social infrastructure	<ul style="list-style-type: none"> ⇒ Stable population, population decline, demographic ageing ⇒ Welfare state benefits, educational institutions, medicare, social security
<ul style="list-style-type: none"> ⇒ Unemployment, low wages ⇒ Poverty, low consumption and living standard 	Economic factors	<ul style="list-style-type: none"> ⇒ Labour demand, high wages ⇒ Welfare, high consumption and living standard
<ul style="list-style-type: none"> ⇒ Dictatorships, shadow democracy, bad governance, political upheaval ⇒ Conflict, (civil) war, terrorism, human rights violation, oppression of minorities 	Political factors	<ul style="list-style-type: none"> ⇒ Democracy, rule of law, pluralism, political stability ⇒ Peace, security, protection of human and civil rights, protection of minorities
<ul style="list-style-type: none"> ⇒ Ecologic disaster, desertification, lack of natural resources, water shortage, soil erosion, lack of environmental policy 	Ecological factors	<ul style="list-style-type: none"> ⇒ Better environment, environmental policy, protection of natural resources and environmental protection
<ul style="list-style-type: none"> ⇒ Decisions of the family or the clan ⇒ Information flows, media, 	Migrant flows and migrant stocks	<ul style="list-style-type: none"> ⇒ Diaspora, ethnic community ⇒ Information flows, media, transferred picture of

Circular Migration in India:

In India, internal migration has often been circular, particularly from rural to urban areas, driven by **industrialization and job opportunities** in the manufacturing, construction, and services sectors. Inter-state migration is prevalent, with states like **West Bengal, Odisha, and Bihar** experiencing high out-migration rates. Circular migrants benefit from better-paying jobs, remittances, and improved household welfare. However, they may face challenges, such as exploitation, language barriers, and seasonal job insecurity.

Reasons for Migration to Smaller Cities in the IT/ITeS Sector:

Reasons	Example
Remote and hybrid work models	Companies like Cognizant allowed employees to work from anywhere (during the pandemic), leading to a shift away from major cities.
	Companies can establish satellite offices in smaller cities, supporting remote and hybrid work models.
Cost savings	Moving to smaller cities allows companies to reduce real estate costs and invest more in people and R&D.
	Employees can save more in terms of rental costs and experience social benefits in smaller towns.
Rich talent pool	Smaller cities have untapped talent with a potential talent drain to larger metros, providing opportunities.

Higher retention rates	Employees prefer to stay in their hometowns, leading to higher retention rates in smaller cities.
Availability of office space and amenities	Smaller cities like Coimbatore offer quality office spaces with amenities at lower costs compared to metros.
Rise of co-working spaces in smaller cities	Co-working spaces provide access to high-quality office space at a fraction of the cost in larger cities.
Counter-magnet dynamics	Surat and Pune have started acting as a counter-magnet region to Mumbai and attract migrants from the neighbouring districts of Maharashtra

Impact of Migration:

Positive:

1. **Economic Growth:** Fills labour gaps, boosts productivity, and generates remittances.
2. **Social Impact:** Spreads ideas, enriches culture, and improves quality of life.
3. **Innovation:** Introduces new skills and technologies, fostering entrepreneurship.
4. **Labour Market Flexibility:** Balances supply and demand, especially in skilled sectors.

Negative:

1. **Demographic Impact:** Contributes to urban growth, affecting rural areas and agriculture.
2. **Environmental Impact:** Strains infrastructure, leading to unplanned urban growth and pollution.
3. **Social Tensions:** Creates competition for resources, housing, and services, fostering cultural clashes and family disruption.

Challenges of Migration in India:

1. **Inadequate Social Security:** Lack of access to healthcare and safety standards exposes migrants to unsafe conditions.
2. **Limited Benefit Portability:** Difficulty accessing state-provided benefits like food supplies through PDS due to residency requirements.
3. **Housing and Amenities:** Migrants struggle to find affordable housing and basic facilities in urban areas.
4. **Exploitation:** Migrants face exploitation, wage theft, and discrimination in the labour market.
5. **Discrimination:** Instances of violence and discrimination against migrants, notably in Maharashtra in 2008.

Government Initiatives on Migration:

1. **Draft National Migrant Labour Policy:** Prepared by NITI Aayog, emphasizes collective action for better migrant conditions.
2. **One Nation One Ration Card (ONORC):** Expanded project for migrant welfare.
3. **Affordable Rental Housing Complexes (ARHC)** and **PM Garib Kalyan Yojna:** Introduced to provide housing solutions.
4. **e-Shram Portal:** Launched to enhance migrant

status and facilitate better access to benefits.

5. **Code on Social Security:** Provides insurance and provident fund benefits for inter-state migrant workers.

International Migration and Global Action:

1. **United Nations General Assembly:** Convened high-level meetings to address refugee and migrant movements.
2. **New York Declaration for Refugees and Migrants:** Commitment to protect the safety, dignity, and human rights of migrants.
3. **Global Compact for Safe, Orderly, and Regular Migration:** Adopted to ensure safe and regulated migration.
4. **International Migrants Day:** Celebrated annually on December 8th.

The way forward and Conclusion:

To tackle the challenges of migration, comprehensive measures need to be implemented. **Firstly, there should be a focus on providing basic amenities and social security measures** to migrants, regardless of their migration status. **Integration and inclusion of migrants into society** are crucial to fostering social cohesion and minimizing discrimination. **Investing in rural skill development** and job creation can reduce the necessity for migration by enhancing employability. **Governments should also develop counter-magnet cities** by investing in infrastructure and amenities to promote balanced regional development and alleviate pressure on major urban hubs. **National surveys must gather more information** on the socio-economic conditions of migrants post-migration, as current data is lacking.

Furthermore, **labour market policies must safeguard the rights of migrant workers**, ensuring fair wages, safe working conditions, and access to social security benefits through strict enforcement of labour laws.

Additionally, **there is a dearth of time-use data for migrants, particularly unemployed female migrants**, which could greatly enhance our understanding of their circumstances. To address this, there needs to be a shift towards collecting more female-specific data, shedding light on their challenges and prompting informed policy decisions.

Insta Links:
[Human Migration](#)

Mains Links:

1. What are the main socio-economic implications arising out of the development of IT industries in major cities of India? (UPSC 2021)
2. Discuss the changes in the trends of labour migration within and outside India in the last four decades. (UPSC 2015)

GENERAL STUDIES – 2

Topics: Indian Constitution- historical underpinnings, evolution, features, amendments, significant provisions and basic structure; Comparison of the Indian constitutional scheme with that of other countries.

1. INDIA SET TO TRANSITION TO LIVING WAGES APPROACH

Context:

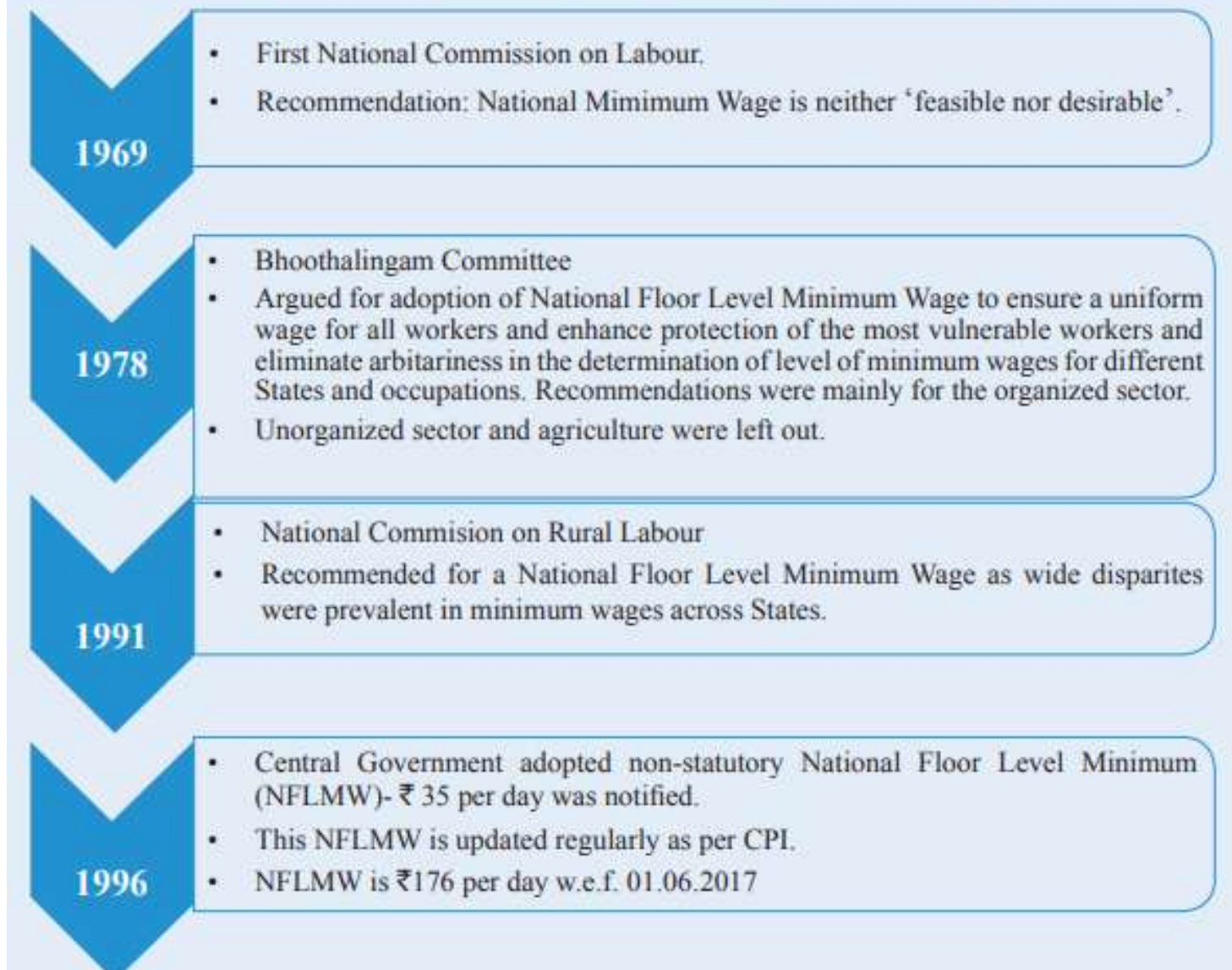
India’s decision to **transition from minimum wage to a scientifically determined living wage by 2025**, with support from the International Labour Organisation (ILO), is commendable.

Types of Wages:

Type of Wage	Definition
Minimum Wage	The minimum amount of remuneration that an employer is required to pay wage earners for the work performed during a given period, cannot be reduced by collective agreement or an individual contract. It includes basic needs like food, shelter, and clothing .
	In India, the minimum wage calculation varies depending on the state government and worker’s skill level and the nature of their work among other factors.
Living Wage	The wage needed to provide the minimum income necessary to pay for basic needs is based on the cost of living in a specific community. In addition to basic needs, a living wage includes education, health, insurance , and other essential expenses.
	Article 43 of the Indian Constitution mandates the State to ensure, through appropriate legislation or economic measures, a living wage for all workers , including those in agriculture, industry, and other sectors.
	In the Raptakos case (1991) , the Supreme Court advocated the concept and the right to living wage .
Fair Wage	A fair wage is a balance between a living wage and a minimum wage. It aims to provide workers with reasonable compensation that meets both their basic needs and ensures a decent standard of living.
Starvation Wage	Starvation wage refers to wages that are insufficient to provide the ordinary necessities of life . Workers earning starvation wages struggle to afford even basic essentials such as food, shelter, and healthcare.

Evolution of Wage System in India:

Box 1: Timeline of adoption of National Minimum Wage



Current wage system in India:

In India, the current wage system operates under the [National Floor Level Minimum Wage \(NFLMW\)](#), established by the government as per the [Code on Wages 2019](#). This mandates that employers cannot set wages below this minimum level. While the NFLMW is set at **Rs 178 per day**, states have the flexibility to revise minimum wage rates accordingly, as outlined in Section 5 of the Code on Wages 2019.

Issues with the Current Wage System:

The current [National Floor Level Minimum Wage \(NFLMW\)](#) of ₹176 per day, set in 2017, **lags far behind other countries in the Asia-Pacific region**, such as China, Vietnam, and Bangladesh. By adopting a living wage approach, **India can address the disparity and ensure fair compensation for workers**, as demonstrated by examples from countries like Brazil and developed economies such as Australia, the UK, and the US.

Need for Living Wage Standard:

Need	Description
Insufficiency to Meet Basic Needs	The current minimum wage is inadequate for basic needs due to inflation.
	45% of salaried workers earn less than Rs 9750 monthly , pushing many below the poverty line.

Alleviating Poverty	Transition to living wages aims to uplift millions out of poverty.
Wage Discrepancies	Over 500 million workers, 90% in the unorganized sector, earn varying minimum wages, some below the poverty line.
	About 80% of unorganized sector workers earn below government-stipulated minimum wages.
Achieving SDGs	India is committed to SDGs including decent work and economic growth; living wages can expedite poverty reduction efforts.
Reducing Inequalities	India's high inequality requires wage structure redesign.
	Strong economic growth indicates the capacity for higher wages.
Positive Work Culture	Higher wages can boost morale, and productivity, reduce turnover, and enhance customer satisfaction.
	Investing in employee well-being fosters loyalty and work ethic.

Legislations on Minimum Wages:

Legislations on Minimum Wage in India have evolved over time. Until 2019, the **Minimum Wages Act of 1948 governed minimum wage fixation**. This Act allowed the Central government to set wages for certain industries, while State governments had jurisdiction over others, including the private sector. The introduction of the **Code of Wages in 2019** aimed to standardize wage regulations and ensure that **minimum wages do not fall below the National Wage Floor (NFW)**. However, full implementation of this code, which is applicable nationwide, is still pending.

Case Studies:

- United Kingdom:** Adoption of living wage standards has led to improved employee satisfaction and productivity.
- United States:** Initiatives like Seattle's \$15 per hour minimum wage have enhanced working conditions for low-wage workers.

What Needs to be done:

- Minimum Wages for Gig Workers: Currently,** only three platforms, including Bigbasket, Flipkart, and Urban Company, have minimum wage policies to ensure workers earn at least the local minimum wage.
- Government Legislation and Policies:** Governments should enact laws beyond minimum wage standards, considering comprehensive policies that reflect the true cost of living.
- National Multidimensional Poverty Index:** Incorporating health, education, and standard of living indicators into the definition of living wages can align with India's multidimensional poverty index.
- Inflation Adjusted Wage:** To address market volatility, minimum wages should be adjusted for inflation, ensuring alignment with economic fluctuations.
- Overcoming Implementation Challenges:** Gov-

ernments can support small businesses facing increased labour costs through incentives like tax credits or grants.

- Collective Bargaining:** Empowering workers through collective bargaining ensures their interests are represented in wage negotiations.
- Adaptation and Innovation:** Collaboration between policymakers, businesses, and labour advocates is crucial to mitigate the impact of automation and the gig economy on worker rights and fair compensation.
- Integration with Sustainable Development Goals:** Aligning living wages with sustainable development goals strengthens the global commitment to fair compensation and socioeconomic progress.

Code of Wages Act 2019:

India's Minimum Wage Policy under the Code of Wages Act 2019 aims to modernize outdated labour laws, ensuring transparent and accountable regulations. It universalizes minimum wage provisions for all sectors, guaranteeing timely payment and the **"Right to Sustenance" for workers**. The Central Government determines floor wages considering living standards, allowing for regional variations. State-set minimum wages must exceed the floor wage. The Code introduces the concept of floor wage, preventing states from setting wages below this baseline. However, concerns arise regarding potential capital flight due to regional wage disparities.

Insta Links

[Insights into Editorial: The minimum wage solution](#)

Mains Links

Q. Examine the role of 'Gig Economy' in the process of empowerment of women in India. (UPSC 2021)

Prelims Links:

Q. In India, which one of the following compiles information on industrial disputes, closures, retrench-

ments and lay-offs in factories employing workers? (UPSC 2022)

- (a) Central Statistics Office
- (b) Department for Promotion of Industry and Internal Trade
- (c) Labour Bureau
- (d) National Technical Manpower Information System

Ans: C

Topics: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

2. KEY PROVISIONS OF INDIA'S DIGITAL COMPETITION BILL, 2024

Context:

India's proposed **Digital Competition Bill, 2024**, draws inspiration from European regulations to address concerns regarding big tech companies like Google, Facebook, and Amazon

What is Digital Competition?

Digital competition refers to the **competitive landscape within the digital sector**, encompassing industries such as **technology, internet services, e-commerce, and digital platforms**. It involves the rivalry among companies offering digital products, services, or platforms, as well as the dynamics of market entry, innovation, pricing, and consumer choice within these sectors.

What is Digital Competition Bill (DCB) 2024?

The Digital Competition Bill (DCB) is a proposed bill which aims to **regulate Systemically Significant Digital Enterprises (SSDE) and their Associate Digital Enterprises (ADEs)** to prevent Anti-Competitive Practices (ACPs). It draws inspiration from the Digital Markets Act (DMA) of the European Union, which was introduced to address ACPs of tech giants such as Google, Facebook, and Amazon. The **Ministry of Corporate Affairs (MCA)** is handling the draft.

Need for the Digital Competition Bill (DCB) arises from several factors:

1. **Ineffectiveness of Current Framework:** The existing ex-post framework under the **Competition Act, 2002**, lacks the ability to promptly address anti-competitive behaviour by digital enterprises.
2. **Market dominance Concerns:** The current framework may not adequately tackle the dominance of markets in favor of large digital enterprises, leading to their permanent dominance.
3. **Arbitrary Pricing:** Big Tech's influence on pricing rules in the digital space, leads to concerns about fairness and competition.
4. **Anti-Competitive Practices:** Big tech giants have been observed engaging in practices such as data collection and self-preferencing (which can stifle competition and innovation) and Google's tweaking of its Android ecosystem to favour itself.
5. **Ensuring Orderly Expansion:** DCB aims to support the orderly expansion of the digital ecosystem by promoting fair competition and preventing monopolistic tendencies.
6. **Remove barriers for new players:** The dominance of a few companies creates barriers for new entrants, limiting innovation within the sector.

Key provision of the DCB Bill:

Provisions	Description
Ex-Ante Regulation	The bill proposes a preventive (ex ante) approach instead of the current post-incident (ex post) regulation. It aims to anticipate and prevent potential anti-competitive practices. It allows the Competition Commission of India (CCI) to intervene preemptively
Core Digital Services (CDS)	The list of core digital services (susceptible to market concentration) has been mentioned under Schedule I of the bill. It covers various digital services like search engines, social networks, video-sharing platforms , communication services, operating systems, web browsers, cloud services, advertising platforms, and online marketplaces.

SSDE (Systematically Significant Digital Enterprises)	The Bill proposes to designate certain enterprises as SSDEs . CCI designates SSDEs based on quantitative (turnover, market cap) and qualitative (user base) parameters
	SSDEs are those enterprises that provide core digital services in India and have a significant presence and significant financial strength in the country.
Parameters to determine whether the enterprise may be designated as SSDE	To determine SSDE designation, the Bill proposes financial strength and spread tests .
	Qualifying parameters include India turnover, global turnover, gross merchandise value, and market capitalization.
	Additionally, a core digital service must have at least 1 crore end users or 10,000 business users . Entities falling short may still be designated based on their significant presence in a core digital service.
Obligations of SSDEs	SSDEs are barred from self-preferencing, anti-steering, and limiting third-party apps . Violations could lead to fines of up to 10% of their global turnover.
Coverage of Enterprises Outside India	CCI is empowered to inquire into non-compliant enterprises.
Associate Digital Enterprises (ADEs)	Entities benefiting from data shared by major tech groups. They are subject to the same obligations as SSDEs.

Issues with the Bill:

- Compliance Burden:** Big tech firms argue that strict regulations may shift focus from innovation to compliance, citing the EU’s DMA increasing search time on Google by 4,000%.
- Broad Definitions:** Concerns exist about overbroad criteria for designating significant platforms, with India’s law leaving decisions to the CCI’s discretion.
- Impact on Smaller Businesses:** Changes and reduced data sharing could negatively affect smaller businesses reliant on tech giants’ services.
- Potential Arbitrary Decisions:** CCI discretion could lead to arbitrary rulings, affecting startups and smaller firms.

Regulation of tech companies in other countries:

Country	Mechanism	Description
Europe	Digital Markets Act (DMA) and Digital Services Act (DSA)	The Digital Markets Act (DMA) aims to ban harmful business practices by large digital players, creating a fairer and more competitive economic space. The Digital Services Act (DSA) targets various online services , including websites, internet infrastructure services, and online platforms.
USA	Anti-trust legislation	The United States has adopted anti-trust legislation to address the dominance of Big Tech companies . These measures include giving states greater power in competition cases and increasing funding for federal regulators.
Australia	Competition watchdog recommendations	The competition watchdog in Australia has recommended tighter regulations for Facebook and Google to improve media competition. Additionally, the Online Safety Act grants the power to force social media companies to delete posts constituting online bullying and imposes fines on companies and hosts involved in the alleged abuse.

The Standing Committee on Finance submitted its report on ‘Anti-Competitive Practices by Big Tech Companies’ in December 2022.

Key observations and recommendations include:

1. **Regulating Digital Markets:** Evaluate competitive behaviour in digital markets before monopolization occurs, suggesting the **identification of Systemically Important Digital Intermediaries (SIDIs)** and yearly reporting to the Competition Commission of India (CCI).
2. **Digital Competition Act:** Introduce legislation to ensure a fair digital ecosystem.
3. **Self-Preferencing:** SIDIs must not favour their own services over competitors' on their platforms.
4. **Data Usage:** SIDIs should handle user data responsibly, avoiding merging data from core services without consent and restricting data access to third-party services.
5. **Revamping CCI:** Strengthen the CCI with a specialized digital markets unit to monitor SIDIs and address anti-competitive behaviour.
6. **Third-Party Applications:** SIDIs should allow and technically enable the use of third-party applications without transferring data to foreign governments.
7. **Bundling and Tying:** SIDIs should not force users to subscribe to additional services to use their core platform.
8. **Anti-Steering:** SIDIs should not restrict business users from steering customers to offers outside the platform.

To read more about regulatin of Big Tech firms: [Click Here \(Regulating Big Tech Companies in India and the world\)](#)

Conclusion

Collaborative efforts can help address the challenges posed by emerging technologies, promote ethical and responsible technology use, and ensure a globally inclusive and sustainable digital future.

Insta Link:

[RBI to regulate bigtech and fintech](#)

Mains Link:

There is growing support for regulating big tech companies such as Facebook and Google. Discuss the reasons. (15M)

Prelims Link:

With reference to 'consumers' rights/privileges under the provisions of law in India, which of the following statements is/are correct? (UPSC 2012)

1. Consumers are empowered to take samples for food testing.
2. When a consumer files a complaint in any consumer forum, no fee is required to be paid.
3. In case of death of consumer, his/her legal heir can file a complaint in the consumer forum on his/her behalf.

Select the correct answer using the codes given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: C

GENERAL STUDIES - 3

Topics: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

1. PERFORMANCE OF THE INDIAN RUPEE AGAINST THE US DOLLAR IN THE LAST 10 YEARS

Context: The rupee's exchange rate has **weakened against the US dollar** in the last 10 years. But its **"real" strength against a basket of global currencies has improved.**

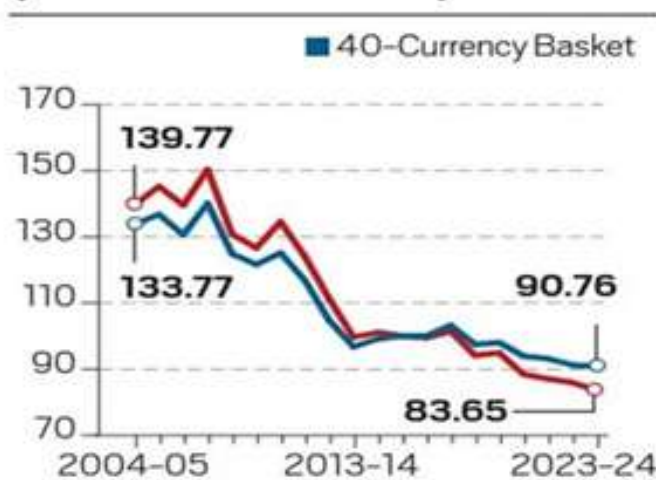
Before we analyse, 1st revise a few basic definitions:

Term	Definition
Exchange Rate	The rate at which one currency can be exchanged for another currency . It represents the value of one currency in terms of another currency. They are of three types:
	Fixed Exchange Rate: Governments or central banks set the value of their currency in relation to other currencies and maintain that value by buying or selling their own currency.
	Floating Exchange Rate: The value of a currency is determined by the forex market based on supply and demand. Most major currencies operate under this system.
	Managed Float: A mix of fixed and floating exchange rates where governments intervene occasionally to stabilize their currency's value.
Effective Exchange Rate	The weighted average of a currency's exchange rates against other currencies, is adjusted for inflation and trade competitiveness .
	Currency weights are derived from the share of individual countries in total foreign trade.
Nominal Effective Exchange Rate (NEER)	A simple average of bilateral exchange rates between the domestic currency and the currencies of major trading partners, weighted by respective trade shares .
	NEER measures the overall strength or weakness of a currency relative to a basket of other currencies without adjusting for inflation.
Real Effective Exchange Rate (REER)	Adjusts NEER for differences in inflation rates between the domestic economy and its trading partners. Reflects changes in the relative price levels of goods and services.
	Provides a more accurate measure of a currency's trade competitiveness by accounting for changes in price levels.

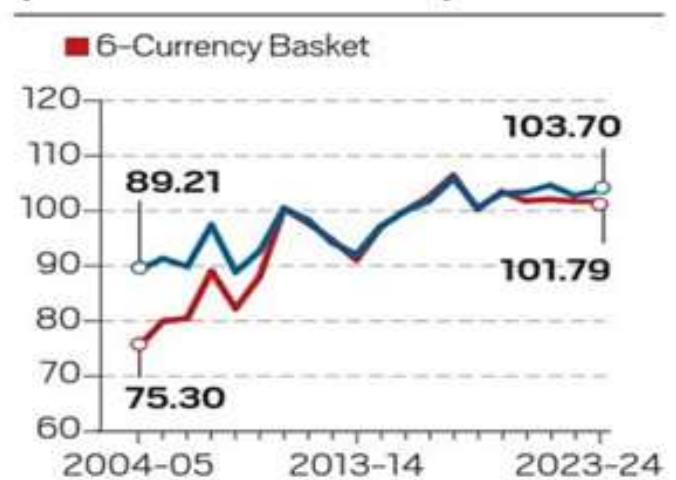
Status of the Indian Rupee in the last 10 years:

1. The rupee fell from Rs **44.37 to Rs 60.34 (26.5%)** from 2004 to 2014 against the US dollar
2. From 2014 to 2024, the rupee further depreciated from **Rs 60.34 to Rs 83.38 (27.6%)** against the US dollar.
3. Between 2004 and 2024, the rupee declined by **32.2% (from 133.77 to 90.76)** as per the 40-currency basket NEER
4. Despite this, between 2004 and 2024, the **rupee has undergone a smaller depreciation against the currencies of India's major trading partners** compared to its depreciation solely against the US dollar.
5. The **rupee's trade-weighted REER for the 40-currency basket** has increased in the last 20 years, indicating that the **Rupee strengthened between 2004-05 and 2023-24**.

TRADE-WEIGHTED NEER (BASE: 2015-16 = 100)



TRADE-WEIGHTED REER (BASE: 2015-16 = 100)



Note: Figures are for April-March financial year.

Source: Reserve Bank of India

Reasons for Indian Rupee to depreciate against US dollars:

1. **Trade Imbalance:** Persistent trade deficits for India (as India imports more than the value of its exports) can put downward pressure on the rupee as more rupees are demanded to pay for imports compared to the dollars earned from exports.
2. **Capital Outflows:** The rate of investment through FDI and FII has reduced in the last few years.
3. **Inflation Differentials:** Higher inflation rates in India compared to the US can erode the purchasing power of the rupee, leading to depreciation against the dollar.
4. **Interest Rate Differentials:** Lower interest rates in India relative to the US can reduce the attractiveness of Indian assets for foreign investors, resulting in capital outflows and rupee depreciation. Currently, the US interest rate is high.

Reasons for Indian Rupee to strengthen against the currencies of India's major trading partners:

1. **Trade Surplus:** India maintains a trade surplus with some of its major trading partners (including the USA. India has a trade surplus of over \$24b with the US). It can lead to increased demand for the rupee, strengthening its value relative to those currencies.
2. **Positive Economic Outlook:** Strong economic fundamentals and growth prospects in India compared to its trading partners can attract foreign investment, boosting demand for the rupee.
3. **Government Policies:** Government policies aimed at stabilizing the currency and promoting economic growth can instil confidence in the rupee, leading to its appreciation against other currencies.

Implications of Currency Depreciation on the Indian Economy:

Positive Impacts:

1. **Boosts Exports:** A cheaper rupee makes Indian exports more affordable for foreign buyers, potentially increasing demand and export earnings.
2. **Inward Remittances:** A weaker rupee enables higher remittances from overseas workers, increasing disposable income in India.

Negative Impacts:

1. **Higher Import Costs:** Imports become more expensive, leading to inflationary pressures and impacting purchasing power.
2. **Costlier Foreign Debt:** Increased repayment burden on foreign debt due to the need for more rupees to settle debts.
3. **Discourages Foreign Investment:** Depreciation signals economic instability, potentially dissuading foreign investors from investing in India.

Way Forward:

Enhancing Export Competitiveness, thereby Improving Indian Rupee Strength:

1. **Improved Infrastructure:** Investments in transportation networks, ports, and customs clearance processes are crucial. Developing export promotion zones and specialized manufacturing zones is essential.
2. **Skill Development:** Implementing skill development programs to enhance the availability of skilled labour in export-oriented industries.
3. **Technology Adoption:** Incentivizing and promoting technology adoption, including automation, digitization, and Industry 4.0 technologies, to boost productivity, competitiveness, and innovation in the export sector.
4. **Internationalization of India Rupee**

Insta Links:

- [Internationalisation of rupee](#)

Mains Links:

Q. It is essential to approach the internationalisation of the rupee cautiously, considering the potential advantages and risks associated with it. Critically examine.

Q. How would the recent phenomena of protectionism and currency manipulations in world trade affect the macroeconomic stability of India? (UPSC 2018)

Prelims Link:

Q1. Which one of the following is not the most likely measure the Government/RBI takes to stop the slide of the Indian rupee? (UPSC 2019)

- (a) Curbing imports of non-essential goods and promoting exports
 (b) Encouraging Indian borrowers to issue rupee-denominated Masala Bonds
 (c) Easing conditions relating to external commercial borrowing
 (d) Following an expansionary monetary policy

Ans: (d)

Q2. Consider the following statements: (UPSC 2019)

1. The effect of devaluation of a currency is that it necessarily
2. improves the competitiveness of the domestic exports in the foreign markets
3. increases the foreign value of domestic currency
4. improves the trade balance

Which of the above statements is/are correct?

- (a) 1 only
 (b) 1 and 2

(c) 3 only
(d) 2 and 3
Ans: (a)

2. ISSUE OF FOOD INFLATION IN INDIA

Context:

April’s retail inflation data showed a **slight slowdown in overall price gains** to an 11-month low of **4.83%** according to the Consumer Price Index (CPI). However, **food price inflation accelerated, reaching a four-month high of 8.7%**.

Recent Trends in Overall Inflation and Food Prices:

1. Food Price gains were **8.75% for rural consumers**, 19 basis points higher than for urban consumers.
2. Rural CPI stood at **5.43%**, significantly higher than the urban rate of **4.11%**.
3. **Cereals**, the heaviest category in food, increased to **8.63%**.
4. **A significant year-on-year increase** in the average prices of rice and wheat.
5. **Vegetables remained in double-digit inflation** for the sixth consecutive month, reaching **27.8%** due to soaring temperatures.
6. **Pulses also saw prolonged double-digit inflation**, extending to the eleventh month.
7. In 2023, while **world food prices experienced a significant decline from their 2022** highs, India saw persistently high food inflation, **reaching 9.5% in December 2023**. This contrasts sharply with global deflation of **-10.1%** during the same period.

About Inflation in India:

	Description
About	Inflation refers to the overall increase in the prices of goods and services , coupled with a decrease in people’s purchasing power.
Causes of Inflation	
1. Demand-Pull Inflation	It occurs when the demand for goods and services surpasses the supply . When there is high overall demand in the economy, consumers are willing to pay more for available goods and services, causing a general increase in prices.
2. Cost-Push Inflation	Cost-push inflation is fueled by a rise in the production costs of goods and services , this can result from factors such as increased incomes, elevated costs of raw materials, or disruptions in the supply chain.
3. Wage-Price Inflation	This form of inflation is often characterized as a feedback loop between wages and prices, when workers demand higher wages, businesses may raise prices to offset the increased labour costs and consequently, workers seek higher wages in response, perpetuating the cycle.
Different Indices for Measuring Food Inflation in India	
1. Consumer Price Index (CPI)	CPI for Industrial Workers (IW), CPI for Agricultural Labourer (AL), CPI for Rural Labourer (RL), and CPI for Urban Non-Manual Employees (UNME).
2. Consumer Food Price Inflation (CFPI)	CFPI is a component of the broader Consumer Price Index (CPI), where the Reserve Bank of India (RBI) utilizes the CPI-Combined (CPI-C) for this purpose. It monitors the price fluctuations of a particular selection of food items commonly consumed by households.
3. Wholesale Price Index (WPI)	The WPI tracks changes in the prices of goods sold and traded in bulk by wholesale businesses to other businesses . It specifically focuses on goods, and services are not part of it. It is utilized to monitor supply and demand dynamics in industries, manufacturing, and construction sectors.
	Components: Primary articles (Food Articles, Non-Food Articles) and other categories like Fuel and Power and manufactured Products.
	Food Articles in WPI: Cereals, Paddy, Wheat, Pulses, Vegetables, Fruits, Milk, Eggs, Meat, Fish, Oil Seeds. Non-Food Articles in WPI: Oil Seeds, Minerals, Crude Petroleum.

Food inflation in India is primarily calculated using **the Consumer Price Index (CPI) for Food and Beverages**, a key measure tracking price changes of a typical consumer basket. Food carries a weight **of 45.9% in the CPI**, but its contribution to overall inflation has risen from 48% in April 2022 to 67% in November 2023.

Recent data from the government’s Household Consumption Survey indicates **a decline in food’s share of the consumption basket, dropping below 50%** for rural consumers and 39% for urban consumers.

Factors contributing to the drop in global food prices include:

- An abundant supply of key crops:** Bumper harvests in 2023, particularly of wheat, resulted in a surplus in the global market, contrasting with concerns over supply disruptions in 2022.
- Improved supply from Russia and Ukraine:** Despite disruptions, both countries maintained wheat exports, easing supply anxieties.
- Lower demand for vegetable oils:** Increased vegetable oil supplies and reduced use for biofuel production led to an approx. 32% drop in the UN’s Vegetable Price Index.
- Slowing demand:** High inflation and economic recession fears reduced consumer demand, particularly in major food-importing regions, decreasing import demand and lowering global prices.

India’s high food inflation amid falling global food prices can be attributed to several factors:

- Limited transmission of global prices:** While world food prices decreased, India’s remained elevated due to limited transmission of international prices to domestic markets, except for edible oils and pulses.
- Export bans and import duties:** The Indian government imposed bans on certain food exports and provided import duty waivers, reducing global market influences on domestic prices.
- Domestic production challenges:** Weather conditions affecting crop yields, particularly for cereals, pulses, and sugar, contributed to supply shortages and higher prices domestically.
- Low stock levels:** Low stock levels for commodities like wheat and sugar exacerbated price pressures.

Other Factors Contributing to India’s Elevated Food Inflation:

Factors	Examples
Temperature and Weather Challenges	Adverse weather conditions, such as weak monsoon predictions and heatwaves affecting crop yields , particularly for cereals, pulses, and sugar, contribute to supply shortages and higher prices domestically.
	For example, cereal and pulse inflation showed double-digit inflation in April 2024.
Changing preferences	Increasing demand for proteins, processed & packaged foods facing structural shortages. Per capita milk consumption up from 307 grams in 2013 to 427 grams in 2020.
Fuel Prices	The increase in fuel prices, a key input in agriculture, has led to higher production costs.
	For instance, a 1% increase in fuel inflation results in a 0.13% rise in food inflation, with the effect declining gradually over the next 12 months.
Supply Chain Disruptions	Disruptions in the supply chain, including transportation constraints, labour shortages, and logistical challenges, decrease the availability of food products, causing prices to rise.
	For example, vegetables continued to experience double-digit inflation due to inefficient storage facilities leading to perishable item wastage.
Global Effect	Despite global food price decreases, India’s food prices remain high due to limited transmission of international prices to domestic markets.
	The Russia-Ukraine war has acted as a deterrent, and while India heavily depends on imports for edible oils and pulses, it is a net exporter of commodities like cereals, sugar, dairy, fruits, and vegetables.

What makes controlling food inflation challenging in India?

- Multi-dimensional factors** requiring coordinated policy response across fiscal, monetary, and trade - food inflation is influenced by global commodities, domestic supply constraints, changing preferences etc.
- The slow pace of structural reforms in agriculture marketing, storage and transport** - APMC Act modernization across states still a work in progress. Food Corporation of India suffers infrastructure deficiencies.

3. **External headwinds like energy costs beyond India's control** - 50% rise in global crude prices in 2021 transmitted to domestic inflation.
4. **Increasing climate risks makes agricultural output unpredictable** - Deficient rains in 2014-15 and 2015-16 affected production,
5. **Considerations around impact on vulnerable groups** like farmers, urban poor - Requires balancing inflation control with protecting incomes and consumption.
 - **For example** - Farm loan waivers provided despite inflation concerns.

Impact on the vulnerable population

1. **Poor households spend over 50% of income on food**, hence highly vulnerable to food inflation. Bottom 20% income group faces food inflation of ~6% currently.
2. **Can push more households into poverty**- Declining real incomes and loss of purchasing power as food dominates expenditure.
3. **Shift towards lower quality and quantity food consumption** resulting in worsening nutritional outcomes. Rise in anemia, stunting indicators likely.
4. **Rural landless laborers and marginal farmers heavily affected** due to dip in rural wage growth and crop realization prices. Loss of livelihoods.
5. **Urban poor impacted as social security nets are inadequate**. May cut essential spending on health and education.

Government steps to curb inflation:

- a) **Subsidized Commodities**: Government increases distribution of subsidized vegetables like onions and tomatoes, releases stocks of wheat and sugar to stabilize prices.
- b) **Reduction in Import Duty**: Incentivizing pulse cultivation among farmers, reducing import duties on certain pulses to boost local availability.
- c) **Export Bans**: Bans on wheat exports since May 2022 and on broken rice exports since September 2022 to maintain ample domestic supply and lower prices.
- d) **Ban on Stockpiling**: Regulations limit wheat stocks to 3,000 tonnes for traders, millers, wholesalers, and retail chains, and 10 tonnes for smaller retailers and shops to prevent excessive stockpiling.
- e) **Operation Greens**: Aims to stabilize Tomato, Onion, and Potato (TOP) crop supplies throughout the year across the country to minimize price fluctuations.
- f) **Floor Prices**: Imposing a minimum export price (MEP) of \$800 per tonne (₹67 per kg) on onion exports from October 29 to December 31, 2023, amid rising onion prices due to delayed kharif onion arrivals.

[Recommendations by the ICRIER paper for containing food Inflation](#): [Click Here](#)

Conclusion

Tackling food inflation needs a calibrated monetary response, investments in agriculture, stable trade policies and expanded social safety nets to protect the vulnerable like urban poor and landless rural households. Global cooperation on supplies and trade will also strengthen long-term price stability.

Insta links:

- [India's High Food Inflation](#)

Mains Link:

Q. There is also a point of view that Agricultural Produce Market Committees (APMCs) set up under the State Acts have not only impeded the development of agriculture but also have been the cause of food inflation in India. Critically examine. (UPSC 2014)

Prelims Links

Q.1 Consider the following statements: (UPSC 2020)

1. The weightage of food in Consumer Price Index (CPI) is higher than that in Wholesale Price Index (WPI).
2. The WPI does not capture changes in the prices of services, which CPI does.
3. The Reserve Bank of India has now adopted WPI as its key measure of inflation and to decide on changing the key policy rates.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 3 only
- (d) 1, 2 and 3

Ans: (a)

Q 2. If the RBI decides to adopt an expansionist monetary policy, which of the following would it not do? (UPSC 2020)

1. Cut and optimize the Statutory Liquidity Ratio
2. Increase the Marginal Standing Facility Rate
3. Cut the Bank Rate and Repo Rate

Select the correct answer using the code given below:

- a) 1 and 2 only
- b) 2 only
- c) 1 and 3 only
- d) 1, 2 and 3

Ans: B

Topics: Various Security forces and agencies and their mandate.

3. THEATERISATION OF INDIA ARMED FORCES

Context:

The [article](#) highlights the necessity for **India’s armed forces to adopt specific theatre** commands for efficient defense planning.

What are Theatre Commands?

A theatre command in the military refers to a **specific geographical area** where military operations are planned, coordinated, and executed under a single command. It is a way of **organizing and managing military forces** within a particular region or theatre of operations.

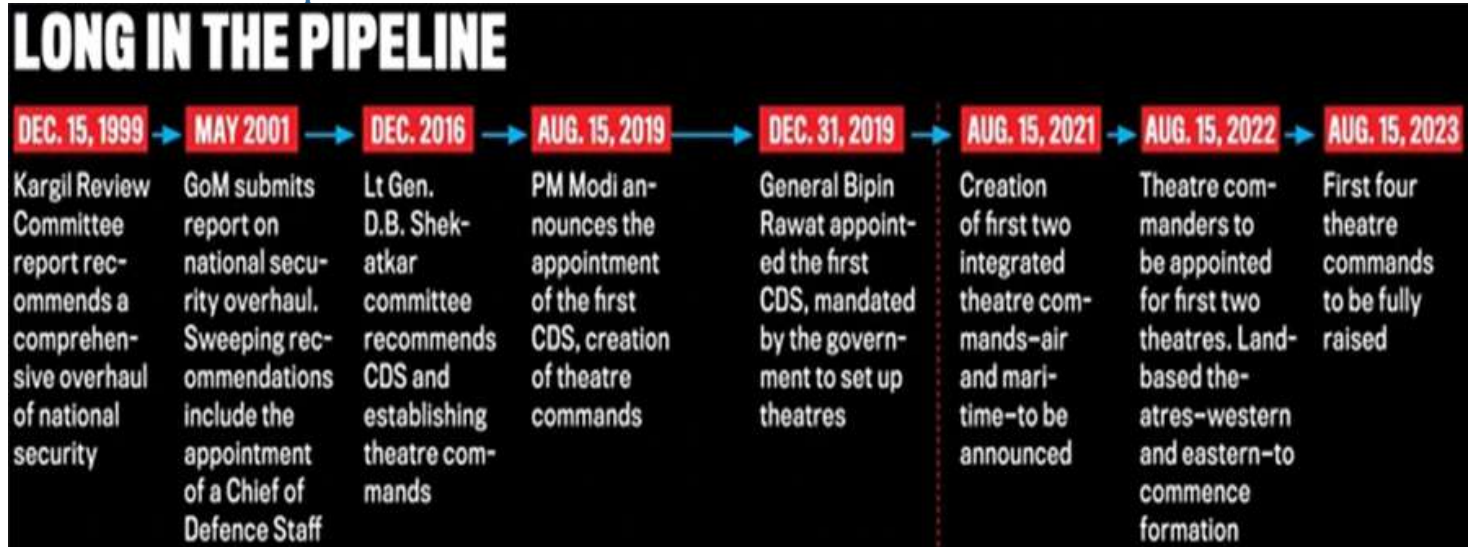
The idea behind the Theatre Command System is to **enhance coordination and synergy among the Army, Navy, and Air Force.**

Currently, **almost all major countries like China, Russia, the US, the UK and France** are working on a theatre command concept.

Case of China:

1. China reorganised its **2.3-million People’s Liberation Army** into five theatre commands in 2016 to enhance of-fensive capabilities and establish improved command-and-control structures.
2. Its **Western Theater Command** looks after the entire border with India.

Evolution of the concept in India:



1. **Kargil Review Committee & Group of Ministers:** After the 1999 Kargil battle, highlighted the necessity for a unified war-fighting approach.
2. **Naresh Chandra Committee:** Advocated structural changes in higher defence management.
3. **Shekatkar Committee:** Led by Lt Gen. (ret'd) D.B. Shekatkar, recommended the creation of the CDS post and theatre commands, emphasizing unified planning.
4. **CDS Appointment & Department of Military Affairs (DMA):** Steps towards achieving jointness among the armed forces, following recommendations from the Shekatkar Committee.

Why does India need theatre commands?

1. India currently has **19 military commands**.
 - i. **17 of them are service-oriented** – 7 each for the Army and the Air Force and the Navy has 3.
 - ii. **A Tri-Service Command** – Andaman and Nicobar Command, and the Strategic Forces Command (SFC looks after the country’s nuclear stockpile).
2. The aim is to **bring all the individual commands into four or five unified or theatre commands** to streamline military operations and enhance coordination and efficiency in a rapidly evolving security landscape.
3. This will aid in better **planning, military response and a unified approach** to fighting future wars while

also lowering costs.

4. **Case study – Acquisition of Apache attack helicopters from the US:** While the Indian Air Force got 22 Apaches, the Army has also placed orders for six of these choppers. The **end result is a loss of at least Rs 2,500 crore** and haphazard operational planning.

Benefits of theaterization

1. **Increased efficiency:** Rationalization of war-fighting resources and execution efficiency for integrated action against threats.
2. **Cost-effective in the long run:** Although initial costs may rise, theaterization aids in better planning and military response, ultimately reducing long-term costs.
3. **Rationalization of command structure:** Theaterization aims to streamline the uneven command structure across the Indian military, bringing about a more balanced distribution of commands.
4. **Operational Efficiency:** Traditional separation of forces for land, air, and sea combat leads to inefficiencies.
5. **Specific Theatres:** Strategic positioning of forces in specific regions such as Jaipur for western threats, Lucknow for northern threats, and Coimbatore for maritime threats.
6. **Resource Optimization:** Integrated Theatre Commands (ITCs) ensure better resource utilization and readiness improvement.
7. **Evolving Warfare:** Modern warfare requires quick and coordinated responses, which separate commands cannot efficiently provide.

Steps taken towards theaterisation in India:

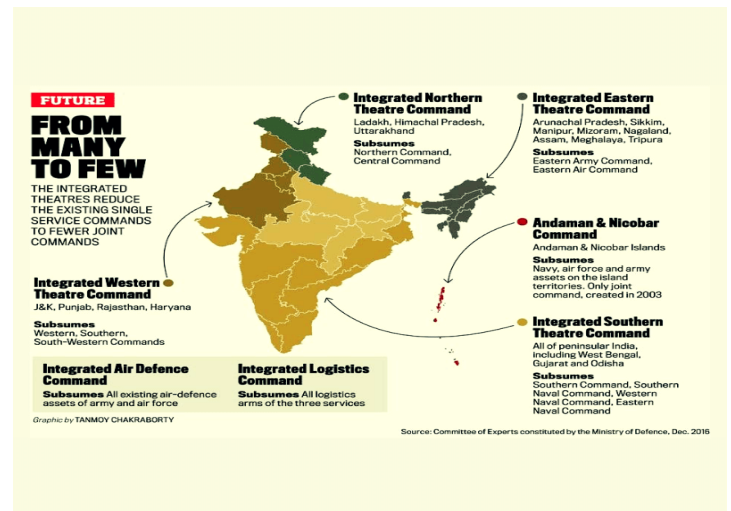
1. **The Inter-Services Organisations (Command, Control and Discipline) Bill 2023** includes a provision regarding a joint services command.
2. **CDS Appointment:** India appointed its first Chief of Defence Staff (CDS) nearly five years ago to oversee defence reforms.
3. **ITC Proposal:** A concrete plan for Integrated Theatre Commands (ITCs) signals progress in restructuring.
4. **Leadership Roles:** The proposed structure includes a vice-CDS for strategic planning and procurement and a deputy CDS for operations and intelligence.
5. **Operational Coordination:** While service chiefs lead their forces, combat operations will be managed by top officers with a strategic view.
6. **The cross-staffing initiatives** are aimed at areas of commonality, such as equipment like UAVs and the BrahMos supersonic cruise missiles.
7. **Steps are being taken to introduce “common**

annual confidential reports” for all two and three-star generals across the armed forces to synergise the appraisal system for tri-service appointments.

Planned Theatre Commands

According to the current proposal, there will be five theatre commands, namely

1. **Northern Land Theatre** (Jammu and Kashmir, Ladakh and Central sector; China and Pakistan centric)
2. **Western Land Theatre** (Pakistan-centric)
3. **Eastern Land Theatre (China-centric)**
4. **Maritime Theatre Command** (merging of the eastern and western naval commands, besides getting elements from the Army and the Air Force)
5. **Air Defence Command**
6. **Integrated Logistics Command**



Challenges:

1. **IAF's Concerns:** IAF supports theaterization but prefers a single theatre to maintain control over its assets.
2. **Service Culture Differences:** The distinct cultures and operational methods of the Army, Navy, and Air Force pose challenges to integration.
3. **Massive Funding Required:** Establishing the infrastructure for theatre commands necessitates significant financial resources.
4. **No Need for Theaterization:** Some experts argue against theatre commands, citing past cooperation among services during warfare and the lack of precedent in other countries.

Way forward:

1. **Implement ITCs:** Prioritize the establishment of Integrated Theatre Commands for operational efficiency.
2. **Strategic Leadership:** Appoint vice-CDS and deputy CDS roles for strategic planning and operations.

3. **Equipment Upgrades:** Ensure continuous modernization of military equipment.
4. **Consensus on AI Use:** Develop a consensus on AI-led strikes to minimize collateral damage.
5. **Supportive Ecosystem:** Focus on indigenous technology and self-reliance in defense.
6. **Managing Internal & External Security:** Assess how internal and external security will be managed under theater commands.
7. **Parliament's Role:** Establish a dedicated parliamentary committee staffed with military advisers to monitor the transition.
8. **Service-Neutral Commands:** Ensure no theatre "belongs" to any service; appoint commanders based on talent and experience.
9. **Modular Structure:** Modularize armed forces into smaller, networked brigades for enhanced deployability and sustainability.

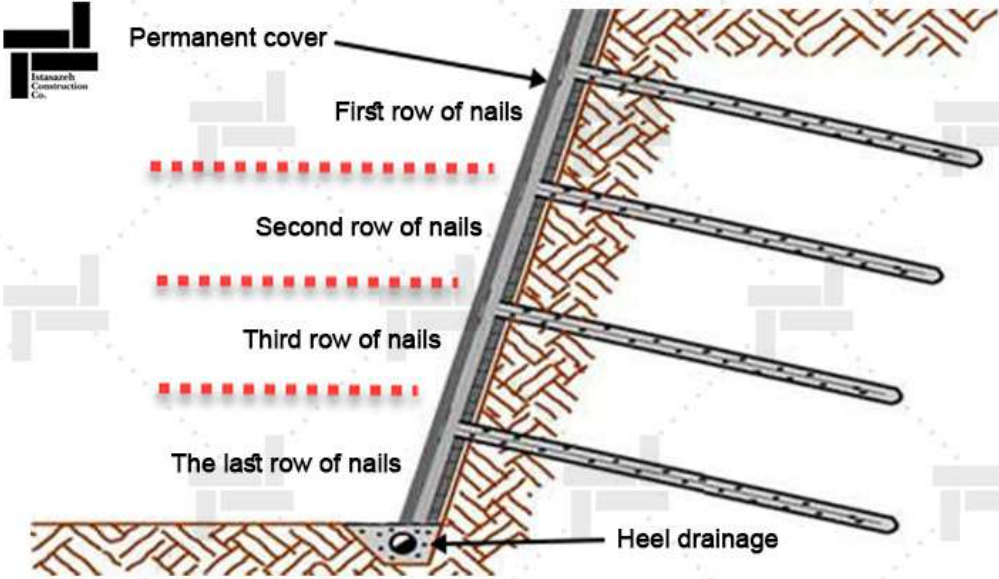
Conclusion:

India has the world's 4th largest military, but its services operate independently. While theatre commands are needed, their launch should not be rushed. For effective theatre commands, **a national security strategy and appropriate tri-service structures** are essential. They should be prepared for future warfare, including space and cyber domains, without complicating decision-making processes.

Insta Links:

- [The Inter-Services Organisations \(Command, Control and Discipline\) Bill 2023](#)

CONTENT FOR MAINS ENRICHMENT

In News	Usage in Answers
<p>1. SOIL NAIL-ING</p>	<p>Context: The State highways department in the Nilgiris is implementing a 'green' solution to prevent landslips by stabilizing slopes along major roads. Using the 'slope stabilisation using soil nailing and Hydroseeding method,' they're working in Ketti, Kattabettu, Perar, Kudah, and Udhagamandalam, areas prone to landslips.</p> <p>Soil nailing is a geotechnical engineering technique involving the insertion of reinforcing elements, typically steel tendons, into the soil to strengthen it. Methods include drilled and grouted, driven, drilling, jet grouted, and launched soil nailing. It is commonly used for stabilizing slopes and landslides, supporting excavations, and repairing retaining walls.</p>  <p>Hydroseeding: Hydroseeding is a process of applying a mixture of seeds, fertilizer, organic materials, and water onto the soil to facilitate the growth of grass and plant-life. This helps hold the top-soil together and prevent erosion.</p>

2. WORLD TELECOMMUNICATION AND INFORMATION SOCIETY DAY

Context: India Celebrates '**Telecom Diplomacy**' on [World Telecommunication and Information Society Day](#)

World Telecommunication and Information Society Day is an international day proclaimed in **November 2006** by the [International Telecommunication Union Plenipotentiary Conference](#) in Antalya, Turkey, to be celebrated **annually on 17 May**

What is Telecom Diplomacy?

Telecom Diplomacy is the **strategic effort by a country to use its telecommunications industry** to attract business ventures, form international partnerships, and secure a leading role in the global telecommunications landscape.

Key initiatives by India include:

1. **Strategic Partnerships:** Collaboration with countries and companies, exemplified by the '**US-India OpenRadio Access (ORAN) Network Acceleration Roadmap**'.
2. **R&D and Innovation:** Exploring collaborations to advance R&D, innovation, and the startup ecosystem in **Quantum Communications**.
3. **India Mobile Congress (IMC):** Efforts to elevate IMC to a global level like the Mobile World Congress by 2025.
4. **Exported telecom equipment** worth Rs 25200 crores last year.
5. **Secured Indian interests** in international forums and future 5G deployments.
6. Hosting the **World Telecommunication Standardization Assembly (WTSA)** for the first time in India.

About the International Telecommunication Union (ITU):

It is the **United Nations specialized agency** for information and communication technologies (ICTs). Founded in 1865, it is the **oldest of the UN's 15 specialized agencies**. ITU allocates **global radio spectrum and satellite orbits**, develops technical standards for network interconnectivity, and aims to improve ICT access for underserved communities. Based in **Geneva, Switzerland**, ITU is part of the UN Development Group and operates 12 regional offices. It functions as an intergovernmental public-private partnership with 193 member states and around 800 sector members. India, a member since 1952, was re-elected to the ITU Council for the 2019-2022 term.

FACTS FOR PRELIMS

GS-1

1. FRESHWATER UNDER THE OCEAN BED

Context: Freshwater exploration from **under the ocean bed is gaining attention** as a potential solution to depleting freshwater resources. Recent discoveries have revealed **significant freshwater reservoirs under the ocean**.

How freshwater are formed under the ocean bed?

1. **Subterranean Flow:** Rainwater and surface water can seep into the ground and percolate deep into the Earth's crust. Some of this water can accumulate in underground reservoirs or aquifers beneath the ocean floor.
2. **Geological Processes:** Geological activities such as tectonic movements and volcanic eruptions can create fractures, faults, and cavities in the Earth's crust. These geological features can trap freshwater, preventing it from mixing with seawater.
3. **Submarine Springs:** Submarine springs are underwater vents that release freshwater into the ocean. These springs can occur where groundwater from aquifers beneath the ocean floor discharges through openings in the seafloor.
4. **Glacial Melting:** During periods of glaciation, large ice sheets store vast amounts of freshwater. As glaciers melt, freshwater can be released into the ocean, forming layers of less dense water that float on the denser seawater below.

Freshwater reserves, like the river found at the bottom of the Black Sea, are crucial. With only **2.5% of Earth's water being freshwater**, these reserves are vital. Most freshwater is in ice or underground, including under the ocean.

International laws, like **UNCLOS**, govern ocean resources, defining rights and responsibilities. UNCLOS regulates resources like minerals, raising questions about freshwater classification. **Exclusive Economic Zones (EEZs)** grant states rights over marine resources, while the "Area" beyond EEZs is collectively governed. The **1958 Geneva Conventions** also addressed ocean law but were less comprehensive.

2. GEOMAGNETIC STORMS

Context: Stunning aurora displays illuminated the night sky during the strongest G-5 level **geomagnetic storm in 21 years**, producing green and blue hues across the Northern Hemisphere.

What are Geomagnetic storms?

They occur when events like **solar flares emit higher-than-normal levels of radiation** toward Earth, interacting with its magnetic field. These disturbances, driven by **solar coronal mass ejections (CMEs)** or high-speed streams of solar wind from coronal holes, lead to geomagnetic storms.

Effects of such storms range from **the appearance of auroras to disruptions in communication** systems due to high radiation, making communication on Earth challenging.

These storms are classified on a scale measuring their effects. **At G1**, there are weak fluctuations in power grids and minor impacts on satellite operations, with auroras visible. At **G5, voltage control problems and grid system** collapse occur, radio waves are disrupted for days, and auroras can be seen at lower latitudes.

3. UNESCO'S MEMORY OF THE WORLD ASIA-PACIFIC REGIONAL REGISTER

Context: The **Ramcharitmanas, Panchatantra, and Sahrdayaloka-Locana** have been added to **UNESCO's Memory of the World Asia-Pacific Regional Register**, celebrating India's rich literary heritage and cultural legacy.

Literary Work	Author	Description
Ramcharitmanas (Awadhi)	Goswami Tulsidas	An epic poem consisting of seven Kāndas; a poetic retelling of the Ramayana.
Panchatantra (Sanskrit)	Pt. Vishnu Sharma	One of the oldest collections of Indian fables, consisting of five parts with a 'story within a story' structure.
Sahrdayaloka-Locana (Sanskrit)	Acharya Anandvardhan	A text on Indian poetics with commentary by philosopher Abinava Gupta .

About UNESCO's Memory of the World Asia-Pacific Regional Register:

- Launched in 1992.
- It consists of three Registers namely, **International, Regional and National Register**.
- International Register consists of **several Indian entries namely Tamil Medical Manuscript Collection, Saiva manuscripts Rig Veda etc.**

4. SAHUL

Context:

Recent archaeological findings have revealed an **ancient, Atlantis-like supercontinent named Sahul**, which facilitated **human migration from Asia to Australia around 70,000 years ago**.

- This landmass was **exposed during the last ice age due to lower sea levels** and **connected present-day Australia, Papua New Guinea, and Tasmania**.
- Researchers discovered Sahul through **simulations based on geological and environmental data**, which outlined **potential migration routes and archaeological sites** from **75,000 to 35,000 years ago**.

5. NOR'WESTERS

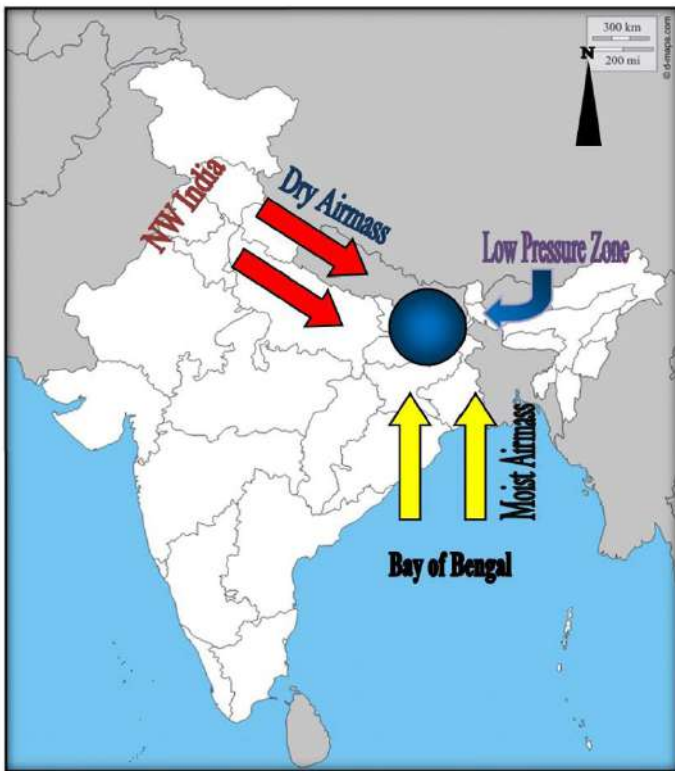
Context:

India is establishing **its first research testbed** to study **severe thunderstorms known as Nor'westers**, primarily affecting the **eastern and northeastern regions**.

- It is a collaboration between **the India Meteorological Department (IMD), the Indian Institute of Tropical Meteorology (IITM), Pune, and the National Centre for Medium-Range Weather Forecasting (NCMR-WF), Delhi.**
- The testbed aims to **improve the accuracy and lead time of thunderstorm predictions and warnings**, which currently have a three-hour lead time.

About Nor'westers are **severe thunderstorms** that occur during the **pre-monsoon season (March to May) in Bangladesh and the Indian states of Bihar, Jharkhand, Odisha, Tripura, Assam, and West Bengal.** They are also known as **Kalbaisakhis in India and bordoisilas in Assam.**

Formation: The warm, moist, southerly low-level flow from the Bay of Bengal and a cool, dry westerly or NW upper-level flow existing over the region gives rise to a favourable synoptic setting for the formation of Nor'westers.



dow of \$250 million for infrastructure improvement projects related to Chabahar. This agreement aims to **enhance trade, marine cooperation, and transshipment**, benefiting not only India and Iran but also Afghanistan.

About the Port

Chabahar Port, located in **Iran's Sistan and Baluchestan province**, is strategically significant as the **only deep-sea port in Iran** with direct ocean access. It is part of the proposed **International North-South Transport Corridor (INSTC)**, linking the Indian Ocean and the Persian Gulf to the Caspian Sea and northern Europe. For India, Chabahar Port offers a **counterbalance to Pakistan's Gwadar Port and China's Belt and Road Initiative**, providing access to Afghanistan and Central Asia. Challenges in the project's execution include US sanctions on Iran impacting equipment suppliers and proposed Chinese involvement in Chabahar's duty-free zone, potentially hindering India's interests.

Chabahar's strategic importance as a **vital trade artery connecting India with Afghanistan and Central Asian countries** is underscored, emphasizing its role in regional economic development and stability.



GS-2

1. CHABAHAR PORT

Context:

India and Iran have signed a 10-year contract for the operation of the Chabahar port, marking a significant milestone in their maritime cooperation.

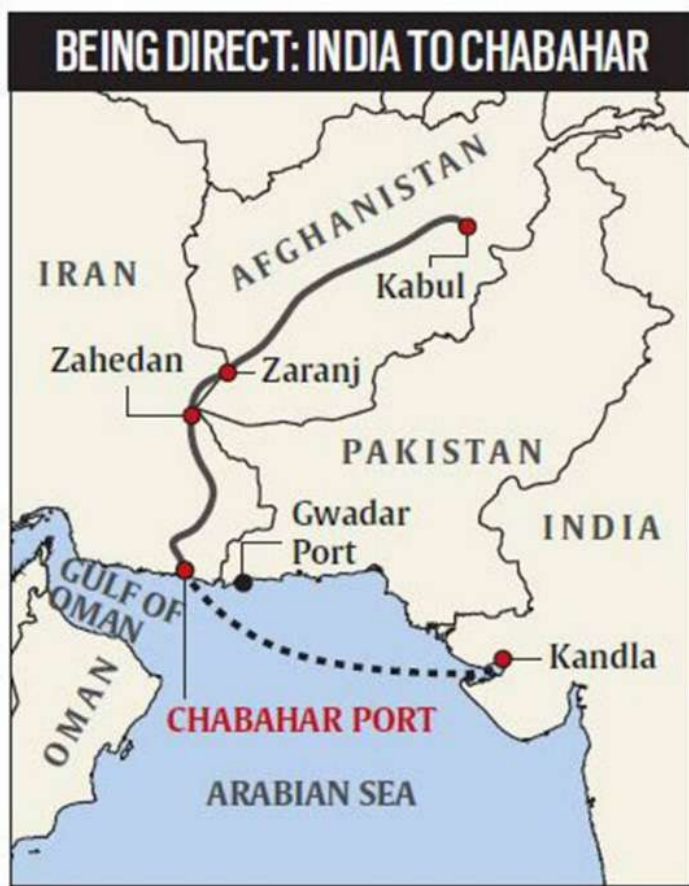
The agreement enables the operation of the **Shahid-Beheshti terminal by Indian Ports Global Ltd. (IPGL)** in collaboration with **Iran's Port and Maritime Organisation (PMO)**. With an investment of approximately \$120 million from IPGL, India has also offered a credit **win-**

Context:

The **US has warned of potential sanctions** following **India's signing of a 10-year contract with Iran** to operate the **Chabahar port**.

About Chabahar Port:

- Chabahar port, strategically located in **Iran's Sistan-Baluchistan province**, facilitates India's trade access and has been a key element in **the trilateral agreement between India, Iran, and Afghanistan since 2016**.
- India has **invested significantly in the port**, supplying **equipment worth \$25 million and operating it through India Ports Global Limited**.



2. GLOBAL ALLIANCE OF NATIONAL HUMAN RIGHTS INSTITUTIONS (GANHRI)

Context:

The **Global Alliance of National Human Rights Institutions (GANHRI)** has **deferred** the accreditation of **India's National Human Rights Commission (NHRC)** for the **second consecutive year**, which could **impact India's voting rights at the Human Rights Council and some UNGA bodies**.

- The **deferral was based on issues** highlighted in previous reports, **such as lack of transparency in NHRC member appointments, involvement of police officers in human rights investiga-**

tions, and insufficient gender and minority representation.

- These concerns were **reiterated by civil society organizations and human rights activists.**

This marks the **first time India's NHRC has faced two consecutive years of deferred "A-status" accreditation, a status it has held since 1999 with brief interruptions.**

The **Global Alliance of National Human Rights Institutions (GANHRI)** is an international organization that **brings together national human rights institutions (NHRIs)** from around the world.

GANHRI's primary objectives include **promoting and strengthening NHRIs** to be more effective in their **role of protecting and promoting human rights at the national level.**

3. SC ORDER ON UAPA

Context:

The Supreme Court declared that investigating agencies **must provide written grounds of arrest to individuals detained under the Unlawful Activities Prevention Act (UAPA)**, affirming the **right to life and personal liberty** as sacrosanct.

About the case:

In the **Prabir Purkayastha v. State (NCT of Delhi)** case, the Supreme Court invalidated Newslick founder **Prabir Purkayastha's arrest** under the Unlawful Activities (Prevention) Act (UAPA) due to the Delhi Police's failure to inform him of the **grounds of arrest** before taking him into custody. The court emphasized that the mandate was established in the **Pankaj Bansal v. Union of India & Ors. judgment**, which requires providing written grounds of arrest, applies to UAPA cases as well. This requirement is rooted in **Articles 22(1) and 22(5)** of the Indian Constitution, which protects the rights of arrested individuals to be informed of the reasons for their arrest and to make representations against detention.

The court emphasized the **importance of informing the arrested person to facilitate legal consultation**, oppose custody remand, and seek bail. It found no significant difference in the language of **Section 19(1) of the PMLA and Section 43B(1) of the UAPA**, stating that both require written communication of arrest grounds.

Evolution of provisions of bail under UAPA by SC:

1. **2008:** The UAPA Amendment Act introduced Section 43D(5), shifting the burden onto the accused to prove accusations not prima facie true.
2. **2016:** Angela Harish Sontakke v State of Maha-

rashtra granted bail despite stringent provisions, considering extended custody and the need for balance.

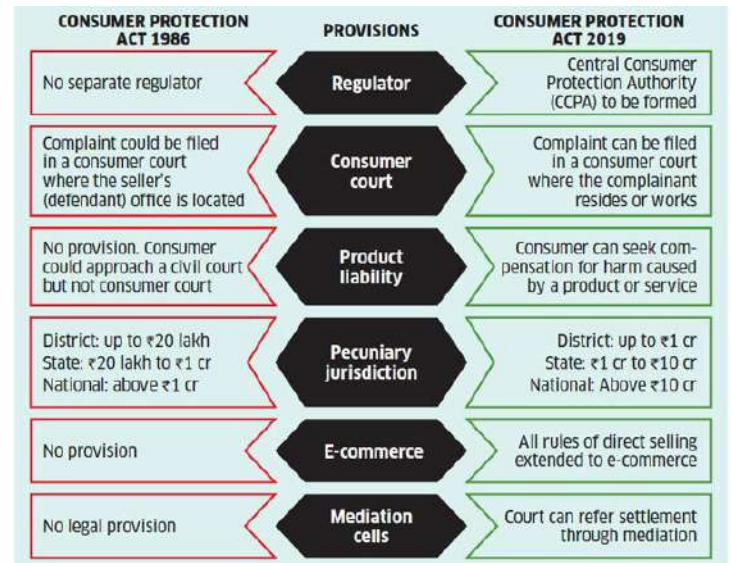
3. **2019: National Investigation Agency v Zahoor Amhad Shah Watali** narrowed interpretation, making bail harder after charges by NIA.
4. **2021: Union of India v K.A. Najeeb** highlighted the possibility of bail for prolonged incarceration violating Article 21 rights.
5. **State of NCT of Delhi v Devangana Kalita** separated evidence from NIA inferences, leading to bail based on NIA's failure to establish a prima facie case.
6. **2023: Vernon Gonsalves v State of Maharashtra** diverged from Watali, emphasizing evidence analysis.

About UAPA:

The **Unlawful Activities (Prevention) Act (UAPA), 1967**, aims to prevent certain unlawful activities by individuals and associations, particularly those related to terrorism. **Section 43B(1) of the UAPA** mandates that any officer arresting a person under this act must inform the accused of the grounds for such arrest.

Key Features of CPA 2019:

1. Expanded the definition of **'consumer'** to include online or electronic purchases.
2. **Established the Central Consumer Protection Authority** to promote and enforce consumer rights.
3. **Enhanced dispute resolution mechanisms**, including mediation and e-filing of complaints.
4. **Introduced product liability** action against manufacturers and service providers.
5. **Implemented measures to prevent unfair trade practices** in e-commerce and direct selling sectors.



4. SERVICES UNDER THE CONSUMER PROTECTION ACT

Context:

The Supreme Court ruled that **lawyers cannot be sued under the Consumer Protection Act** for providing faulty service.

The Supreme Court **overturned the National Consumer Disputes Redressal Commission's 2007 judgment**, stating that services provided by lawyers are not covered under the Consumer Protection Act (CPA) 1986 (re-enacted in 2019)

Justices Bela M Trivedi and Pankaj Mithal held that **lawyers' services must be treated differently as they involve factors beyond their control** and impact the entire justice delivery system. The court concluded that lawyer services do not fall under the purview of the Consumer Protection Act.

Additionally, the court suggested a review of **VP Shantana's (1995) judgment**, which held **doctors and medical professionals** liable under the CPA.

About CPA:

1. **Enacted in 1986 to protect consumer interests** and establish consumer protection councils for dispute resolution.
2. **Replaced by the CPA 2019**, which strengthened consumer protection provisions

5. COUNTERING AMERICA'S ADVERSARIES THROUGH SANCTIONS ACT (CAATSA)

Context:

India and Iran signed a 10-year contract on Chabahar Port, but the US State Department warned against business deals with Iran due to potential sanctions risk under CAATSA.

About CAATSA

It, enacted in 2017, is a **US law targeting countries engaged with Russia, North Korea, and Iran** through economic sanctions. It imposes penalties on nations conducting significant transactions with Russian intelligence and military entities. In 2018, the US House of Representatives passed an amendment **exempting India from CAATSA** sanctions for purchasing **the S-400 missile defence system from Russia**.

6. REPORTS IN NEWS

Reports/Study	Description
Global Report on Internal Displacement 2024	The report was released by the Internal Displacement Monitoring Centre (IDMC) A report by the Internal Displacement Monitoring Centre (IDMC) reveals that about 76 million people were internally displaced (IDPs) globally by the end of 2023 , up from over 71 million in 2022. Of these, over 68 million were displaced due to conflict and violence, with Sudan, Syria, the Democratic Republic of the Congo, Colombia, and Yemen hosting nearly half.
	<u>In South Asia, Manipur is a significant contributor.</u>
	The Internal Displacement Monitoring Centre or IDMC is an international non-governmental organization established in 1998 by the Norwegian Refugee Council in Geneva . It is focused on monitoring and providing information and analysis on the world's internally displaced persons
A report, titled 'Land Squeeze', released by the International Panel of Experts on Sustainable Food Systems (IPES-Food)	The report " Land Squeeze " by IPES-Food highlights unprecedented pressures on global farmland .
	In India, over 70% of arable land faces degradation and desertification . Additionally, the top 10% of landowners control 45% of the farmland, and the average agricultural holding is just 1.08 hectares (2015-16) .
	What is Land Squeeze?: Land Squeeze refers to the increasing and converging pressures on global farmland, leading to issues like land degradation, desertification, land concentration, and fragmentation IPES-Food is an international non-profit association , with the goal to promote transition to sustainable food systems around the world and it was registered in Belgium in the year 2015 .
World Wildlife Crime Report 2024	Released by the United Nations Office on Drugs and Crime (UNODC)
	A report covering 2015-2021 reveals that rhinoceroses and cedars were the most impacted animal and plant species , respectively. The largest number of seizures during this period involved corals, followed by crocodilians and elephants .
	Animal species seizures increased from 2015 to 2019 before declining in 2020 and 2021, while plant species seizures saw a sharp rise in 2020 and 2021.
	Wildlife crime, defined as the illegal taking, possession, trade, or use of wild animals and plants or their derivatives, is driven by demand for medicine, pets, bushmeat, and ornamental plants, along with the high profits from illegal trade and corruption undermining regulations.
	Globally, efforts to combat wildlife crime include the UNODC's Global Programme for Combating Wildlife and Forest Crime , launched in 2014, and the Wildlife Crime Initiative by TRAFFIC and WWF The United Nations Office on Drugs and Crime (UNODC) , established in 1997 by merging the UNDCP and the Crime Prevention and Criminal Justice Division, focuses on combating illicit drug trafficking and abuse, crime prevention, criminal justice, international terrorism, and political corruption. It adopted its current name in 2002 and is part of the United Nations Development Group
"Shrinking democracy, growing violence: internet shutdowns in 2023 published by Access Now organization	In 2023, India maintained its position with the highest number of global Internet shutdowns for the sixth consecutive year , totalling 116 incidents.
	Prolonged shutdowns, lasting over five days, surged from 15% to over 41% .
	Shutdowns were often imposed due to communal tensions, violence, and exams, drawing criticism domestically and internationally. Manipur witnessed the longest shutdown, with 47 orders amid human rights violations.

7. SUPREME COURT ORDERS IN NEWS

SC orders	Descriptions
SC limits ED's power to arrest PMLA accused	Background of the case: The judgment stemmed from Tarsem Lal's appeal against the ED after being denied anticipatory bail by the Punjab and Haryana High Court. It raised questions on whether an accused appearing in a special court could seek bail under CrPC provisions
	SC decisions: Enhancement of Right to Personal Liberty: Individuals summoned by a special court under PMLA are not considered in custody and don't need to apply for bail under PMLA's strict conditions
	Limitation on ED's Powers to Arrest: ED must apply separately for custody after a special court acknowledges a case, providing specific reasons for custodial interrogation.
	Additional Relief for Accused: An accused, who appears in a special court pursuant to its summons, could be exempted from personal appearance in the future. However, if an accused does not appear after a summons is served, the special court could issue aailable warrant followed by a non-bailable one.
	About Prevention of Money Laundering Act (PMLA), 2002: Enacted in January 2003, the PMLA aims to prevent and control money laundering , confiscate laundered property, and address related issues in India. The Act has been amended multiple times, most recently by the Finance Acts of 2015, 2018, and 2019.
	Section 3 defines money laundering as engaging in activities with proceeds of crime.
	Section 45 of the PMLA imposes stringent bail conditions , requiring the accused to prove innocence and assure no further offences while on bail, posing significant challenges for bail.
SC order on Right to Property	The Supreme Court ruled that compulsory acquisition of property without proper procedures and fair compensation is unconstitutional, affirming the right to private property as a constitutional and human right .
	SC stated that Article 300A has been characterised both as a constitutional and also a human right . Article 300A states that "no person shall be deprived of his property save by authority of law"
	The court stated that procedural justice is a cornerstone of Article 300A when the acquisition of private property by the State is for a public purpose and on the payment of compensation.
	Seven basic rights: The court laid down seven basic procedural rights of private citizens which constitute the "real content of the right to property under Article 300A" that the state should respect before depriving them of their private property. They include:
	<ol style="list-style-type: none"> 1. Right to notice or the duty of the state to inform the person that it intends to acquire his property 2. Right of the citizen to be heard or the duty of the state to hear the objections to the acquisition 3. Right of the citizen to make a reasoned decision or the duty of the state to inform the person of its decision to acquire property 4. Duty of the state to demonstrate that the acquisition is exclusively for public purpose 5. Right to fair compensation of the citizen 6. Duty of the state to conduct the process of acquisition efficiently and within prescribed timelines 7. Right of conclusion i.e. the conclusion of the acquisition proceedings leading to the vesting of fair compensation
	Right to Property in Indian Constitution: Initially considered a fundamental right protected under Article 31 and Article 19(1)(f) of the Constitution, this status was altered (44th Amendment Act of 1978) as both articles were deleted and replaced with a single provision, Article 300A, housed in Part XII . This amendment redefined the legal status of the right to property, shifting it from a fundamental to a constitutional right .

8. DE-RECOGNITION OR DE-REGISTRATION OF POLITICAL PARTIES

Context:

ECI lacks **explicit powers to de-register parties** for non-participation in elections. The Supreme Court has ruled that **de-registration can only occur under exceptional circumstances.**

Derecognition of Political Parties	Definition: Withdrawal of recognition by ECI, relegating parties to registered-unrecognized status.
	ECI's Power: Derecognition for violating constitutional provisions or the Representation of the People Act, 1951.
	Grounds for National Party Derecognition
	Failure to secure 6% of total votes in LS/ State LA or 4 MPs in LS elections
	Failure to secure at least 2% of seats in LS from 3 states
	Failure to secure 8% of total valid votes in state elections or LS elections from the state
Deregistration of Political Parties	Definition: Cancellation of party registration; ECI lacks authority to deregister parties
	Effects: Deregistered parties cannot contest elections.
	Grounds for Deregistration:
	Registration was obtained by fraud .
	Declaration of illegality by Central Government.
	Amendment of internal constitution conflicting with the Indian Constitution.
	As per the ECI, there are 2,790 active registered political parties in India (as of May 2024). Section 29A of the Representation of the People Act, 1951 (RP Act) sets out the criteria for political party registration with the Election Commission of India (ECI). However, the RPA lacks provisions for deregistration . Despite this, the ECI has consistently advocated for authority over both registration and deregistration processes for political parties.

GS-3

1. GUIDELINES FOR CONFIRMING HEATSTROKE AND HEAT-RELATED DEATHS

Context:

The Union Health Ministry issued guidelines for confirming heatstroke and heat-related deaths, aiming to help hospitals identify such cases.

Heatstroke, a medical emergency, occurs due to **overheating from high temperatures or physical exertion.**

Symptoms include **fatigue, dizziness, nausea, and increased heart rate.**

Criteria for heatstroke include a **body temperature of 40°C or higher**, accompanied by delirium, seizures, or coma. **Over 11,000 heatstroke deaths** were recorded in India between 2012 and 2021. The government released a **National Action Plan on Heat-Related Illness** and **the India Cooling Action Plan** to address heat-related health challenges.

The current guidelines by the **National Programme on Climate Change and Human Health (NPCCHH)** and the **National Centre for Disease Control (NCDC)** aim to **help hospitals identify heat-related deaths based on evidence.** Autopsies are not mandatory but can help determine the cause of death.

2. FOOT ROT DISEASE

Context:

The Punjab Agricultural University (PAU) has developed a biocontrol agent, **Trichoderma asperellum**, to manage **foot rot disease in Basmati rice crops**.

About Foot Rot Disease: It is a **fungal disease affecting Basmati rice crops**, primarily at the seedling stage. Caused by **Fusarium verticillioides**, a soil-seed borne pathogen. Spreads through the plant root, leading to stem base colonization. Symptoms include pale yellowing, elongation, drying, and eventual death of seedlings. Current treatments involve chemical fungicides like **Sprint 75 WS** (carbendazim + mancozeb), harmful to soil and consumers.

Trichoderma asperellum: Biocontrol agent offering a non-chemical alternative, aiding disease management while minimizing environmental harm.

3. ALPHAFOLD 3

Context:

AlphaFold 3's release has sparked excitement.

AlphaFold is an AI tool by Google's DeepMind to predict protein folding since 2018. It aims to **understand 3D protein shapes**, crucial for biology and health. Versions like AlphaFold 3 offer **about 80% accuracy and model DNA, RNA**, and more. Protein folding is vital for biological function and disease understanding. While AlphaFold aids drug development, its limitations include a lack of explanation for protein folding and restricted access.

4. FLIRT

Context:

New **COVID** variants, collectively known as **FLiRT**, have emerged in India.

The FLiRT variants (**KP2 and KP1.1**) are descendants of the **Omicron JN.1 variant**. They are characterized by increased transmissibility and the ability to potentially evade immunity from vaccines and previous infections. These variants spread through respiratory droplets and contact with contaminated surfaces.

While KP2 is more infectious than its predecessor, **JN.1**, it has shown lower overall infectivity. Symptoms are similar to the **JN.1 variant**, including sore throat, runny nose, coughing, and fever. Safety measures such as wearing masks, practising hand hygiene, and maintaining physical distancing remain crucial to prevent the spread of these variants and mitigate the impact of the pandemic.

5. OLEANDER FLOWERS

Context:

Kerala temples ban oleander flower offerings following a woman's suspected poisoning death from consuming oleander leaves.

Oleander is a poisonous plant known scientifically as Nerium oleander. It contains toxic compounds throughout its parts, including leaves and flowers. Ingestion of oleander can lead to symptoms such as **vomiting, nausea, bloody diarrhoea, and irregular heart rhythm**.

They are **fast-growing evergreen shrubs or small trees native to Europe and Asia**. In Kerala, they are also called **arali and kanaveeram**. Oleander is tolerant to heat, drought, wind, air pollution, salt, and poor soil.



6. ORANGUTAN DIPLOMACY

Context:

Malaysia’s “**orangutan diplomacy**” aims to use the endangered species as diplomatic gifts to trade partners who buy the country’s palm oil, hoping to improve its image amid accusations of unsustainability.

Inspired by China’s successful “**panda diplomacy**,” Malaysia sees orangutans as a way to signal commitment to certain values.

Orangutans, the only great apes found outside of Africa, inhabit Sumatra and Borneo in Southeast Asia. They prefer tropical forests, particularly in river valleys and floodplains. With an extremely low reproductive rate, their populations are highly vulnerable. All three species are classified as **Critically Endangered on the IUCN Red List**.



7. DEFENCE IN NEWS

Items	Description
Hermes-900	The Indian Army and Navy are set to receive Hermes-900 drones , also known as Drishti-10 , to enhance their surveillance capabilities.
	The Hermes-900 is a next-generation, Medium Altitude Long Endurance (MALE) unmanned aerial system . It boasts over-the-horizon, persistent multi-mission capabilities and has a payload carrying capacity of 350 kgs, making it suitable for various tasks including area dominance, intelligence gathering, and ground support.
Glide Phase Interceptor (GPI) Project	The Glide Phase Interceptor (GPI) Project is a collaborative effort between Japan and the U.S. aimed at developing a hypersonic missile-intercepting system .
	A hypersonic weapon travels at speeds between 5 and 25 times the speed of sound. Below these speeds, weapons are considered subsonic or supersonic. Above these speeds, the atmosphere molecules disassociate into a plasma, complicating control and communication.
	Hypersonic missiles enter the glide phase after separating from boosters at the peak of their trajectory . During this phase, they use gravity to accelerate towards Earth and perform a pitch manoeuvre to enter a flatter trajectory towards their target.

8. EXERCISES IN NEWS

Exercises	Description
Exercise SHAKTI	India and France have commenced the 7th edition of the India-France Joint Military Exercise SHAKTI in Umroi, Meghalaya.
	About Exercise SHAKTI: It is a biennial training event alternating between India and France, with the last edition being held in France in November 2021. Objectives include achieving physical fitness, refining tactical operations, and exchanging best practices.
Exercise ‘Tarkash’	The seventh edition of the Indo-U.S. joint counter-terrorism exercise, ‘Tarkash’ , recently took place in Kolkata between India’s National Security Guard (NSG) and U.S. Special Operations Forces (SOF).

9. MEASLES VACCINE

Context:

A recent study revealed that **nearly 12% of eligible children in India** missed out on the recommended **double-dose measles vaccination**, indicating a significant gap in immunization coverage.

Researchers analyzed data from over 43,000 children aged 2-3 years collected through the National Family Health Survey 2019-21. They found that **northeastern states had the highest share of zero-dose cases**, with Nagaland at 26% and Tamil Nadu at **4.6%**. About 30% of eligible children received only one measles-containing vaccine (MCV1), while 60% were fully immunized (MCV2).

About Measles:

It is a highly **contagious viral respiratory illness (caused by a single-stranded RNA virus)** characterized by symptoms like high fever, cough, coryza, conjunctivitis, and rash. It is caused by the measles virus, which affects humans as its only natural host. The **Measles Rubella (MR) vaccine** has been included in India's Universal Immunization Programme since 2017. **Rubella virus** infection typically leads to a mild fever and rash.

Recently, **India has been honoured with the prestigious Measles and Rubella Champion Award** by The **Measles and Rubella** Partnership at the American Red Cross Headquarters in Washington D.C., USA.

10. ULTRA-PROCESSED FOODS (UPF)

Context:

A 30-year U.S. observational study links **higher consumption of most ultra-processed foods to a slightly elevated risk of death**, particularly from neurodegenerative causes. Ready-to-eat meat, sugary drinks, dairy desserts, and highly processed breakfast foods showed the strongest associations.

What is Ultra-processed foods (UPF)?

UPFs are **heavily processed foods with additives, high in fat, sugar, and salt (HFSS)**, and low in essential nutrients. Their increased consumption poses various health risks.

In India, **efforts to curb UPF consumption include revised dietary guidelines**, the Eat Right India Campaign by FSSAI, limits on trans fatty acids, and taxation on aerated beverages and HFSS foods.

11. HOT TEST OF A LIQUID ROCKET ENGINE

Context:

ISRO achieved a milestone by conducting a successful **hot test of a liquid rocket engine** created using **Additive Manufacturing (AM) technology**, commonly known as 3D printing.

The engine tested belongs to the **Reaction Control System (RCS) of the upper stage (PS1) of the Polar Satellite Launch Vehicle (PSLV)**. The same engine is used in the **Reaction Control System (RCS)** of the first stage (PS1) of PSLV. The test took place at **ISRO Propulsion Complex**, Mahendragiri, Tamil Nadu. This advancement **saves 97% of raw materials** and reduces production time by 60%. The new manufacturing process requires only about 13 kg of metal powder compared to **565 kg of forgings and sheets** used in conventional manufacturing.

What is a Hot test?

A hot test is **a procedure conducted to evaluate the performance and functionality** of a system or component under operational conditions, typically involving exposure to high temperatures or other extreme conditions.

About 3D printing:

It builds a three-dimensional object layer by layer from a digital model, contrasting with traditional subtractive manufacturing. Materials used in AM include thermoplastics, metals, ceramics, and biomaterials.

MeitY released the **"National Strategy for Additive Manufacturing" in 2022**, with initiatives such as establishing

a 3D printing lab at the National Institute of Electronics & Information Technology, Aurangabad. Additionally, the **National Centre for Additive Manufacturing** was established in 2023 by MeitY in collaboration with the Government of Telangana.

12. ROUNDWORM CAENORHABDITIS ELEGANS

Context:

Researchers at Princeton University discovered that the **roundworm *Caenorhabditis elegans*, commonly known as *C. elegans***, exhibits an intriguing behaviour where **offspring inherit the knowledge of avoiding disease-causing bacteria** consumed by their parents.

This **transgenerational transmission of learned behaviour** extends up to four generations and is facilitated by **small RNA molecules** produced by the bacteria. Specifically, when *C. elegans* ingests the disease-causing bacterium *Pseudomonas vranovensis*, it also absorbs **small RNA molecules from the bacterium**, altering its feeding behaviour to avoid consuming it in the future. This avoidance behaviour is then **inherited by subsequent generations** of worms, providing them with innate protection against harmful bacteria.

sRNA, a type of **non-coding RNA (ncRNA)**, typically consists of 20 to 200 nucleotides and does not encode proteins. Instead, sRNA molecules interact with proteins and other RNAs, modulating the expression of various genes in the organism.

13. ARMoured SAILFIN CATFISH (ASC)

Context:

CSIR-Centre for Cellular and Molecular Biology (CCMB) scientists discovered that the armoured sailfin catfish has infiltrated 60% of Eastern Ghats water bodies, causing damage to fishing nets and the ecosystem.

About **Armoured sailfin catfish (ASC)**, also known as Rakashi or devil fish:

It was initially **brought to India for its distinctive appearance and algae-cleaning abilities** but has since multiplied significantly. **Native to South America**, it belongs to the largest catfish family.



Scientists employed the **Environmental DNA (eDNA) approach** to track the invasive species' spread. eDNA refers to **organismal DNA** released into the environment via cellular material shed by organisms. This method, unlike conventional approaches, is **reliable, accurate, and cost-effective**. Invasive species, as defined by **the Wildlife Protection Act, 1972 (amended in 2022)**, pose a threat to wildlife and their habitats.

14. SEA ANEMONE

Context:

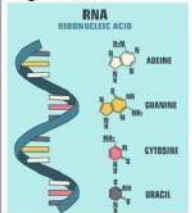
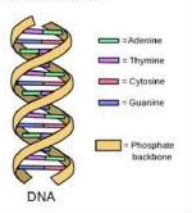
Scientists at the **ICAR-National Bureau of Fish Genetic Resources (NBFGR)** have discovered mass sea anemone bleaching off Agatti island in the Lakshadweep group.

About Sea anemones:

They belong to the **phylum Cnidaria**, and reside in ocean waters, mainly in coastal tropical regions. Establishing **symbiotic relationships** with green algae, akin to corals, they face bleaching when sea surface temperatures rise. Additionally, they **form symbiotic bonds with clownfish**, providing protection in exchange for food from the clownfish's meals. Sea anemones play vital biogeochemical roles in benthic ecosystems.

RNA Vs DNA

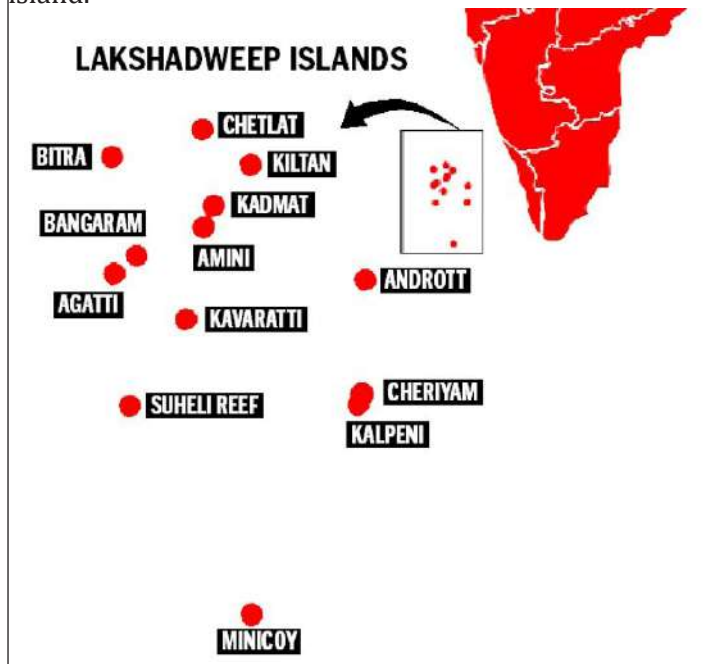
Context: Most deadly viruses contain RNA, which gives them ability to change quickly, replicate easily and infect variety of hosts. On the other hand, DNA is more stable, error-free and doesn't mutate easily

Property	RNA	DNA (Deoxyribonucleic acid)
Structure	Single-stranded 	Double-stranded 
Sugar component	Ribose	Deoxyribose
Bases	Adenine, guanine, cytosine, uracil	Adenine, guanine, cytosine, thymine
Function	<ul style="list-style-type: none"> mRNA carries genetic information from DNA to the ribosomes for protein synthesis Transfer RNA (tRNA) delivers amino acids to the ribosomes Ribosomal RNA (rRNA) helps to catalyse protein synthesis 	Genetic material carries genetic information
Stability	Less stable	More stable
Mutation rate	Higher mutation rate	Lower mutation rate
Replication	Not self-replicating, need a DNA template	Self-replicating
Genetic information	Can act as genetic material in some viruses	The primary genetic material in organisms

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Agatti Island, situated 459 km (248 nautical miles) west of Kochi, Kerala, and adjacent to Kavaratti Island, the capital of Lakshadweep Union Territory, spans an area of 3.84 sq km. Its lagoon, covering 17.50 sq km, hosts vibrant coral growth and multicoloured fish. Fishing dominates its economy, with Agatti being one of the few islands, along with Minicoy, to yield surplus fish. Coir and copra production follow fishing as key industries on the island.



15. CHINA - INDIA'S LARGEST TRADING PARTNER

Context: In FY24, China reclaimed its position as India's largest trading partner with bilateral trade reaching \$118.4 billion, driven by a 3.24% increase in imports to \$101.7 billion and an 8.7% rise in exports to \$16.67 billion as per Global Trade Research Initiative (GTRI) report.

- This marked a **shift from the previous two years**

when the **US held the top spot.**

- India-US trade slightly decreased to \$118.3 billion, with exports falling by 1.32% and imports dropping by 20%.**
- Over the **past five years, India's trade deficit with China has widened significantly due to a 44.7% surge in imports**, particularly in critical sectors like **telecom, technology components, and EV batteries.**

The GTRI report highlights a **broader trend of increased trade deficits with key partners such as Russia and the UAE** while showing significant growth in trade with countries like Saudi Arabia.

16. INDIA INTERNATIONAL BULLION EXCHANGE (IIBX)

Context:

The **State Bank of India (SBI)** has become the **first bank to be a trading-cum-clearing member** of the **India International Bullion Exchange (IIBX)** at **GIFT City in Gujarat.**

- This allows **SBI's branch at GIFT City to conduct and settle trades on the IIBX platform on behalf of its clients.**
- According to RBI guidelines, **Indian bank branches at GIFT IFSC can act as trading and clearing members of IIBX**, and special category clients can import gold through IIBX.

About India International Bullion Exchange (IIBX):

- The IIBX is located at the **GIFT City (Gujarat International Finance Tec-City) in Gandhinagar, Gujarat.**
- GIFT City is a planned **business district aimed at becoming a global financial and IT services hub.**

Purpose: The primary objective of the IIBX is to **create a globally recognized bullion trading platform.** It aims to **bring transparency, standardization, and cost efficiency to the bullion market**, benefitting various stakeholders, including miners, importers, banks, and jewelers.

17. HIGH ENERGY PHOTON SOURCE (HEPS)

Context:

China is set to become the first country in Asia with a **fourth-generation synchrotron light source** with the completion of **the High Energy Photon Source (HEPS).**

- This advanced facility **will produce some of the world's brightest X-rays**, significantly **enhancing research capabilities across various scientific fields.**
- HEPS will accelerate electrons to 6 giga-electron volts**, enabling high-resolution imaging at nanometre scales and facilitating rapid experiments.

About HEPS (High Energy Photon Source):

- HEPS is recognized as the **brightest synchrotron X-ray source in Asia.**

Technology used:

- Synchrotrons **use electricity to generate intense beams of light**, over a million times brighter than the sun.
- They utilize a **multi-bend achromat lattice, a complex array of magnets, to produce narrower and brighter X-ray beams.**

India previously developed its **own synchrotron, Indus-1.**
 India is an **associate member of the European Synchrotron Radiation Facility (ESRF) in Grenoble, France.**

18. NANCY GRACE ROMAN TELESCOPE

Context:

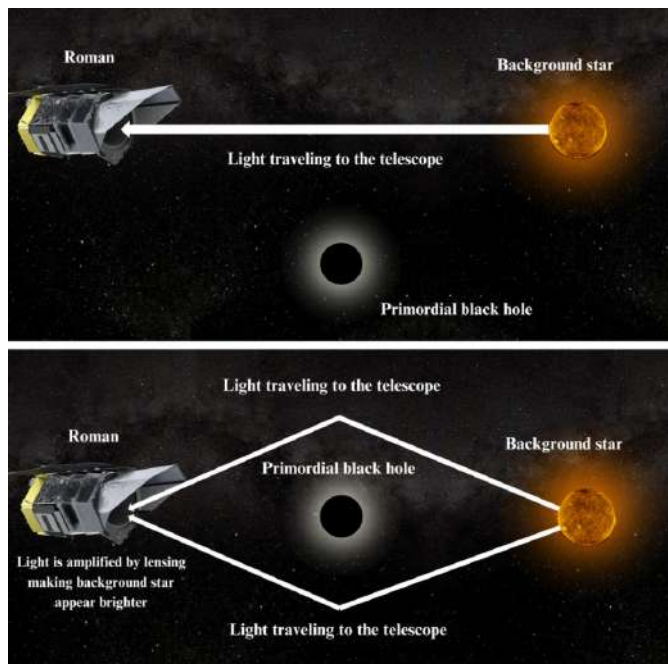
NASA's upcoming **Nancy Grace Roman Space Telescope**, set to **launch in late 2026**, will search for **tiny primordial black holes dating back to the Big Bang.**

- These **hypothetical black holes, with masses similar to Earth or even large asteroids**, could **revolutionize theoretical physics if detected.**

How it works?

- Detection of these small black holes, which would be impossible to form by any known process, **would utilize gravitational lensing, where the black holes bend light from distant sources.**
- This technique, **currently used to find rogue planets, will help differentiate between these black holes and other objects statistically.**

Confirming their existence would have profound **implications for understanding galaxy formation, dark matter, and cosmic history**, challenging Stephen Hawking's theory that **smaller black holes should have evaporated through Hawking radiation over 13.8 billion years.**



19. FIRST HUMAN RECIPIENT OF PIG KIDNEY TRANSPLANT DIES

Context:

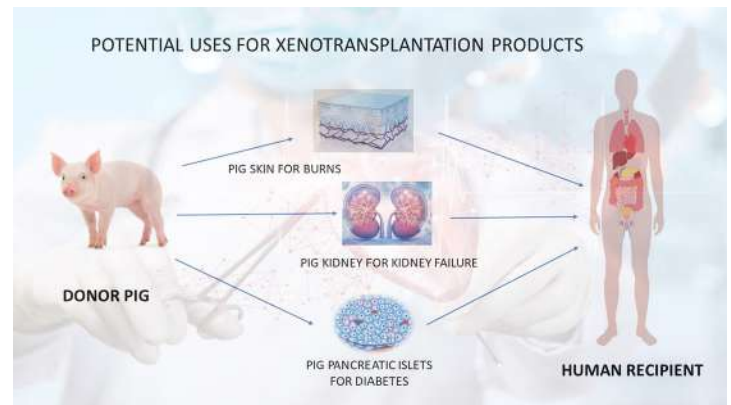
A recipient of a modified pig kidney transplant passed away about two months after the surgery, with no indication that the transplant caused the death.

What is Xenotransplantation?

It involves **transplanting non-human animal cells, tissues, or organs into humans** to address the shortage of donor organs for transplantation.

Why Pigs are used?

Pigs are commonly used **due to their similar organ size, physiology, and immune system** to humans. Organs such as the **heart, liver, and lungs** can be utilized. The process involves **gene editing technologies like CRISPR-Cas9** to modify pig genes for better compatibility with humans.



Benefits include an **alternative organ supply and reducing shortages**, but concerns remain about organ rejection, infection risks, and animal welfare.

20. CONCENTRATION OF CARBON DIOXIDE (KEELING CURVE)

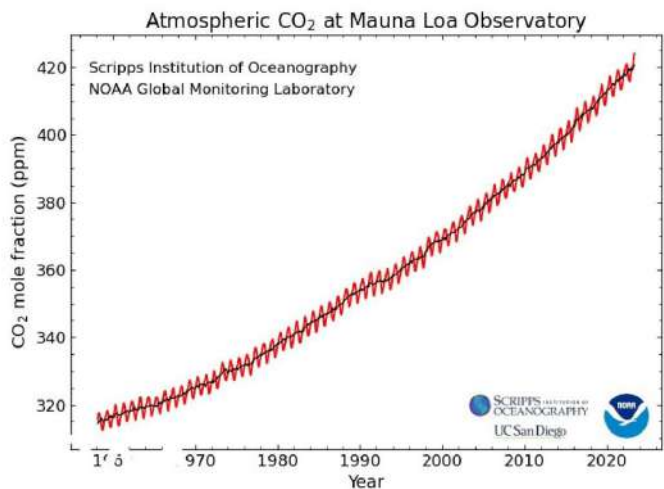
Context:

In March 2024, the **monthly average concentration of carbon dioxide at NOAA's Mauna Loa Observatory spiked by 4.7 parts per million** compared to March 2023, marking the largest year-over-year gain ever recorded.

This surge, attributed to ongoing global fossil fuel consumption, surpassed the previous record set **during the 2015-2016 El Niño**. The acceleration in CO2 growth, exacerbated by El Niño events, **intensifies the atmosphere's heat-trapping ability** and contributes to ocean acidification.

About Keeling Curve:

The Keeling Curve is a record of atmospheric carbon dioxide (CO₂) concentrations measured at the Mauna Loa Observatory in Hawaii. It was initiated by scientist Charles David Keeling in 1958.



About NOAA:

The National Oceanic and Atmospheric Administration is a Washington, D.C.-based scientific and regulatory agency within the United States Department of Commerce, a United States federal government department.

21. WHOLESALE PRICE INDEX (WPI)

Context:

Recently, India's **Wholesale Price Index (WPI)-based inflation surged to a 13-month high** of 1.26%, up from 0.5%, driven primarily by **increases in food and fuel prices.**

- Economists noted that this **spike was influenced by seasonal factors and base effects.**
- **Food inflation, specifically, hit an eight-month high at 5.5%,** with **manufactured food products and primary food articles** contributing significantly.

The Wholesale Price Index (WPI) is an **economic indicator** that measures the **average change in prices of goods at the wholesale level**, i.e., before they reach the retail level.

It is **used to track inflation and deflation trends** in the economy by **reflecting price changes in a basket of wholesale goods.**

22. FALL IN TEA PRODUCTION

Context:

The **Tea Association of India (TAI)** has warned of a **potential 50% drop in tea production in Assam and West Bengal** in the coming months due to **insufficient and poorly distributed rainfall.**

- Data from the **Tea Board of India** shows **significant declines in production**, with **Assam down**

40% and West Bengal down 23% as of March 2024.

Tea

Topic	Information
About	Tea is a popular beverage made from the Camellia sinensis plant and is the second most consumed drink in the world.
Origin	Tea is believed to have originated in northeast India, north Myanmar, and southwest China , with evidence of consumption in China over 5,000 years ago.
Growth Conditions	Tea requires a hot and humid climate , temperatures of 20°-30°C , and 150-300 cm of well-distributed annual rainfall . It grows well in slightly acidic soil with porous subsoil in the hill ranges.
Health Benefits	Tea consumption can promote health and wellness due to its anti-inflammatory, antioxidant, and weight-loss effects.
Int'l Tea Day	May 21st every year (designated by the UN General Assembly in December 2019)
Production	India is the second-largest producer of tea globally (largest black tea producer) , with the majority of its annual tea production coming from Assam and West Bengal.
Consumption	India is among the world's top tea-consuming countries , with 80% of its production consumed domestically.
Export	India is 4th largest tea exporter globally and exports to over 25 countries. The majority of tea exported is black tea, with Darjeeling, Assam, and Nigiri tea being among the finest in the world.
GI Tag	Darjeeling tea, known as the "Champagne of teas," was the first GI tag product.
Regulator	The Tea Board of India (a statutory body under the Ministry of Commerce) is responsible for developing and promoting the tea industry in India. HQ: Kolkata, formed in 1953. Foreign Offices: Dubai and Moscow.
Employment	Indian tea Industry is employing 1.16 million workers directly and an equal number of people are associated with it indirectly. Visit Insights IAS Daily CA

23. GPT-4o

Context:

OpenAI has introduced GPT-4o, its newest and most advanced AI model, designed to enhance ChatGPT by making it **smarter, faster, and free for all users.**

Features of GPT-4o:

- This **model, named "Omni,"** represents a **significant upgrade from previous models by supporting multimodal interactions**—processing and responding to **text, audio, and images.**
- Unlike its predecessors, which used separate models for different tasks, **GPT-4o integrates all functionalities into a single model, improving efficiency and response speed.**
- GPT-4o's capabilities include **real-time translations, emotion detection in audio, and understanding and interacting with visual inputs** like screenshots and documents.
- It also offers **multilingual support and better performance with non-English texts**, aiming to be more accessible globally.
- The technology behind GPT-4o enables holistic understanding of inputs, **considering factors like tone and background noise.**
- Its **response times are remarkably fast, between 232 to 320 milliseconds.**

Safety measures include **filtered training data and post-training model refinement** to address risks like misinformation and bias.

24. ANCIENT BAOBAB TREES

Context:

Scientists have unravelled the origins of **ancient baobab trees**, revealing they first appeared in **Madagascar 21 million years ago** before spreading to Australia and mainland Africa via ocean currents.

Baobabs, dubbed “the tree of life” for their unique shapes and longevity, face threats from climate change and deforestation.

Previous related News about Baobab Tree:

Baobab trees

Context: The Madhya Pradesh government has decided that the forest department cannot grant permission for the translocation of Baobab trees in Dhar, after the protest from Bhil tribes.



Under the Biodiversity Act, any commercial use of the trees will require permission from the state biodiversity board

Baobab Trees	
Baobab trees are deciduous trees found in mainland Africa, Madagascar, and Australia . They have barrel-like trunks (5 to 20m in height), can live up to 2,000 years , and are known for their extraordinary longevity.	
Tree of Life	Baobabs are succulent trees that store water in their trunk , allowing them to produce nutrient-dense fruit in dry seasons; it has pendulous flowers pollinated by bats and bush babies
Uses	Provide food, livestock fodder, medicinal compounds, and raw materials.
Threat	Since 2005, 9 of the 13 oldest African baobab specimens and 5 of the 6 largest trees have died or suffered a collapse , possibly due to climate change.
IUCN Status	Endangered
GI Tag	Madhya Pradesh government has applied for a GI tag for Baobabs.
About Bhil Tribe	Bhil are one of the largest tribal groups , living in Chhattisgarh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Andhra Pradesh and Rajasthan. The name is derived from the word 'billu', which means bow . They are skilled in archery and has deep knowledge of their local geography. Traditionally experts in guerrilla warfare, they are now primarily farmers and sculptors .



25. SEMAL TREES

Context:

Semal trees, crucial **to Udaipur’s Holi festivities**, face peril in south Rajasthan. Despite their ecological significance, thousands are cut annually for **bonfires, violating forest laws**.

Semal trees, also known as **silk cotton trees or Bombax Ceiba, are large**, fast-growing trees (large deciduous trees, known for their **Crimson red flowers**) native to India. Ayurvedic medicines can be prepared from every part of the tree (e.g., roots are used for treating ailments such as diabetes, etc). It is worshipped by **many tribal communities in Rajasthan (e.g. Garasia tribe, Kathodi tribe) and Madhya Pradesh**. Its seed produces edible oil, used in **making soaps**. Semal plays a crucial role in the forest ecosystem, providing habitat and food for various species, including rock bees, moths, sparrows, and bugs. Additionally, tribal communities rely on Semal for food, crafting, and cultural beliefs.

26. DENGUE VACCINE (TAK-003)

Context:

WHO prequalified the new dengue vaccine, TAK-003. Developed by Takeda, it’s a live-attenuated vaccine containing weakened versions of the four serotypes of the dengue virus.

TAK-003, developed by Japan’s Takeda, is a **live-attenuated dengue** vaccine prequalified by the WHO. It’s recommended for children aged 6–16 in high-burden areas. WHO prequalification assures vaccine quality for UN procurement.

About Dengue:

It is caused by four virus serotypes (Dengue virus named DEN-1, DEN-2, DEN-3, and DEN-4.), and is transmitted by infected mosquitoes. Symptoms include high fever, headache, and muscle pain, potentially fatal. Aedes mosquitoes primarily spread it, with cases mainly in urban areas of Asia, Africa, and the Americas. Other vaccines in the prequalification list target diseases like malaria, yellow fever, and Japanese encephalitis.

27. BHISHM PORTABLE HOSPITAL CUBES

Context:

The Indian Air Force conducted a test of **BHISHM portable hospital cubes in Agra**, marking the first such test by the IAF.

BHISHM cubes are part of **“Project BHISHM” aimed at providing a rapid medical response for up to 200 casualties**. Equipped with innovative tools, including AI and data analytics, the cubes are easily transportable and **deployable within 12 minutes**, suitable for various emergency scenarios. These cubes were strategically deployed during the **Pran Pratishtha ceremony in Ayodhya** earlier this year to enhance medical preparedness and response capabilities.

28. CO-LENDING LOANS

Context:

The Finance Ministry has tasked SBI with forming a committee to address co-lending issues, aiming to boost credit flow.

What is Co-lending?

Co-lending, also known as co-origination, is a **collaborative lending arrangement** involving multiple lenders to extend loans to borrowers.

E.g., a business needs a large sum of money for a business project. Instead of relying solely on one bank, **two financial institutions**—let’s say a bank and a non-banking finance company (NBFC)—join forces to provide the loan. This collaborative approach helps to **spread the risk** between the two lenders while **increasing the overall amount of money** available for lending. So, co-lending allows **borrowers to access larger loans** while diversifying risk for the lenders.

As per RBI, **banks and NBFCs can co-lend loans to priority sectors**, with a minimum 20% credit risk on NBFCs, and the rest on banks. Banks are not allowed to enter into a co-lending arrangement with an **NBFC belonging to the promoter Group**.

29. MITOGENOME

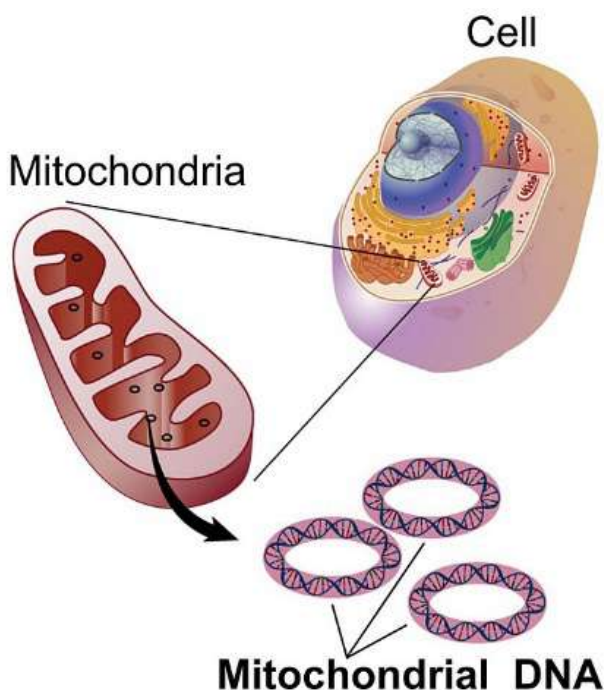
Context:

A recent study has traced the **ancestry of South African leopards to an ice age**, revealing their origins from two unique clades **in southern and central Africa**.

- This research involved **analysing the mitogenomes—DNA found outside the cell nucleus and inherited maternally**.
- These mitogenomes provide a **reliable record of genetic mutations over time**, allowing scientists to **track the evolution and migration of leopards**.

Mitogenomes, **short for mitochondrial genomes**, are DNA molecules **found outside the nucleus of a cell**, within the **mitochondria**.

Mitochondria are often referred to as the **powerhouses of the cell because they generate the cell’s energy**.



30. PLUNGING REGIONS

Context:

Researchers from Oxford University have provided the **first observational proof of “plunging regions” around black holes**, confirming a **key prediction of Einstein’s theory of gravity**.

- The study demonstrated that there are **areas near black holes where matter ceases to orbit and plunges directly into the black hole**, experiencing some of the **strongest gravitational forces in the galaxy**.
- It **confirms Einstein’s theory**, which states that **particles close to a black hole cannot maintain circular orbits and instead rapidly fall inwards at nearly the speed of light**.

31. LUNAR POLAR EXPLORATION MISSION (LUPEX)

Context:

The **India-Japan joint moon mission**, the **Lunar Polar Exploration Mission (LUPEX)**, is **expected to launch in a few years**.

- This collaboration between **the Indian Space Research Organisation (ISRO) and the Japan Aerospace Exploration Agency (JAXA)** aims to **explore the lunar surface and search for subsurface water**.
- ISRO is developing the **lander**, while JAXA is responsible for the **rover and launch vehicle**.
- The mission will also **carry instruments from NASA and the European Space Agency (ESA)**, enhancing its scientific potential.

32. AI IN DRUG DEVELOPMENT

Context:

AI has significantly enhanced the efficiency and speed of drug development, a traditionally costly and time-consuming process.

AI Tools in Drug Development:

AlphaFold 3 and RoseTTAFold All-Atom:

- **Developers:** **AlphaFold is developed by DeepMind, a Google company, and RoseTTAFold by the University of Washington**.
- **Functionality:** These tools use **deep neural networks to predict the three-dimensional structures of proteins and their interactions with drugs**. They provide a major leap in predicting not **just static protein structures but also dynamic interactions with various biological molecules**, including DNA, RNA, and small molecules.
- **Performance:** In tests, **AlphaFold 3 accurately predicted drug interactions 76% of the time, outperforming RoseTTAFold All-Atom at 40%**.

MAPPING

INTERNATIONAL

1. VENEZUELA

Context:

Venezuela may **become the first nation to lose all its glaciers** as climate scientists reclassify its last glacier, the **Humboldt**, as an ice field due to its diminutive size.

The glacier has drastically shrunk over the years, with one study indicating it reduced to less than 10 hectares by 2015-2016.

About Venezuela:

It is a country on the **northern coast of South America**. To the northwest are the **Andes Mountains and the colonial town of Mérida**, a base for visiting Sierra Nevada National Park. Caracas, the capital, is to the north.

The country's economy is strongly dependent **on hydrocarbons, as well as on loans from China and Russia**. Traditionally, petroleum represents more than 85% of Venezuela's exports.



components of pollutants lead to **oxidative stress**, endangering mangrove cells.

What is oxidative stress?

Oxidative stress refers to the **condition where pollutants, such as heavy metals and acidic components** in the air, lead to **excess production of reactive oxygenated species (ROS)** in the mangrove ecosystem. This overproduction of ROS can overwhelm the natural antioxidant defences of the mangrove cells, leading to **cellular damage and threatening the overall health and resilience** of the ecosystem.

About Sundarbans:

Sundarbans is a mangrove area in the delta formed by the confluence of the Ganges, Brahmaputra and Meghna Rivers in the Bay of Bengal.

Features:

1. Sundarban in India is its **largest mangrove ecosystem**.
2. **Sundarban Reserve Forest** of Bangladesh is the largest mangrove forest in the world.
3. It contains **Sundarbans Tiger Reserve, Sundarban Wetland, Sundarbans National Park and Biosphere Reserve**.
4. It is the **only mangrove forest in the world inhabited by tigers**



INDIAN

2. SUNDARBANS MANGROVE ECOSYSTEM

Context:

Air pollution from Kolkata and the Indo-Gangetic Plain threatens the Sundarbans mangrove ecosystem, revealed a recent study.

Pollutants, including **black carbon and heavy metals, degrade air quality**, harming mangroves. Antiquated boat motors are a major source of toxic metals. The acidic

3. KAZIRANGA NATIONAL PARK

Context:

Kaziranga National Park in Assam has **achieved a significant milestone by recording its highest revenue in its 50-year history during the 2023-24 tourism** year. The park also witnessed a surge in visitors, with a total of 3,27,493 tourists, including 13,919 foreign visitors.

About Kaziranga National Park:

1. **Located in the State of Assam** and is the single largest undisturbed and representative area in the **Brahmaputra Valley floodplain**.

2. International Status:

- a. It was declared a UNESCO World Heritage Site in 1985.
- b. It is recognized as an Important Bird Area by BirdLife International.

Important Species Found:

1. **KNP is home to the world's most one-horned rhinos.** Pobitora Wildlife Sanctuary has the **highest density of one-horned rhinos** in the world and the second-highest number of Rhinos in Assam after Kaziranga National Park.
2. Much of the focus of conservation efforts in Kaziranga is focused on the **'big four' species— Rhino, Elephant, Royal Bengal tiger and Asiatic water buffalo.**
3. **Rivers and Highways:** The park has the Diphlu River running through it.



4. EAGLENEST WILDLIFE SANCTUARY

Context:

A Red panda, an **endangered species**, was recently captured on camera in the Eaglenest Wildlife Sanctuary (EWS) in Arunachal Pradesh.

Key Points about Red Pandas:

1. **Two panda species:** Giant Pandas and Red Pandas.
2. **State animal** of Sikkim.
3. **Shy, solitary, arboreal;** indicator species for ecological change.
4. **Two (sub) species in India:** Himalayan and Chinese red pandas.
5. Found in **India, Nepal, Bhutan, Myanmar, and China.**
6. Declining numbers; protected under IUCN, CITES, and Wildlife Protection Act.
7. Release program by **Padmaja Naidu Himalayan Zoological Park:** Pandas released in Singalila National Park, West Bengal.

About Eaglenest Wildlife Sanctuary:

Located in the **Himalayan foothills of West Kameng District, Arunachal Pradesh**, Eaglenest Wildlife Sanctuary is a protected area known for its rich biodiversity. It borders **Sessa Orchid Sanctuary** to the northeast **and Pakhui Tiger**

Reserve to the east, spanning an altitude range from 500 to 3,250 meters. Home to over 500 bird species, it is part of the **Kameng Elephant Reserve**. The sanctuary is renowned for birding, with diverse flora including temperate cloud forests, bamboo patches, and rhododendrons. Its fauna includes species like the **capped langur, Bengal tiger, Asian elephant, red panda, and Asiatic black bear**. The sanctuary's name is derived from the **Red Eagle Division** of the Indian army, stationed there in the 1950s

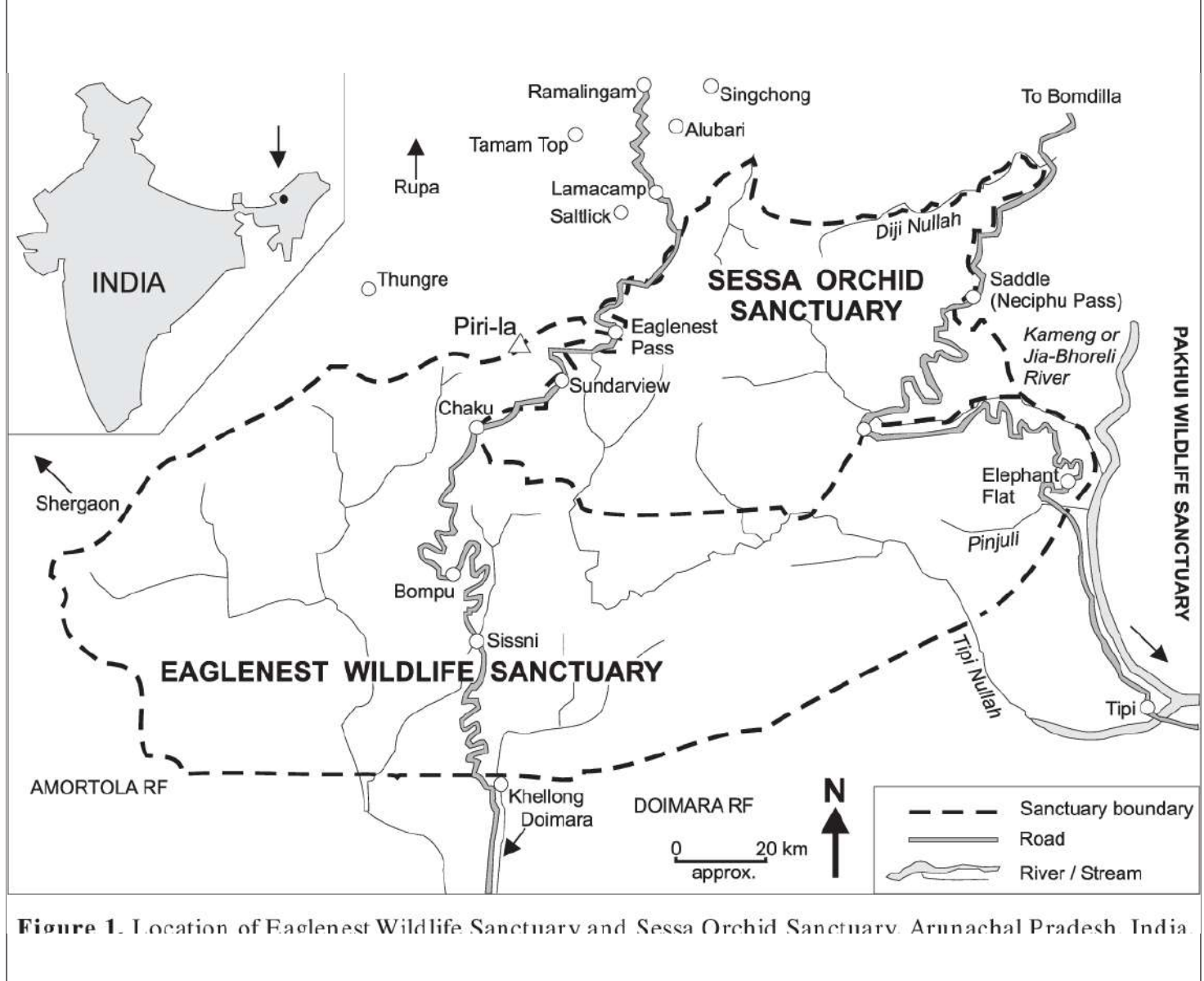
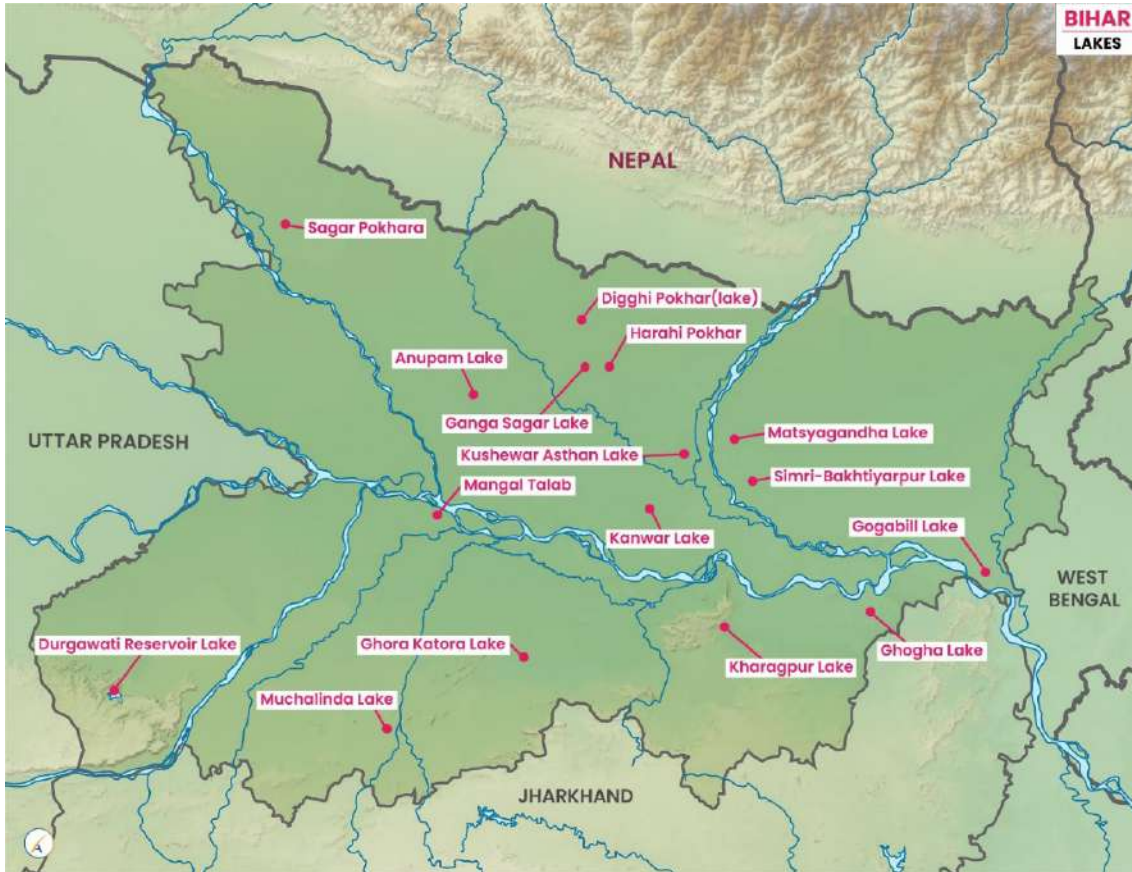


Figure 1. Location of Eaglenest Wildlife Sanctuary and Sessa Orchid Sanctuary, Arunachal Pradesh, India.

5. KANWAR LAKE (BIHAR)

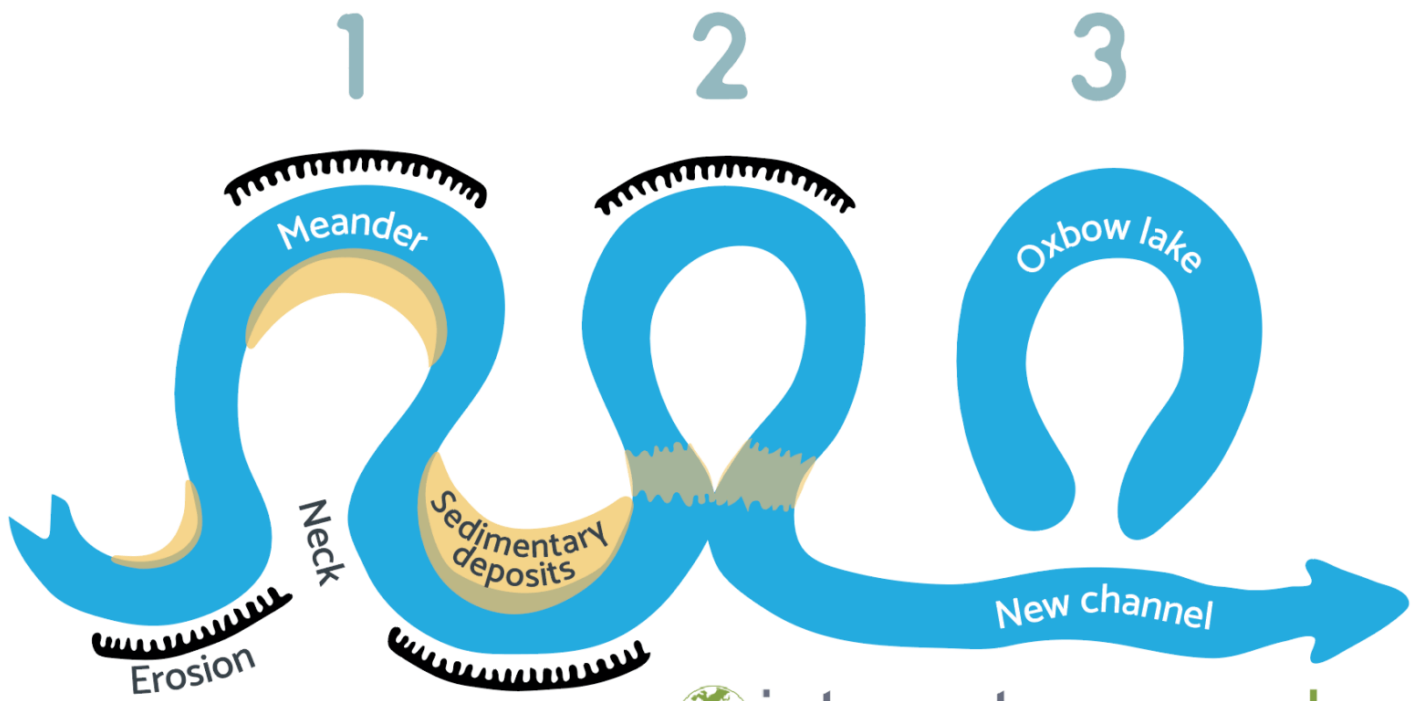
Context: Kanwar Lake in Begusarai, Bihar, is in critical condition due to encroachment and drying, severely impacting bird habitats.

About the lake: Kanwar Lake (also known locally as Kabartal) is **Asia's largest freshwater oxbow lake**, formed by the **meandering Burhi Gandak River**, a tributary of the Ganga. This rainfed lake fills up during the monsoon. Recognized as a wetland of international importance under the **Ramsar Convention** (the only one from Bihar), it was declared a protected area in 1986 and later designated as a sanctuary to prevent bird poaching.



What are Oxbow Lakes?

Oxbow lakes are **U-shaped, formed when a river bend becomes isolated after the river changes course.** Typically found in flat plains near a river’s mouth, they are Stillwater lakes with no inflow or outflow.



internet **geography**

OXBOW LAKE FORMATION