

GS ANALYST

MONTHLY CURRENT AFFAIRS MAGAZINE

- ✓ Coverage of Monthly topics for GS Paper 1, 2, 3 & 4
- ✓ Key Concepts & Prelims Specific Topics
- ✓ Questions for Answer Writing Practice

MAINS

- ❑ Women-led Growth Model in India
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- ❑ Chennai-Vladivostok Eastern Maritime Corridor
- ❑ The New Criminal Laws
- ❑ Article 361 and Immunity Challenge
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- ❑ Regulating Gig-Based Work
- ❑ Global Microsoft Outage
- ❑ Critical Mineral Recycling
- ❑ Urban Naxalism
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- ❑ Alleged Forgery by IAS Officer

QUICK BYTES

- ❑ Abhaya Mudra
- ❑ The Santhal Hul of 1855
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CONTEMPORARY ISSUE BASED ESSAY

THE ROLE OF EDUCATION IN BRIDGING SOCIOECONOMIC GAPS

DISCLAIMER

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION -A

ESSAY

THE ROLE OF EDUCATION IN BRIDGING SOCIOECONOMIC GAPS

Education is universally acknowledged as a powerful tool for social and economic development. It has the potential to uplift individuals and societies, offering a pathway out of poverty and a means to achieve social mobility. However, despite its importance, the role of education in bridging socioeconomic gaps is complex and multifaceted. This essay explores how education can act as a bridge across socioeconomic divides, the challenges it faces in achieving this goal, and strategies to enhance its effectiveness in fostering equality.

The Transformative Power of Education

- Education is often seen as the great equalizer in society. It provides individuals with the knowledge, skills, and qualifications necessary to improve their socioeconomic status. Access to quality education opens doors to better job opportunities, higher income, and improved living standards. For instance, data consistently shows that individuals with higher levels of education tend to earn more and have better employment prospects than those with lower educational attainment.
- In many cases, education acts as a means for marginalized groups to achieve social mobility. For example, in countries with high levels of inequality, education has helped bridge the gap between different socioeconomic classes by offering underprivileged individuals the chance to improve their circumstances. Initiatives like scholarships, affirmative action programs, and free or

subsidized education aim to provide opportunities to those who might otherwise be excluded due to economic constraints.

Education as a Tool for Economic Growth

- On a broader scale, education drives economic growth and development. A well-educated workforce is more productive and innovative, contributing to economic progress. Countries that invest in education tend to experience higher economic growth rates. For instance, nations with strong educational systems, such as Finland and Singapore, consistently rank high on global competitiveness indices and have robust economies.
- Moreover, education contributes to the development of human capital, which is critical for technological advancement and industrial growth. Skills acquired through education enable individuals to adapt to changing job markets and contribute to sectors like information technology, engineering, and healthcare. This, in turn, helps in bridging the gap between developed and developing economies by fostering a more skilled and versatile workforce.

Challenges in Bridging Socioeconomic Gaps Through Education

Despite its potential, education alone cannot fully bridge socioeconomic gaps. Several challenges hinder its effectiveness in achieving this goal:

- **Access and Inequality:** One of the most significant barriers to education is unequal access. In many parts of the world, especially in developing countries, access to quality education remains limited. Factors such as poverty, geographical location, and gender can restrict educational opportunities. For example, children from low-income families may need to work instead of attending school, while girls in some regions may face cultural barriers to education.
- **Quality of Education:** Even when access is available, the quality of education can vary significantly. Schools in affluent areas often have better resources, more qualified teachers, and modern facilities compared to those in poorer regions. This disparity in quality means that children from disadvantaged backgrounds may not receive the same level of education, perpetuating the cycle of poverty.
- **Affordability:** In many countries, the cost of education, including tuition fees, books, and other expenses, can be prohibitively high for low-income families. This financial burden can prevent students from pursuing higher education or force them to drop out before completing their studies.
- **Social and Cultural Barriers:** Socioeconomic gaps are often reinforced by social and cultural barriers. Prejudices and biases can affect the quality of education and the opportunities available to marginalized groups. For instance, students from minority backgrounds may face discrimination or lower expectations from educators, impacting their educational outcomes.
- **and effective learning experience.** This involves investing in teacher training, updating curricula to meet modern standards, and providing schools with adequate resources and infrastructure. Additionally, implementing measures to reduce class sizes and improve student-teacher ratios can enhance the learning environment.
- **Affordability and Financial Support:** Making education more affordable is essential for reducing economic barriers. Scholarships, grants, and low-interest loans can help cover the costs of higher education and reduce the financial burden on students and their families. Additionally, governments should consider providing free or subsidized education at all levels to ensure that financial constraints do not prevent individuals from pursuing their educational goals.
- **Addressing Social and Cultural Barriers:** Efforts should be made to address and eliminate social and cultural barriers that impact educational outcomes. This includes promoting inclusivity and diversity in schools, providing support for students from marginalized backgrounds, and challenging discriminatory practices and biases. Community engagement and awareness programs can also help change attitudes and perceptions about education.
- **Leveraging Technology:** Technology can play a significant role in improving access to education and bridging gaps. Online learning platforms, digital resources, and educational apps can provide students with additional learning opportunities and support. Governments and organizations should invest in digital infrastructure and ensure that technology is accessible to all students, particularly those in remote or underserved areas.

Strategies for Enhancing Education's Role in Bridging Gaps

To maximize the potential of education in bridging socioeconomic gaps, several strategies can be employed:

- **Improving Access:** Ensuring that all children have access to education is fundamental. Governments and organizations should invest in building schools in underserved areas, providing financial assistance to low-income families, and removing barriers that prevent children from attending school. Universal primary and secondary education should be a priority, with efforts to expand access to early childhood education and vocational training.
- **Enhancing Quality:** Improving the quality of education is crucial for ensuring that students receive a meaningful

Education holds immense potential to bridge socioeconomic gaps and foster greater social equity. By providing individuals with the skills and opportunities needed to improve their circumstances, education can drive economic growth, promote social mobility, and enhance overall well-being. However, achieving these outcomes requires addressing the challenges of access, quality, affordability, and social barriers. Through targeted strategies and investments, education can become a more effective tool for reducing inequality and creating a more inclusive society. The commitment to improving education for all is not just a moral imperative but a practical necessity for building a more equitable and prosperous future.



SECTION - B

MAINS ISSUES

KERALA'S INITIATIVE TO PROMOTE GENDER NEUTRALITY IN SCHOOL TEXTBOOKS

CONTEXT

In a significant stride towards gender neutrality, the Kerala government has initiated a comprehensive overhaul of school textbooks. The aim is to challenge traditional stereotypes by depicting men and other family members participating in domestic activities such as cooking, alongside women. This pioneering move seeks to instill **inclusive values in children** from an early age, thereby fostering a more **equitable society**.

Impact of the Initiative

- **Normalize shared responsibilities within the household:** The revamped textbooks feature images showing fathers engaged in household chores traditionally considered the domain of women. This visual representation is pivotal in breaking down deep-seated gender stereotypes prevalent in society.
- **Social Change:** This shift in portrayal is not merely symbolic but sets a precedent for how gender roles are perceived and practiced, particularly among younger generations.
- **Holistic Approach to Gender-Neutral Education:** This initiative is part of Kerala's broader efforts to promote gender-neutral education. In addition to revising textbooks, the state has introduced gender-neutral uniforms in select schools and is transitioning towards more mixed-gender educational institutions by phasing out single-gender schools.

WOMEN-LED GROWTH MODEL IN INDIA

CONTEXT:

Recently, the Chief Economic Advisor (CEA) has mentioned about the **218.8%** increase in budgetary allocation for schemes for the welfare and empowerment of women and even acknowledged that women in India face the "motherhood penalty" with a drop-in female labour force participation rate around childbearing years.

What is Gender Budgeting?

- Gender Budgeting is a powerful tool for achieving gender mainstreaming to ensure that the benefits of development reach women as much as men.
- The rationale for gender budgeting arises from recognition of the fact that national budgets impact men and women differently through the pattern of resource allocation.
- Women constitute **48% of India's population**, but they lag behind men on many social indicators like health, education, economic opportunities, etc. thus, gender budgeting is important.

Gender budgeting status in India:

- Gender Budget Statement was first introduced in Budget 2005-06. Various ministries and department provide information to finance ministry based on which Gender Budget Statement is prepared.
- This helps to monitor expenditure and public service delivery from a gender perspective, as a means of mainstreaming women's concerns in all activities and improving their access to public resources.

- Also, it was instructed to all the ministries and departments, to open the Gender Budgeting Cell (GBC).

'PURVODAYA' PLAN TO BOOST TOURISM

CONTEXT

The Union Budget 2024 has marked a significant shift towards promoting tourism in Bihar and Odisha, highlighting these states' **cultural richness and potential for economic development**. This move aligns with the government's broader strategy of regional development under the '**Purvodaya**' plan, aimed at transforming the eastern region of India into a hub of growth and cultural heritage.

What is 'Purvodaya' Plan?

- The 'Purvodaya' plan targets holistic development across **Bihar, Jharkhand, West Bengal, Odisha, and Andhra Pradesh**.
- To propel these states as engines of development, it emphasizes:
 - human resource development
 - infrastructure enhancement
 - economic opportunities
- Tourism Strategy:** The shift from **circuit-based** to **destination-based tourism** signifies a focused approach towards developing specific tourist destinations. This includes upgrading tourist facilities, improving connectivity, and boosting local economies through tourism-related activities.

Focus on Bihar and Odisha:

- Tourism Development:** Bihar and Odisha have been identified for comprehensive tourism development initiatives. The focus includes enhancing infrastructure, connectivity, and tourist facilities at key heritage sites like the
 - Vishnupad temple in Gaya
 - Mahabodhi temple in Bodhgaya (Bihar)
 - and various cultural and natural attractions in Odisha

₹ UNION BUDGET 2024-25

वित्त मंत्रालय MINISTRY OF FINANCE

पिबि

Tourism

- Vishnupad Temple Corridor and Mahabodhi Temple Corridor to be supported to transform Vishnupad Temple at Gaya and Mahabodhi Temple at Bodh Gaya into world-class pilgrim and tourist destinations
- Rajgir to be comprehensively developed
- Nalanda to be developed as a tourist Centre, Nalanda University to be revived to its glorious stature
- Assistance to make Odisha an ultimate tourism destination

FIGURE: 01

- A new temple corridor will be constructed for Vishnupad at Gaya. Similarly, a new corridor will be built for Mahabodhi temple corridor at Bodh Gaya. Both the corridors will be supported and modelled on the Kashi Vishwanath temple
- On the same lines, a comprehensive development scheme has been announced for Rajgir. Rajgir has immense spiritual significance for Hindus, Buddhists and Jains.
- Nalanda in Bihar will be developed as tourist destination.



FACT BOX

Key-Locations

- **Vishnupad temple in Gaya:** Dedicated to Lord Vishnu, the temple was erected during 1787 by Queen Ahilyabai.
 - ▶ It is located on the banks of Phalgu river.
 - ▶ It features a 40-cm-long footprint of Lord Vishnu in a basalt rock.
- **Mahabodhi Temple Complex:** It is one of the four holy sites related to the life of the Lord Buddha (566-486 BC), and particularly to the attainment of Enlightenment.
 - ▶ It is the first temple built by Emperor Asoka in the 3rd century B.C., and the present temple dates from the 5th–6th centuries.
 - ▶ It is an example of early brick structures in India.
 - ▶ It is believed that in 531 BC, Buddha attained enlightenment under the Bodhi Tree located west of the main temple.
 - ▶ The complex comprises the main temple and six sacred sites within an enclosed area
 - ◆ **Bodhi Tree:** A descendant of the original tree where Buddha meditated and attained enlightenment.
 - ◆ **Animeshlochan Chaitya:** A prayer hall where Buddha spent the Second Week of his meditation.
 - ◆ **Ratnachakrama:** Also known as the Jewelled Ambulatory, where Buddha walked during the Third Week.
 - ◆ **Ratnagar Chaitya:** Where Buddha spent the Fourth Week, located near the north-east enclosure wall.
 - ◆ **Ajapala Nigrodh Tree:** Marked by a pillar where Buddha meditated and interacted with Brahmins during the Fifth Week.

- ◆ **Lotus Pond:** Where Buddha spent the Sixth Week, located south of the enclosure.
- ◆ **Rajyatana Tree:** Marked as the site where Buddha spent the Seventh Week.
- **Nalanda University:** The new campus of Nalanda University was recently inaugurated at Rajgir, Bihar. The University is conceived as a collaboration between India and **East Asia Summit (EAS) countries**. The original Nalanda University was established around 427 CE by Gupta Emperor Kumaragupta I. Later, it also received patronage from **Harshavardhana** and the Pala rulers.
 - ▶ Founded 1600 years ago, Nalanda is recognized as the world’s first residential university, pre-dating Oxford and Bologna by over 500 years.
 - ▶ **Decline:** Nalanda began its decline during the late Pala period but faced devastation during Bakhtiyar Khilji’s invasion around 1200 CE. The library, housing millions of manuscripts, was famously burned for three months.
 - ▶ **Historical Travellers:** Accounts from Chinese travelers like Hiuen-Tsang and I-Tsing provide detailed insights into the university’s academic and cultural richness.
 - ▶ **UN Heritage Site:** The ruins of Nalanda were recognized as a **UNESCO World Heritage Site in 2016**, underscoring its global historical significance.
 - ▶ **Rajgir** is an ancient city famous in Bihar, known for its Jain temple and hot spring.

**UNCHECKED URBANISATION
RENDERS DELHI VULNERABLE
TO FLOODING**

CONTEXT

Recent heavy rainfall in Delhi has once again highlighted the chronic issue of urban flooding in the city, exacerbated by unchecked urban expansion and inadequate drainage systems.

How urbanisation is responsible?

Delhi is undergoing one of the world’s fastest urban expansions. The geographic size of Delhi almost doubled from 1991 to 2011. This urban expansion, however, has paid little heed to **Delhi’s natural topography**.

- **Unchecked Urban Growth:** Rapid and unplanned urbanization has expanded Delhi without adequate consideration for natural drainage patterns.
- **Impact on Drainage:** Historical areas of Delhi were built on higher ground, allowing rainwater to naturally drain. Modern construction in low-lying areas disrupts these natural drainage routes.

- **Concrete Jungle:** Extensive concretization reduces the land's ability to absorb rainwater, leading to increased surface runoff during heavy rains.
- **Drainage Infrastructure:** Existing drainage systems, including nallahs (drains), are often insufficiently maintained and become clogged easily.
- **Role of Civic Authorities:** Inadequate desilting of drains by civic bodies exacerbates flooding during monsoon seasons.
- **Infrastructure:** The introduction of infrastructure like railways and roads in flood plains has further compromised natural drainage systems.

In short, Delhi is grappling with urban flooding caused by a combination of factors: unprecedented and extreme rainfall patterns, silt buildup, and encroachment on floodplains



FACT BOX

Government Measures for Urban Flooding

- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT) 2.0 Scheme:** It provides for rainwater harvesting through storm water drains into water body (which is not receiving sewage/effluent) & creation/ strengthening of storm water drains around water body.
- **Other measures:** Jal Shakti Abhiyan (JSA), Amrit Sarovar Mission, Atal Bhujal Yojana, Model Building Bye Laws (MBBL), 2016

CHINA'S 'FIVE PRINCIPLES' OF FOREIGN POLICY

CONTEXT

China recently celebrated the **70th anniversary of the Five Principles of Peaceful Coexistence**, a cornerstone of its foreign policy. This concept, originally proposed by China in 1954, is also known as **Panchsheel** in India.

What are these Five Principles?

- The Five Principles were first articulated during talks between India and China, reflecting a mutual desire for peaceful relations amidst their emergence on the global stage post-independence (India in 1947 and China in 1949).
- **The Five Principles**
 - ▶ **Mutual Respect for Territorial Integrity and Sovereignty:** Both countries agreed to respect each other's borders and territorial sovereignty.
 - ▶ **Mutual Non-Aggression:** Commitment to refrain from acts of aggression or hostility towards each other.
 - ▶ **Mutual Non-Interference:** Agreement not to interfere in each other's internal affairs.

- ▶ **Equality and Mutual Benefit:** Interactions based on equality and mutual benefit, fostering cooperation.
- ▶ **Peaceful Coexistence:** Promoting harmony and peaceful relations between nations.
- Panchsheel was later included in the **Ten Principles of International Peace and Cooperation** at the **Bandung Conference** in April 1955, attended by Afro-Asian countries.

Impact and Evolution

- Initially aimed at enhancing trade and cooperation, the Five Principles gained broader recognition at the **Bandung Conference** in 1955, influencing the **Non-Aligned Movement (NAM)**.
 - ▶ The Non-Aligned Movement, founded by Jawaharlal Nehru, that rose in the 1960s adopted the 'Panchsheel' or Five Principles as its guiding principles.
- However, the **Sino-Indian War of 1962** strained relations and diluted the principles' influence.
- Current Perspective on China's Foreign Policy



FACT BOX

Non-Aligned Movement

- **Founded:** 1961
- Formed during the height of the Cold War, the Non-Aligned Movement served as a middle ground for countries unwilling to ally themselves with either the United States or the Soviet Union.
- NAM builds its work on ten **Bandung principles** (including the Panchsheel).
- **India's position:** India, a founding member and the largest participant in NAM, played an active role in meetings until the 1970s. However, India's leaning towards the USSR caused divisions among smaller NAM members.
 - ▶ India is now a member of the G20 and has declared itself a **nuclear power**, shifting focus away from **global nuclear disarmament**.
 - ▶ India engages with both new and traditional global powers, participating in initiatives like the **Quadrilateral Security Dialogue (Quad)** and the **Shanghai Cooperation Organisation (SCO)**.

PALESTINIAN UNITY DECLARATION

CONTEXT

Palestinian factions Hamas and Fatah signed a unity declaration in China aimed at forming a joint government to govern Gaza and the West Bank following the end of the recent Israel-Hamas conflict.

Background:

- Hamas, an Islamist party, and Fatah, a secular party, have been bitter rivals since the late 1980s.
- Their conflict intensified after Hamas won the 2006 Palestinian legislative elections and subsequently took control of Gaza from Fatah in 2007 through a violent takeover.

Key Points of the Deal:

- **Formation of Unity Government:** The agreement outlines the establishment of an interim national unity government to govern Gaza and the West Bank.
- **Unified Palestinian Leadership:** It aims to create unified leadership among Palestinian factions in preparation for future elections.
- **Elections for Palestinian National Council:** The deal calls for free and fair elections to elect a new Palestinian National Council.
- **Declaration of Unity:** It emphasizes solidarity among Palestinian groups in response to ongoing Israeli military actions.

- ▶ **Scheduled Castes:** 7.5
- ▶ **Scheduled Tribes:** 15
- ▶ **Other Backward Castes (OBC):** 27
- ▶ **Economical Weaker Section (EWS):** 10 (introduced through **103rd Constitutional Amendment (2019)**)
- In India, reservation policies aim to provide equitable opportunities in education, government jobs, and legislatures:
 - ▶ **Government Educational Institutions:** Reserved seats for SCs, STs, OBCs, and EWS in institutions like IITs and IIMs under Article 15(4), (5), (6).
 - ▶ **Government Jobs:** Quotas for SCs, STs, OBCs, and EWS in civil services like IAS, IPS, etc., under Article 16(4), (6).
 - ▶ **Legislatures:** Seats reserved for SCs and STs in Parliament and State Legislatures under Article 334.

JOB QUOTAS

CONTEXT

The Supreme Court of Bangladesh recently ruled to **abolish most quotas on government jobs**, triggering widespread protests that have turned violent and resulted in casualties. The protests initially erupted in response to the High Court's decision to reinstate the quota system, which Prime Minister Sheikh Hasina's government had previously abolished in 2018.

Reasons for Protests:

- **Quota System Reinstatement:** Students began protesting when the High Court revived the quota system for government jobs. This decision was seen as favoring specific groups, such as family members of freedom fighters from the **1971 independence war**.
- **Government Appeal and Supreme Court's Decision:** Following the protests and government's appeal, the Supreme Court suspended the High Court's order.
 - ▶ Recently, it dismissed the order entirely and mandated that 93% of government jobs should be based on merit.
 - ▶ Only 5% of jobs will now be reserved for family members of independence fighters, and 2% for people from backward groups and the disabled.



FACT BOX

Current Scenario of Reservation (Quota System)

- Reservation quota in India for Government Jobs

PRIME MINISTER MODI'S AUSTRIA VISIT

CONTEXT

India's Prime Minister Narendra Modi's recent visit to Vienna marked the first trip by an Indian Prime Minister to Austria since 1983, when Indira Gandhi visited. This visit came immediately after Modi's meeting with Russian President Vladimir Putin in Moscow, highlighting its strategic timing amidst global geopolitical developments.

Historical Background:

- Vienna's significance dates back to **World War II**, when it was occupied by **Nazi Germany** and later divided into sectors by the **Allies**.
- In 1955, **Austria gained independence** with the signing of the **Austrian State Treaty**, committing to neutrality amidst the **Cold War tensions** between **Western Europe and the Soviet bloc**.
 - ▶ **India's Role in Austrian Independence:** In the 1950s, India, under **Prime Minister Jawaharlal Nehru**, played a pivotal role in Austria's quest for sovereignty. Nehru's diplomatic efforts helped Austria secure the **State Treaty**, which ended the **Allied occupation** and affirmed its **status as a neutral nation**, akin to Switzerland.
 - ▶ **Evolution of Bilateral Relations:** Diplomatic ties between India and Austria were established in 1949.

Modern Partnership and Economic Opportunities:

- Today, Austria and India seek to elevate their partnership with a focus on **sustainable economic collaborations**.

- Both countries have shown balanced stances on global issues like the **Russia-Ukraine conflict**, while also exploring new avenues in **infrastructure, renewable energy, e-commerce, and technology**.

CHENNAI-VLADIVOSTOK EASTERN MARITIME CORRIDOR

CONTEXT

Prime Minister Modi announced the commencement of the **Chennai-Vladivostok Eastern Maritime Corridor** during a community program in Moscow, Russia.

About the Project

- The Chennai-Vladivostok Maritime route connects Chennai on **India's east coast with Vladivostok**, Russia's eastern port city, opening a plethora of opportunities for trade and investment for both countries.
- Vladivostok is the end point of the **Trans-Siberian Railway**, the fourth in terms of cargo turnover, and the first free seaport of the Far East.
- The Vladivostok-Chennai route passes through the Sea of Japan past the Korean peninsula, Taiwan and the Philippines in the South China Sea, past Singapore and through the Strait of Malacca, to emerge into the **Bay of Bengal** and then cuts across through the **Andaman and Nicobar archipelago to Chennai**.
- This sea route covers a distance of approximately 5,647 nautical miles or about 10,500 km



FACT BOX

Far East

- The Far East is the easternmost part of Russia.

- The macro-region borders two oceans, the Pacific and the Arctic, and five countries — **China, Japan, Mongolia, the United States and the DPRK**.
- Located on the **Golden Horn Bay** north of North Korea and a short distance from Russia's border with China, the region extracts 98 per cent of Russian diamonds, 50 per cent of Gold, 14 per cent of Tungsten, and 40 per cent of fish and seafood and has about one-third of Russia's coal reserves.

New trade corridors

- | | |
|----------|----------------|
| ① Greece | ④ UAE |
| ② Israel | ⑤ Russia |
| ③ India | ⑥ Saudi Arabia |



India-Middle East-Europe Economic Corridor (IMEC)

The countries expect to ensure the seamless transportation of goods and services between India, the UAE, Saudi Arabia, Jordan, Israel and Europe

Chennai-Vladivostok sea route

The proposed sea corridor seeks to boost bilateral trade between India and Russia. The route could be used for the transportation of coal, oil, LNG and other cargoes

Need of new route (to improve connectivity):

- Lack of connectivity is one of the reasons for limited trade between India and Russia, which has for the past few years hovered around the US \$12-13 billion level.
- At present, the two countries are linked through the traditional European route which passes through **Red Sea, Mediterranean Sea and Baltic Sea**.
- Operationalised in 2000, the circuitous route spans from the **Nhava Sheva Port** in Mumbai to the Port of St. Petersburg in Russia and goods take an average of 40 days to cover the distance of 8,675 nautical miles or about 16,000 km.



FACT BOX

International North-South Transport Corridor (INSTC)

- The International North-South Transport Corridor (INSTC) and the Chennai-Vladivostok, or Eastern Maritime Corridor, would ensure transportation corridors between both the Western and Eastern coasts of India with Russia.
- The INSTC was established in September 2002 between **Iran, India and Russia**.
- The **7,200-kilometre-long multi-modal transportation corridor** facilitates the movement of freight between **Afghanistan, Armenia, Azerbaijan, Russia, Central Asia and Europe, besides Iran and India**.

UPSC PYQ

Q: Mention the significance of straits and isthmus in international trade. (2022)

INDIA-RUSSIA RELATIONSHIP

CONTEXT

- Prime Minister Modi’s first bilateral visit to Russia after being sworn in, showcases the importance of India-Russia ties for India, especially in energy and defence. India and Russia have maintained a relationship for over seventy years. However, as India has expanded its global ties in a **multi-polar world**, its partnership with Russia has seen stagnation in some areas and decline in others.
- **Defence** remains the strongest aspect of their strategic alliance, with significant cooperation also in **nuclear and space sectors**.

MILITARY

India-Russia military cooperation

India and Russia have a longstanding defence relationship, through which India acquires large amounts of weaponry for its armed forces.

Here are some of the weapons produced through Russia-India joint ventures:



Armour-piercing "Mango" tank shells



AK203 assault rifles



Brahmos supersonic antiship missile



Konkurs antitank guided missile



T-90 tanks



Sukhoi 30-MKI 4th generation fighter jets
(and maintenance facilities for India's MiG-29 fighter jets)

FIGURE: 03

Significance of Russia for India

- **Critical Defence Interests:** India heavily relies on Russian and Soviet-origin defence equipment, constituting 60-70% of its arsenal. Cooperation includes joint R&D, co-development, and production of various military systems like **S-400 missiles, MiG-29s, and tanks**.
 - ▶ India's armed forces still rely heavily on armoured divisions and 97 percent of its 3,740 tanks are Russian-made.
 - ▶ The **Brahmos supersonic antiship missile**, for instance, was jointly designed by Indian and Russian engineers for the Indian armed forces and first tested in 2001.
 - ▶ Russian joint ventures with India also include making
 - ◆ 35,000 Kalashnikov AK203 assault rifles for the Indian army
 - ◆ licensed production of **advanced T-90 tanks** and **Sukhoi Su-30-MKI fourth-generation** fighter jets
 - ◆ maintenance facilities for **India's MiG-29 fighter jets**
 - ◆ collaboration on making the Konkurs antitank guided missile
 - ▶ India urgently needs assistance with its **Sukhoi fighter jets**, especially the **SU-30MKI**, of which 272 are in operation, and form the backbone of the **Indian Air Force**.
- **Economic Link:** In 2023, India imported approximately 6.4 million tonnes of fertiliser from Russia, underscoring Russia's role as a key supplier for the Indian farmer amid global supply chain disruptions.
- **Oil Trade Boost:** India buys Russian oil at discounted rates, significantly impacting bilateral trade.
 - ▶ Despite the threat of even more US sanctions, Russia has become the **No.1 supplier of oil for India**, which in turn is the **top buyer of seaborne Russian oil**. In June, India bought a stunning 2.13 million barrels of oil per day from Russia.
 - ▶ This trade helps mitigate inflation from rising crude prices, though it creates diplomatic **challenges with Western allies** due to Russia's actions in Ukraine.

UPSC PYQ

- Q:** What is the significance of Indo-US defence deals over Indo-Russian defence deals? Discuss with reference to stability in the Indo-Pacific region. (2020)

CHINA'S PAN-ASIAN RAILWAY INITIATIVE

CONTEXT:

China is taking interest in constructing a **pan-Asian railway network** to bolster regional connectivity and economic

integration across Southeast Asia. This initiative forms a crucial part of **China's broader Belt and Road Initiative (BRI)**. Malaysia's **ECRL project** is sometimes linked to a **China-led "pan-Asian" railway network** that would connect the southern Chinese city and transportation hub of Kunming with Singapore at the tip of the Malaysian peninsula by lines running across multiple Southeast Asian countries.

What is East Coast Rail Link (ECRL)?

- The ECRL is a significant railway project in Malaysia, spanning 665 kilometers from **Kota Bharu to Port Klang**.
- Originally started in 2017, the project faced funding issues and political obstacles before resuming in 2020.
- It is expected to enhance economic ties and infrastructure development between China and Malaysia.

China's Pan-Asian Rail Network Plans

- China envisions a comprehensive pan-Asian rail network comprising three main lines:
 - ▶ **Western line:** Kunming through Myanmar and Thailand.
 - ▶ **Central line:** Laos and Thailand.
 - ▶ **Eastern line:** Vietnam, Cambodia, and Thailand. These lines aim to facilitate trade and travel across the region, with potential extensions to connect to Singapore, a key global trade hub.
- **Current Status and Challenges:** While progress has been made, challenges such as varying railway track widths and economic viability have slowed implementation:
 - ▶ Laos-China section operational since 2021; other sections facing delays.
 - ▶ High costs and logistical complexities in Thailand and other countries.
 - ▶ Questions regarding the economic benefits and demand for rail transport versus maritime shipping.



FACT BOX

China's Belt and Road Initiative (BRI)

- **Launched in:** 2013
- China's Belt and Road Initiative (BRI), sometimes referred to as the **New Silk Road**, is one of the most ambitious infrastructure projects ever conceived.
- The BRI, often referred to as the **New Silk Road**, is a colossal network of infrastructure projects designed to facilitate trade, economic development, and cultural exchange.
- It consists of two primary components:
 - ▶ the Silk Road Economic Belt, which stretches overland across Asia

- ▶ the 21st Century Maritime Silk Road, which traverses the seas
- These routes will ultimately connect **China to Europe, the Middle East, and Africa**, fostering greater trade and communication between countries.

- It has since expanded to **Oceania and Latin America**, significantly broadening China's economic and political influence.

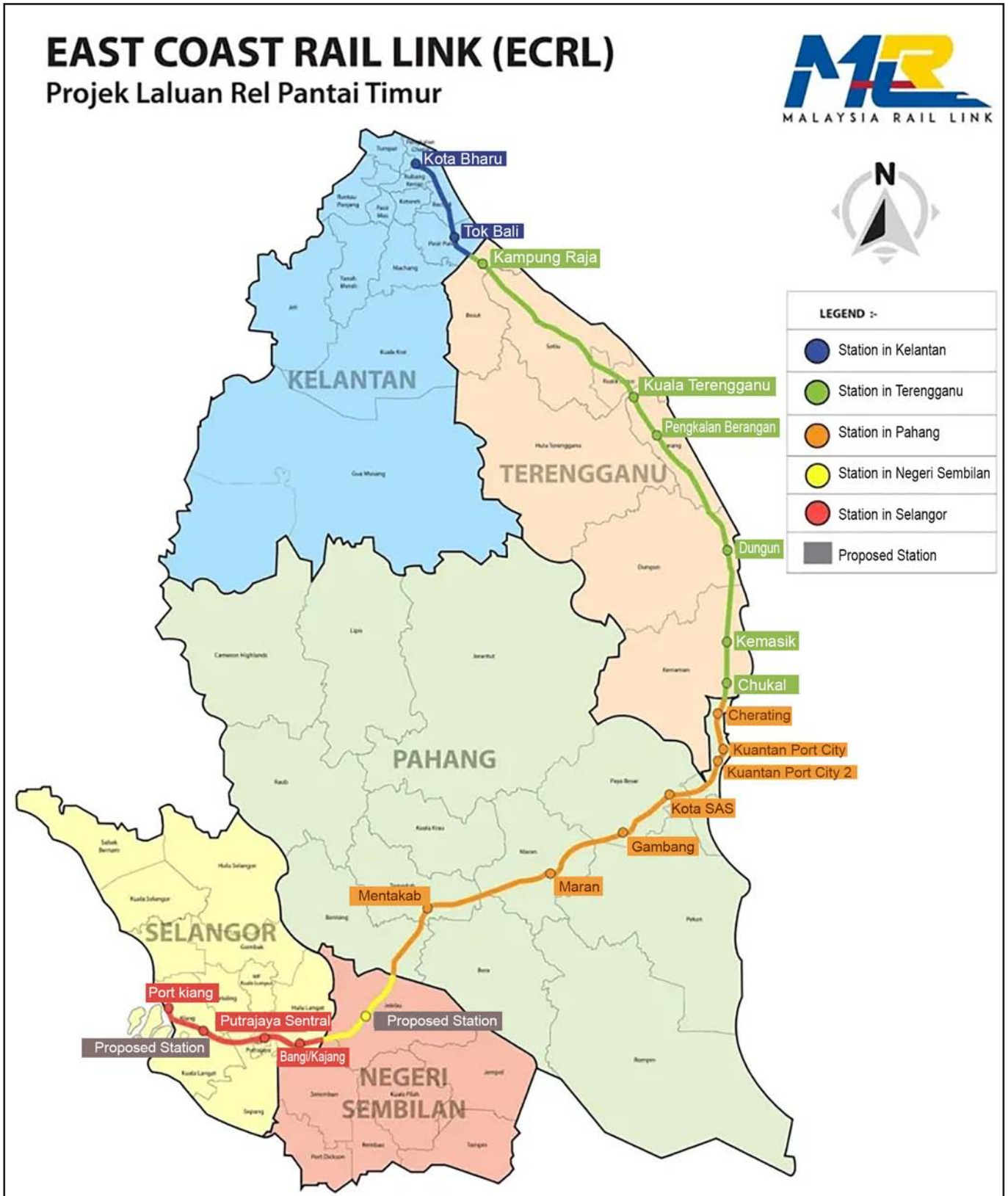


FIGURE: 04

BIODIVERSITY BEYOND NATIONAL JURISDICTION (BBNJ) AGREEMENT

CONTEXT

The Union Cabinet approved India's signing of the **Biodiversity Beyond National Jurisdiction (BBNJ) Agreement**. This agreement focuses on conserving and sustainably using marine biodiversity in areas beyond national jurisdiction, often referred to as the 'High Seas'.

About the Agreement

- The BBNJ Agreement, part of the **United Nations Convention on the Law of the Sea (UNCLOS)**, aims to protect marine biodiversity in the high seas.
- The agreement provides for the **common governance of about half of the Earth's surface and 95% of the ocean's volume**, the largest habitat on our blue planet.
- It establishes mechanisms for sustainable use through international cooperation and coordination.
- **Objective:** The treaty is meant "to prevent a cascading of species extinctions" brought on by overfishing, oil extraction, deep-sea mining and other activities with environmental impacts that occur in the high seas.

It enables Marine Protected Areas (MPAs) to be established within the high seas, which will limit the presence of harmful human activities.

Features and Principles:

- ▶ Parties cannot claim sovereign rights over marine resources in the high seas, ensuring fair and equitable benefit-sharing.
- ▶ Emphasizes an ecosystem-centric approach, integrating traditional knowledge and scientific insights.

- ▶ Promotes environmental impact assessments and area-based management tools to minimize harm to marine ecosystems.

- **Implementation:** The Ministry of Earth Sciences will lead India's implementation of the BBNJ Agreement. When ratified, it will be the third UNCLOS implementation agreement, alongside those regulating seabed mining and fish stocks.



FACT BOX

UNCLOS:

- Adopted in 1982, UNCLOS governs maritime boundaries, marine resource rights, and dispute resolution.
- It establishes the International Seabed Authority to regulate deep-sea mining activities.
- Over 160 countries have ratified UNCLOS, ensuring orderly use of the world's oceans.

Mapping the High Seas

- The "high seas" refers to international waters — sea space that doesn't fall within any nation's sovereign or extended maritime zone.
- It lies outside any country's **exclusive economic zone (EEZ)**, make up 64% of global ocean and cover 46% of Earth's surface.
- Nearly half of planet is beyond the reach of any enforceable law or governance.
- It is estimated that just 1.3% of the High Seas is protected, compared to 17% of the land.

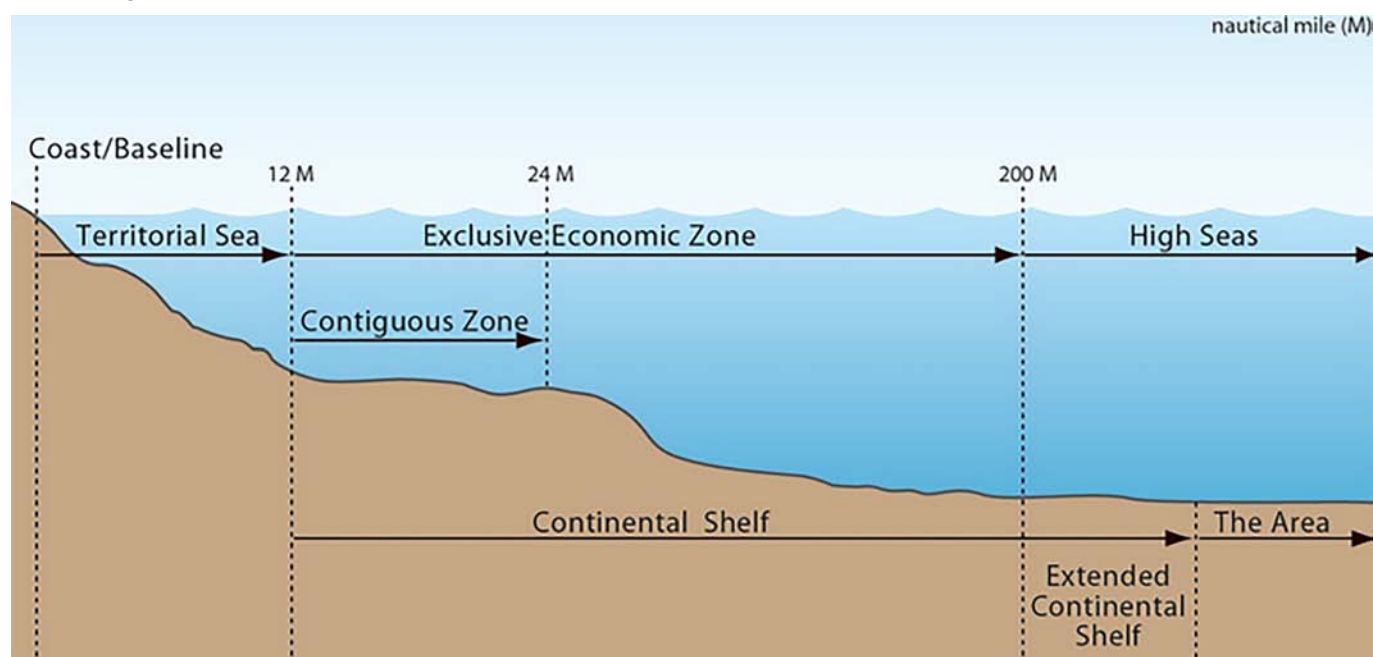


FIGURE: 05

MPAs in India

- A marine protected area (MPA) is a section of the ocean where a government has placed limits on human activity.
- MPAs in India are designated under the **Wildlife (Protection) Act of 1972**.
- There are 31 MPAs in India. MPAs occupy less than 4.01% of the total area of all Protected Areas in India.

What are the Black List and Grey List?

- Those are **two types** of lists that FATF maintains;
 - ▶ **A blacklist** is given to the countries that FATF considers uncooperative tax havens. These countries are known as **Non-Cooperative Countries or Territories (NCCTs)**.
 - ▶ **A Grey list** is a warning given to the country that it might come on the Black list.
 - ◆ But even when a country comes under a grey list it faces many problems like problems in getting loans Economic sanctions Reduction in trade.

INDIA ACHIEVES 'OUTSTANDING OUTCOME' IN FATF EVALUATION

IVORY COAST JOINS UN WATER CONVENTION

CONTEXT:

CONTEXT:

India has achieved an outstanding outcome in the 2023-24 mutual evaluation by the Financial Action Task Force (FATF). This milestone highlights India's efforts to combat money laundering (ML) and terrorist financing (TF), placing India in the "regular follow-up" category, a distinction shared by only four other G-20 countries.

Ivory Coast has joined the United Nations Water Convention, becoming the 10th African nation to do so. This move is aimed at enhancing cooperative water management across borders in response to growing water stress and the effects of climate change on shared water resources.

FATF Evaluation and Its Significance:

UN Water Convention

- ▶ **High-Level Compliance:** The FATF plenary concluded that India has reached a high level of technical compliance with FATF requirements. The anti-money laundering (AML), countering the financing of terrorism (CFT), and counter-proliferation financing (CPF) regimes of India are achieving good results, including international cooperation and access to beneficial ownership information.
- ▶ **Effective Measures:** India's AML/CFT/CPF framework has been effective in using financial intelligence and depriving criminals of their assets. The evaluation highlighted India's success in transitioning from a cash-based to a digital economy to reduce ML/TF risks.
- ▶ **Recognition of Efforts:** The FATF has recognized India's rigorous measures over the past decade to safeguard its financial system from ML/TF threats, including efforts to mitigate risks arising from corruption, fraud, and organized crime.

- The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) was adopted in Helsinki in 1992 and entered into force in 1996.
- The Convention is a unique legally binding instrument promoting the sustainable management of shared water resources, the implementation of the Sustainable Development Goals, the prevention of conflicts, and the promotion of peace and regional integration.
- The Water Convention requires Parties to prevent, control and reduce transboundary impact, use transboundary waters in a reasonable and equitable way and ensure their sustainable management.
- Parties bordering the same transboundary waters have to cooperate by entering into specific agreements and establishing joint bodies.
- As a framework agreement, the Convention does not replace bilateral and multilateral agreements for specific basins or aquifers; instead, it fosters their establishment and implementation, as well as further development.

FATF:

UN Convention on the Law of the Sea (UNCLOS):

- The **Financial Action Task Force (FATF)** is an independent **inter-governmental body** that develops and promotes policies to protect the **global financial system** against money laundering, terrorist financing and the financing of proliferation of weapons of mass destruction.

- UNCLOS was adopted in 1982 and laid the foundation of ocean governance, with the first single set of rules for oceans and seas.
- There are two more instruments under the Convention:
 - ▶ The 1994 agreement on the implementation of Part XI of UNCLOS

- ▶ The 1995 UN Fish Stocks Agreement
- ▶ The treaty on BBNJ will be the third legal instrument under the convention.

Mains Practice Question

Q: "Transboundary water cooperation is crucial for sustainable development and climate resilience in Africa." Discuss

THE NEW CRIMINAL LAWS

CONTEXT:

Three new criminal laws came into effect from July 1, 2024. **The Bharatiya Nyaya Sanhita (BNS), the Bharatiya Nagrik Suraksha Sanhita (BNSS), and the Bharatiya Sakshya Adhinyam (BSA)**, passed in Parliament will replace the Indian Penal Code (IPC), 1860, the Criminal Procedure Code (CrPC), 1973, and the Indian Evidence Act, 1872 respectively.

About the New Law

Previous Act/Code	New Law
Indian Penal Code, 1860	Bharatiya Nyaya Sanhita (BNS)
Criminal Procedure Code, 1898	Bharatiya Nagrik Suraksha Sanhita (BNSS)
Indian Evidence Act, 1872	Bharatiya Sakshya Adhinyam (BSA)

- The new law seeks to **replace the colonial-era sedition law** which was mainly used against Indian political leaders seeking independence from British rule.
- Also, the **state-of-the-art technologies** have been incorporated in these laws.
- The objective of these laws is **not to punish anyone but give justice** and in this process punishment will be given where it is required to create a sense of prevention of crime.

Why there is a need for reforms?

- **Colonial Legacy:** The laws we currently use for justice are leftovers from British rule, designed to control the nation. Their relevance in today's world is questionable.
- **Ineffective Justice System:** Instead of protecting the innocent and punishing the guilty, the justice system often harasses ordinary people.
- **Backlog of Cases:** There are about 35 million pending cases in India's courts, especially in local and district courts. This delay denies justice to many.

- **High Number of Undertrials:** India has one of the highest numbers of undertrial prisoners globally. Over two-thirds of our prison population are awaiting trial.
- **Police Challenges:** The police, crucial in the justice system, face issues like corruption, heavy workloads, and lack of accountability. These hinder fair and timely justice delivery.

Key Changes Introduced by Bharatiya Nyaya Sanhita (BNS)

Deceitful Sexual Intercourse	<ul style="list-style-type: none"> ◦ Clause 69 of the BNS criminalizes sexual intercourse obtained through deceitful means, such as false promises of marriage or employment.
Murder Based on Race, Caste, or Community	<ul style="list-style-type: none"> ◦ Recognizes murder motivated by factors like race or caste as a distinct offense (Clause 103).
Inclusion of Other Offenses	
Organized Crime and Terrorism	<ul style="list-style-type: none"> ◦ Covers crimes like organized crime and terrorism, previously handled under separate laws like UAPA.
Mob Lynching and Hate Crimes	<ul style="list-style-type: none"> ◦ BNS defines mob lynching as murder committed by a group of five or more individuals based on factors like race, caste, community, or personal belief. Offenders face life imprisonment to death penalty, aligning with murder charges.
Attempt to Suicide	<ul style="list-style-type: none"> ◦ Criminalizes attempts to commit suicide to influence or restrain public servants from performing their duties. Penalty includes jail time up to one year and potential community service.
Snatching	<ul style="list-style-type: none"> ◦ Defined separately from theft, with stricter penalties.
Revised Structure	
Offenses Against Women	<ul style="list-style-type: none"> ◦ Given higher priority in the law's structure compared to previous laws. ◦ Changes in BNSS
Fake News	<ul style="list-style-type: none"> ◦ Criminalizes the dissemination of false and misleading information that could harm communal harmony.
Sedition	<ul style="list-style-type: none"> ◦ Renamed as 'deshdroh,' expands to include acts supporting separatist activities.

Procedural Changes	
Extended Police Custody	<ul style="list-style-type: none"> Allows police to detain suspects for up to 90 days for investigation, an increase from the previous 15-day limit.
Trials in Absentia	<ul style="list-style-type: none"> Introduces the concept of trials in absentia, where accused individuals can be tried even if they are not present in court.
Victim-Centric Approach	
Timely Trials	<ul style="list-style-type: none"> Imposes stricter timelines for completing trials, ensuring victims are heard before cases are withdrawn by the government.

Positive Aspects and Concerns

Positive Changes	Remaining Concerns
<ul style="list-style-type: none"> Community Service: Introduced as an alternative to jail time for certain offenses. Protection of Minors: Includes provisions to protect minor wives under rape laws. 	<ul style="list-style-type: none"> Sedition: Despite claims to abolish sedition laws, the BNS introduces a broader definition of the offense. Gender Neutrality: Does not address the issue of gender neutrality in rape laws, leaving male victims with limited legal recourse.

RISING GLOBAL DRUG USE: A GROWING CONCERN

CONTEXT:

The United Nations Office on Drugs and Crime (UNODC) has reported a significant increase in global drug use, highlighting the need for a comprehensive strategy to address the issue.

Increasing Trends in Global Drug Use

- Introduction to the Issue:** The UNODC report, released on June 27, 2024, reveals that global drug users numbered 292 million in 2022, marking a 20% increase over the past decade.

Types of Drugs: In 2016, 6 drug types accounted for nearly all drug trafficking offenses:			
○ Methamph etamine:	33.6%	○ Heroin:	14.4%
○ Cocaine:	19.8%	○ Crack:	8.1%
○ Marijuana:	17.6%	○ Oxycodone:	2.8%
		○ Other:	3.7%

- Cannabis as the Most Widely Used Drug:** Cannabis remains the most commonly used drug with 228 million users, followed by opioids (60 million), amphetamines (30 million), cocaine (23 million), and ecstasy (20 million).
- Treatment Gap:** Despite 64 million people suffering from drug use disorders, only one in 11 receives treatment, with women facing even greater barriers—only one in 18 women with drug use disorders receive treatment compared to one in seven men.

UN Office on Drugs and Crime (UNODC):

- The agency's focus is the **trafficking and abuse of illicit drugs, crime prevention and criminal justice, international terrorism, and political corruption.**
- It is a member of the **United Nations Development Group.**

Efforts to combat drug problem:

- Narcotics Drugs and Psychotropic Substance (NDPS) Act, 1985:** It prohibits a person from producing, possessing, selling, purchasing, transporting, storing, and/or consuming any narcotic drug or psychotropic substance.
 - The NDPS Act has since been amended thrice – in 1988, 2001 and 2014.
 - The Act extends to the whole of India and it applies also to all Indian citizens outside India and to all persons on ships and aircraft registered in India.
- Nasha Mukh Bharat:** The 'Nasha Mukh Bharat', or Drug-Free India Campaign which focuses on community outreach programs.
- National Action Plan for Drug Demand Reduction (NAPDDR)** is an umbrella scheme of the Ministry of Social Justice & Empowerment (MoSJ&E) under which financial assistance is provided to State Governments/ Union Territory (UT) Administrations for Preventive Education and Awareness Generation.
- Global stance:** India is signatory of the following international treaties and conventions to **combat the menace of Drug Abuse:**
 - United Nations (UN) Convention on Narcotic Drugs (1961)
 - UN Convention on Psychotropic Substances (1971)
 - UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (1988)
 - UN Convention against Transnational Organized Crime (UNTOC) 2000.

ANUSANDHAN NATIONAL RESEARCH FOUNDATION (ANRF)

CONTEXT

The government notified the governing board and the executive council of the **Anusandhan National Research Foundation (ANRF)**. However, the executive and governing boards of ANRF has no representation from Indian industry. There is also no presence of State universities, who the ANRF had said would be among the major beneficiaries of the new structure.

About ANRF

- ANRF is a new research funding agency with an outlay of Rs 50,000 crore over the next five years.
- ANRF aims to consolidate research funding previously managed by the **Science and Engineering Research Board (SERB)**.
- It will foster research and innovation across India's universities, colleges, and laboratories in natural sciences, engineering, health, agriculture, and more and enhance the country's Research and Development (R&D) capabilities.

Structure and Leadership:

- Governing Board (15 members):** Headed by Prime Minister Narendra Modi as President, with Ministers of Science & Technology and Education as Vice Presidents. Includes Secretaries from key departments and advisors.
- Executive Council:** Chaired by the Principal Scientific Adviser, consisting of Secretaries from various ministries and CEOs.
- The bill (**Anusandhan National Research Foundation Bill, 2023**) to establish the ANRF was passed by both the Houses of Parliament in August last year.
- The ANRF is a move to provide a high-level strategic direction for research, innovation and entrepreneurship in the fields of natural sciences, including mathematical sciences, engineering and technology, environmental and earth sciences, health and agriculture, and have long-term effect and outcomes for each citizen.

Comparison with SERB Act, 2008:

	SERB Act, 2008	Anusandhan National Research Foundation (ANRF) Act
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Funds	SERB funded solely by the government.	ANRF seeks contributions from both government and private sources
Governance	Chaired by the Secretary of the Department of Science and Technology	Led directly by high-level officials
Scope	Promoting basic research in Science and Engineering	ANRF expands beyond natural sciences to include mathematics, humanities, social sciences, and art, aiming to address national priorities like clean energy and sustainable infrastructure
Participation	Hard for private research organisations to contribute to NRF funding body.	Aims to involve Government institutions, colleges, Universities, higher educational institutions and private sector organisations

PROGRESS ON 'ZERO HUNGER' NOW IN REVERSE

CONTEXT:

A recent report by the **International Panel of Experts on Sustainable Food Systems (IPES-Food)** has highlighted alarming trends in global hunger, exacerbated by recent global crises and climate impacts. The report coincides with the United Nations' review of progress towards **Sustainable Development Goal 2** during its **High-level Political Forum on Sustainable Development**.

Key Findings of the Report:

- Nearly 30% of the world's population faces food insecurity, with 42% unable to afford a healthy diet.
- Projections suggest around 600 million people could be hungry by 2030, moving the 'zero hunger' goal further away.

- **Impact of Global Crises:** The COVID-19 pandemic, Russia-Ukraine war, and climate crisis have severely impacted the global food system’s resilience.
- **Role of Localized Food Supply Chains:** Local food systems, termed ‘territorial markets’, have demonstrated resilience and equity in the face of shocks. These systems include public markets, street vendors, cooperatives, and urban agriculture, supporting smaller-scale producers and ensuring community access to nutritious foods.

Situation in India:

- As per the **2023 Global Hunger Index**, India is ranked 111 out of 125 countries and falls into the *serious* category of hunger.
- India has by far the highest number of **‘zero-food’ children** at 6.7 million (67,00,000), accounting for almost half of all ‘zero-food children’ across 92 countries
- According to the **UN’s Food and Agricultural Organisation (FAO) ‘The State of Food Security and Nutrition in the World, 2022 Report’**, 224.3 million people, or 16 per cent of India’s population, are undernourished with 53 per cent of reproductive-age women also being anemic.
- According to the **“State of Food Security and Nutrition in the World 2021”** report, around 9.8% of the Indian population is undernourished.
- **Causes:** The compounding impacts of have exacerbated social and economic inequalities and slowed or reversed previous progress in reducing hunger in many countries.
 - ▶ Climate change
 - ▶ Conflicts
 - ▶ Economic shocks (Unemployment, poverty)
 - ▶ Food wastage
 - ▶ Global pandemic
 - ▶ Russia-Ukraine war
- **Key Initiatives in India:** National Food Security Act, 2013; Mid-Day Meal Scheme; Pradhan Mantri Matru Vandana Yojana; National Nutrition Mission (Poshan Abhiyan)

UPSC PYQ

- Q:** How far do you agree with the view that the focus on lack of availability of food as the main cause of hunger takes the attention away from ineffective human development policies in India? (2018)
- Q:** Hunger and Poverty are the biggest challenges for good governance in India still today. Evaluate how far successive governments have progressed in dealing with these humongous problems. Suggest measures for improvement. (2017)

RAJASTHAN ROAD SAFETY ACTION PLAN

CONTEXT:

In a positive development, Rajasthan will shortly become the **first State in the country to adopt an action plan for road safety** for the next 10 years. The action plan, to be accompanied by a government policy, will be aimed at reducing road accidents in the State by 50% till 2030.

Key-highlights of the Plan

As per the draft,

- **Phase 1 (2025 till 2027):** The focus will be on institutional strengthening, capacity building, and completion of action plan interim targets.
- **Phase 2 (2028 till 2030):** The focus will be on reduction of 50% of road accident fatalities in line with **UN’s Second Decade of Action for Road Safety**.
- **Phase 3 (2031 till 2033):** The plan will focus on reduction of 75% of road accidents fatalities.

Reason behind increasing road accidents

- As per the **“Annual Report on ‘Road Accidents in India-2022”** published by the **Ministry of Road Transport and Highways**, India saw 4.6 trillion accidents, and 168,000 deaths and over 400,000 seriously injured people in these mishaps. It’s a 12 per cent jump in accident numbers and a 10 per cent spike in deaths.

Factors responsible:

- ▶ inadequate infrastructure
- ▶ inadequate law enforcement of traffic laws
- ▶ inadequate engineering practices
- ▶ lack of public awareness about safe driving practices
- ▶ unsatisfactory quality of detailed project reports (DPRs)
- ▶ lack of fear regarding legal repercussions



FACT BOX

- India has the second largest road network in the world, with about 63.32 lakh km of roads as of March 2019.
- National Highway network length: 1,46,145 km

Government Initiatives on road safety

- **Motor Vehicle Amendment (MVA) Act 2019:** The Act amended Motor Vehicles Act of 1988. It includes inter-alia, provisions like stiff hikes in penalties for traffic violations, electronic monitoring of the same, enhanced penalties for juvenile driving, etc.
- **Vehicle Scrapping Policy:** It provides for creating an ecosystem to phase out older, unfit polluting vehicles.



CHART 1 Share in accidents and deaths by type of road accidents in 2022



CHART 2 Road accident deaths by type of violation

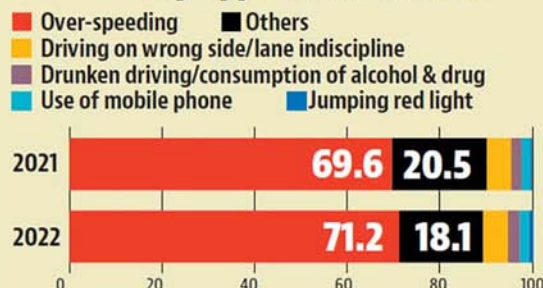
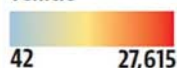


CHART 3

Crime vehicle/victim vehicle matrix

Crime (column)/Victim (row) vehicle



	Bicycles	Two Wheelers	Auto Rickshaws	Cars, Taxis, Vans & LMV	Trucks /Lorries	Buses	Other Non-motorized vehicle	Others
Pedestrian	81	9,316	1,220	8,030	4,875	2,057	252	6,994
Bicycles	84	1,248	282	1,138	1,052	349	90	593
Two-wheelers	281	27,615	2,213	17,020	13,146	4,012	594	10,016
Auto-Rickshaws	94	656	1,259	1,680	1,492	461	106	848
Cars, Taxis, Vans & LMVs	173	2,320	484	8,941	5,022	1,561	268	2,271
Trucks/Lorries	139	1,891	284	1,353	4,943	744	210	1,020
Buses	73	673	180	407	1,030	1,030	165	446
Other Non-Motor Vehicles	42	495	135	561	373	199	226	341
Others*	94	2,957	512	1,804	1,203	541	337	3,889

*Other motor vehicles, Animals drawn vehicle, cycle rickshaws, hand carts, & other persons Source: Road Accidents in India 2022, Ministry of Road Transport and Highways

Figure: 04

- National Road Safety Policy:** Based on the recommendations of the **Sunder Committee**, the Policy outlines the policy initiatives to be framed/taken by the Government at all levels to improve road safety activities in the country.
- Road Safety Audit (RSA)** for all National Highways (NHs) have been made mandatory through third-party auditors at all stages, including design, construction, operation, and maintenance.
- Electronic Detailed Accident Report (e-DAR)** to establish a central repository for reporting, management, and analysis of road accident data across the nation.
- Good Samaritan Law:** MoRTH has published rules for the protection of Good Samaritan.
- India State Support Programme for Road Safety by World Bank:** The World Bank has approved a USD 250 million loan for seven States under which a single accident reporting number will be set up to better manage post-crash events.

Global initiatives on road safety

- Brasilia Declaration on Road Safety, 2015
- Decade of Action for Road Safety 2021-2030
- Bloomberg Initiative for Global Road Safety (BIGRS) 2020-2025

SC HOLDS BENGAL'S SUIT MAINTAINABLE

CONTEXT

The Supreme Court held as legally maintainable the suit moved by the West Bengal government against the central government's directive allowing the Central Bureau of Investigation (CBI) to conduct investigations within the state's jurisdiction.

Background

- The West Bengal government has filed an original suit in the apex court against the Centre under **Article 131 of the Constitution**, alleging that the CBI has been filing FIRs and proceeding with investigations despite the state having withdrawn the general consent to the federal agency to probe cases within its territorial jurisdiction.
 - Article 131** deals with the Supreme Court's original jurisdiction in a dispute between the Centre and one or more states.

Can States bar CBI from functioning in their territory?

- The CBI is a national agency empowered with police authority. Its operational jurisdiction is primarily Delhi and Union Territories.
- Consent Requirement:** The **Delhi Special Police Establishment Act** governs the CBI, mandating state government consent for investigations within their territories.

Scope of CBI’s Jurisdiction:

- **Central Government Consent:** The CBI investigates cases of national importance or those requiring specialized expertise beyond state police capabilities. Permission from the central government is necessary to conduct investigations within a state.
- **Court Directives:** Courts can instruct the CBI to investigate specific offenses or incidents within state boundaries, especially in cases involving corruption, impartiality concerns, or serious crimes.
- **Cases Involving Central Government Personnel:** The CBI has jurisdiction over offenses committed by central government employees or those associated with central government entities nationwide.
- **Inter-State and International Cases:** The CBI handles cases spanning state borders or with international implications, such as organized crime or economic offenses referred by other states or international agencies.
- **State Cooperation:** Effective investigation often requires collaboration with state police and local authorities, despite central government permissions or court orders.

- ▶ The court held that these provisions have a reasonable connection with the Act’s objective to prevent money laundering effectively.

P. Chidambaram v. Directorate of Enforcement (2019)

- ▶ The Supreme Court rejected a plea for anticipatory bail in a money laundering case and granted custody to the ED.
- ▶ The court reasoned that money laundering cases involve complex stages of fund placement and layering, requiring a systematic and thorough investigation.
- ▶ Granting pre-arrest bail would hinder this process and potentially compromise the investigation.

ED POWERS UNDER SUPREME COURT LENSE

CONTEXT:

The Supreme Court’s recent decision to grant interim bail to Arvind Kejriwal in the **Delhi excise policy case** has brought attention to the legal scope of the **Prevention of Money Laundering Act (PMLA)** and the powers of the **Enforcement Directorate (ED)**.

ED’s Powers and Issues:

- Under **Section 19(1) of PMLA**, ED officers have **discretionary power** to arrest individuals without requiring a warrant.
 - ▶ **Issue:** The SC questioned whether this power should be subjected to **more stringent judicial scrutiny**, considering factors like “need and necessity” for arrest.
- ED’s statistics reveal a **disparity** between ECIRs recorded (5,906), searches conducted (531), persons arrested (513), and prosecution complaints filed (1,142).
 - ▶ **Issue:** This raises questions about ED’s policy on when to arrest individuals involved in offences under PMLA.

Other Important Judgments on PMLA

Vijay Madanlal Choudhary v. Union of India

- ▶ The Supreme Court upheld various provisions of PMLA, including those related to arrest, attachment, search, and seizure by the ED.



FACT BOX

About Enforcement Directorate (ED)

- It is a multi-disciplinary organization responsible for enforcing two special laws:
 - ▶ Foreign Exchange Management Act, 1999 (FEMA)
 - ▶ Prevention of Money Laundering Act, 2002 (PMLA)
- It steps in when a local police station registers an offence with proceeds of crime over Rs 1 crore
- It has powers to investigate under PMLA Sections 48 and 49.
- ED carries out search (property) and seizure (money/ documents) under Section 16 and Section 17 of the PMLA.

About Prevention of Money Laundering Act (PMLA), 2002

- The Act was enacted to combat money laundering (converting illegally earned money into legitimate money)
- It enables government or public authority to confiscate property earned from illegally gained proceeds

Other key authorities to investigate anti-money laundering offences

- Financial Intelligence Unit – India (FIU-IND)
- Economic Offences Wing, Central Bureau of Investigation (CBI)
- Income Tax Department
- Registrar of Companies (RoC)
- Regulators like the Reserve Bank of India (RBI), Securities & Exchange Board of India (SEBI), and Insurance Regulatory & Development Authority of India (IRDAI)

LOW FEMALE LABOUR FORCE PARTICIPATION

CONTEXT:

- Efforts towards financial inclusion have highlighted a critical barrier: **low labor force participation** among women. In the fiscal year 2022, female participation stood at 32.8%, significantly lower than the 77% among men. Despite women leading nearly a fifth of **Micro, Small & Medium Enterprises (MSMEs)**, they receive only 7% of outstanding loans in this sector.
- This discrepancy underscores structural challenges such as **limited capital, restrictive societal norms (like inheritance laws), and unequal access to education and training.**

Current Challenges in Women's Economic Participation

- Low Labor Force Participation Rates:** Disparity in female (32.8%) vs. male (77%) participation.
- Credit Access Discrepancies:** Only 7% of MSME loans go to women-led businesses despite their significant presence (nearly a fifth).
- Gender Inequality:** As per **World Economic Forum's Gender Gap Report 2022**, India ranked 135 out of 146 countries and was behind smaller neighbours, with gender inequalities exceeding five percent.
- Gender Pay gap:** The **Oxfam India Discrimination Report 2022** highlighted the gender pay gap in India, with women facing bias in recruitment and pay across the country.



FACT BOX

Schemes to Promote Women Empowerment:

- National Commission for Women:** Established in 1992, this statutory body is tasked with monitoring and addressing issues related to women's rights and welfare, including political representation.
- Reservation for Women in Local Self-Government:** The 73rd Constitutional Amendment Act of 1992 mandates one-third reservation for women in all elected offices in local bodies, aiming to enhance their participation in grassroots governance.
- Women's Reservation Act of 2023:** The Act provides that reserved seats for women may be allotted by rotation to different constituencies in States or Union Territories.
- Pradhan Mantri Jan-Dhan Yojana:** Improving access to financial services.
- Priority Sector Lending (PSL) Mandate:** Encouraging banks and microlenders to extend credit to underserved segments, including women entrepreneurs.

- RBI Regulations:** Mandating literacy centers in each district to promote financial education.
- Other Initiatives:** Various government schemes and programs, such as
 - Beti Bachao Beti Padhao
 - Pradhan Mantri Awas Yojana
 - National Social Assistance Programme
 - Samagra Shiksha
 - Mahila Shakti Kendra (MSK)
 - Mission Shakti (Integrated Women Empowerment Programme)

ARTICLE 361 & IMMUNITY CHALLENGE

CONTEXT:

In a significant development, a woman who formerly worked at the Raj Bhawan has moved the Supreme Court challenging the immunity granted to West Bengal Governor CV Ananda Bose under **Article 361 of the Indian Constitution**. She has accused the Governor of sexually assaulting her and argues that Article 361 should not prevent police investigation and criminal proceedings in such cases.

What is Article 361?

- Article 361 of the Constitution of India provides immunity to the President of India and Governors of states from certain legal actions during their term in office.
- This constitutional provision aims to safeguard the independence and functioning of these high offices without undue interference from legal proceedings.

Key Provisions of Article 361

- According to **Article 361(2)**, no criminal proceedings can be initiated or continued against the President or Governor of a State in any court during their term of office. This immunity extends to actions taken in the course of their official duties.
- The intent is to shield these officials from potential harassment or disruption caused by legal challenges during their tenure.
- Limitations of Immunity:** While immunity prevents criminal proceedings and arrest warrants during their term, **it does not provide absolute impunity for all actions.**
- The immunity clause primarily covers acts done in the exercise of their official powers and duties. It does not shield them from prosecution once they leave office, nor does it extend to actions clearly outside the scope of their constitutional responsibilities.

Supreme Court's Stance

- In a landmark case, **Rameshwar Prasad v Union of India**, the Supreme Court has upheld the broad immunity granted under Article 361.
- It has consistently affirmed that the President and Governors enjoy significant protection from legal accountability during their tenure, reinforcing the constitutional principle of separation of powers and the autonomy of these offices.

Subject of legal scrutiny

- Article 361 of the Indian Constitution serves as a crucial safeguard for the President and Governors, shielding them from certain legal actions during their term in office.
- However, the extent of this immunity remains a subject of legal scrutiny and interpretation, especially in cases where allegations of serious wrongdoing arise.



FACT BOX

Role of the Governor

- The Governor plays a pivotal role as the Executive Head of the State under Articles 153 and 154 of the Indian Constitution.

Executive Powers:

- ▶ **Article 154:** The Governor holds executive powers of the State, exercised directly or through subordinate officers in accordance with the Constitution.
- ▶ **Article 163:** As the Constitutional Head, the Governor acts on the aid and advice of the Council of Ministers. This includes duties such as summoning and proroguing State Legislature sessions, promulgating ordinances, giving assent to bills, and appointing the Council of Ministers.

Discretionary Functions:

- ▶ The Governor exercises discretion in certain matters such as sending reports to the President under **Article 356** and reserving bills for the President's consideration under **Article 254(2)**.
- **Appointing Authority:** The Governor appoints various key authorities including:
 - ▶ Advocate General
 - ▶ Lokayukta and Upa Lokayukta
 - ▶ State Election Commissioner
 - ▶ Chairperson and Members of Human Rights Commission
 - ▶ Chairperson and Members of Public Service Commission
 - ▶ State Chief Information Commissioner and members of Information Commission.

DRAFT DIGITAL COMPETITION BILL, 2024

CONTEXT

In February 2023, the **Ministry of Corporate Affairs** formed the **Committee on Digital Competition Law (CDCL)** to explore the need for specific legislation on competition in digital markets. The CDCL recommended supplementing the current **Competition Act, 2002** (which focuses on penalizing anti-competitive behavior after it occurs) with a proactive, preventative framework known as an **"ex-ante" regulation**.

Need of the Bill

- The draft bill aims to address the concerns against **anti-competitive practices** by Big Tech in digital markets. Over the years, Indian internet companies, as well others globally, have been fighting the alleged monopoly imposed by major US players like Google and Apple.
- Among the significant problems noticed in digital markets were **preferential pricing, deep discounting, anti-steering, bundling and tying, accumulation of big data and its usage, network effects, exclusive tie-ups, search and rank preferencing, restricting third-party applications, advertising policies**, etc.
- The **ex-ante provisions** in the draft bill aim to prevent anti-competitive behaviour before it harms the market.

Key-highlights of the Draft Digital Competition Bill:

- The draft Bill, inspired by the **EU's Digital Markets Act**, targets dominant digital enterprises rather than all digital businesses.
- It identifies specific **"core digital services"** and sets criteria (such as financial strength and user base) to determine dominance.
- The Bill proposes that for certain **"core digital services"** like **search engines, and social media sites**, the **Competition Commission of India (CCI)** should designate companies as "Systematically Significant Digital Enterprise (SSDE). SSDEs are obligated to operate fairly, transparently, and non-discriminatively.
- **Prohibited practices** include self-preferencing, restricting third-party applications, anti-steering measures, and leveraging user data unfairly.
- This framework empowers the Competition Commission of India (CCI) to monitor potential misconducts by major enterprises.

What is an ex-ante framework?

- ▶ Unlike the current **"ex-post"** framework under the Competition Act, an ex-ante framework aims to **prevent anti-competitive practices** by digital enterprises before they occur.
- ▶ This approach is unusual globally, with the **European Union** being the **only jurisdiction currently** implementing a comprehensive ex-ante framework under the **Digital Markets Act**.

- **Concerns:** Concerns arise about the effectiveness of the ex-ante model, its potential negative impact on startup investments and scalability, and its implications for MSMEs.



FACT BOX

- In India, competition in digital markets is regulated by the **Competition Commission of India (CCI)** under the **Competition Act, 2002 (Competition Act)**.
- The Competition Commission of India (CCI) is a **statutory body** of the Government of India responsible for enforcing the Competition Act, of 2002.

BIHAR ASSEMBLY PASSES BILL TO CURB PAPER LEAKS

CONTEXT

In Bihar, the state assembly passed a stringent bill to curb paper leak cases, malpractices and irregularities in government competitive examinations.

Key-highlights of the Bihar Public Examination (Prevention of Unfair Means) Bill 2024

- **Penalty:** The Bill proposes a jail sentence from three years to 10 years and a penalty of up to one crore rupees in serious cases. There is the provision of stringent punishment for convicted candidates who are involved in paper leak cases and malpractices which includes sentences to jail terms from three to five years and penalty up to 10 lakh rupees.
- As per the provisions of the Bill, all the competitive recruitment and entrance examinations conducted by government agencies will come under its mandate.
 - ▶ The Bihar Public Service Commission, Bihar University Service Commission, Bihar Staff Service Commission, Bihar Technical Services Commission, Central Selection Board of Constables, Bihar Police Sub-Ordinate Services Commission and other notified authorities will come under the mandate of the bill.
- All the charges of paper leak cases have been made **cognizable offences** in this bill.
- In the Bill, there is a provision for **seizure of the assets of convicts** who are entrusted to hold examinations.



FACT BOX

Government initiatives and stakeholder action

- **Public Examinations (Prevention of Unfair Means) Act, 2024:** It carries a jail sentence of three to 10 years for those who facilitate cheating.

- **APAAR ID:** The introduction of an Aadhaar-like APAAR ID (Automated Permanent Academic Account Registry) seeks to add a layer of digital identity verification during examinations.
- Like Bihar, other states have also moved in the same direction, including
 - ▶ **Jharkhand** (Jharkhand Competitive Examination (Prevention and Redressal of Unfair Means in Recruitment) Bill)
 - ▶ **Uttarakhand** (Uttarakhand Competitive Examination (Measures For Control and Prevention of Unfair Means in Recruitment) Act)
 - ▶ **Gujarat** (Gujarat Public Examination (Prevention of Unfair Methods) Act)
 - ▶ **Rajasthan** (Rajasthan Public Examination (Measures for Prevention of Unfair Means in Recruitment) Bill)
 - ▶ **Haryana** (Haryana Public Examination (Prevention of Unfair Means) Bill)

CHALLENGES IN IMMUNISATION COVERAGE FOR CHILDREN IN INDIA

CONTEXT

A recent report by WHO and UNICEF has highlighted **significant concerns regarding India's immunisation efforts**. In 2023, India ranked **second globally**, following Nigeria, in the number of children who did not receive any vaccines. Specifically, India recorded **1.6 million "zero-dose" children**, indicating those who missed out on all routine immunisations.

Key-highlights of the Report:

- **DPT Vaccine Coverage:** There was a slight decline in coverage for the diphtheria, pertussis, and tetanus (DPT) vaccine from 95% in 2022 to 93% in 2023. This serves as an indicator for zero-dose children.
- **Measles Vaccine Coverage:** India also ranked third globally in the number of children who did not receive the measles vaccine, with 1.6 million children missing out on this essential immunisation.
- **Comparison with Neighbouring Countries:** Pakistan and Afghanistan, neighbouring countries, showed relatively lower numbers of unvaccinated children compared to India, indicating varying immunisation challenges across South Asia.

Who are Zero-Dose Children?

- **WHO Definition:** Zero-dose children are those who have not received any routine immunisation services, particularly the first dose of the DPT vaccine. This metric helps identify gaps in immunisation coverage and guides intervention strategies.

Risk Factors and Access to Immunisation

- ▶ **Risk Profile:** Children classified as zero-dose in India are primarily those who missed the initial DPT vaccine dose administered around six weeks after birth.
- ▶ **Health Facility Births:** Around 88.6% of births in India occur in health facilities, ensuring access to vaccines like BCG (against tuberculosis) for most newborns.

- ▶ The Supreme Court has highlighted concerns that such quotas may foster regionalism over national unity and have populist appeals.

KARNATAKA'S DOMICILE QUOTA IN JOBS

CONTEXT:

The issue of job reservations for local candidates in the private sector has sparked debate and legal challenges in India, particularly following recent legislative actions by states like Karnataka, Andhra Pradesh, and Haryana. These states have attempted to mandate quotas for local residents in private sector jobs, raising constitutional questions and facing opposition from various quarters.

Domicile-based reservations & Challenges

In India, the debate over job quotas for local candidates in the private sector has stirred legal and constitutional discussions:

Constitutional Guarantees and Affirmative Action:

- The Indian Constitution upholds fundamental rights such as freedom to move and settle anywhere within the country (**Article 19**).
- **Article 15** prohibits **discrimination** based on religion, race, caste, sex, or place of birth, forming the basis for affirmative action laws.

Affirmative Action Laws under Article 16:

- Article 16 ensures **equality of opportunity in public employment** and allows states to reserve posts for backward classes not adequately represented.
- States can prescribe residence requirements, but not based solely on place of birth, to ensure fair representation in state services.

Legal Challenges and Court Views on Domicile Quotas:

- ▶ Courts have consistently struck down laws imposing domicile quotas in public employment beyond permissible limits.
- ▶ Recent cases in Andhra Pradesh and Haryana attempting to enforce domicile quotas in the private sector have faced constitutional scrutiny.



FACT BOX

SC's Judgments on domicile-based reservations

The Supreme Court of India has issued key judgments on domicile-based reservations:

- **Dr. Pradeep Jain v. Union of India (1984):** SC allowed some preference for domicile candidates in public employment and education but emphasized it should not be absolute. Ensured that merit and efficiency are not compromised by domicile preferences.
- **Sunanda Reddy v. State of Andhra Pradesh (1995):** The ruling struck down 100% domicile reservation in postgraduate medical courses. It upheld that reservations should not undermine educational standards and merit.
- **Kailash Chand Sharma v. State of Rajasthan (2002):** The ruling invalidated Rajasthan's preferential treatment to local candidates in public employment. It stressed that domicile-based preferences must align with constitutional principles of equality under **Articles 14 and 16**.

U-WIN (UNIVERSAL IMMUNISATION PROGRAMME WEB INTERFACE)

CONTEXT:

The **U-WIN (Universal Immunisation Programme Web Interface)** has emerged as a significant initiative in India's healthcare agenda, aimed at digitizing and improving childhood vaccination efforts across the country.

About U-WIN:

- The U-WIN portal, a replication of the Covid-19 vaccine management system **Co-WIN**, captures every vaccination event for pregnant women and children under the **Universal Immunization Programme (UIP)**.
- **Registration and Digital Records:**
 - ▶ Children up to six years old and pregnant mothers are registered using government IDs like Aadhaar and their mobile numbers.
 - ▶ The platform records all 25 vaccinations for children and two for pregnant mothers, generating a digital vaccination certificate.
- It also facilitates the creation of **Ayushman Bharat Health Account (ABHA) IDs** for comprehensive health record maintenance.

SDG INDIA INDEX 2023-24

CONTEXT

The **NITI Aayog's SDG India Index 2023-24** has been released, highlighting the performance of Indian states in achieving the **United Nations' Sustainable Development Goals (SDGs)**. The report shows significant progress in India's overall SDG score, indicating improvements in areas such as poverty reduction, economic growth, and climate action.

Key Findings

- **Top Performers:** Kerala and Uttarakhand emerged as the best-performing states, each scoring 79 points.
- **Lowest Performer:** Bihar scored the lowest with 57 points, followed by Jharkhand at 62 points.
- **Overall Improvement:** India's SDG score improved to 71 points in 2023-24 from 66 points in 2020-21.
- **Biggest Improvements:** Punjab, Manipur, West Bengal, and Assam saw the highest increases, with Punjab jumping 8 points to 76, Manipur to 72, West Bengal to 70, and Assam to 65.
- **Goals with Highest Increases:** "No Poverty", "Decent Work and Economic Growth", and "Life on Land" saw the highest increases in points across states.
- **Goals with Lowest Increases:** "Gender Equality" and "Peace, Justice, and Strong Institutions" had the smallest increases.
- **Reduction in Points:** The goal "Reduced Inequalities" saw a decrease from 67 points in 2020-21 to 65 points in 2022-23.

Detailed Insights

- **Zero Poverty:** The score for this goal increased by 8 points to 72, indicating that extreme poverty is being addressed effectively.
- **Zero Hunger:** Improved by 5 points to 52, but focus is needed on providing nutritious food to combat malnutrition.
- **Quality Education:** Increased by 4 points to 61. While access to education has improved, the focus is now on enhancing the quality of education and ensuring better employment opportunities.
- **Gender Equality:** The gender equality goal scored the lowest among all goals at 49 points, with only a 1-point increase from 2020-21. Issues such as sex ratio at birth, women owning land and assets, and women's labor force participation are areas of concern.



FACT BOX

About SDG India Index

- **Launched in:** 2018
- The SDG India Index evaluates states on 16 goals set by the United Nations, scoring them on a scale of 1 to 100.

- This fourth edition of the index uses 113 indicators to assess performance. The SDGs are global goals established to be achieved by 2030, addressing various social, economic, and environmental issues.

SCOPE OF ARTICLE 131

CONTEXT:

The Supreme Court recently addressed the **maintainability of an original suit** filed by the State of West Bengal against the Union of India concerning the CBI's registration of cases within the state without its consent. The Supreme Court's stance on the **maintainability of such suits under Article 131** has sparked debate. The central issue revolves around whether these suits raise questions crucial to the existence or extent of legal rights, as required by Article 131.

Role of Article 131:

- Article 131 ensures that disputes involving the **Union and States** are resolved within the framework of the Constitution, particularly concerning their respective powers and functions.
- It is **not meant for routine disputes** but for those that impact the **constitutional relationship** between the Union and the States.
- **Interpretation of "Legal Rights" under Article 131:** Courts interpret "legal rights" under Article 131 broadly to encompass **rights, liberties, powers, or immunities** that affect the Union-State relationship.
 - **For instance,** the Madras High Court upheld Tamil Nadu's challenge to certain provisions of the **Prevention of Terrorism Act, 2003**, stating it involved constitutional principles rather than a routine dispute.

RIGHT OF PERSONS WITH DISABILITIES

CONTEXT:

The Supreme Court recently delivered a significant ruling on the portrayal of **persons with disabilities** in visual media, emphasizing that **filmmakers' creative freedom does not extend to mocking, stereotyping, or misrepresenting marginalized groups**. This decision stemmed from a plea concerning the film "*Aankh Micholi*," which allegedly misrepresented disabilities and violated the rights protected under the **Constitution and disability laws**.

Key-highlights of the Supreme Court's Ruling

- The court outlined a framework that aligns with anti-discrimination principles and the **Rights for Persons with Disabilities Act, 2016**. It stated that if a film's overall message **infringes on the rights of persons with disabilities**, it cannot be protected as **free speech**. Even if stereotypes or disparaging portrayals are deemed necessary for a film's message, they **must be balanced against the fundamental rights of those portrayed**.

- **Societal discrimination:** The court criticized the use of derogatory terms like “cripple” and “spastic,” noting that such language perpetuates societal discrimination. It emphasized the importance of accurate representation of medical conditions to avoid reinforcing stereotypes and misinformation.



FACT BOX

Programmes and Initiatives for Persons with Disabilities (PwD) in India:

- **Unique Disability ID (UDID):** Initiated by the Department of Empowerment of Persons with Disabilities, UDID aims to issue Universal IDs and Disability Certificates containing identification and disability details.
- **Accessible India Campaign:** It is a nationwide initiative to create an accessible environment for PwDs. Focus areas include enhancing accessibility in built environments, transportation systems, and information & communication technology.
- **National Fellowship for Students with Disabilities (RGMF):** It is designed to increase opportunities for PwD students pursuing higher education.
- **Deen Dayal Disabled Rehabilitation Scheme:** It provides financial assistance to NGOs for various services like special schools, vocational training, community-based rehabilitation, and early intervention for PwDs.

Legal Framework:

- **Rights of Persons with Disabilities (RPwD) Act, 2016:** The Act replaced the Persons with Disability Act, 1995. It aims to promote inclusion and expand opportunities for persons with disabilities in India.
- It is in line with the **United National Convention on the Rights of Persons with Disabilities (UNCRPD)**, to which **India is a signatory**.
- It defines 21 types of disabilities including: **Blindness, Low-vision, Leprosy Cured persons, Hearing Impairment (deaf and hard of hearing), Locomotor Disability, Dwarfism, Intellectual Disability, Mental Illness, Autism Spectrum Disorder, Cerebral Palsy, Muscular Dystrophy, Chronic Neurological conditions, Specific Learning Disabilities, Multiple Sclerosis, Speech and Language disability, Thalassemia, Hemophilia, Sickle Cell disease, Multiple Disabilities including deafblindness, Acid Attack victim, Parkinson’s disease.**

REGULATING GIG-BASED WORK

CONTEXT:

The Karnataka government’s recent intent to introduce legislation for the welfare of gig workers is a necessary step to overcome the challenges to boost gig-economy in India.

What is Gig Economy?

- As per the **World Economic Forum (WEF)**, gig economy is defined by its focus on **workforce participation and income generation via “gigs”**, single projects or tasks for which a worker is hired.
- **Classification:** Gig workers can be broadly classified into:
 - **Platform workers:** Those whose work is based on online software apps or digital platforms such as food aggregator platforms Zomato, Swiggy, Ola, and others.
 - **Non-platform-based workers:** Casual wage and own-account workers in conventional sectors, engaged part-time or full-time.

Why there is a need to regulate Gig-Economy?

- Due to non-permanent in nature: These jobs mainly have temporary contracts typically come with less protection, fewer benefits and pecuniary discounts.
- **To bring gig-workers under Employment benefits protocol:** The workers are mostly left out of the traditional social protection systems such as unemployment benefits, sick pay and pensions.
- **Insurance and financial aids:** Most transactions on the gig economy are done via the internet and as such they can be tracked. These companies do need to contribute to insurance and other social contributions.
- **To reduce inequality of Income:** Due to the increasingly complex supply chains and sub-contracting of gig jobs, make it hard to enforce protections. But without doing so we will not be able to combat the increasing levels of inequality.

Existing Laws and regulations:

- **Code on Wages, 2019:** A universal minimum wage and floor wage should be provided to all organized and unorganized sectors, including gig workers.
- **Code on Social Security 2020:** Under this, gig workers are provided with recognition as a new occupational category.

GLOBAL SHIPPING INDUSTRY & CHALLENGES

CONTEXT:

Recent months have brought significant challenges to the global shipping industry. While there is no respite in the **Middle East** for the shipping industry that continues to face hardship due to the **Red Sea route suspension**, there is now tension in the **South East** due to severe congestion at **Singapore port and China’s Shanghai/Ningbo ports** has only aggravated the disruptions.

What is Red Sea crisis?

- The Red Sea crisis involves increased attacks by Iran-backed Houthi rebels in Yemen on commercial ships in the **Bab-el-Mandeb strait**, a narrow passage connecting the Arabian Peninsula and the Horn of Africa.
 - ▶ These attacks have intensified since late November and are seen as a response to Israel's actions in Gaza.
- The Bab-el-Mandeb strait is crucial because it serves as a gateway for ships traveling from Asia to the Suez Canal, which handles about 12% of global trade. This route is vital for transporting goods like oil from the Persian Gulf to Europe and North America.
- Due to the attacks, ships may need to take a longer route around the Cape of Good Hope in southern Africa, adding about 10 days and 6,000 kilometers to their journey between Europe and Asia.

Impact of Red Sea Attacks on Shipping

- The shipping industry, responsible for approximately 80% of global trade, continues to grapple with the repercussions of frequent attacks on vessels navigating the Red Sea.
- This sustained threat has forced the suspension of routes critical for maritime trade, exacerbating logistical bottlenecks and delays.
- **Congestion Crisis in Southeast Asia:** The ports of **Singapore, Shanghai, and Ningbo**—key hubs connecting Asia to Europe and beyond—are experiencing unprecedented congestion.
 - ▶ **Delay:** The bunching of vessels outside these ports has disrupted ship rotations and significantly delayed cargo handling processes. Indian exporters, reliant on Singapore and Port Klang for trans-shipment, are particularly affected.

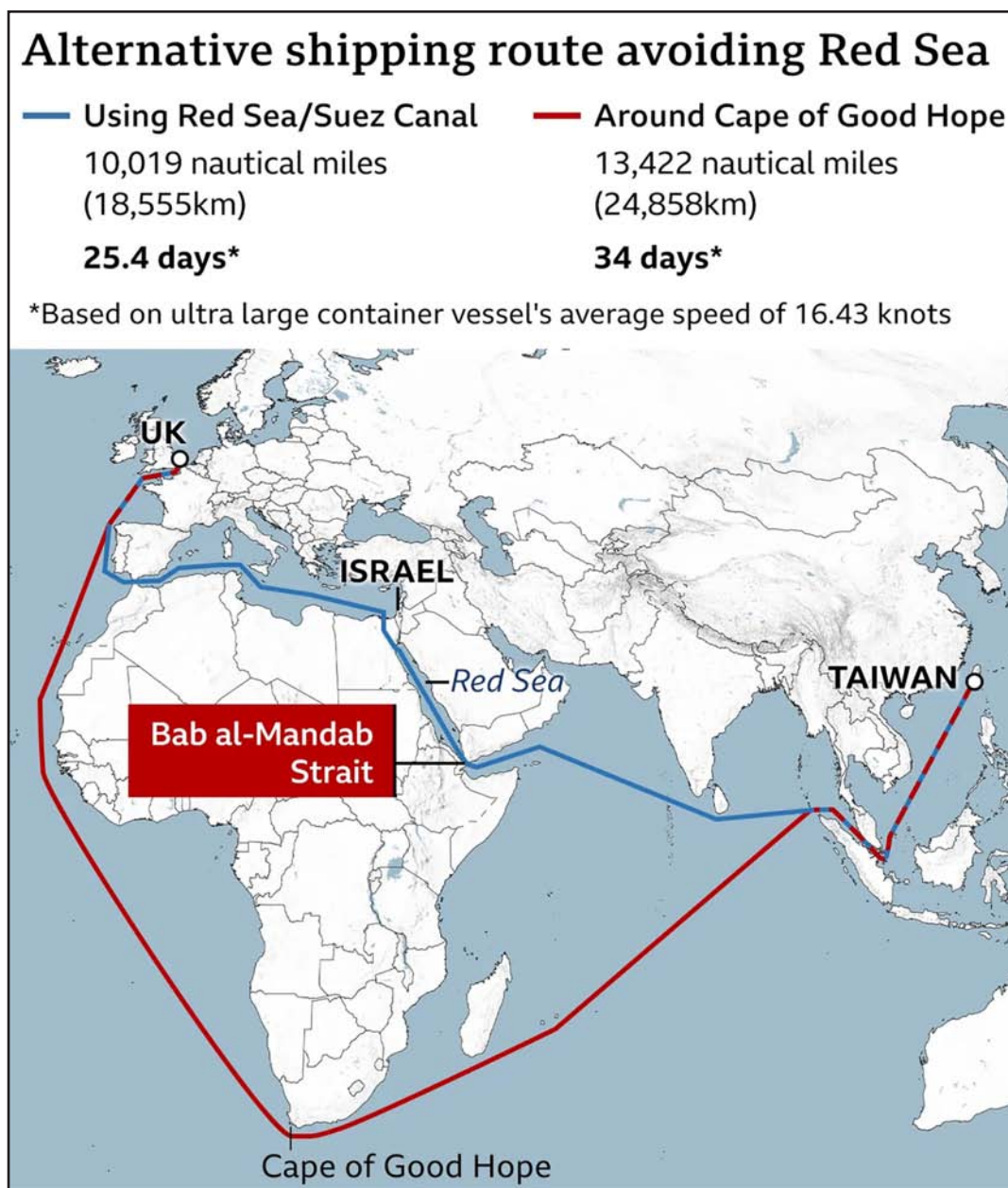


Figure: 04

- ▶ **Increasing cost:** This delay has compelled many vessels to bypass Singapore altogether, complicating logistics planning and increasing costs for exporters, as evidenced by rising container prices from \$950 to over \$1,200 since September 2023.
- ▶ **Affected movements:** The congestion crisis in Singapore and neighboring ports like Port Klang is disrupting global trade flows, affecting the movement of goods between Asia, Europe, and the Americas.

How a new route can change things for India?

- A multimodal route that includes a railway, roadway network and seaports, the INSTC spans 7,200km (4,500 miles) from St. Petersburg to the port of Mumbai in India.
- INSTC connects Russia to India through **Iran’s Chabahar port**.
- INSTC is being seen as an alternative to the **Suez Canal trade route**. The INSTC corridor can be a critical geostrategic tool India needs to enhance its trade footprints in Central Asia.

Maritime Routes:

- **Suez Canal Route:** Connects Europe and the Mediterranean with Asia and the Indian Ocean. About 12% of global trade, around one million barrels of oil and roughly 8% of liquefied natural gas pass through the canal each day
- **Panama Canal Route:** Links the Atlantic and Pacific Oceans, crucial for trade between the Americas and Asia.
- **Straits of Malacca:** Key passage for ships traveling between the Indian Ocean and the Pacific Ocean, particularly important for trade with East Asia.
- **Cape of Good Hope (South Africa):** The fastest alternative to transiting through the Red Sea is circumnavigating Africa through the Cape of Good Hope.

(SEE FIGURE NO. ...)

PROJECT NEXUS

CONTEXT

The Reserve Bank of India (RBI) has joined Project Nexus, a multilateral international initiative to enable instant cross-border retail payments by interlinking domestic Fast Payments Systems (FPSs). India’s Unified Payments Interface (UPI) and FPSs of Malaysia, the Philippines, Singapore and Thailand will be interlinked through Nexus. Going ahead, the platform can be extended to more countries.

What is Project Nexus?

- Project Nexus is a multilateral international initiative among central banks and financial authorities to enable instant cross-border retail payments.

- **Initiated by:** Innovation Hub of the Bank for International Settlements (BIS)
- It is the **first BIS Innovation Hub project** in the payments area to move towards live implementation
- It focuses on linking domestic instant payment systems (IPS) globally, enabling near-instantaneous transactions between countries.
- **Founding members of Project:** Central banks of India, Malaysia, Philippines, Singapore, and Thailand.
- The platform standardizes the connection process, making it easier for countries to join and allowing for rapid expansion of cross-border payment capabilities.

Key Objectives

- ▶ **Standardization of IPS Connections:** Instead of creating custom connections for each country, Nexus provides a unified platform where a single connection enables access to all member countries.
- ▶ **Facilitation of Instant Cross-Border Payments:** By interlinking FPSs, Project Nexus aims to reduce the time and cost associated with cross-border transactions, aiming for transaction times within 60 seconds in most cases.
- The platform is expected to go live by 2026.

DECLINE OF POVERTY IN INDIA: NCAER

CONTEXT

Recent research by the **National Council of Applied Economic Research (NCAER)** has highlighted a significant decline in poverty in India, despite challenges posed by the pandemic. According to the study titled ‘Rethinking Social Safety Nets in a Changing Society’, poverty has decreased from 21.2% in 2011-12 to 8.5% in 2022-24.

What is Poverty?

- Poverty goes beyond income scarcity, encompassing challenges like poor health, inadequate education, unsafe living conditions, and vulnerability to violence.
- The NITI Aayog currently measures poverty through **Multidimensional Poverty Index (MPI)**. The MPI captures overlapping deprivations (dimensions of poverty) in health, education and living standards.
- **Multidimensional Poverty:** Measures multiple deprivations in daily life such as poor health, lack of education, inadequate living standards, disempowerment, poor quality of work, the threat of violence, and living in areas that are environmentally hazardous, among others.
- **Multidimensionally poor:** An individual who is deprived of one-third or more of the weighted indicators.
- **Extreme Multidimensional Poverty:** Any person deprived of one-half or more of the weighted indicators.

Key-findings of the Report

- Poverty declined significantly between 2004-2005 and 2011-12 (from a headcount ratio of 38.6 to 21.2), and it continued to decline between 2011-12 and 2022-24 (from 21.2 to 8.5) despite the challenges posed by the pandemic.
- **Responsible factors for decline in poverty:** Economic growth played a crucial role in this positive trend. Even amidst pandemic difficulties, poverty continued to decrease, underscoring the resilience of India's economic fabric.
- **Challenges:** As India progresses towards equitable development, adapting social protection programs becomes crucial.
- **Required measures:** The research emphasizes that traditional strategies for chronic poverty may need revision, as economic growth shifts the focus towards addressing transient factors like **natural disasters, health crises, and changes in employment opportunities.**

How poverty impacts India's economy?	Benefits of reducing Poverty
<ul style="list-style-type: none"> ○ Less number of people getting resources. ○ Growth inclination as rich becomes richer and poor becomes poorer ○ Low income generation ○ Drop in standard of living conditions ○ Cheap labour and man-power available ○ Gender inequality ○ Low rate of education 	<ul style="list-style-type: none"> ○ Enhanced Quality of Life (health, education, and living standards) ○ A more skilled and healthy workforce, potentially boosting productivity, innovation ○ Empowerment of Marginalized Communities ○ Higher Consumer Demand ○ Increased school attendance and educational attainment ○ Greater social cohesion



FACT BOX

Poverty Line

- The poverty line recommended by the **Tendulkar Committee Report** was set to Rs 447 and Rs 579 for rural and urban areas, respectively, but varied between states for 2004-2005. These poverty thresholds were subsequently adjusted by **The Planning Commission** to Rs 860 and Rs 1,000 for 2011-12.
- So far, 6 Official Committees have estimated the number of people living in poverty.
 - ▶ The working group of 1962

- ▶ V N Dandekar and N Rath (1971)
- ▶ Y K Alagh (1979)
- ▶ D T Lakdawala (1993)
- ▶ Suresh Tendulkar (2009)
- ▶ C Rangarajan (2014)

Government Measures to eliminate poverty:

- **October 17** is observed as the International Day for the Eradication of Poverty.
- **National Food for Work Programme:** The National Food for Work Programme was launched on November 14, 2004 in 150 most backward districts of the country with the objective to intensify the generation of supplementary wage employment.
- **Swaranjayanti Gram Swarozgar Yojana (SGSY):** SGSY, launched in April 1999, aims at bringing the assisted poor families (Swarozgaris) above the poverty line by organizing them into Self Help Groups (SHGs) through a mix of Bank credit and Government subsidy.
- **Sampoorna Grameen Rozgar Yojana (SGRY):** SGRY, launched in 2001, aims at providing additional wage employment in all rural areas and thereby food security and improve nutritional levels. The SGRY is open to all rural poor who are in need of wage employment and desire to do manual and unskilled work around the village/habitat. The programme is implemented through the Panchayati Raj Institutions (PRIs).
- **Pradhan Mantri Gramodaya Yojana (PMGY):** PMGY launched in 2000-01 envisages allocation of Additional Central Assistance (ACA) to the States and UTs for selected basic services such as primary health, primary education, rural shelter, rural drinking water, nutrition and rural electrification.
- **Rural Employment Generation Programme (REGP):** To create self-employment opportunities in rural areas and small towns, it is being implemented by the Khadi and Village Industries Commission (KVIC).
- **Prime Minister's Rozgar Yojana (PMRY):** The objective is making available self-employment opportunities to the educated unemployed youth by assisting them in setting up any economically viable activity.

UPSC PYQ

- Q:** 'Despite the implementation of various programmes for the eradication of poverty by the government in India, poverty is still existing'. Explain by giving reasons. (2018)
- Q:** "An essential condition to eradicate poverty is to liberate the poor from the process of deprivation." Substantiate this statement with suitable examples. (2016)

SMART CITIES MISSION

CONTEXT

The Ministry of Housing and Urban Affairs has extended the deadline for the **Smart Cities Mission** till March 2025, allowing cities to complete ongoing projects, which account for around 10% of the total projects.

What is the concept of Smart Cities?

- The concept of smart cities emerged after the 2009 financial crash. It aimed to integrate urban centres with advanced communication networks and infrastructure.
- In India, the Smart Cities Mission (SCM) was initiated in 2015, aiming to develop 100 cities.

Need of smart cities in India (unprecedented urban expansion):

- ▶ By 2030 India will be home to 60 cities with a population of more than 1 million and 6 megacities with a population of more than 10 million.
- ▶ Significant challenges hindering urban development and economic growth:
 - ◆ Poor local governance
 - ◆ Inadequate infrastructure and services
 - ◆ Outdated urban planning
 - ◆ Megacities (Delhi, Mumbai) are regarded as the economic engines of India, and yet every year, heavy rainfall lasting a couple of hours or days causes havoc there.
 - ◆ Slums

Smart Cities' Report Card (Progress so far)

- As of July 3, 2024, the 100 cities involved in the Smart Cities Mission have successfully completed 7,188 projects, which accounts for 90% of the total projects planned. These projects amount to ₹1,44,237 crore. Additionally, 830 more projects worth ₹19,926 crore are nearing completion.

Budget Allocation and Utilization:

- ▶ The Government of India (GOI) allocated ₹48,000 crore for the Smart Cities Mission.
- ▶ As of now, GOI has released ₹46,585 crore, which is 97% of the allocated budget.
- ▶ Cities have utilized 93% of the released funds for various development projects.
- **Financial Support:** GOI has provided full financial support to 74 out of the 100 cities participating in the Mission.
- **Multi-Sectoral Projects:** Across the 100 cities, more than 8,000 multi-sectoral projects are underway, with a combined worth of approximately ₹1.6 lakh crore.

UPSC PYQ

Q: What are 'Smart Cities'? Examine their relevance for urban development in India. Will it increase rural-urban differences? Give arguments for 'Smart Villages' in the light of PURA and RURBAN Mission. (2016)

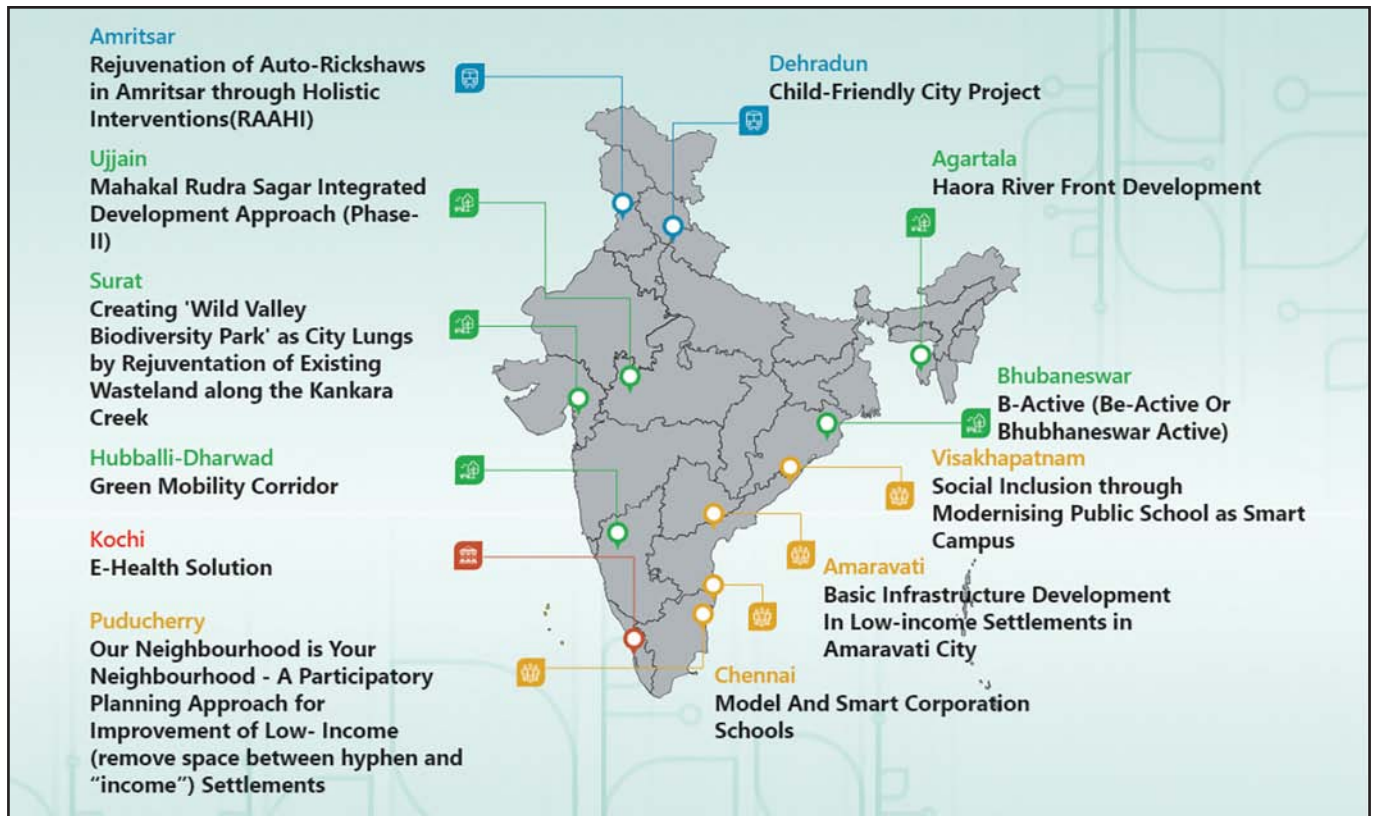


Figure: 04

Q: Discussion the various social problems which originated out of the speedy process of urbanization in India. (2013)

UNEMPLOYMENT IN INDIA

CONTEXT

The **Ministry of Labour** rebutted a recent report by Citigroup which forecast that India will struggle to create sufficient employment opportunities even with a 7 per cent growth rate. The Ministry stated that official data sources like PLFS, RBI, etc. show consistent improvements in the key labour market indicators, including increased **LFPR and WPR**, and a declining Unemployment Rate during last five years.

State of 'unemployment' in India

India Employment Report 2024 (created jointly by the Institute for Human Development and the International Labour Organisation)

- India's working population increased from 61 percent in 2011 to 64 percent in 2021, and it is projected to reach 65 percent in 2036.
- However, the percent of youth involved in economic activities declined to 37 percent in 2022.

Centre for Monitoring Indian Economy (CMIE):

- The unemployment rate in India stood at 9.2 percent in June 2024, a sharp increase from 7 percent in May 2024.
- Female unemployment reached 18.5 percent, exceeding the national average, in June 2024. This is up from 15.1 percent in the same period last year.
- At the same time, male unemployment stood at 7.8 percent, slightly higher than 7.7 percent in June 2023.
- The Labour Participation Rate (LPR) rose to 41.4 percent in June 2024 from 40.8 percent in May and up from 39.9 percent in June 2023, the rural unemployment rate rose to 9.3 percent in June from 6.3 percent in May.

Unemployment Rate in India	
Year	Unemployment Rate (%)
2024	9.2 (June 2024)
2023	8.003
2022	7.33
2021	5.98
2020	8.00
2019	5.27
2018	5.33
2017	5.36
2016	5.42
2015	5.44
2014	5.44
2013	5.42
2012	5.41
2011	5.43
2010	5.55
2009	5.54
2008	5.41

- The urban unemployment rate climbed from 8.6 percent to 8.9 percent.
- As per PLFS and RBI's KLEMS data**, India has generated more than 8 crore (80 million) employment opportunities from 2017-18 to 2021-22. This translates to an average of over 2 crore (20 million) employment per year.
- The **Annual Periodic Labour Force Survey (PLFS)** report highlights positive trends in key labour market indicators over the past five years for individuals aged 15 years and above.
 - Labour Force Participation Rate (LFPR):** The LFPR rose from 49.8% in 2017-18 to 57.9% in 2022-23.
 - Worker Population Ratio (WPR):** The WPR increased from 46.8% in 2017-18 to 56% in 2022-23.
 - Unemployment Rate (UR):** The Unemployment Rate decreased from 6% in 2017-18 to 3.2% in 2022-23.

How unemployment rate is calculated in India?

- The unemployment rate is expressed as a percentage and is influenced by economic conditions:
 - High Unemployment:** Occurs during economic downturns when job opportunities are scarce.
 - Low Unemployment:** Seen in periods of economic growth and prosperity when job availability increases.
- Formula for Calculating Unemployment Rate:** The unemployment rate in India is calculated using the following formulas:
 - Unemployment Rate = Number of Unemployed Persons / Civilian Labor Force or
 - Unemployment Rate = Number of Unemployed Persons / (Number of Employed Persons + Number of Unemployed Persons)
- Criteria for Classification as Unemployed:** To be considered unemployed in India, individuals must meet specific criteria:
 - Age:** Must be at least 16 years old.
 - Availability:** Available to work full-time during the last four weeks.
 - Actively Seeking Employment:** Actively searching for job opportunities during this period.
 - Exceptions:** Temporarily laid-off individuals actively seeking to return to their previous jobs are also classified as unemployed.



FACT BOX

- Worker-Population Ratio (WPR):** The WPR is defined as the percentage of employed persons in the population.

- **Labour Force Participation Rate (LFPR):** It is defined as the percentage of persons in the labour force who are working or seeking or available for work in the population, in urban areas for persons aged 15 and above.

Key Economic Events Impacting Unemployment in India

- **Global Financial Crisis (2008-2009):** Economic slowdown led to reduced job opportunities across sectors.
- **Demonetisation (2016):** Disruption in the informal sector caused temporary job losses and market instability.
- **GST Implementation (2017):** Initial disruptions in businesses adjusting to new tax norms affected employment stability.
- **Covid-19 Pandemic (2020):** Nationwide lockdowns halted economic activities, resulting in widespread job losses.
- **Inflationary Pressures:** High inflation reduced consumer demand, prompting businesses to implement cost-cutting measures like layoffs.

INFORMAL SECTOR EMPLOYMENT TRENDS IN INDIA

CONTEXT:

The latest **Annual Survey of Unincorporated Enterprises (ASUSE) for 2021-22 and 2022-23**, released by the **Ministry of Statistics and Programme Implementation**, provides key insights into employment trends in India's informal sector.

Key Findings:

- The findings reflect the impact of **three major shocks** (demonetisation, GST implementation, and the Covid-19 pandemic) on unincorporated enterprises and their workforce.

Employment Figures:

- ▶ The number of workers in the informal sector decreased by 16.45 lakh (1.5%) from 11.13 crore in 2015-16 to 10.96 crore in 2022-23.
- ▶ The number of unincorporated enterprises increased by 16.56 lakh, rising from 6.33 crore in 2015-16 to 6.50 crore in 2022-23.

Impact of Shocks:

- ▶ The informal sector bore the brunt of demonetisation, GST compliance, and the Covid-19 lockdown, which disrupted economic activities and affected employment stability.

- ▶ Maharashtra, Bihar, Gujarat, Madhya Pradesh, and Odisha witnessed an increase in informal sector employment, while Uttar Pradesh, West Bengal, Tamil Nadu, Karnataka, and Andhra Pradesh recorded a decline.

State-wise Trends:

- ▶ Maharashtra saw a consistent rise in informal sector workers, reaching 1.15 crore in 2022-23 from 91.23 lakh in 2015-16.
- ▶ Bihar experienced a decline in informal sector workers till 2021-22 but saw a sharp increase to 58.95 lakh in 2022-23, surpassing pre-pandemic levels.

Economic Indicators:

- ▶ The real **Gross Value Added (GVA)** of unincorporated sector enterprises grew by 6.9% in 2022-23, yet remained 1.6% lower than the 2015-16 levels.
- ▶ The sector's compounded annual growth rate (CAGR) contracted by 0.2% between 2015-16 and 2022-23, reflecting the prolonged impact of economic shocks.

Sectoral Contribution:

- The unorganised sector contributes over 44% to India's Gross Value Added (GVA) and employs nearly 75% of the non-agricultural workforce, highlighting its pivotal role in the economy.

Unincorporated Enterprises Survey				
	2022-23		2015-16	
	Number of entities	Number of workers	Number of entities	Number of workers
Uttar Pradesh	89.94 Lakh	1.57 crore	89.99 lakh	1.65 crore
West Bengal	78.31 lakh	1.05 crore	88.68 lakh	1.36 crore
Maharashtra	60.97 lakh	1.16 crore	47.79 lakh	0.91 crore
Tamil Nadu	42.29 lakh	0.85 crore	49.48 lakh	0.97 crore
Bihar	37.01 lakh	0.59 crore	34.46 lakh	0.53 crore
All-India	6.5 crore	10.96 crore	6.34 crore	11.13 crore

Why the unorganized sector is struggling?

- **Cost Burden:** The unorganized sector struggles with any changes that increase its costs. Unlike the organized sector, which is largely digitized and formalized, the unorganized sector finds it difficult to adapt.
- **Shift in Demand:** Demand has shifted from smaller unorganized units to larger organized ones, leading to the rapid growth of organized sector enterprises.

- **Market Capture:** Despite the intent of GST to formalize the economy, the organized sector often dominates markets that were traditionally held by the unorganized sector.
- **Unpreparedness:** GST, digitization, and formalization policies disproportionately benefit the organized sector, disadvantaging the unorganized sector.
- **Market Capture:** As production in the unorganized sector declines, the organized sector expands into new markets, further marginalizing the unorganized sector.

Government measures to protect interests of unorganised labour

- **Life and Disability Cover:** Provided through Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) and Pradhan Mantri Suraksha Bima Yojana (PMSBY).
- **Health and Maternity Benefits:** Insured under Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY), targeting those in deprived occupations.
- **Old Age Protection:** Pradhan Mantri Shram Yogi Maan-dhan Yojana (PM-SYM) launched in 2019. It offers a monthly pension of Rs. 3,000 upon reaching 60 years for unorganized sector workers.
- **Other Welfare Schemes:**
 - ▶ **Public Distribution System**, enhanced through **One Nation One Ration Card scheme** under **National Food Security Act**.
 - ▶ **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** for rural employment.
 - ▶ **Deen Dayal Upadhyay Gramin Kaushal Yojana** for rural skill development.
 - ▶ **Pradhan Mantri Awas Yojana** for affordable housing.
 - ▶ **Pradhan Mantri Gareeb Kalyan Rojgar Yojana** for employment generation in rural areas.
 - ▶ **Mahatma Gandhi Bunkar Bima Yojana** for weavers.
 - ▶ **Deen Dayal Antyodaya Yojana** for urban and rural poor.
 - ▶ **PM Street Vendor's AtmaNirbhar Nidhi (PMSVANidhi)** for street vendors.

UNION BUDGET 2024-25: INFRASTRUCTURE INITIATIVES

CONTEXT:

In the Union Budget, Finance Minister Nirmala Sitharaman announced a significant boost in infrastructure spending, highlighting its pivotal role in driving economic growth and improving living standards across India.

Key Highlights:

- **Infrastructure Spending Surge:** The government has allocated Rs 11,11,111 crore for capital expenditure on infrastructure, equivalent to 3.4% of the GDP. This marks a doubling of infrastructure spending from 1.7% of GDP three years ago.
- **Support to State Governments:** A provision of Rs 1.5 lakh crore has been made for interest-free loans to state governments, aimed at bolstering their infrastructure investments.
- **Pradhan Mantri Gram Sadak Yojana (PMGSY):** Under Phase-4 of PMGSY, the government plans to provide all-weather connectivity to 25,000 rural habitations, enhancing rural accessibility and connectivity.
- **Accelerated Irrigation Benefit Programme:** A support of Rs 11,500 crore has been earmarked for projects like the Kosi-Mechi intra-state link under this programme, aiming to improve irrigation infrastructure and agricultural productivity.
- **Special Packages for North and Northeastern States:** Assam, Himachal Pradesh, Uttarakhand, and Sikkim will receive assistance for flood management and recovery from natural disasters like cloud bursts, flash floods, and landslides.
- **PM Awas Yojana - Housing for All:** The government has committed to constructing three crore additional houses under PM Awas Yojana in both rural and urban areas, ensuring adequate housing for all sections of society.
- **Rural Development and Infrastructure:** An allocation of Rs 2.66 lakh crore has been set aside for rural development, including infrastructure projects, aimed at improving connectivity, healthcare, education, and economic opportunities in rural India.

PRIMARY HEALTHCARE FUNDING

CONTEXT:

The Economic survey has urged for a significant increase in **social security expenditure on health**, which was earlier estimated to grow from 5.7 per cent in FY15 to 9.3 per cent in FY20.

Primary Health Care (PHC) in India:

- Primary health care is the basic level of health care which includes programs focused on the elevation of health, the initial diagnosis of disease or ill health, and deterrence of illness.
- It involves the key healthcare structure which delivers the first level of interaction between the healthcare providers and the population. E.g., Sub Centres (SCs) and Primary Health Centres (PHCs).

Need for PHC:

According to the **Rural Health Statistics report for 2021-22**, there is an acute shortage of specialist doctors in rural areas of India, particularly at **Community Health Centers (CHCs)**.

- **Shortage of Specialists:** The report reveals that nearly 80% of the required specialist doctors are unavailable at CHCs.

The specific specialties experiencing a shortfall include surgeons (83.2%), obstetricians and gynaecologists (74.2%), physicians (79.1%), and paediatricians (81.6%).

- **Increase in Specialist Doctors:** While the number of specialist doctors at CHCs has increased by 25% over the years, from 3,550 in 2005 to 4,485 in 2022, this growth has not been sufficient to meet the rising demand for specialists in rural areas.
- **Lack of Female Health Workers:** In addition to the shortage of specialist doctors, there is also a dearth of female health workers and auxiliary nursing midwives in primary health centers (PHCs) and sub-centers, with up to 14.4% of these positions remaining vacant.

INDIA'S FERTILIZER SECTOR

CONTEXT

Recent discussions have focused on reforms in India's fertiliser sector, which plays a critical role in agriculture. The government is considering changes to how fertilisers are priced and regulated to improve efficiency and accessibility for farmers.

Current Situation:

- **Price Control and Subsidy:** Currently, the government regulates the prices of some fertilisers like **urea** to ensure affordability for farmers. Other fertilisers under the **Nutrient-Based Subsidy (NBS)** scheme have their prices set by companies but receive subsidies based on their nutrient content.
- **Recent Changes:** Starting April 2023, the government has imposed **informal price controls on NBS fertilisers** by setting maximum profit margins. Fertiliser companies cannot receive subsidies if they charge prices exceeding these margins.
- **Impact on Farmers:** This move aims to stabilize fertiliser prices and ensure they remain reasonable for farmers.
 - **For instance,** the maximum retail prices (MRPs) for popular fertilisers like DAP and MOP have been set to Rs 27,000 and Rs 30,000-31,000 per tonne, respectively.

Why fertilizer is 'crucial' for Indian economy?

- **Food Security:** India's ability to feed its large population depends heavily on the availability and efficient use of fertilisers to boost crop yields.
- **Global Standing in Agriculture:** As the world's second-largest producer of fruits and vegetables after China, India's agricultural success relies on effective fertiliser usage.



FACT BOX

About Fertilisers

- Fertilisers are basically food for crops, containing nutrients necessary for plant growth and grain yields.
- Balanced fertilisation means supplying these following nutrients in the right proportion, based on soil type and the crop's own requirement at different growth stages.
 - **Primary** (N, phosphorus-P and potassium-K)
 - **Secondary** (sulphur-S, calcium, magnesium)
 - **Micro** (iron, zinc, copper, manganese, boron, molybdenum)

Fertilizer Consumption

- Overall fertilizer consumption in the country rose 2.6% to 60 million tonne in 2023-24,
- DAP consumption increased to 105.31 lakh MT from 92.64 lakh MT in 2021-22.
- However, NPK consumption in the country exhibited a declining trend, falling to 107.31 lakh MT from 125.82 lakh MT in 2020-21.
- Total urea consumption during 2022-23 year was nearly 35.7 million tonne.
- In 2023-24, India's consumption of conventional urea is estimated to decline by 2.5 million tonne due to
 - ◆ increase in the demand of nano urea (liquid form of the farm chemical)
 - ◆ government's efforts to curb use of agricultural chemicals through natural farming
 - ◆ **Integrated Nutrient Management (INM):** This approach advocates for soil test-based balanced and integrated utilization of chemical fertilisers along with organic sources like Farm Yard Manure (FYM), city compost, vermi-compost and bio-fertilisers.
 - ◆ Paramparagat Krishi Vikas Yojana (PKVY): Cluster formation, training, certification and marketing are supported under the scheme to a farmer towards organic inputs.

What is Nutrient-Based Subsidy (NBS) scheme?

- The NBS (Nutrient-Based Subsidy) scheme, introduced in 2010, is designed for fertilisers other than urea.
 - Urea, being the most widely used fertiliser, is **not covered under the NBS scheme**. Its pricing and subsidy are handled separately by the government.
- **Market-determined MRPs:** Unlike urea, NBS fertilisers have **market-determined MRPs**. Companies selling these fertilisers set their prices.

- **Fixed per-tonne subsidy:** Under NBS, the government provides a subsidy based on the nutrient content of the fertiliser. It fixes a subsidy per kilogram for nitrogen (N), phosphorous (P), potassium (K), and sulphur (S) components in the fertilisers.
 - ▶ However, in the last two years, non-urea fertilisers under the NBS scheme have been informally regulated.
 - ▶ Starting April 2023, the **Department of Fertilisers** has set **maximum profit margins** over costs to decide if the maximum retail prices (MRPs) are fair. Companies charging higher prices won't receive subsidies from the government under the NBS scheme if their prices exceed these set margins.

VEGFR1, MEDICAL SOLUTIONS FOR COLON AND RENAL CANCERS

CONTEXT:

Researchers at the Indian Institute of Science Education and Research (IISER), Kolkata, have decoded the molecular mechanism of VEGFR1, a cell surface receptor, and its role in preventing cancers. This discovery offers potential medical solutions for colon and renal cancers by stabilizing the inactive state of VEGFR1.

VEGFR1 and its Mechanism:

- VEGFR1 is part of the family of enzymes known as Receptor Tyrosine Kinases (RTK), which are crucial for converting extracellular signals into cellular responses.
- VEGFR1 remains auto-inhibited in the absence of a ligand.
- **Role in Cellular Functions:** RTKs, including VEGFR1, regulate cell differentiation, proliferation, survival, metabolism, and migration. Activation of these receptors leads to the formation of a signalling complex that controls diverse cellular functions.
- **Autoinhibition and Pathology:** Spontaneous activation of RTKs, in the absence of ligands, is associated with various human pathologies, including cancers. Researchers are exploring how cells maintain the autoinhibited state of these enzymes and why autoinhibition is breached in diseases.

Implications for Cancer Treatment:

- **Therapeutic Modulation:** The research proposes the role of cellular tyrosine phosphatase in modulating VEGFR1 activity, highlighting the therapeutic potential of phosphatase modulators in regulating pathological angiogenesis.
- **Research and Discoveries:** The research, conducted using advanced facilities at IISER Kolkata and published in Nature Communications, underscores the potential of small molecules targeting the autoinhibited state of

VEGFR1 for treating cancers such as colorectal carcinoma and renal cancer.

- **Future Directions:** This discovery opens avenues for developing therapeutic interventions against diseases caused by spontaneous VEGFR signalling activation, particularly in cancers where VEGFR1 is overexpressed.

GLOBAL MICROSOFT OUTAGE

CONTEXT

A recent global outage, **Blue Screen of Death (BSOD)**, severely impacted computer systems worldwide, disrupting operations in critical sectors such as aviation, banking, stock exchanges, payment systems, and emergency services. The root cause of this disruption was attributed to a technical issue with CrowdStrike Falcon, a cybersecurity platform that provides security solutions for **Microsoft Windows devices**.

Blue Screen of Death (BSOD)

- The Blue Screen of Death (BSOD) is a **critical error screen** that appears on **Windows operating systems** when a severe issue causes the system to crash. It forces the computer to restart unexpectedly, potentially resulting in data loss.
- **Cause of the Outage:** The outage stemmed from a configuration change within CrowdStrike's Azure backend workloads, affecting the connectivity between storage and compute resources. This interruption subsequently caused failures in Microsoft 365 services that rely on these connections.

Vulnerabilities inherent in interconnected digital services

- The Microsoft outage highlights the vulnerabilities inherent in interconnected digital services.
- It underscores the critical need for robust cybersecurity measures and rapid response protocols to mitigate such disruptions in the future, ensuring the reliability and continuity of essential services globally.
- **Causes:** Interconnected digital services rely on complex networks and systems that facilitate seamless communication and data exchange. However, several factors contribute to vulnerabilities:
 - ▶ **Dependency on Technology:** Modern services heavily depend on technology infrastructure, software applications, and data sharing protocols.
 - ▶ **Cybersecurity Threats:** Increasingly sophisticated cyber threats such as malware, phishing, and ransomware exploit vulnerabilities in interconnected systems.
 - ▶ **Human Error:** Misconfigurations, lack of cybersecurity awareness, and unintentional actions by users can inadvertently expose vulnerabilities.
 - ▶ **Third-Party Dependencies:** Integration with third-party services and APIs introduces additional points of vulnerability if not properly secured.

Impacts:

- ▶ **Disruptions and Downtime:** Cyberattacks or technical failures can lead to widespread disruptions, causing downtime in critical services like banking, healthcare, and transportation.
- ▶ **Data Breaches:** Vulnerabilities can result in unauthorized access to sensitive data, leading to breaches that compromise privacy and trust.
- ▶ **Financial Losses:** Businesses may incur significant financial losses due to operational disruptions, legal liabilities, and recovery costs associated with cyber incidents.
- ▶ **Reputational Damage:** Public perception and trust in organizations can suffer following a cyber incident, affecting customer loyalty and investor confidence.
- ▶ **Regulatory Compliance Issues:** Non-compliance with data protection regulations and cybersecurity standards can result in legal penalties and regulatory scrutiny.

- Article 6 of the Paris Agreement provides for the use of international carbon markets by countries to fulfil their **Nationally determined contributions (NDCs)**.
- These markets create incentives to reduce emissions or improve energy efficiency.

Types of Carbon Markets:

Voluntary Markets	Compliance Markets
<ul style="list-style-type: none"> ◦ Participants: Corporations, private individuals, and others purchase carbon credits voluntarily to offset emissions. ◦ Verification: Credits are verified by private firms against established standards. ◦ Purpose: Often used for public relations or personal commitment to sustainability. 	<ul style="list-style-type: none"> ◦ Regulation: Governed by national, regional, or international policies, making them official and mandatory. ◦ Mechanism: Operates under a 'cap-and-trade' system where emission allowances are traded. ◦ Examples: Kyoto Protocol, European Union Emissions Trading System (EU ETS), California ETS, Australia ETS, among others. ◦ Recent Development: China launched the world's largest ETS in 2021.

INDIA-JAPAN COLLABORATION FOR CARBON TRADING

CONTEXT

India and Japan are exploring a **Joint Crediting Mechanism (JCM)** under the **Paris Agreement** to enhance collaboration in **Carbon Trading**.

What is Carbon Trading?

- Carbon trading is the process of buying and selling permits and credits to emit carbon dioxide.

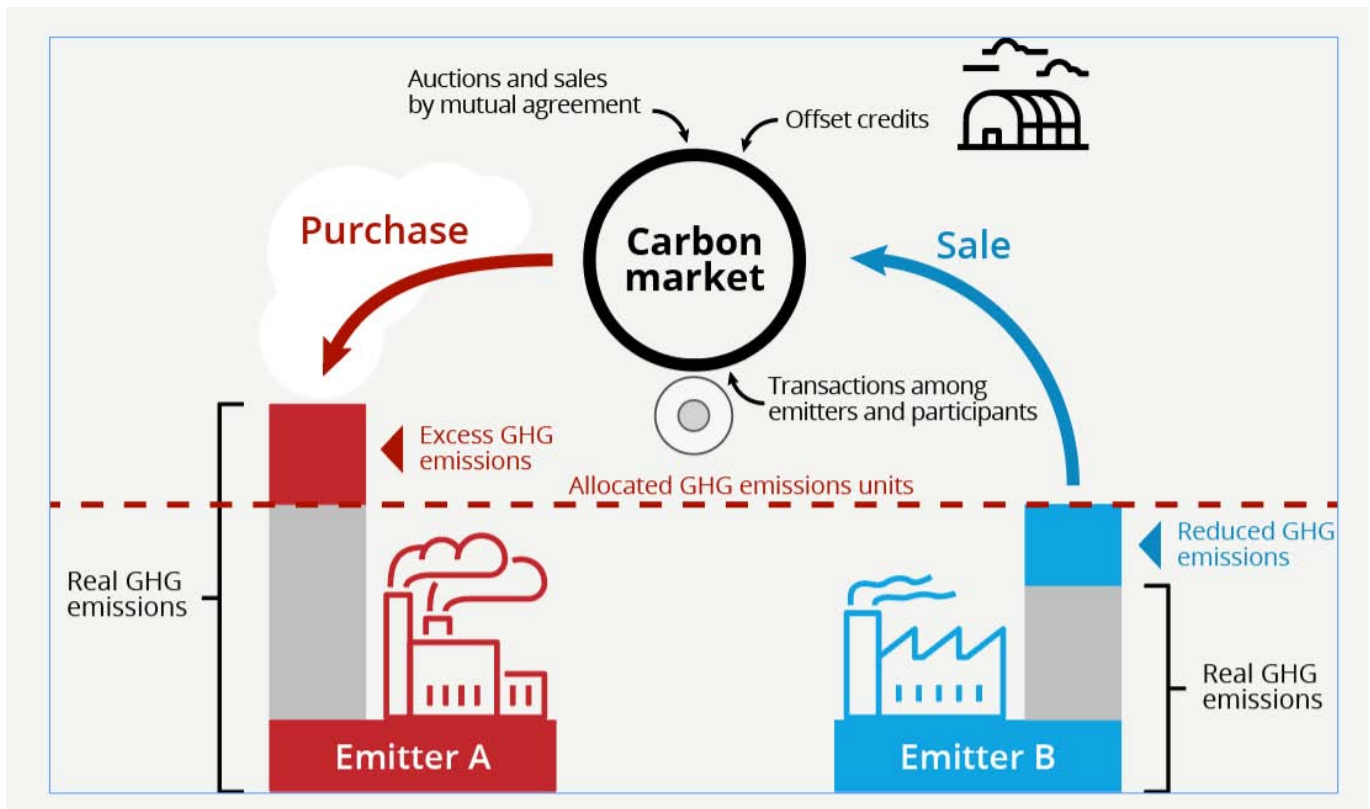


FIGURE: 02

CRITICAL MINERAL RECYCLING

CONTEXT:

The **Ministry of Mines** in India is gearing up to introduce a **Production Linked Incentive (PLI) scheme** aimed at enhancing the recycling of critical minerals. This initiative comes in response to a tepid response observed in recent auctions of critical mineral blocks. The scheme aligns with recommendations from NITI Aayog and complements the **Battery Waste Management Rules (BWMR), 2022**.

What is Critical Mineral Recycling?

- Critical mineral recycling involves the extraction and reuse of essential minerals like **lithium, cobalt, and graphite** from **electronic waste (e-waste)** and spent batteries.
- These minerals are vital components in technologies such as **solar panels, wind turbines, energy storage systems, electric vehicles (EVs), and consumer electronics**.

Challenges

- ▶ Indian recyclers currently face challenges in extracting battery-grade minerals from e-waste, highlighting the need for capacity-building initiatives.
- ▶ The scheme aims to address these challenges by providing incentives based on the type and value of minerals recycled, thereby encouraging innovation and technological advancements in the recycling sector.

How will the proposed PLI Scheme help?

- The proposed PLI scheme aims to foster a circular economy by reducing reliance on virgin ores and promoting sustainable practices.
- It targets enhancing domestic supply chains for critical minerals, thereby boosting India's self-reliance in clean energy technologies and reducing environmental impacts associated with mining.
- The PLI scheme is designed to incentivize the production of recycled critical minerals through advanced recycling technologies and infrastructure investments. It seeks to encourage the recovery of high-purity minerals suitable for reuse in primary inputs.

What is the need?

- **Increasing demand:** The growing demand for critical minerals is sustaining supply to meet the anticipated boom. The IEA predicts that meeting future demand will require doubling current mineral inputs for clean energy technology by 2040.
- **Critical Minerals forms part of multiple strategic value chains**, including
 - ▶ **Clean technologies initiatives** such as zero-emission vehicles, wind turbines, solar panels
 - ▶ **Information and communication technologies**, including semiconductor

- ▶ **Advanced manufacturing inputs and materials** such as defence applications, permanent magnets, and ceramics
- **Green commitments:** India's **international commitments towards reducing carbon emissions**, which require the country to urgently relook at its mineral requirements for **energy transition and net-zero commitments**. While the clean energy transition will undoubtedly require greater mining, recycling will play a role in sustaining future mineral supply.



FACT BOX

Critical Minerals in India

- The Centre has identified '30 critical minerals', which are essential for the country's economic development and national security.
 - ▶ The **Ministry of Mines** constituted a committee (chaired by **Dr. Veena Kumari Dermal**) for the identification of critical and strategic minerals.
- Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.
 - ▶ **Import-dependent:** Ten minerals on the list are 100 per cent import-dependent. These are lithium cobalt, nickel, vanadium, niobium, germanium, rhenium, beryllium, tantalum, and strontium.

90% OF EARTH'S LAND COULD BE DEGRADED BY 2050: UNESCO

CONTEXT

The **United Nations Educational, Scientific and Cultural Organization (UNESCO)** issued a stark warning, stating that a staggering 90 per cent of the planet's land surface could be degraded by 2050. According to the World Atlas of Desertification, 75 per cent of soils are already degraded, directly affecting 3.2 billion people. If business as usual continues, the current trend may increase the impact to 90 per cent by 2050.

Causes of Land Degradation

Land degradation is the deterioration of land quality, often resulting from human activities and natural processes, which adversely affect its productivity and ecosystem functions. Several factors contribute to land degradation:

- **Deforestation:** Clearing of forests reduces vegetation cover and disrupts ecosystems.
- **Overgrazing:** Excessive grazing by livestock leads to soil compaction and loss of vegetation.

- **Unsustainable Land Use:** Practices like intensive agriculture without proper soil conservation measures degrade land fertility.
- **Urbanization and Industrial Expansion:** Conversion of natural landscapes for urban and industrial purposes reduces vegetative cover and disrupts ecosystems.

Impacts of Land Degradation

The consequences of land degradation are widespread:

- **Loss of Soil Fertility:** Reduced capacity of soil to support plant growth and agriculture.
- **Erosion:** Soil erosion accelerates, leading to loss of fertile topsoil.
- **Ecosystem Destruction:** Disruption of natural habitats and loss of biodiversity.
- **Economic Loss:** Decline in agricultural productivity and increased costs for land restoration.
- **Climate Impact:** Contributes to climate change through reduced carbon sequestration and altered water cycles.
- **Health Effects:** Impacts human health through food insecurity and water scarcity.

UPSC PYQ

Q: The process of desertification does not have climate boundaries. Justify with examples. (2020)

FOSSIL FUELS STILL DOMINATE GLOBAL ENERGY

CONTEXT:

The **2023 Statistical Review of World Energy (SRWE)** reveals a record high in primary energy consumption, highlighting the persistent dominance of fossil fuels and the contrasting energy trends between the Global North and Global South.

Trends and Data on Energy Consumption:

- **Record Primary Energy Consumption:** The world saw a 2% increase in primary energy consumption in 2023 compared to 2022. Despite the growth in renewable energy, fossil fuels still constitute 81.5% of the global energy mix.
- **Regional Disparities:** The Global South, particularly the Asia-Pacific region, accounted for 56% of total energy consumption in 2023, with significant contributions from China, India, and Indonesia. In contrast, energy demand in Africa fell by 0.4%.
- **Greenhouse Gas Emissions:** Global emissions rose by 2.1%, crossing 40 billion tonnes of CO2 equivalents. The Global North continues to have higher per capita emissions, with North America averaging 11.5 tonnes of CO2 per person compared to 2 tonnes in the Global South.

Fossil Fuel Production and Consumption:

- **Oil Production and Consumption:** Oil consumption reached a record 100 million barrels per day, driven mainly by China. The United States remains the largest oil producer, with an 8.5% increase in production, while Russia’s production fell by 1%.
- **Natural Gas and Coal:** The US set a new record in natural gas production, surpassing Qatar as the largest exporter of LNG. Coal production reached record levels, with 80% of output from the Asia-Pacific region, led by China and India.
- **Impact of Sanctions:** Russia’s oil production decline is attributed to international sanctions following the conflict with Ukraine.



FACT BOX

India’s Energy Demand and Infrastructure:

- India is the world’s third-largest energy consumer. Electricity accounts for 34 per cent of India’s total GHG emissions.
- The country has achieved an installed capacity exceeding 400 GW, leveraging a mix of traditional fuels like **coal, oil, and gas**, alongside renewables such as **solar, wind, biomass, and hydroelectric power**.

India’s Climate Commitments

- ▶ Net Zero by 2070
- ▶ India aims to reduce its emission intensity by at least 45% from 2005 levels by 2030.
- ▶ At least 50% of the country’s total electricity will come from renewable sources by 2030.
- As of May 2024, Renewable energy sources, including large hydropower, have a combined installed capacity of 193.57 GW.

Installed capacity for Renewables:

- ▶ **Wind power:** 46.42 GW
- ▶ **Solar Power:** 84.27 GW
- ▶ **Biomass/Co-generation:** 10.35 GW
- ▶ **Small Hydro Power:** 5 GW
- ▶ **Waste To Energy:** 0.59 GW
- ▶ **Large Hydro:** 46.92 GW

India’s initiatives:

- ▶ **Electric Mobility and Vehicle Scrapping Policy:** India has launched the Faster Adoption and Manufacturing of Hybrid & Electric Vehicles Scheme to accelerate the transition to electric vehicles (EVs).

- ▶ **Green Hydrogen Production:** India plans to establish a green hydrogen electrolyzer gigafactory in Bangalore, capable of producing 20 million tonnes (MT) of green hydrogen annually by 2030 at \$1 per kilogram, valued at \$20-25 billion.
- ▶ **Transportation Revolution:** To achieve Net Zero Emissions by 2070, India is focusing on enhancing "walkability," public transportation, rail networks, roads, and improving vehicle efficiency.
- ▶ **Electric Vehicles (EVs):** Aligned with global climate goals under the Paris Agreement, India supports the EV30@30 campaign, aiming for a 30% EV sales share by 2030.
- ▶ **Ethanol Blending in Petrol:** India has advanced its target of 20% ethanol blending in petrol to 2025, aiming to reduce petroleum-related pollution.
- ▶ 100% FDI is allowed for renewable energy generation and distribution projects subject to provisions of **The Electricity Act 2003**.
- ▶ **Transition to Renewable Energy:** Despite fossil fuels dominating the power sector, India has set ambitious goals to increase the share of renewable and nuclear energy.

- **Satellite Integration:** The system integrates alerts from fifteen commercial satellite services, providing a pioneering approach to forest fire management. The AI platform, Pantera, uses both camera feeds and satellite data to deliver real-time alerts within 3 minutes.
- **Differentiation and Accuracy:** The AI system can distinguish between smoke and clouds and features Infra-Red capabilities for 24×7 detection, minimizing false alarms and ensuring accurate and reliable alerts.

Benefits and Impact on Forest Fire Management

- **Real-time Data Analysis:** The system receives data on temperature, precipitation, and wind, allowing it to forecast probable fire incidences based on past data. This enables proactive fire control planning.
- **Resource Integration:** The system can be integrated with water tanks and forest vehicles equipped with GPS, allowing real-time tracking and management of resources during fire incidents.
- **Improved Response Efforts:** The swift detection and alert mechanism is expected to substantially improve forest fire management practices, enabling rapid response efforts to protect vast forest areas and the diverse wildlife within the reserve.

UPSC PYQ

- Q: The question of India's Energy Security constitutes the most important part of India's economic progress. Analyze India's energy policy cooperation with West Asian Countries. [2016]**
- Q: Give an account of the current status and the targets to be achieved pertaining to renewable energy sources in the country. Discuss in brief the importance of the National Programme on Light Emitting Diodes (LEDs). (2016)**
- Q: Clean energy is the order of the day.' Describe briefly India's changing policy towards climate change in various international for in the context of geopolitics. [2022]**

PENCH TIGER RESERVE'S AI SYSTEM FOR FOREST FIRE DETECTION

CONTEXT:

The Pench Tiger Reserve in Maharashtra has launched an **advanced Artificial Intelligence (AI) system** for early detection of **forest fires**, marking a significant technological advancement in forest conservation efforts.

About the Technological Advancements in Forest Fire Detection

- The AI system features a high-resolution PTZ camera with a 15-kilometer visual range, covering over 350 sq km of the reserve.

Types of Forest Fire

- **Surface fires:** Surface fire is the most common forest fires that burn undergrowth and dead material along the floor of the forest.
- **Underground fires:** The fires of low intensity, consuming the organic matter beneath and the surface litter of forest floor are sub-grouped as underground fire.
- **Ground fires:** There is no clear distinction between underground and ground fires. The smoldering underground fire sometime changes into ground fire.
- **Crown fires:** Crown fire is the most unpredictable fires that burn the top of trees and spread rapidly by wind.

India State of Forest Report (ISFR) 2021

- 35.46% of India's forest cover is susceptible to forest fires.
- Of this, 2.81% are extremely prone, 7.85% are very highly prone, and 11.51% are highly prone.
- India's 45–64% of forests will be impacted by changing climate and rising temperatures by 2030.

CHEMICAL FERTILIZERS KILLING SOIL

CONTEXT:

- Farmers in Kenya and other African countries blame recent widespread use of acidifying fertilizers for severely degrading soil fertility. Once fertile lands are now nearly barren due to these practices.

- Africa holds 65% of the world’s uncultivated arable land, yet spends approximately \$60 billion annually on food imports. This amount is projected to increase to \$110 billion by 2025 due to rising demand and changing consumption patterns.

How chemical fertilizers kills soil?

- Overuse of chemical fertilizers contributes to **soil acidification, soil crust formation, reduced organic matter, and decreased beneficial species**. This affects plant growth, alters soil pH, promotes pests, and can release greenhouse gases.
- Soil acidity leads to land degradation by reducing nutrient availability, weakening soil structure, and increasing susceptibility to erosion.

Other responsible factors:

- ▶ **Farming Practices:** Aggressive tilling disrupts soil structure and reduces beneficial bacteria.
- ▶ **Chemical Agriculture:** Pesticides and fertilizers can disrupt soil microbiota, hindering nutrient availability.
- ▶ **Population Pressure:** Increasing population, food insecurity, and intensive farming contribute to widespread soil degradation through erosion, acidification, and salinization.
- ▶ **Crop residue burning, land misuse, mismanagement, and climate change** further exacerbate soil health.

Why Soil is Essential?

- **Ecosystem Services:** Soil acts as a vital ecosystem service by filtering water, providing habitat for countless organisms, and producing antibiotics crucial for fighting diseases.
- **Food Security:** Soil is essential for healthy food production, supplying nutrients, water, oxygen, and root support necessary for plant growth and development.
- **Biodiversity:** Soils harbor beneficial microbes crucial for biodiversity and ecosystem health.
- **Climate Change Mitigation:** Soil plays a critical role in carbon sequestration, storing an estimated 2,500 gigatons of carbon and helping combat climate change.

Methods to Save Soil:

- **Organic Practices:** Use organic fertilizers, recycle biomass, grow green manure crops, and practice mulching to replenish soil nutrients.
 - ▶ **Neem-coated urea:** India has introduced 100% Neem Coating on all subsidized agricultural grade urea. Neem coating works as nitrification resistant. It propagates slowly and ensures availability of nitrogen as per crop requirement which results in growth of crop production.
- **Crop Diversity:** Employ practices like inter-cropping, mixed cropping, and crop rotation to enhance soil fertility and nutrient replenishment.

- **Agroforestry:** Integrate tree and plant growth with crops to improve soil health and sustainability.
- **Permaculture:** Adopt sustainable farming methods that respect natural systems and maximize ecosystem benefits.
- **Biofertilizers:** Use microbial-based fertilizers to enhance soil fertility and reduce dependence on chemical inputs.
- **Other sustainable practices:** Adopting sustainable practices like **vermicompost, green manure, and biopesticides** can enhance soil fertility and promote long-term crop productivity without relying on chemical inputs.

UPSC PYQ

Q: Why does the Government of India promote the use of 'Neem-coated Urea' in agriculture? (2016)

- (a) Release of Neem oil in the soil increases nitrogen fixation by the soil microorganisms.
- (b) Neem coating slows down the rate of dissolution of urea in the soil.
- (c) Nitrous oxide, which is a greenhouse gas, is not at all released into atmosphere by crop fields.
- (d) It is a combination of a weedicide and a fertilizer for particular crops.

Solution: (b)

SC HIGHLIGHTS NEED FOR BALANCE IN JIM CORBETT NATIONAL PARK DISPUTE

CONTEXT:

The Supreme Court’s recent hearing on a plea against the **Jim Corbett National Park’s decision** to allow private operator’s buses to ply within the **core area of the tiger reserve** in Uttarakhand has brought to the forefront the delicate **balance between conservation and development**.

How can balance between conservation and development be achieved?

Achieving a balance between conservation and development in the case of Jim Corbett National Park requires a multi-faceted approach.

- **Sustainable Tourism:** Implement responsible and regulated tourism practices that prioritize wildlife viewing and minimize human impact on the ecosystem. This can include:
 - ▶ Limiting the number of tourists and vehicles entering the park.
 - ▶ Implementing eco-friendly transportation options, such as electric or solar-powered vehicles.
 - ▶ Providing education and awareness programs for tourists on responsible wildlife viewing and park rules.

- **Alternative Livelihoods:** Support alternative livelihood options for local communities that reduce their dependence on forest resources and promote coexistence with wildlife. This can include:
 - ▶ Promoting ecotourism-related jobs, such as guides, hospitality staff, and nature interpreters.
 - ▶ Encouraging sustainable agriculture practices, such as organic farming and permaculture.
 - ▶ Supporting local entrepreneurship in crafts, handicrafts, and other non-forest-based industries.
- **Compensation Mechanisms:** Establish fair compensation mechanisms for local communities affected by conservation efforts. This can include:
 - ▶ Providing financial compensation for crop damage or livestock loss due to wildlife conflict.
 - ▶ Offering alternative land use options or relocation packages for communities living within the park's boundaries.
- **Community Engagement:** Foster active community engagement in conservation efforts through participatory decision-making processes. This can include:
 - ▶ Establishing village-level conservation committees to monitor human-wildlife conflict and develop mitigation strategies.
 - ▶ Conducting regular community outreach programs to educate locals about conservation goals and benefits.
- **Infrastructure Development:** Develop infrastructure that supports both conservation and development goals



FACT BOX

About Jim Corbett National Park:

- Located in the Nainital district of Uttarakhand, Jim Corbett National Park is India's oldest national park, established in 1936.
- It is named after the legendary hunter-turned-conservationist, Jim Corbett.
- The park is part of Project Tiger, a conservation program launched in 1973 to protect Bengal tigers.
- The core area of Jim Corbett National Park spans around 312 square kilometers.
- The park is renowned for its rich biodiversity and is home to over 500 species of plants, 600 species of birds, and a wide range of fauna, including the majestic Bengal tiger.
- It is one of the most popular tourist destinations in India, attracting millions of visitors every year.
- **Core Area:** The core area of a national park or wildlife sanctuary refers to the most sensitive and protected zone within the reserve.

- ▶ This area is designated as a habitat for endangered species and is strictly protected from human interference.
- ▶ The core area is typically free from human settlements, agriculture, and other anthropogenic activities that could harm the ecosystem.

ARMED CONFLICT AND CLIMATE RISKS

CONTEXT:

The International Committee of the Red Cross (ICRC) has highlighted the compounded impact of armed conflict and climate risks, which significantly weakens people's ability to cope with disasters.

Key Highlights of the Report

- **Report Title:** 'When Rain Turns to Dust'
- **Study Focus:** The report is based on research conducted in 2019 and 2020, focusing on the Central African Republic (CAR), southern Iraq, and northern Mali.
- **Double Threat:** Countries affected by conflict are disproportionately impacted by climate change, exacerbating issues such as displacement, food production disruption, and weakened healthcare services.

Reasons Behind the Situation

- **Geographical Vulnerability:** The geographical location of CAR, Iraq, and Mali makes them particularly susceptible to climate change.
- **Impact of Conflicts:** The lasting consequences of conflicts in these regions exacerbate their vulnerability, disrupting communities, systems, and institutions.
- **Human Movement Patterns:** In CAR, changing human movement patterns due to conflict have increased tensions between farmers and herders.
- **Resource Scarcity:** In Mali, the fear of attacks forces pastoralists to congregate near water sources, increasing tensions with farmers and fishermen over scarce resources.
- **Historical Impact:** In Iraq, the destruction of date palms for military purposes during the Iran-Iraq war has had long-term effects on water and farming.

Sahel

- It stretches across northern Africa, from Senegal to Sudan.
- **Key countries:** Senegal, Mauritania, Mali, Burkina Faso, Niger, Nigeria, Chad, Sudan
- It is a Transitional zone between the Sahara and savanna regions, characterized by hot, dry conditions.



FIGURE: 02

- It is warming 1.5 times faster than global average.
- It is the epicentre of **The Green Wall project** which aims to 100 million hectares of degraded land by 2030

(see figure no.above)

NEGATIVE SOIL MOISTURE ANOMALY (SMA)

CONTEXT

A recent study has highlighted **significant soil moisture anomalies** (Negative Soil Moisture Anomaly (SMA)) across

India in 2023, impacting agricultural productivity and water resource management.

Key-findings:

◦ Extent of Soil Moisture Anomalies

- ▶ Approximately 32.8% of India's total land area experienced negative Soil Moisture Anomalies (SMA), indicating vulnerability to drought stress, covering about 1.08 million square kilometers.
- ▶ Conversely, 47.7% of the country's geographical area saw positive SMA, leading to wetter soil conditions than usual and increasing the risks of flooding and water logging.

Seasonal Variations

Monsoon Period (June-September):

- ◆ Punjab benefited from positive soil moisture levels, supporting robust crop growth and potentially preventing flooding.
- ◆ Odisha, with near-average soil moisture, could improve agriculture output by adopting water management techniques from Punjab.
- ◆ Bihar and Jharkhand faced below-average soil moisture, necessitating improved irrigation and water conservation methods.

Pre-Monsoon Period (March-May):

- ◆ Punjab maintained above-average soil moisture levels, whereas Odisha experienced slight deficits, suggesting a need for shared water management practices.
- ◆ Andhra Pradesh and Kerala showed favorable conditions, while Bihar exhibited below-average soil moisture, emphasizing water conservation.
- ◆ The Andaman and Nicobar Islands faced dry conditions, highlighting the urgency for enhanced water management practices.

Winter Period (December-February):

- ◆ Punjab recorded positive soil moisture anomalies, benefiting winter crops and reducing the need for excess irrigation.
- ◆ Odisha faced negative SMA, indicating drier conditions compared to historical averages, suggesting potential benefits from adopting Punjab's irrigation techniques.

State-Wise Implications

- ▶ **Punjab:** Benefits from positive soil moisture anomalies, supporting robust agriculture.
- ▶ **Odisha:** Faces challenges with negative SMA during specific periods, suggesting the adoption of efficient irrigation practices from other states.
- ▶ **Bihar, Jharkhand:** Require improved water conservation and irrigation techniques to address drought impacts.
- ▶ **Maharashtra, Madhya Pradesh:** Showed variability in soil moisture levels, necessitating stable water management policies.
- ▶ **Andhra Pradesh, Kerala:** Require customized water management plans due to varying soil moisture conditions.



FACT BOX

What is Negative Soil Moisture Anomaly (SMA)?

- Negative Soil Moisture Anomaly (SMA) refers to a situation where the soil moisture levels are below what is considered normal or average for a specific area and time period.

- It indicates that the soil has less moisture than expected, which can lead to drought conditions and stress for vegetation and agriculture.
- Soil moisture is essential for the development of plants. It regulates soil temperature, salinity, the availability of nutrients and the presence of toxic substances, and it gives structure to soil and contributes to preventing soil erosion.

FAST FASHION & ENVIRONMENT

CONTEXT

Textile waste poses a pressing global challenge, with only 12% of textiles recycled worldwide. Merely 1% of discarded clothes are recycled into new garments, with the rest often repurposed into low-value items like insulation or mattress stuffing.

The dark side of fast fashion (Impact)

Despite affordability, fast fashion has significant environmental and social repercussions:

- **Environmental Impact:** The fast fashion sector contributes 2-8% of global carbon emissions and 9% of annual microfiber pollution in oceans, as per the UN Environment Programme.
- **Resource Intensive:** It consumes approximately 215 trillion liters of water annually, equivalent to 86 million Olympic-sized swimming pools.
- **Social Issues:** Workers often endure exploitative conditions for minimal wages, while shareholders profit extensively.
- **Greenhouse Gas Emissions:** Every phase of the fast fashion lifecycle—from resource extraction and manufacturing to transportation and waste management—contributes to greenhouse gas emissions, exacerbating global warming.
- **Synthetic Fabrics:** The industry heavily relies on fossil fuel-derived synthetic fibers (e.g., polyester, nylon), intensifying the climate crisis through emissions and contributing to non-biodegradable plastic pollution.
- **Microplastics:** Synthetic fibers shed microplastics when washed, comprising 35% of microplastic pollution in oceans, perpetuating environmental degradation.

Measures in India

- **Water (Prevention and Control of Pollution) Act, 1974:** It regulates the discharge of pollutants into water bodies and establishes penalties for non-compliance.
- **Sustainable Textiles of India initiative:** It aims to promote sustainable production and consumption of textiles.

Other notable initiatives

- ▶ **Sustainable Fashion Policy:** In 2020, the Ministry of Textiles launched National Hand-loom Day with the theme "Handloom for Atmanirbhar Bharat" to promote sustainable fashion and textiles, support local artisans, and reduce the environmental impact of the fashion industry.
- ▶ **Extended Producer Responsibility for plastic waste management.**
- ▶ **Ban on Single-Use Plastics:** In 2019, the government announced a ban on single-use plastics.
- ▶ **Others:** Clean Ganga Fund, Green Building Norms, National Action Plan on Climate Change, Textile Waste Management (Swachhta Saarthi Fellowship, Green Wardrobe Initiative)

URBAN NAXALISM

CONTEXT

To prevent unlawful activities by individuals and organizations and to curb the threat of Naxalism and its supporters in urban areas, the Maharashtra government presented a bill named the "Maharashtra Special Public Safety Act 2024," the legal provisions of this bill are intended to curb the threat of Naxalism and its supporters in urban areas.

About

- The **Maharashtra Special Public Safety Act 2024** aims to combat unlawful activities linked to Naxalism and its supporters in urban areas.
- It categorizes involvement in violence, promoting fear among the public, and encouraging disobedience to established laws as unlawful.
- The Act makes all offenses cognizable and non-bailable, with penalties including imprisonment ranging from three to seven years and fines between Rs 3 to 5 lakh for joining unlawful organizations.
- **Need behind the bill:** The menace of Naxalism is not only limited to remote areas of the Naxal-affected states, but its presence is increasing in the urban areas also through the Naxal frontal organisations. The spread of active frontal organisations of Naxal groups gives constant and effective support in terms of logistics and safe refuge to their armed cadres.

The states of **Chhattisgarh, Telangana, Andhra Pradesh and Odisha** have enacted the **Public Security Acts** for more effective prevention of unlawful activities of such organisations and banned 48 frontal organisations.

Urban Naxalism in India

- Urban Naxalism has emerged as a contentious issue in India, blending socio-political ideology with security

concerns. Originating from the Maoist insurgency in rural India, particularly the Naxalite movement, Urban Naxalism represents a shift towards urban centers where sympathizers and ideologues support or facilitate Maoist activities.

- Unlike their rural counterparts engaged in armed struggle, Urban Naxals operate covertly, using **intellectual and cultural platforms to propagate their ideology, recruit followers, and mobilize support.**
- They often exploit **democratic freedoms** such as **free speech and association** to further their cause, posing a challenge to law enforcement agencies.

Factors Driving Urban Naxalism:

- ▶ **Socio-Economic Disparities:** Economic inequalities and marginalized communities feeling neglected by mainstream development policies can fuel discontent and sympathy towards radical ideologies.
- ▶ **Perceived Injustice:** Issues like land acquisition, displacement of tribal populations, and alleged state repression in conflict zones contribute to grievances that Urban Naxals exploit.
- ▶ **Intellectual and Ideological Influence:** Intellectual circles, universities, and cultural spaces provide platforms for articulating dissent and critiquing the state, sometimes aligning with or providing cover for Naxalite activities.

Challenges:

- ▶ **National Security Concerns:** Urban Naxalism is viewed by authorities as a threat to national security due to its potential to incite violence, undermine state authority, and destabilize governance.
- ▶ **Freedom of Expression vs. Sedition:** The thin line between legitimate dissent and sedition is often debated, with arrests of activists and intellectuals accused of supporting Naxalism raising concerns about freedom of expression.
- ▶ **Legal and Ethical Dilemmas:** Law enforcement faces challenges in balancing preventive actions with civil liberties, leading to criticism over the arbitrary use of anti-terror laws against dissenters.



FACT BOX

About Naxalism

- Naxalism originated in 1967 in Naxalbari, West Bengal, led by Charu Majumdar and Kanu Sanyal. Over time, it evolved into an armed Maoist movement aimed at overthrowing India's parliamentary system.
- The CPI (Maoist), formed in 2004, amalgamated several groups and operates primarily in central Indian states like **Jharkhand, Chhattisgarh, and Maharashtra.**
- **Spread in India:** Naxalism has spread widely, affecting states such as Jharkhand, West Bengal, Odisha, Bihar, Chhattisgarh, and Andhra Pradesh.

- **Causes:** Economic grievances and alleged governmental neglect contribute to local support for Naxal groups. Issues like lack of development, denial of tribal rights, and exploitation often fuel resentment and recruitment into these movements.
- **Impact:** Naxal activities include obstructing development projects, extorting locals, and running parallel judicial systems in areas inaccessible to regular governance.

UPSC PYQ

Q: Naxalism is a social, economic and development issues manifesting as a violent internal security threat. In this CONTEXT, discuss the emerging issues and suggest a multilayered strategy to tackle the menace of Naxalism. (2022)

HATHRAS STAMPEDE

CONTEXT

Stampedes during religious gatherings are tragically common in India, often due to poor crowd management and safety oversights. Recently, a stampede in Uttar Pradesh's Hathras district claimed the lives of at least 116 people, predominantly women, highlighting the urgent need for effective crowd control strategies.

What is a Stampede?

- A stampede is characterized by the chaotic movement of a crowd, resulting in injuries and fatalities. It typically occurs due to panic triggered by perceived danger, overcrowding, or the rush to achieve something desirable.
- **Causes of Stampedes:** Stampedes are primarily caused or exacerbated by panic and can be prevented through improved design and management of spaces where mass gatherings occur. Factors contributing to stampedes include:
 - ▶ Lack of adequate lighting
 - ▶ Uncontrolled flow of crowds
 - ▶ Structural failures like collapsed barriers or buildings
 - ▶ Blocked exits or evacuation routes
 - ▶ Inefficient design of infrastructure such as entrance doors
 - ▶ Fire hazards and other safety oversights
- **Reason behind casualties:**
 - ▶ **Traumatic asphyxia:** There is partial or complete cessation of respiration due to external compression of the thorax and/or upper abdomen.
 - ▶ **Myocardial infarction:** Heart attack, caused by decreased or complete cessation of blood flow to a portion of the heart

- ▶ **Direct crushing** injury to internal organs, head injuries, and neck compression.

Preventive Measures

- Effective crowd management is crucial in mitigating stampede risks. Strategies include:
 - ▶ **Live Surveillance:** Monitoring crowd density, bottlenecks, and disturbances to anticipate and prevent incidents.
 - ▶ **Communication:** Coordination between organizers, local authorities, and law enforcement to manage crowd behavior and ensure timely interventions.

NDMA's guidelines for Crowd Management

- The National Disaster Management Authority (NDMA) has formulated guidelines for integrated crowd management, which are crucial for ensuring public safety during various types of events. Here are the simplified pillars and considerations as per NDMA's guidelines:
 - **Pillars of Integrated Crowd Management:**
 - ▶ **Capacity Planning:** Assessing the venue's capacity to accommodate the expected number of attendees. Ensuring adequate facilities like exits, seating arrangements, and emergency services.
 - ▶ **Risk Assessment:** Identifying potential hazards and risks associated with the event. Evaluating factors like crowd density, weather conditions, and infrastructure vulnerabilities.
 - ▶ **Preparedness Planning:** Developing detailed plans and procedures for managing crowds effectively.
 - ▶ **Incident Response:** Establishing protocols for responding to emergencies such as medical emergencies, fires, or crowd disturbances.
 - ▶ **Capacity Building:** Training personnel involved in crowd management on safety protocols and crowd control techniques. Educating the public on safe behavior during events to prevent panic and stampedes.
 - **Parameters for Planning and Management:**
 - ▶ **Type of Event:** Whether it's religious, educational, sports, entertainment, etc.
 - ▶ **Expected Crowd:** Considering demographics like age, gender, and economic backgrounds.
 - ▶ **Crowd Motives:** Understanding why attendees are coming (social, academic, religious, etc.).
 - ▶ **Venue:** Assessing location, layout (open or closed), accessibility, and infrastructure.
 - ▶ **Stakeholders:** Involving NGOs, local authorities, and community members to enhance coordination and support.

Notable Stampede Incidents

- **Moscow, Russia (1896):** Over 1,000 deaths due to a crowd surge over souvenir rumors.
- **Allahabad, India (1954):** Around 800 fatalities during the Kumbh Mela due to poor crowd control.
- **Lima, Peru (1963):** 326 deaths after tear gas use during a football match triggered panic.
- **Wai, India (2005):** Over 340 deaths during a temple pilgrimage due to slippery steps.

NHRC ISSUES NOTICE OVER 'DISCRIMINATION' BY FOXCONN

CONTEXT:

The **National Human Rights Commission (NHRC)** has taken note of reports alleging **discrimination against married women at Foxconn's iPhone assembly plant** in Sriperumbudur, Tamil Nadu. It issued notices to the **Union Labour Ministry** and the Tamil Nadu government, citing potential violations of **gender equality norms under Indian and international law**.

Ethical Issues

The case revolves around ethical principles of **equality and non-discrimination in employment**, particularly concerning marital status. It raises questions about corporate ethics, gender inclusivity, and compliance with labor laws.

- **Gender Equality:** Discrimination based on marital status violates principles of equality and fairness. All individuals should have equal access to employment opportunities irrespective of their marital status.
- **Corporate Responsibility:** Companies have an ethical obligation to ensure non-discriminatory practices and create inclusive work environments. Excluding married women from employment opportunities contradicts these principles.
- **Transparency and Accountability:** Job seekers should have clear and transparent information about eligibility criteria. Misinformation or lack of clarity in hiring processes can lead to unfair practices and distrust.
- **Compliance with Laws and Regulations:** Companies must adhere to national and international laws that prohibit discrimination based on gender or marital status. Failure to comply reflects ethical lapses in governance and corporate culture.
- **Impact on Individuals and Society:** Discriminatory practices not only harm individual job seekers but also perpetuate gender inequalities in society. Upholding ethical standards in employment contributes to social justice and equal opportunities for all.
- **Role of Regulatory Bodies:** Regulatory bodies play a crucial role in safeguarding rights and enforcing ethical standards. Prompt action and investigation are essential to address grievances and uphold ethical norms in corporate practices.

ALLEGED FORGERY BY IAS OFFICER

CONTEXT:

In a significant development concerning the integrity of civil services examinations, the Union Public Service Commission (UPSC) has initiated legal action against **Puja Manorama Dilip Khedkar**, a probationary IAS officer, for **alleged forgery and misrepresentation** in obtaining disability certificates. The case has brought to light crucial **ethical dilemmas and challenges** within the framework of **public service and governance**.

Ethical Concerns Raised

- **Integrity and Honesty in Public Service:** The cornerstone of public service is integrity. Civil servants are expected to uphold the highest standards of ethical conduct, including honesty in all professional dealings. The alleged actions of Ms. Khedkar, if proven true, challenge this fundamental principle and undermine public trust in the selection process.
- **Fairness and Transparency:** The Civil Services Examination is designed to be fair and transparent, providing equal opportunities to all aspirants. Any attempt to manipulate the process through fraudulent means not only disadvantages honest candidates but also compromises the credibility of the entire system.
- **Accountability and Responsibility:** As future administrators entrusted with significant responsibilities, probationary IAS officers are expected to demonstrate accountability for their actions. They are role models for ethical behavior and are accountable to the public they serve, their colleagues, and the institutions they represent.
- **Legal and Regulatory Compliance:** Upholding the rule of law is crucial in public administration. The filing of an FIR by the UPSC against Ms. Khedkar underscores the importance of adherence to legal and regulatory frameworks. It serves as a reminder that unethical conduct will be met with stringent legal consequences.

Implications for Governance and Policy

The case highlights the broader implications for governance and policy formulation:

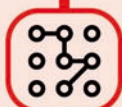
- **Reform in Examination Protocols:** There may be a need for stricter verification protocols to prevent such instances of fraud in future examinations. Ensuring the authenticity of disability certificates and other supporting documents should be a priority.
- **Enhanced Ethical Training:** Training modules focusing on ethics and integrity could be integrated into the curriculum for civil servants. This would reinforce the importance of ethical behavior and equip them with the skills to navigate ethical dilemmas effectively.
- **Public Trust and Confidence:** Upholding the integrity of the civil services examination is essential for maintaining public trust in the credibility of the bureaucracy. Transparent investigations and swift actions against misconduct are crucial in this regard.

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SECTION -C

QUICK BYTES

KOYA & KONDA REDDI TRIBES

CONTEXT:

Above 170 villages have been affected by the Godavari flood in the four mandals of Chintoor Agency in the Alluri Sitharama Raju (ASR) district in Andhra Pradesh mostly inhabited by Koya and Konda Reddi tribes.

About:

Koya Tribes:



- Koya tribe is a tribe found in the Papikonda hill range, near the Godavari and Sabari rivers in Andhra Pradesh.
- They are also found in Telangana where they are the second largest tribal community.
- The Koyas commonly refer to themselves as Dorala Sattam (Lords group) and Putta Dora (Original lords).
- **Language:** Telugu (Koyi)

Religion:

- ▶ Many Koya deities are female, the most important being the "mother earth".
- ▶ They also worship a number of Hindu gods Lord Bhima, Korra Rajulu, Mamili, and Potaraju.

Konda Reddi Tribes:



- ▶ Konda Reddi is a Particularly Vulnerable Tribal Group inhabiting the banks of the river Godavari and also in the hilly forest tracts of Godavari and Khammam districts of Andhra Pradesh.
- ▶ Their mother tongue is Telugu in its purest and chaste form, with a unique accent.
- ▶ Subdivisions:
 - ▶ The Konda Reddy tribe is divided into exogamous septs for regulating matrimonial relations.
 - ▶ **Language:** Like other Telugu-speaking people, their surnames are prefixed to individual names.

Religion:

- ▶ The primary religion practiced by the Konda Reddi is Folk Hinduism, characterized by local traditions and cults of local deities worshiped at the community level.

ABHAYA MUDRA



CONTEXT

'Abhaya mudra' or the motif of an open palm, has become a topic of discussion in India's Parliament.

What is Abhaya Mudra?

- In Sanskrit, "mudra" translates to 'seal', 'mark', or 'gesture'. It holds deep cultural significance in Hinduism, Buddhism, and Jainism, influencing various aspects like **iconography, dance forms, yoga, tantra, and martial arts**.
- **Abhaya Mudra:** This specific mudra represents an open palm gesture symbolizing fearlessness and protection.
- It can be widely seen in **Hindu, Buddhist, and Jain iconography**, it is a powerful symbolic gesture.
- The Abhaya Mudra typically involves the right hand raised to shoulder height, with the palm facing outward and fingers upright. The left hand may rest in the lap or perform another gesture simultaneously.
- **Symbolic Meaning:** Known for its **protective qualities**, the Abhaya Mudra signifies the dispelling of fear and offers reassurance to those who perceive it.
- In Indian culture, the Abhaya Mudra serves as a timeless emblem of courage and safeguarding, depicted prominently in religious art and practices across various traditions.

Other Important Mudras (in Buddhism)

Mudras	Symbol
<p>Dhyana Mudra</p> <p>The gesture of absolute balance, of meditation. The hands are relaxed in the lap, and the tips of the thumbs and fingers are touch each other.</p>	
<p>Dharmachakra Mudra</p> <p>The gesture of teaching, usually interpreted as turning the Wheel of Law. The hands are held level with the heart, the thumbs and index fingers form circles.</p>	

Vitarka Mudra (Intellectual argument discussion)

The circle formed by the thumb and index finger is the sign of the Wheel of Law.



Tarjani Mudra (Threat warning)

The extended index finger is pointed at the opponent.



Jnana Mudra (Teaching)

The hand is held at chest level and the thumb and index finger again form the Wheel of Law



Karana Mudra

Gesture with which demons are expelled



Uttarabodhi Mudra (The gesture of Supreme Enlightenment)

Two hands placed together above the head with the index fingers together and the other finger intertwined.



THE SANTHAL HUL OF 1855

CONTEXT

June 30 marks the 169th anniversary of the Santhal Hul, one of the earliest uprisings against British colonial oppression in India.

About the Uprising

- The Santhal Hul (revolution) was a tribal revolt against the atrocities of the upper-caste landlords, moneylenders, traders, police, and administrative officials from the East India Company in the erstwhile Bengal presidency.

- **Led by:** Murmu brothers — **Sidho, Kanho, Chand, and Bhairav** — along with sisters **Phulo and Jhano**.
- The Santhals, originally settled in areas of present-day Jharkhand, faced severe exploitation following their displacement from various regions under British rule.
- Promised lands for settlement and agriculture, they instead experienced **land-grabbing and bonded labor practices known as begari**.

■ The Uprising

- ▶ In response to these injustices, around 60,000 Santhals rallied against the East India Company in 1855.
- ▶ Their resistance was guided by their belief in Thakur Bonga, their spiritual deity.
- ▶ Engaging in guerrilla warfare, they fought for nearly six months before the British finally suppressed the revolt in January 1856.
- ▶ The brutal aftermath saw over 15,000 Santhals killed and thousands of villages destroyed.
- **Legacy and Impact:** Despite the suppression, the Santhal Hul left an enduring impact. The sacrifices of leaders like

Sidho and Kanho Murmu catalyzed legislative changes aimed at protecting Adivasi rights.

- The Santhal Pargana Tenancy Act of 1876 (SPT Act) and the Chhotanagpur Tenancy Act of 1908 (CNT Act) were direct outcomes of these struggles.
 - ▶ **The Santhal Pargana Tenancy Act of 1876 (SPT Act):** Prohibits the transfer of Adivasi lands (urban or rural land) to non-Adivasis, was the result of the Hul. The land can only be inherited as per the Act, thus retaining the rights of Santhals to self-govern their land.
 - ▶ **The Chhotanagpur Tenancy Act, (CNT Act)** enacted by the British in 1908 a result of the **Birsa Movement**, allows land transfers within the same caste and certain geographical areas with the approval of the District Collector. This Act also restricts the sale of Adivasi and Dalit land, while allowing land transfers between Adivasi individuals from the same police station and Dalits in the same district.

Major Tribal Uprisings

Year	Tribal Uprising	Features
1776	Chuar Uprising	It was initiated by indigenous tribespeople of Midnapore, in response to land revenue demands and economic hardships.
1818-1831 and 1913	Bhil Uprising	The Uprising took place in the Western Ghats as a resistance against the rule of the Company. It resulted in the formation of Bhil Raj. In 1913, under the leadership of Govind Guru, the Bhil community reorganized and continued their fight for the establishment of Bhil Raj.
1820-37	Ho and Munda Uprisings	The Ho and Munda Uprisings were initiated by the Ho tribals under the leadership of Raja Parahat in the Singhbhum and Chottanagpur regions. These uprisings were in response to the implementation of a new farming revenue policy. Over time, the Ho uprising transformed into the Munda rebellion.
1822-29	Ramosi Uprising	It was led by the Ramosi tribals residing in the Western Ghats. Under the leadership of Chittur Singh, they revolted against the British occupation of the region.
1829	Koli Uprising	The Uprising witnessed multiple revolts by the tribal communities of Gujarat and Maharashtra. They rebelled against the control of the East India Company in the years 1829, 1839, and once more during the period of 1844-48.
1832	Kol Rebellion	It occurred when the tribal communities of Chottanagpur, led by Buddho Bagat, revolted against the British colonial rule and oppressive money lenders.
1837-56	Khond Rebellion	The Rebellion saw the tribal communities residing in the hills from Tamil Nadu to Bengal, led by Chakra Bisoi, rise up against the interference in their tribal customs and the imposition of new taxes.
1899-1900	Munda Rebellion	It involved the tribal population of the Chotanagpur area who, under the leadership of Birsa Munda, revolted against the 'Dikus' (a term used to refer to outsiders or non-tribal people).

Year	Tribal Uprising	Features
1879-80	Koya Uprising	The Uprising witnessed the tribal communities of the eastern Godavari region, led by Tomma Sora and Raja Annantyar, rebelling against the oppressive actions of the police and moneylenders.
1910	Bastar Revolt	The Revolt was staged by the tribal population of Jagdalpur as a protest against the imposition of new feudal and forest levies.
1921-22	Chenchus Uprising	The Uprising took place when the tribal community of Nallamalla Hills, led by K. Hanumanthu, revolted against the forest laws imposed by the British authorities.
1922-24	Rampa Rebellion	It was led by Alluri Sitaraman Raju, a member of the Koya tribe in Andhra Pradesh. The rebellion was launched in response to British interference in the region.

HEAT DOME

CONTEXT:

In June 2024, the Northeastern United States experienced an unusually early and prolonged heat wave caused by a weather phenomenon known as a **heat dome**. This heat dome, linked to a stagnant high-pressure system in the atmosphere, trapped warm air beneath it, preventing weather systems from moving through and resulting in extreme heat conditions.

What is a Heat Dome?

- A heat dome forms when warm air becomes trapped under a stationary **high-pressure area** in the atmosphere.
- This phenomenon blocks the movement of weather patterns, allowing more sunlight to reach the Earth's surface.

- Consequently, this intensifies warming and drying of the soil, reduces evaporation, and inhibits the formation of rain clouds.
- The **longer a heat dome persists in one location, the hotter conditions** become each passing day.
- Heat domes typically last from several days to a few weeks and are influenced by the behavior of the **jet stream**.



FACT BOX

Jet Stream

- A jet stream is a **fast-moving, narrow air current flowing west to east** around the globe in the **upper atmosphere**.

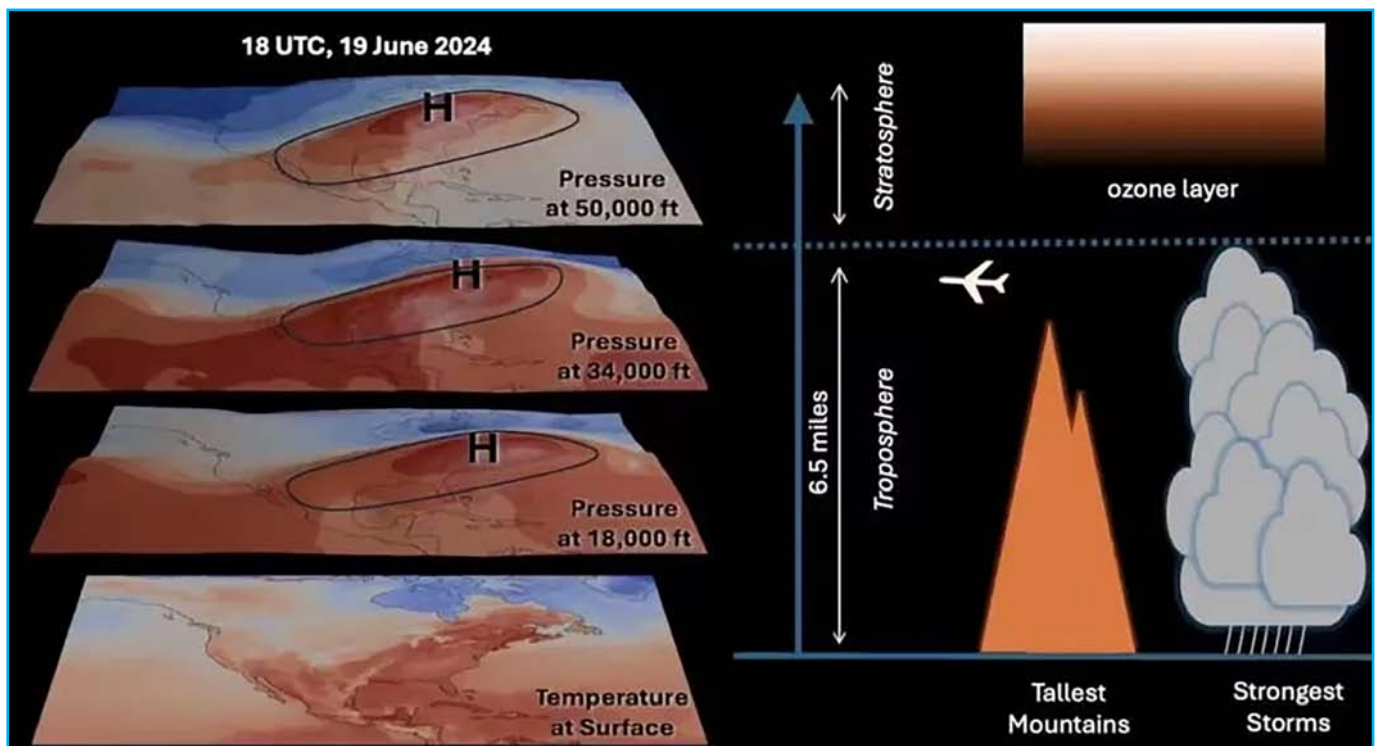
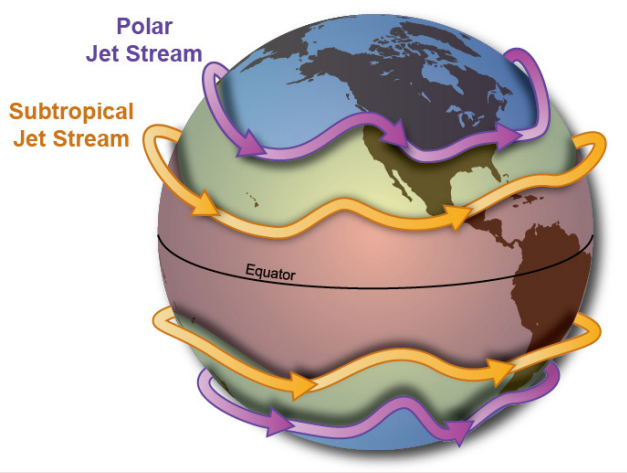


FIGURE: 01

- It follows a **wave-like pattern** that oscillates north and south. When these waves elongate and slow down, they can become stationary, causing high-pressure systems like heat domes to become stuck in place.
- Jet streams typically travel at speeds ranging from 129 to over 443 kilometers per hour (80 to 275 miles per hour), with greater speeds during winter due to temperature differences between air currents.



MASHCO PIRO

CONTEXT:

INDIGENOUS RIGHTS NGO Survival International has released rare pictures of the **Mashco Piro** tribespeople in south-eastern Peru, one of the world's 100-odd uncontacted tribes.

About:

- Largest uncontacted tribe with an estimated population of over 750.
- Located in the Amazon rainforest of southeastern Peru.
- Madre de Dios Territorial Reserve was created in 2002 for their protection.

Uncontacted Tribes

- Groups with no peaceful contact with mainstream society, who avoid interactions with outside world

Notable Uncontacted Tribes:

- Sentinelese (Andaman Islands, India)
- Kawahiva (Brazil)
- Ayoreo (Paraguay-Bolivia border)

Challenges

- Encroachment:** Deforestation and resource extraction in traditional territories
- Health Risks:** Lack of immunity to common diseases, potential for devastating epidemic.

- Brazil has the largest number of uncontacted tribes, with at least 77 confirmed groups

BANNERGHATTA NATIONAL PARK

CONTEXT:

South India's first and the country's largest leopard safari was inaugurated at the Bannerghatta Biological Park (BBP).

About:

- It is a national park in India, located near Bangalore, Karnataka. It was founded in 1970 and declared as a national park in 1974.
- In 2002, a small portion of the park became a zoological garden, the Bannerghatta Biological Park.
- The park has a hilly terrain of granite sheets under moist deciduous forest valleys and scrubland on higher areas.
- Flora:** Include Narcissus latifolia, Schleicheria oleosa, Sandalwood, Neem, Tamarind, Bamboo, Eucalyptus etc.
- Fauna:** Prime habitat for several species, including the endangered Asian Elephant, Indian gaur, Tiger, Sambar deer, Spotted deer, Leopard, Wild dog, Wild pig, Sloth bear, Common mongoose, Pangolin, Slender loris, Black-naped hare, etc.

PANTANAL

CONTEXT

This year, the Pantanal, the **world's largest tropical wetland**, has experienced unprecedented fires due to severe water loss. A recent study highlighted that the area covered by water in 2023 was 61% below average, significantly affecting the ecosystem.

Key Points:

- Pantanal's Water Loss:** In 2023, only 2.6% of the Pantanal was covered by water, a drastic reduction compared to previous years. This has led to **extreme dry conditions**, making the region prone to wildfires.
- Impact on Biodiversity:** The Pantanal is renowned for its biodiversity, hosting species like jaguars and capybaras. The drying has endangered these species and their habitats.
- Amazon and Other Biomes:** The Amazon also faced challenges with a reduced water surface, impacting fish and dolphin populations due to severe droughts. The **Pampa grasslands and the Cerrado** showed mixed results in water surface changes.

About Pantanal (Brazil, South America)

- The Pantanal is the world's largest freshwater wetland, a seasonally flooded plain fed by the tributaries of the **Paraguay River**. At 68,000 square miles, it is more than 20 times the size of the Everglades.



FIGURE: 02

- **Location:** Located in the upper Paraguay River basin, the Pantanal straddles Brazil's border with Bolivia and Paraguay. About 80 percent of the Pantanal is in Brazil. It sprawls across three countries—**Bolivia, Brazil, and Paraguay.**
- **Major Habitat Type:** Flooded Grassland Savanna
- The Pantanal is also one of the world's most productive habitats.
- **Flora and Fauna:** Iconic species found in the Pantanal include the jaguar (the highest density in the world), giant otters, capybaras (the largest rodent species), anteaters, tapirs, caimans, and a diverse array of birds such as toucans and jabiru storks.
- This mega hydroelectric project, initiated by the **National Hydroelectric Power Corporation (NHPC)**, aims to generate 11,000 MW of power, impacting several villages.
- The Upper Siang project is designed to harness the Brahmaputra's main tributary, known as the **Siang** in Arunachal Pradesh and **Yarlung Tsangpo** in Tibet.
- The dam is touted as **India's largest hydropower initiative** and is strategically positioned to counter similar projects being developed upstream by China.

UPPER SIANG MULTIPURPOSE STORAGE PROJECT

CONTEXT:

In Arunachal Pradesh's Upper Siang district, the proposed **Upper Siang Multipurpose Storage Project** on the **Siang River** has sparked significant controversy and resistance among local communities.

About Upper Siang Multipurpose Storage Project



FACT BOX

- The Siang originates near Mount Kailash in Tibet, where it goes by the name of **Tsangpo**.
- It traverses more than 1,000 km eastward, before forming a horseshoe bend around the towering Namcha Barwa peak, and enters Arunachal Pradesh as the Siang.
- Further downstream, in Assam, the river becomes the **mighty Brahmaputra**.

(See Figure No. 3)



FIGURE: 03

TEESTA RIVER

CONTEXT

West Bengal Chief Minister Mamata Banerjee has raised concerns over the **Teesta water issue and the Farakka Treaty**. Banerjee pointed out the lack of water in Teesta during summer and its overflow in the monsoon, and also highlighted the need to renew the Farakka Treaty.

About Teesta River



- The Teesta River originates from the **Pahunri Glacier**, over 7,068 meters high in the Sikkim Himalayas.
- It flows southward through Sikkim, gathering speed through gorges and rapids.
- As it passes **Rangpo**, the Rangpo River joins it, marking the border between Sikkim and West Bengal up to Teesta Bazaar.
- Near the Teesta Bridge, it meets its **main tributary**, the **Rangpo River**, and then turns southward into West Bengal.

- From there, the river continues south, crossing into Bangladesh near **Fulchori**. It eventually merges with the Brahmaputra River at **Teestamukh Ghat** in Bangladesh's Rangpur district.
- The Teesta River is known for its turbulent flow and carries a significant amount of sediment and boulders. Its basin covers 9,855 sq.km in India, primarily in Sikkim (72.43%) and West Bengal (27.57%). The river itself is 414 km long with a total drainage area of 12,540 sq.km, spanning across India and Bangladesh.



FACT BOX

Farakka Treaty

- In 1996, the treaty on the sharing of the Ganges waters at Farakka was intended to end the differences between Bangladesh and India.
- Its principal objective was to determine the amount of water to be released by India.

SUTLEJ RIVER

CONTEXT:

Supreme Court Judge raises concerns about Sutlej being reduced to a rivulet due to constructions.

About:

- The Sutlej River originates from Lake **Rakshastal** in Tibet, near Mount Kailash. It traverses through the Himalayas, entering India through the **Shipki La** pass in Himachal Pradesh, and finally merges with the Chenab River in Pakistan to form the Panjnad River, which eventually joins the Indus River.

Indus-Sutlej River Basin



Map: 01

- It is also known as **Satadru**.
- Sutlej is an **antecedent** river, which existed before the Himalayas and entrenched itself while they were rising.
- The main tributary in India are Ravi and Beas.
- **Irrigation:** Supports extensive irrigation systems in Punjab, including the Sutlej-Yamuna Link Canal, Sirhind Canal, Bhakra Main Line and the Rajasthan canal.

HANNIBAL DIRECTIVE

CONTEXT

As Hamas raided southern Israel (October 7, 2023), the Israel Defence Forces (IDF) activated the "Hannibal Directive", a purported operational doctrine of using maximum force to ensure no soldiers are captured, even if it means sacrificing military and civilian lives, a media investigation has found.

What is Hannibal Directive?

- The Hannibal Directive is a secretive Israeli military policy aimed at preventing the capture of Israeli soldiers by using maximum force, even if it risks the soldiers' lives.

- It was created in 1986 after Hezbollah captured three Israeli soldiers in Lebanon, where Israel had a military presence.
- The directive allows the Israel Defense Forces (IDF) to take extreme measures to prevent soldiers from being taken captive, including using lethal force if necessary.
- Its purpose is to avoid situations where captured soldiers could be used in prisoner swaps, which can be politically sensitive and emotionally challenging for Israel.

GLOBAL BIOFUELS ALLIANCE

CONTEXT:

The Global Biofuels Alliance (GBA), launched by key G20 members including India, the US and Brazil in September 2023, is all set to get its diplomatic status, with New Delhi likely to sign a headquarters agreement with the agency soon.

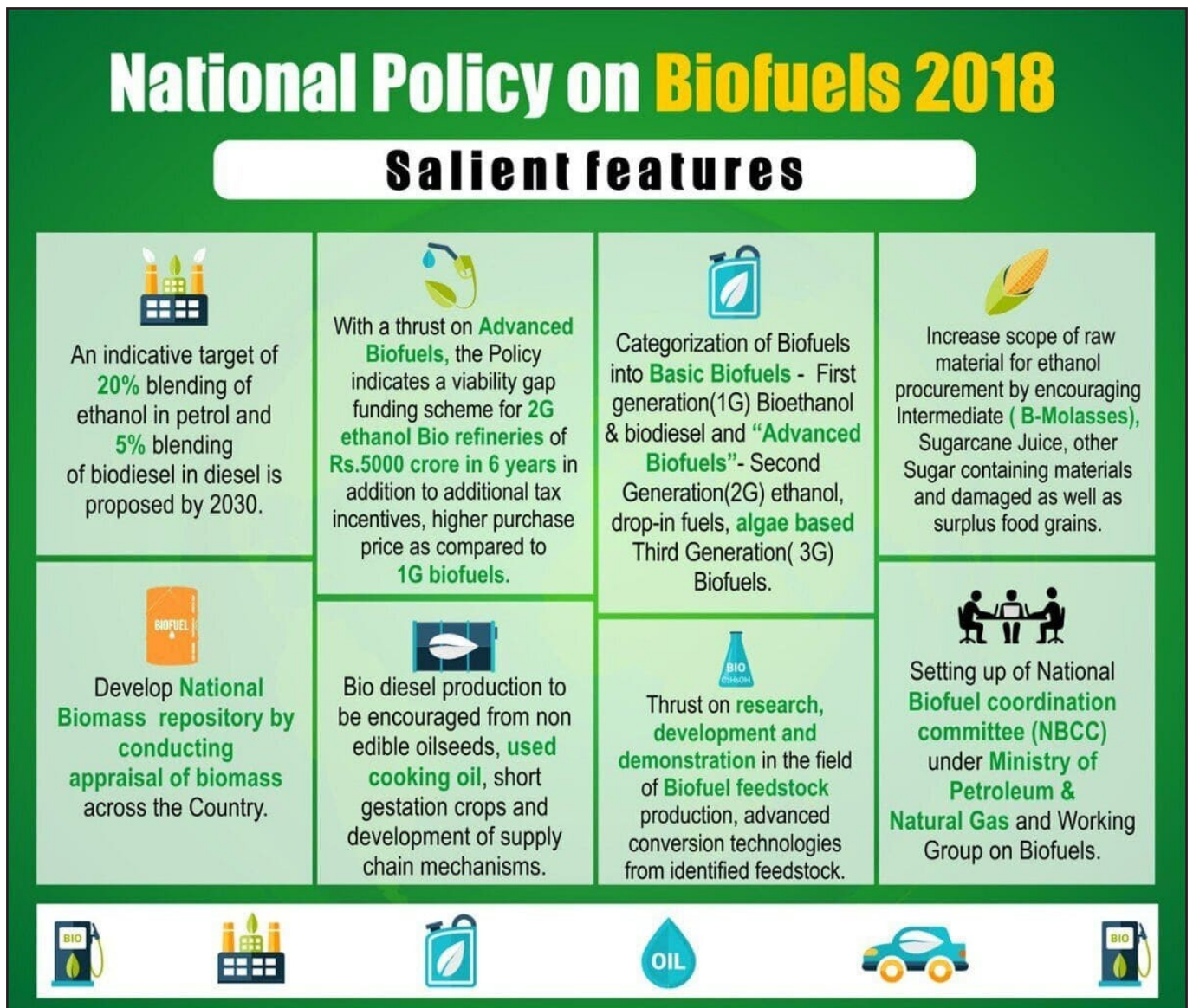


Figure: 04

About:

- GBA is an **India-led Initiative** to develop an alliance of Governments, International organizations and Industry to facilitate adoption of biofuels.
- **Objective:** Bringing together the **biggest consumers and producers of biofuels** to drive biofuels development and deployment, the initiative aims to position biofuels as a key to energy transition and contribute to jobs and economic growth.
- **Joining Members:** 19 countries and 12 international organisations have already agreed to join.
 - **G20 countries (07) supporting GBA:** Argentina, Brazil, Canada, India, Italy, South Africa, USA
 - **G20 Invitee Countries (04) supporting GBA:** Bangladesh, Singapore, Mauritius, UAE
 - **Non G20 (08) supporting GBA:** Iceland, Kenya, Guyana, Paraguay, Seychelles, Sri Lanka, and Uganda have agreed to be initiating members of GBA, and Finland.
 - **International organizations:** World Bank, Asian Development Bank, World Economic Forum, World LPG Organization, UN Energy for All, UNIDO, Biofutures Platform, International Civil Aviation Organization, International Energy Agency, International Energy Forum, International Renewable Energy Agency, World Biogas Association.

**FACT BOX****National Biofuel Policy**

- The policy is aimed at taking forward the indicative target of achieving 20% blending of biofuels with fossil-based fuels by 2030.
- The policy intends to ensure the adequate and sustained availability of domestic feedstock for biofuel production, increasing farmers' income, import reduction, employment generation and waste to wealth creation.
- This policy clearly exhibits the Centre's push towards **strengthening the energy infrastructure** of the country while promoting the agenda of sustainability.

(see figure no. 4 on previous page)

NEIGHBOURHOOD FIRST**CONTEXT:**

The **Union Budget 2024-25** has allocated significant funds under the **Ministry of External Affairs (MEA)** for aid to foreign countries, particularly focusing on India's neighbourhood and strategic partners. This allocation reflects India's continued emphasis on bolstering diplomatic ties and supporting developmental projects abroad.

Allocation Breakdown:**Neighbourhood Focus:**

- **Bhutan** emerges as the top recipient with an allocation of Rs 2,068.56 crore, slightly lower than the previous year's Rs 2,400 crore.
- **Nepal** receives Rs 700 crore, marking a notable increase from Rs 550 crore in the previous year's budget.
- **Maldives** retains its allocation at Rs 400 crore, consistent with the previous year despite diplomatic tensions.
- **Sri Lanka** sees an increase to Rs 245 crore from Rs 150 crore, aimed at supporting infrastructure and development projects.
- **Seychelles** receives Rs 40 crore, up from Rs 10 crore previously allocated.

Other Regional Allocations:

- **Afghanistan** maintains its allocation at Rs 200 crore.
- **The Chabahar port** project in Iran continues to receive Rs 100 crore, unchanged for the past three years.

Overall MEA Budget:

- The total Budget estimate for MEA for 2024-25 is Rs 22,155 crore, a significant increase from Rs 18,050 crore in the previous year.
- However, it falls short of the revised estimate of Rs 29,121 crore for the same fiscal, indicating adjustments in financial planning.

Purpose and Impact:

- India's aid and assistance programmes aim to strengthen bilateral and multilateral relations, enhance regional stability, and support infrastructure development in recipient countries.
- The allocations reflect strategic priorities and diplomatic efforts to maintain influence and cooperation in India's extended neighbourhood and beyond.

**FACT BOX****India's Neighbourhood First Policy**

- The policy was conceived in 2008.
- The country's Neighbourhood First Policy determines its engagement with neighbouring nations, including **Afghanistan, Bangladesh, Bhutan, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka**.
- The policy prioritises **improving physical, digital, and people-to-people connectivity within the region**, while also **boosting trade and commerce**.

Major initiatives

- **SAARC (South Asian Association for Regional Cooperation)**
- BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation)

Infrastructure projects

- **BBIN Initiative (Bangladesh, Bhutan, India, Nepal):** Improving road and rail connectivity.
- **Kaladan Multi-Modal Transit Transport Project:** Connecting India with Myanmar and further with Southeast Asia.
- **Chabahar Port:** Developing a strategic port in Iran to improve connectivity with Afghanistan and Central Asia.

MULTILEVEL REGRESSION AND POST-STRATIFICATION (MRP) MODELLING

CONTEXT

As election campaigns intensify in Britain, the role of opinion polls, particularly those utilizing **Multilevel Regression and Post-stratification (MRP) modelling**, has gained prominence. MRP is employed by pollsters to estimate voting patterns at a local level based on national sample data.

What is MRP?

- Multilevel Regression and Post-stratification (MRP) is a **statistical technique** used by pollsters to predict voting behavior across different geographical areas.
- Unlike traditional polls that survey a few thousand respondents, MRP draws from tens of thousands of respondents, providing more granular insights into voter preferences.

Key Features of MRP:

- ▶ **Statistical Modelling:** Pollsters build models that analyze how voting intentions vary based on respondent characteristics such as age, income, education, and past voting history.
- ▶ **Post-stratification:** This involves adjusting survey data to match demographic characteristics of the population, ensuring accurate representation of various voter groups.
- ▶ **Local Level Estimations:** MRP allows for predictions at a local level, which is crucial for understanding electoral dynamics in different regions.

Opinion Poll in India

- Opinion polls are conducted well before voting day to gauge public sentiment and voting intentions.

- **Sampling Methods:** The method include random, stratified, and cluster sampling to ensure diverse representation of the electorate.
- **Limitations of Opinion Polls:**
 - ▶ **Sampling Errors:** Inaccuracies due to sampling methods and size.
 - ▶ **Response Biases:** Potential distortions in results based on how questions are framed or answered.
 - ▶ **Volatility:** Voter behavior can change rapidly, impacting the reliability of predictions.

Exit Polls

- They are conducted right after voters leave polling stations to predict election outcomes.
- They are often more reliable than pre-election polls due to proximity to actual voting behavior.
- **Limitations of Exit Polls:**
 - ▶ **Sampling Biases:** Challenges in capturing diverse voter demographics due to timing and location constraints.
 - ▶ **Legal Restrictions:** Some regions prohibit early release of results to prevent influencing remaining voters.

OPERATION NANHE FARISHTEY

CONTEXT:

Operation Nanhe Farishtey, launched by the Railway Protection Force (RPF), aims to rescue children in distress found on railway premises across India. This initiative has gained significant attention for its impact on child safety and welfare.

About:

- The Railway Protection Force (RPF) launched Operation Nanhe Farishtey to rescue children found in distress on railway premises.
- The operation covers railway stations and trains across India, emphasizing prompt identification and rescue of vulnerable children.
- Hundreds of children are rescued monthly under this operation, with a focus on immediate safety and long-term welfare.

NITI AAYOG'S SAMPOORNATA ABHIYAN

CONTEXT

In a concerted effort to achieve comprehensive development across India's aspirational districts, NITI Aayog has launched the ambitious **Sampoornata Abhiyan**. This nationwide campaign aims to address key social sector indicators through targeted interventions in 500 aspirational blocks and 112 aspirational districts.

About Sampoonata Abhiyan

- Sampoonata Abhiyan is a focused initiative aimed at achieving saturation in 12 critical social sector indicators.
- These indicators encompass areas crucial for holistic development, including **health, nutrition, agriculture, social development, and education**.
- The campaign is designed to run for three months, from June to September, engaging district and block officials alongside elected representatives to organize a series of awareness and developmental activities.
- **It targets 12 key social sector indicators:**
 - ▶ **Health and Nutrition:** Health camps and *Paushtik Aahar Melas* for better healthcare and nutrition outcomes.
 - ▶ **Agriculture and Rural Development:** Agricultural exhibitions and sustainable farming practices promotion.
 - ▶ **Social Development:** *Gram Sabhas, Nukkad Nataks*, and cultural events to foster community engagement.
 - ▶ **Education and Skill Development:** Workshops and competitions to enhance educational and vocational skills.



FACT BOX

About Aspirational Districts Programme

- **Launched in:** 2018
- It aims to effectively and quickly transform 112 most under-developed districts across India.
- Aspirational Districts are those districts affected by poor socio-economic indicators across the country.
- **NITI Aayog** anchors this programme.

NEW PROVISIONS FOR POLICE OFFICER

CONTEXT

The new criminal laws have become effective from July 1. SOPs have been issued by the **Bureau of Police Research and Development (BPRD)** to guide police officers in implementing the new provisions.

Key-highlights of the new Provisions

◦ Rules for Registering FIRs:

- ▶ Police must register an FIR (First Information Report) regardless of jurisdiction issues ("zero FIR") and transfer it to the appropriate police station.

- ▶ FIRs can be filed orally, in writing, or electronically, which must be acknowledged within three days by the police.

Bharatiya Nagarik Suraksha Sanhita (BNSS) has a direct provision under **Section 173**; non-registration of FIRs may attract penal action under various sections.

◦ Videography Requirements:

- ▶ The BNSS mandates videography during a search conducted by the police under **Section 185**; of the scene of crime (**Section 176**); and of the process of conducting a search of a place or taking possession of any property (**Section 105**).
- ▶ The **'eSakshya'** mobile app facilitates capturing geo-tagged and time-stamped photos and videos for legal integrity.

◦ Provisions on Arrest:

- ▶ Information about arrested persons must be prominently displayed at police stations and district control rooms.
 - ◆ **Section 37 of the BNSS** requires a police officer in every police station, not below the rank of Assistant Sub-Inspector, to be responsible for maintaining and prominently displaying information about the arrested persons.
- ▶ Special provisions govern the arrest of frail, sick, or elderly individuals, requiring higher-level approval and cautious use of handcuffs.
 - ◆ **Section 35(7) states** that the permission of an officer not below the rank of DySP is mandatory for arresting a person charged with an offence punishable for imprisonment of less than three years if such person is infirm or is above 60 years of age.

◦ Timelines and Procedures:

- ▶ **Section 184 (6):** Medical reports for rape victims must be forwarded to the investigating officer within seven days for submission to the magistrate.
- ▶ POCSO cases (Protection of Children from Sexual Offences) must be investigated within two months from the date of reporting.
- ▶ Chain of custody for electronic devices is crucial, with updates on investigation progress to be provided to informants or victims within 90 days.
- ▶ **Section 113 introduced in the Bharatiya Nyaya Sanhita (BNS)** defines what is a 'terrorist act' and imposes the duty on an officer, not below the rank of Superintendent of Police (SP), to decide whether to register a case under this Section or the UAPA.



FACT BOX

The New Criminal Laws

- Three new criminal laws came into effect from July 1, 2024. **The Bharatiya Nyaya Sanhita (BNS), the Bharatiya Nagrik Suraksha Sanhita (BNSS), and the Bharatiya Sakshya Adhiniyam (BSA)**, passed in Parliament will replace the Indian Penal Code (IPC), 1860, the Criminal Procedure Code (CrPC), 1973, and the Indian Evidence Act, 1872 respectively.
- The new law seeks to **replace the colonial-era sedition law** which was mainly used against Indian political leaders seeking independence from British rule.

Previous Act/Code	New Law
Indian Penal Code, 1860	Bharatiya Nyaya Sanhita (BNS)
Criminal Procedure Code, 1898	Bharatiya Nagrik Suraksha Sanhita (BNSS)
Indian Evidence Act, 1872	Bharatiya Sakshya Adhiniyam (BSA)

CLASSICAL LANGUAGES

CONTEXT:

The Central government’s Linguistics Expert Committee recommended tweaks in the criteria for granting classical status.

Current Status and Demands:

- Currently, India has six classical languages: **Tamil (declared in 2004), Sanskrit (2005), Kannada (2008), Telugu (2008), Malayalam (2013), and Odia (2014).**
- Current Criteria for Classical Language Status:**
 - High antiquity of its early texts/recorded history over a period of 1500-2000 years;
 - A body of ancient literature/texts, which is considered a valuable heritage by generations of speakers
 - The literary tradition be original and not borrowed from another speech community
 - The classical language and literature being distinct from modern, there may also be a discontinuity between the classical language and its later forms or its offshoots.
- Benefits:** Designated classical languages receive benefits such as
 - international awards for scholars
 - establishment of centers of excellence
 - creation of professional chairs in universities
- There have been demands from various states and literary circles, including Maharashtra, for classical status

for languages like Marathi, Bengali, Assamese, and Maithili.

- The demand for Marathi has been pending for over a decade despite multiple assurances from the Central government. In 2014, a committee chaired by **Prof. Ranganath Pathare** concluded that Marathi meets all criteria for classical language status.

PM-JANMAN SCHEME

CONTEXT:

The Union Cabinet has approved the ambitious **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN) scheme**, with a whopping budget of Rs 24,104 crore. The government also announced the **Pradhan Mantri Janjati Unnat Gram Abhiyan scheme** for improving the conditions of tribal communities.

About PM-JANMAN

- PM-JANMAN was announced on the birth anniversary of tribal leader **Birsa Munda**, celebrated as **Janjatiya Gaurav Diwas (November 15)**, in Jharkhand.
- This initiative is aimed at addressing the needs of **Particularly Vulnerable Tribal Groups (PVTGs)** across India, making it the **largest Central scheme** targeted at tribal communities in terms of financial outlay.
- The scheme will focus on various essential facilities including:
 - Housing:** Approximately 4.9 lakh pucca houses will be constructed at a cost of Rs 2.39 lakh per house.
 - Education:** Establishment of 500 hostels costing Rs 2.75 crore per unit, and setting up 2,500 Anganwadi centres.
 - Connectivity:** Installation of mobile towers in 3,000 villages and development of 8,000 km of road connectivity.
 - Health and Nutrition:** Ensuring access to healthcare through mobile medical units and wellness centres set up by the Ministry of Ayush.
 - Livelihood Opportunities:** Skill and vocational training initiatives by the Ministry of Skill Development and Entrepreneurship to promote sustainable livelihoods.
- Financial Allocation and Implementation:** The scheme is funded with Rs 15,336 crore from the Centre and Rs 8,768 crore from the states. It involves coordination among nine ministries to ensure effective implementation of various interventions aimed at uplifting PVTGs.

About Pradhan Mantri Janjatiya Unnat Gram Abhiyan

- Pradhan Mantri Janjatiya Unnat Gram Abhiyan** has been announced for 63,000 tribal villages, benefitting 5 crore tribals.
- The programme aims at achieving saturation coverage for tribal families in tribal-majority villages and aspirational districts.



FACT BOX

PVTGs in India

- There are 75 tribal communities across 18 states and the Union Territory of Andaman and Nicobar Islands identified as PVTGs, characterized by **backward social, economic, and educational indicators**.
- As per the 2011 Census, India has a **total Scheduled Tribe population of 10.45 crore**.
- According to data from the **Ministry of Tribal Affairs** and the 2011 Census, Odisha has the largest population of PVTGs at 8.66 lakh, followed by Madhya Pradesh at 6.09 lakh and Andhra Pradesh (which then included Telangana) at 5.39 lakh.
- The total PVTG population is more than 40 lakh.

Government's welfare outreach to ST communities

- Eklavya Model Residential Schools (EMRS)**, established to provide quality education to ST students in residential schools, were allocated Rs 6,399 crore.
- The **post-matric scholarship for ST students** also saw a rise in its allocation.
- PM DAKSH scheme**, which is aimed at skilling people from the SC and ST communities, saw its allocation increase from Rs 92.47 crore to Rs 130 crore.
- National Action for Mechanised Sanitation Ecosystem (NAMASTE) scheme**, aimed at eliminating manual scavenging by replacing it with mechanised cleaning of sewers, was allocated Rs 116.94 crore

Other schemes:

- PM Janjatiya Vikas Mission (PMJVM)
- National Overseas Scholarship Scheme for SCs

- Additionally, provisions are being made to include an additional three crore houses under the scheme across rural and urban areas.
- The recent budget has allocated Rs 82,576.57 crore to the Ministry of Housing and Urban Affairs for 2024-2025, marking an 8.03% increase from the previous year.

About Pradhan Mantri Awas Yojana (PMAY)

- Launched in:** 2015
- PMAY focuses on providing *pucca* houses with essential amenities to eligible beneficiaries in urban areas.
- The scheme has been instrumental in improving housing conditions and ensuring dignified living for millions.

Pradhan Mantri Gram Sadak Yojana (PMGSY)

- Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched in 2000 to provide connectivity to unconnected Habitations as part of a poverty reduction strategy.

EMPLOYMENT LINKED INCENTIVE

CONTEXT

The government will implement three schemes for 'Employment Linked Incentive', as part of the Prime Minister's package. These will be based on enrolment in the EPFO, and focus on recognition of first-time employees, and support to employees and employers.

About the Scheme

The government will implement following 3 schemes for 'Employment Linked Incentive':

- Scheme A: First Timers:** This scheme will provide **one-month wage** to all persons newly entering the workforce in all formal sectors. The direct benefit transfer of one-month salary in 3 instalments to first-time employees, as registered in the EPFO, will be up to Rs. 15,000. The eligibility limit will be a salary of Rs. 1 lakh per month. The scheme is expected to benefit 210 lakh youth.
- Scheme B: Job Creation in manufacturing:** This scheme will incentivize additional employment in the manufacturing sector, linked to the employment of first-time employees.
- Scheme C: Support to employers:** This employer-focussed scheme will cover additional employment in all sectors. All additional employment within a salary of Rs. 1 lakh per month will be counted.

REVAMPED PMAY 2.0

CONTEXT:

The Indian government has announced a significant boost to the housing sector through a revamped version of the Pradhan Mantri Awas Yojana (PMAY). The fourth phase of Pradhan Mantri Gram Sadak Yojana (PMGSY) to connect **25,000 habitations with all-weather roads is announced**.

About PMAY 2.0

- This initiative aims to address housing needs for poor and middle-class families in urban areas, with a massive budgetary allocation of Rs 10 lakh crore.
- Under PMAY 2.0, the government plans to benefit one crore families by providing affordable housing loans and interest subsidies.

ENEMY PROPERTIES

CONTEXT

Recently, the Union government has initiated e-auctions for many of the 12,611 identified enemy properties across India. This move aims to effectively utilize these assets while adhering to the legal framework provided by the **Enemy Property Act**.

What are Enemy Properties?

- Enemy properties refer to any assets—**immovable property, shares, debentures, etc.**—that belong to, are held by, or managed on behalf of an **enemy, enemy subject, or enemy firm**.
 - ▶ The term “enemy” here denotes countries (Pakistan, China) that have engaged in aggression or declared war against India.
- **Enemy Property Act, 1968:** The Act was enacted following the Indo-China and Indo-Pak conflicts of 1962 and 1965. It stipulated that descendants of individuals who migrated to Pakistan or China would forfeit any rights of succession to their ancestors’ properties in India.
 - ▶ **Purpose:** The primary objective of the Act is to regulate and take control of properties owned by individuals who moved to Pakistan or China after the wars.
 - ▶ **Key Amendments of 2017:** Over time, the Act has undergone several amendments, the most recent being the Enemy Property (Amendment and Validation) Act in 2017.
 - ◆ The 2017 amendment expanded the definition of “enemy subject” and “enemy firm” to include legal heirs and successors of enemies, irrespective of their nationality.
 - ◆ It also established that once a property is declared as enemy property, it retains that classification.

PRADHAN MANTRI SCHOOLS FOR RISING INDIA (PM-SHRI) SCHEME

CONTEXT:

Following the refusal of three states to participate in the **PM-SHRI scheme**, the Union government has decided to halt funds allocated to these states under the **Samagra Shiksha Abhiyan (SSA)**. The SSA is a flagship program that supports efforts to improve quality and inclusive education across the country.

About PM-SHRI Scheme

- The **Pradhan Mantri Schools for Rising India (PM-SHRI) scheme** is a comprehensive initiative aimed at enhancing the quality of education in government schools across India.
- Its goal is to transform these schools into model institutions that demonstrate the implementation of the **National Education Policy (NEP) 2020**.

- The scheme targets upgrading over 14,500 government schools to serve as exemplars of 21st-century educational practices.

Scheme Details

- ▶ **Scope:** The PM-SHRI scheme covers centrally operated schools, state government-run schools, Kendriya Vidyalayas (KVs), and Navodaya Vidyalayas (NVs).
- ▶ **Financial Allocation:** With a budget exceeding Rs 27,000 crore for the next five years, the scheme is funded with the Centre bearing 60% of the financial burden, while states contribute the remaining 40%.
- ▶ **Objectives:** It aims to equip students with 21st-century skills, making them “future-ready” through high-quality education.



FACT BOX

About Samagra Shiksha Abhiyan (SSA)

- Samagra Shiksha Abhiyan (SSA) is an **Integrated Centrally Sponsored Scheme** for School Education.
- It is an overarching scheme for the school education sector extending from pre-school to class XII and aims to ensure inclusive and equitable quality education at all levels of school education.
- The scheme treats school education as a continuum and is in accordance with **Sustainable Development Goal for Education (SDG-4)**.

BHARAT BILL PAYMENT SYSTEM

CONTEXT

In order to centralize and streamline the bill payment process across India, the Reserve Bank of India (RBI) has mandated that all banks process **credit card bill payments** through the **Bharat Bill Payment System (BBPS)**.

What is Bharat Bill Payment System?

- **Developed by:** National Payments Corporation of India (NPCI)
- The Bharat Bill Payment System (BBPS) is a unified platform to streamline and centralize the process of paying bills across India.
- BBPS facilitates bill payments through a wide network that includes bank branches, online portals, mobile apps, and other digital channels.
- This system is designed to make bill payments convenient and efficient for both businesses and customers by offering various payment methods and ensuring prompt settlements.

Significance:

- ▶ Unified Platform for All Payments
- ▶ Convenient and User-Friendly
- ▶ Timely Reminders
- ▶ Enhanced Security
- ▶ Multiple Payment Modes



FACT BOX

National Payments Corporation of India (NPCI)

- It is an umbrella organisation for operating retail payments and settlement systems in India
- NPCI is an initiative of **Reserve Bank of India (RBI) and Indian Banks' Association (IBA)** under the provisions of the **Payment and Settlement Systems Act, 2007**, for creating a robust Payment & Settlement Infrastructure in India.
- It is a **"Not for Profit" Company** under the provisions of **Section 25 of Companies Act 1956 (now Section 8 of Companies Act 2013)**.
- **Important introduction:** RuPay, Immediate Payment Service (IMPS), National Automated Clearing House (NACH), Aadhaar Payment Bridge (APB) System, Aadhaar enabled Payment System (AePS), National Financial Switch (NFS), Unified Payments Interface (UPI), National Electronic Toll Collection (NETC)

PETRODOLLARS

CONTEXT:

Recently, the **US-Saudi Arabia petrodollar deal**, which began in 1974, has come to an end after 50 years. This agreement was crucial as it involved Saudi Arabia selling oil exclusively for US dollars, thus strengthening the dollar's role in global finance.

About Petrodollars:

- Petrodollars are US dollars earned by **oil-exporting nations** through the sale of crude oil.
- This arrangement began after the US made a deal with Saudi Arabia and other OPEC countries to stabilize oil prices and ensure oil transactions were conducted in US dollars.
- **Background:** Initially, the US dollar became the **world's main reserve currency** under the **Bretton Woods Agreement** after **World War II**. This system tied the **dollar to gold**, ensuring stability in global trade.
- However, in 1971, President Nixon ended this gold backing, leading to **floating exchange rates** and economic uncertainties.
- Following the **Yom Kippur War in 1973**, OPEC imposed an oil embargo, causing oil prices to surge. In response,

the US negotiated with Saudi Arabia and OPEC to ensure oil sales in dollars, thus establishing the petrodollar system. In return, the US provided military and economic support.

Impact of Ending the Petrodollar Deal:

- Saudi Arabia can sell oil for currencies like **yuan, euros, rubles, and yen**, and may even consider digital currencies such as **Bitcoin**.
- This shift could encourage more countries to use **alternative currencies for global trade**.
- **The decline in global demand for the US dollar** might lead to **higher inflation, interest rates, and a weaker bond market in the US**.

MANUFACTURING PURCHASING MANAGERS' INDEX

CONTEXT

Despite having elevated inflationary pressures, India's manufacturing activity in June witnessed a rebound, thanks to strong demand leading to the fastest rate of hiring in more than 19 years. The seasonally adjusted HSBC India Manufacturing Purchasing Managers' Index or PMI increased from 57.5 in May to 58.3 in June, indicating a sharper improvement in business conditions. In PMI parlance,

- print above 50 means expansion
- while, a score below 50 denotes contraction

What is manufacturing PMI?

- Manufacturing PMI, or Purchasing Managers' Index, is an economic gauge derived from monthly surveys of companies.
- It assesses business conditions in manufacturing and services sectors.

Types of PMI:

- ▶ Manufacturing PMI
- ▶ Services PMI
- PMI helps determine if conditions are expanding, contracting, or stable, offering insights into current and future economic health.
- **Variables:** For manufacturing PMI, surveys are sent to manufacturing firms with factual questions about key areas: new orders (30%), output (25%), employment (20%), suppliers' delivery times (15%), and stock levels (10%).
 - ▶ A PMI number above 50 indicates growth, below 50 signals contraction.
- Started in 1948 by the Institute for Supply Management, PMI is produced globally.
- It's a leading indicator, often released before GDP data, providing early signals about economic trends. Investors and businesses use PMI to gauge economic conditions and make informed decisions.

BASE YEAR UPDATE

CONTEXT:

The updated new base year for national accounts and other macro-indicators is expected to come into effect from January-February 2026, coinciding with the first and second advance estimates of national income for FY26.

What is base year?

- The base year for national accounts and macro-indicators such as GDP, CPI, WPI, and IIP serves as a benchmark to measure economic performance and inflation trends accurately.
- Previous Base Year: India's last update was in January 2015, setting **2011-12 as the base year**, replacing the older 2004-05 base year. This update was in line with **NSC recommendations** for periodic revisions.
- Establishment of ACNAS: The Ministry of Statistics and Programme Implementation has set up the **Advisory Committee on National Accounts Statistics (ACNAS)**. ACNAS will advise on the selection of the new base year for GDP and ensure alignment with other macro-indicators.
 - ▶ The new base year is slated to take effect from January-February 2026. This timeline coincides with the release of the first and second advance estimates of national income for FY26, ensuring a seamless transition.
- The development comes at a time when the government is planning to update the base year for major macro-indicators such as:
 - ▶ Gross Domestic Product (GDP)
 - ▶ wholesale price index (WPI) used for wholesale inflation
 - ▶ consumer price index (CPI) used to determine consumer inflation
 - ▶ index of industrial production (IIP) used for calculation of industrial growth

Important Concepts

- **GDP (Gross Domestic Product):** GDP measures the total monetary value of all finished goods and services produced within a country's borders in a specific time period (usually annually or quarterly). It is a key indicator of the economic health and size of a country's economy.
- **WPI (Wholesale Price Index):** The WPI measures and tracks changes in the price of goods traded in bulk by wholesale businesses. It is used to calculate inflation at the wholesale level and serves as an indicator of cost pressures in production.
- **CPI (Consumer Price Index):** The CPI measures changes in the prices paid by consumers for a basket of goods and services. It is a crucial indicator of inflation as experienced by households and is used to adjust income and assess economic policies.

- **IIP (Index of Industrial Production):** The IIP measures the changes in the volume of production in the industrial sector of an economy over a specific period. It provides insights into the growth or contraction of industrial output, including manufacturing, mining, and electricity generation.

MUMBAI-AHMEDABAD BULLET TRAIN PROJECT

CONTEXT

The Mumbai-Ahmedabad bullet train is expected to begin operations in Gujarat by 2027 end and will later be extended to Maharashtra, according to the National High Speed Rail Corporation Limited (NHSRCL).

About Mumbai-Ahmedabad Bullet Train Project:

- The foundation stone for the Mumbai-Ahmedabad bullet train project was laid in 2017.
- **Speed and Distance:** The bullet train will zip along at 320 kmph, covering the 508.17 km distance between Mumbai and Ahmedabad in just about two hours.
- **Cost and Completion:** Estimated at Rs 1.65 lakh crore, the project is slated for completion by 2028.
- **National High-Speed Rail Corporation Limited:** Established under the Companies Act, 2013, NHSRCL aims to finance, construct, maintain, and manage high-speed rail corridors across India.
- **The Need for High-Speed Rail**
 - ▶ **Challenges of Indian Railways:** With over 67,415 route km, Indian Railways forms the backbone of the nation's transport system. However, overcrowding on main routes, with some operating at 150% capacity, has slowed down travel speeds and shifted traffic to less efficient road transport.
 - ▶ **Logistical Constraints:** Congestion on rail routes increases turnaround times for goods, impacting manufacturing efficiency and competitiveness.

(see figure no. 5 on next page)

NABARD LAUNCHES AGRI FUND, 'AGRI-SURE'

CONTEXT

The **National Bank for Agriculture and Rural Development (NABARD)** has announced the launch of a Rs 750-crore **agri fund**, dubbed '**Agri-SURE**', to promote investment in innovative and technology-driven initiatives in agriculture and allied areas. The fund aims to support startups and rural enterprises, driving sustainable growth and development in the agricultural sector.

About Agri-SURE

- Agri-SURE is a fund launched by **NABVENTURES**, a subsidiary of NABARD, with an initial corpus of Rs 750 crore.

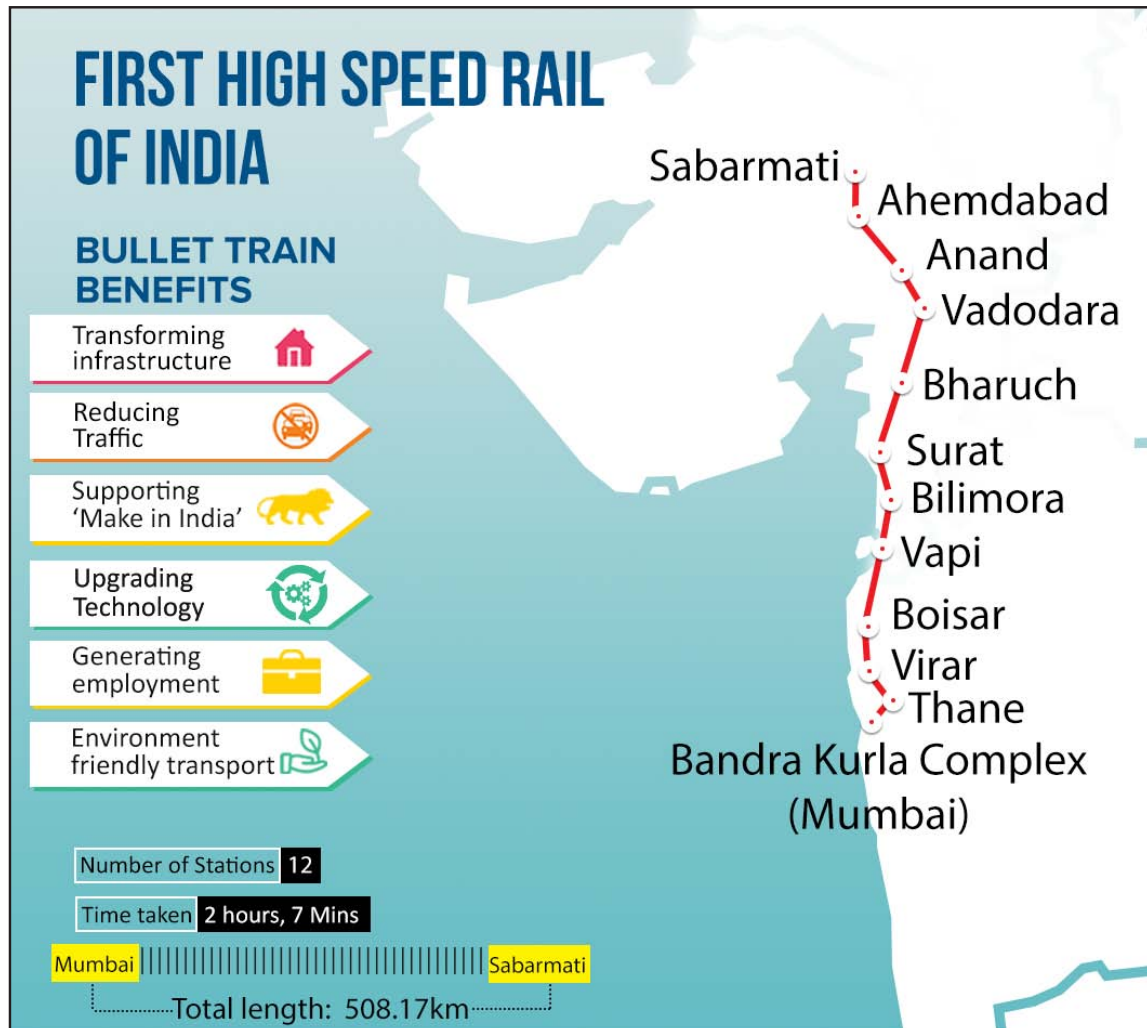


Figure: 05

- ▶ The fund has received contributions of Rs 250 crore each from NABARD and the Ministry of Agriculture, as well as Rs 250 crore from other institutions.
- **Objectives:** The primary objective of Agri-SURE is to promote investment in high-risk, high-impact activities in agriculture and allied areas.
- **Investment Strategy:** Agri-SURE will provide support through investments in sector-specific, sector-agnostic, and debt Alternative Investment Funds (AIFs), as well as direct equity support to startups. The fund aims to support approximately 85 agri startups with investment sizes of up to Rs 25 crore each by the end of its term.
- **Focus Areas:** The fund's focus areas include:
 - ▶ Promoting innovative, technology-driven initiatives in agriculture
 - ▶ Enhancing the farm produce value chain
 - ▶ Creating new rural ecosystem linkages and infrastructure
 - ▶ Generating employment
 - ▶ Supporting Farmers Producer Organizations (FPOs)
 - ▶ Encouraging entrepreneurship through IT-based solutions
 - ▶ Machinery rental services for farmers

BIHAR SEEKS MSP FOR MAKHANA

CONTEXT

The Bihar government has urged the Centre to declare **Minimum Support Price (MSP)** for **makhana**, an aquatic crop cultivated across 10 districts in the state.

About Makhana:

- Makhana (*Euryale ferox*) is an aquatic crop grown for its edible seeds.
- This cash crop belongs to the family **Nymphaeaceae** and is native to India and Southeast Asia.
- Makhana seeds develop within the flower of the plant, which grows underwater in stagnant or slow-moving water bodies like ponds, lakes, and shallow marshes.
- **Climatic Conditions:** Makhana cultivation requires warm temperatures for optimal growth. It thrives in regions with a tropical climate, characterized by hot summers and adequate rainfall.
- **Soil Requirements:** Makhana plants prefer loamy or clayey soils that are rich in organic matter.

- **Nutritional Value:** Makhana seeds are nutritious and low in calories. They are rich in protein, carbohydrates, fiber, calcium, potassium, magnesium, and phosphorus.
- Bihar is the leading producer of makhana in India, with about **85% of India's production originating from the state.**
- Makhana cultivation is difficult and intense.

COAL INDIA BAGS FIRST CRITICAL MINERAL ASSET

CONTEXT:

Recently, the State-owned Coal India has mentioned that it is going to bag the **first critical mineral asset**, a graphite block, in Madhya Pradesh.

About the move:

- ▣ **Objective:**
 - **Green energy transitions:** Owning a graphite asset will give Coal India an advantage in powering green energy transition momentum to an extent.
 - **Towards self-reliance:** With the electric vehicle market and energy storage systems fast gaining traction, where lithium-ion cells are used, graphite has a big market.

India's import dependence on Critical Minerals:

- The country imports about 69 percent of its graphite needs - natural, synthetic, and end-use products.
- Graphite has its utility as an **anode material in lithium-ion battery** manufacturing due to its relatively low cost and energy density.

The Coal India Limited (CIL):

- Coal India Limited (CIL) is an Indian central public sector undertaking under the ownership of the Ministry of Coal, Government of India.
- It is headquartered in Kolkata.
- It is the largest government-owned-coal-producer in the world.

VADHAVAN PORT

CONTEXT

India is gearing up to launch its most ambitious port project yet—a colossal venture set to reshape the country's maritime capabilities. Situated on the Maharashtra coast, the VadHAVAN Port promises to be a game-changer in global shipping, projected to rank among the top 10 container ports worldwide upon completion.

Key Features of VadHAVAN Port

The Rs 76,220 crore, all-weather, deep-draft port near the Gujarat border received cabinet approval in June 2024. Its important features are:

- **Capacity:** Annual capacity of 298 Million Metric Tonnes (MMT) and handling 23.2 Million Twenty-foot Equivalent Units (TEUs) annually.
- **Phase 1:** Initial operations will start with a capacity to handle 15 Million TEUs.
- **Infrastructure:** The port will feature nine container terminals, each extending 1,000 meters along the coast, and multiple specialized berths including multipurpose, liquid bulk, Ro-Ro, and small craft facilities.
- **Container Terminals:** Spread across the port, these terminals include storage yards directly behind the quay apron, optimized for streamlined container handling.
- **Specialized Berths:** Apart from container handling, the port includes berths for multipurpose cargo, liquid bulk, Ro-Ro operations, and small craft, catering comprehensively to diverse maritime needs.
- **Rail and Onshore Facilities:** A dedicated rail terminal and onshore reclamation areas further enhance logistical capabilities, ensuring seamless integration with national and regional transport networks.
- It will be over three times the size of India's current largest ports—the government-operated Jawaharlal Nehru Port Authority (JNPA) in Mumbai and the Adani-owned Mundra.
- The VadHAVAN port, set to be operational by 2030, will be developed by reclaiming 1,448 hectares of sea land, eliminating the need for land acquisition.



FACT BOX

Indian Ports

- India has a coastline which is more than 7,516.6 km long, interspersed with 12 major ports and more than 200 ports.

- ▶ **Eastern Coast:** Kolkata Port, Paradip Port, Visakhapatnam Port, Kamarajar Port, Chennai Port, Tuticorin Port
- ▶ **Western coast:** Deendayal Port (Kandla), Jawaharlal Nehru Port, Mumbai Port, Mormugao Port, New Mangalore Port, Cochin Port
- 95% of India's trade by volume and 70% by value is facilitated through these ports.
- **Important Government Initiatives:** Sagarmala programme (2015), PM Gati-Shakti National Master Plan (2021), National Infrastructure Pipeline (NIP)

INDIA'S BALANCE OF PAYMENTS

CONTEXT

Data from the Reserve Bank of India (RBI) showed that India's current account registered a surplus during the fourth quarter (Jan-Mar) of the 2023-24 financial year. This was the first time in 11 quarters that India had witnessed a surplus.

What is Balance of Payments (BoP)?

- The Balance of Payments (BoP) is like a financial record that tracks all the money flowing into and out of a country from its international transactions.
- It helps understand how much money India gains or lose from its dealings with other countries.

Components of Balance of Payments:

▶ Current Account:

- ◆ **Trade of Goods:** This accounts for physical goods (like cars, wheat, gadgets) that India buys from or sells to other countries. If India imports more goods than it exports, it results in a trade deficit.
- ◆ **Trade of Services (Invisibles):** Includes services like banking, IT, tourism, and money transfers from Indians working abroad. In Q4 of 2023-24, India saw a surplus on the current account mainly due to a surplus in invisible services despite a trade deficit.

Elements of Current Account

- Trade in goods and services
- Foreign aid (sent or received)
- Foreign direct investment
- Salaries or pensions that residents receive
- Remittances

▶ Capital Account:

- ◆ Records investments rather than day-to-day transactions. It includes Foreign Direct Investment (FDI), Foreign Institutional Investments (FII), banking capital, currency and deposits, trade credits, special drawing rights.

▶ Foreign Exchange Reserves:

- ◆ The BoP always balances through changes in foreign exchange reserves. When India receives more money from exports, investments, or loans than it spends, the RBI adds these dollars to its foreign exchange reserves.

Positives and negatives of a Current Account Surplus:

Positives of Current Account Surplus	Negatives of Current Account Surplus
Strengthens domestic currency	Reduces export competitiveness
Increases foreign exchange reserves	Impacts export-oriented industries
Lowers external debt	Dependency on external demand
Boosts economic confidence	Potential for reduced domestic consumption
Supports investment in infrastructure	Contributes to global imbalances

IMF'S ARTIFICIAL INTELLIGENCE PREPAREDNESS INDEX (AIPI)

CONTEXT:

In a recent development, the **International Monetary Fund (IMF)** has unveiled its **Artificial Intelligence Preparedness Index (AIPI) Dashboard**, ranking 174 economies worldwide based on their readiness to adopt and integrate artificial intelligence (AI) technologies.

Key Highlights of the AIPI

- **Global Rankings and Categories:** The index categorizes countries into Advanced Economies (AE), Emerging Market Economies (EM), and Low-Income Countries (LIC).
 - ▶ Singapore, Denmark, and the United States lead as top-ranked Advanced Economies with scores of 0.80, 0.78, and 0.77 respectively.
 - ▶ India is classified as an Emerging Market with a score of 0.49, positioned at the 72nd rank globally.

Factors Influencing Rankings

- ▶ **Digital Infrastructure:** India scored 0.11, lagging behind China (0.19), the US (0.18), and Singapore (0.21).

- ▶ **Human Capital and Labor Market Policies:** India scored 0.12, slightly lower than China (0.15) and Singapore (0.20).
- ▶ **Innovation:** India's score was 0.11, similar to Indonesia, but less than China, Singapore, the UK, and the US.
- ▶ **Regulation and Ethics:** India and China both scored 0.15, with Singapore leading at 0.22, followed closely by the US and the UK.

About the AIPI Index

- **Released by:** International Monetary Fund (IMF)
- The AIPI Index aims to provide a comprehensive assessment of each country's readiness for AI adoption across critical sectors.
- This index evaluates countries across four key dimensions: **digital infrastructure, human capital and labor market policies, innovation and economic integration, and regulation and ethics.**
- It tracks **174 economies globally for AI readiness.**
- The index is based on data from **Fraser Institute, International Labour Organization, International Telecommunication Union, United Nations, United Nations Conference on Trade and Development, Universal Postal Union, World Bank, and World Economic Forum.**

Government Schemes for Financial Inclusion

- **Pradhan Mantri Jan Dhan Yojana (PMJDY):** It is a national mission for financial inclusion to ensure access to financial services
- **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY):** It is an insurance scheme offering life insurance cover for death due to any reason.
- **Pradhan Mantri Suraksha Bima Yojana (PMSBY):** The scheme is available to people in the age group 18 to 70 years with a bank account. It is an Accident Insurance Scheme offering accidental death and disability.
- **Atal Pension Yojana (APY):** It aims to create a universal social security system for all Indians, especially the poor, the under-privileged and the workers in the unorganised sector. APY is administered by Pension Fund Regulatory and Development Authority (PFRDA).
- **Pradhan Mantri Mudra Yojana (PMMY):** Under the scheme a loan of upto ₹50,000 is given under sub-scheme 'Shishu'; between ₹50,000 to ₹5.0 Lakhs under sub-scheme 'Kishore'; and between ₹5.0 Lakhs to ₹10.0 Lakhs under sub-scheme 'Tarun'.
- **Stand-Up India Scheme:** The scheme facilitates bank loans between ₹10 lakh and ₹1 crore to at least one Scheduled Caste (SC)/ Scheduled Tribe (ST) borrower and at least one woman borrower per bank branch for setting up greenfield enterprises.

RBI'S FINANCIAL INCLUSION (FI) INDEX

CONTEXT

The **Reserve Bank of India's (RBI) Financial Inclusion (FI) Index** rose to 64.2 in March 2024 (compared to 60.1 in March 2023), showing growth across all parameters.

About the Index

- The RBI's FI Index measures the level of financial inclusion in India, scoring between 0 (complete exclusion) and 100 (full inclusion).
- **Parameters:** The FI Index comprises:
 - ▶ **Access (35%):** Measures the ease of accessing financial services.
 - ▶ **Usage (45%):** Evaluates the extent to which financial services are utilized by the population.
 - ▶ **Quality (20%):** Assesses the standard and reliability of financial services provided.
- **Implications:** The increase in the FI Index suggests improvements in access, usage, and service quality of financial services across India. This growth reflects efforts to enhance financial inclusion, enabling more people to benefit from banking services.

UPSC PYQ

Q: With reference to India, consider the following: (2010)

- 1: Nationalization of Banks
- 2: Formation of Regional Rural Banks
- 3: Adoption of villages by Bank Branches

Which of the above can be considered as steps taken to achieve the "financial inclusion" in India?

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

Solution: (d)

AGRICULTURE BUDGET 2024

CONTEXT:

In the Union Budget for the fiscal year 2024-25, Finance Minister Nirmala Sitharaman has prioritized enhancing productivity and resilience in agriculture. This sectoral focus comes amidst ongoing challenges in the agriculture domain, including subsidy reductions which have drawn criticism from farmer organizations.

Priorities for Viksit Bharat

Productivity and resilience in Agriculture



Transforming Agriculture Research

Comprehensive review of the agriculture research setup to bring focus on raising productivity and developing climate resilient varieties.

National Cooperation Policy

For systematic, orderly and all-round development of the cooperative sector

Atmanirbharta

For oil seeds such as mustard, groundnut, sesame, soyabean and sunflower

Vegetable production & supply chain

Promotion of FPOs, cooperatives & start-ups for vegetable supply chains for collection, storage, and marketing.

Release of new varieties

109 new high-yielding and climate-resilient varieties of **32** field and horticulture crops will be released for cultivation by farmers

Natural Farming

- **1 crore** farmers across the country will be initiated into natural farming, supported by certification and branding in next **2** years.
- 10,000 need-based bio-input resource centres to be established.

Shrimp Production & Export

- Financing for Shrimp farming, processing and export will be facilitated through NABARD.

Digital Public Infrastructure (DPI)

- DPI for coverage of farmers and their lands in 3 years.
- Digital crop survey in 400 districts
- Issuance of *Jan Samarth* based Kisan Credit Cards

Figure: 06

Key Highlights:

- **Budget Allocation for Agriculture:** Rs 1.52 lakh crore has been allocated for farming and allied sectors, reflecting a significant commitment to bolster agricultural infrastructure and productivity.
- **Focus on Research and Innovation:** A comprehensive review of the agriculture research setup is planned to emphasize productivity enhancement and the development of climate-resilient crop varieties.
- **Support for Farmer-Producer Organizations (FPOs) and Cooperatives:** Promotion of FPOs, cooperatives, and startups in vegetable supply chains, focusing on collection, storage, and marketing to empower farmers economically.
- **Digital Public Infrastructure and Agricultural Reforms:** Digital Public Infrastructure is to be implemented for Agriculture, including digital crop surveys in 400 districts to enhance agricultural data accuracy and planning.
 - ▶ Financial support for setting up **Nucleus Breeding Centres** for shrimp broodstocks through NABARD to boost aquaculture.
- For farmers, higher **Minimum Support Prices** has been announced for all major crops delivering on the promise for at least a 50% margin over cost.
- **A digital crop survey** will be conducted, covering 6 crore farmers across 400 districts beginning in the ongoing Khareef season.
- **Natural Farming:** 1 crore farmers will be initiated into natural farming over the next few years. The government will also look to strengthen production, storage, and marketing for self-reliance in pulses and oilseeds.
- 6 crore farmers will be brought into the farm and land registry and Kisan credit cards will be provided.
- **New Variety:** New 109 high-yielding and climate-resilient varieties of 32 field and horticulture crops will be released for cultivation by farmers.
- **Missions for pulses and oilseeds:** A strategy is being put in place to achieve 'atmanirbharta' for oil seeds such as mustard, groundnut, sesame, soybean, and sunflower.

- ▶ The 10% tax rate for incomes in the Rs 6-9 lakh slab has been revised to apply to incomes of Rs 7-10 lakh.
- ▶ The Rs 9 lakh to Rs 12 lakh slab now falls under Rs 10 lakh to Rs 12 lakh with a tax rate of 15%.

Standard Deduction Increase:

- ▶ The standard deduction under Section 115BAC for employees in the new tax regime has been raised from Rs 50,000 to Rs 75,000.
- ▶ Employees opting for the old regime will continue to receive the standard deduction of Rs 50,000.

Deduction Limits in Employer NPS Raised:

- ▶ The deduction for employer contributions to the National Pension System (NPS) has been raised from 10% to 14% of the salary.
- ▶ This enhancement applies to both tax regimes, encouraging long-term financial security for employees.

TAX SLABS		
OLD REGIME	0 TO 3 LAKH	NIL
	3 LAKH - 6 LAKH	5%
	6 LAKH - 9 LAKH	10%
	9 LAKH - 12 LAKH	15%
	12 LAKH-15 LAKH	20%
	15 LAKH+	30%
NEW REGIME	0 TO 3 LAKH	NIL
	3 LAKH - 7 LAKH	5%
	7 LAKH - 10 LAKH	10%
	10 LAKH - 12 LAKH	15%
	12 LAKH-15 LAKH	20%
	15 LAKH +	30%

CHANGES TO THE INCOME TAX REGIME

CONTEXT

Finance Minister Nirmala Sitharaman has announced significant changes to the income tax regime for the financial year 2024–25, aimed at providing additional benefits to taxpayers opting for the new tax structure.

Key Changes in Tax Slabs:

Revised Tax Slabs:

- ▶ Incomes in the Rs 3-6 lakh slab previously taxed at 5% will now apply to incomes in the Rs 3-7 lakh slab.

- **Introduction of NPS Vatsalya:** Budget 2024 introduced NPS Vatsalya, allowing parents to open NPS accounts in the name of minor children, convertible into regular NPS accounts upon adulthood.
- **Review of Income-Tax Act:** The Income-Tax Act, 1961, will undergo a comprehensive review to simplify and clarify provisions, potentially reducing confusion and litigation.
- **Rebate under Section 87A:** The rebate limit under Section 87A remains at Rs 25,000, with implications for taxpayers under the new tax regime.

ABOLITION OF ANGEL TAX

CONTEXT:

The Indian government has proposed the abolition of the "angel tax" across all classes of investors, aiming to bolster the country's startup ecosystem, foster entrepreneurial spirit, and support innovation.

What is Angel Tax?

- Angel tax refers to the income tax that the government imposes on funding raised by unlisted companies, or startups, if their valuation exceeds the company's fair market value.
- Introduced in 2012, it falls under **Section 56 (II) (viib) of the Income Tax Act**.
- This provision categorizes investments that startups receive from external investors as "income from other sources," subjecting them to a high tax rate of 30%.

Impact of Angel Tax on Startups:

- Financial Strain on Startups:** Startups, often operating with limited funds, face additional financial strain due to Angel Tax. The imposed tax burden adds to their operational costs, making it challenging to allocate resources effectively.
- Valuation Disputes:** Taxing investments above the "fair market value" of shares can lead to disputes regarding startup valuations with tax authorities. This discrepancy can complicate financial planning and deter potential investors.
- Deterrent to Investment:** The imposition of Angel Tax creates an extra liability for startups, potentially deterring investors from funding these ventures. This reduction in investment hampers the growth and innovation that the government aims to foster in the startup sector.

More on News: Capital Gain Tax

- In the Budget 2024, the government reduced the **long-term capital gains (LTCG) tax rate** on the sale of property from 20% to 12.5%.
- Any profit or gain that arises from the sale of a 'capital asset' is known as '**income from capital gains**'.
- Such capital gains are taxable in the year in which the transfer of the capital asset takes place. This is called **capital gains tax**.
- Types:** There are two types of Capital Gains:
 - short-term capital gains (STCG)
 - long-term capital gains (LTCG)
- Example of Capital Asset:** Land, building, house property, vehicles, patents, trademarks, leasehold rights, machinery, and jewellery

PROJECT-76

CONTEXT:

While India continues to buy advanced submarines under **Project-75I**, the Defence Research and Development Organisation (DRDO) has started a **preliminary study for Project-76**. This project aims to develop a **new type of submarine** that relies heavily on **Indian-made technology and equipment**.

About Project-76

- Project-76 focuses on building a **conventional submarine** with many parts and systems made in India. This includes **weapons, missiles, communication systems**, and more.
- The goal is to reduce dependence on foreign suppliers and boost India's ability to make its own submarines.
- Strategic Importance:** The Indian Navy has a 30-year plan to build submarines, showing its commitment to strengthening its maritime defenses. After Project-75I, the Navy plans to shift towards making submarines within India.

Air Independent Propulsion (AIP) module

- DRDO** has made significant strides in naval technology with its development of an **Air Independent Propulsion (AIP) module**. This module is designed to enhance the operational capabilities of conventional submarines, particularly by allowing them to **stay submerged for longer durations** without needing to surface.

Technical Details:

- Fuel Cell Technology:** The AIP module developed by DRDO utilizes phosphoric acid-based fuel cells, which are known for their reliability and wide availability.
- Power Output:** Each fuel cell in the AIP module currently generates 13.5 kW of power, with plans to scale up to 20 kW to meet future submarine requirements, including those under Project-76 (P-76).
- Configuration:** The module comprises a stack of 24 fuel cells, designed to exceed operational requirements to ensure redundancy and optimize performance under various conditions.
- Integration and Future Plans:** The first integration of DRDO's AIP module is slated for the Scorpene-class submarine Kalvari during its refit scheduled for 2025. This integration process, expected to span 2-3 years, will involve rigorous testing to ensure the module's reliability and effectiveness under simulated and actual maritime conditions.

What is Project-75 (India)?

- Project-75 (India), also known as P-75(I), is a **military acquisition initiative** by the Ministry of Defence (MoD).
- Aim:** to procure **diesel-electric attack submarines** with **fuel cells and Air-Independent Propulsion System (AIP)** for the Indian Navy.
- Project 75I is a follow-up to Project 75

Difference between Project 75 and Project 75I

- Project 75** is aimed at building six conventional Scorpene class submarines indigenously.

- ▶ Kalvari-Class Submarine (2017)
- ▶ Khanderi (2019)
- ▶ INS Karanj (2021)
- ▶ INS Vela (2021)
- ▶ INS Vagir (2023)
- ▶ INS Vagsheer (not commissioned yet)
- **Project 75i** is aimed at building submarines that would be larger than the Project 75 submarines along with the **Air-Independent Propulsion (AIP) system**.

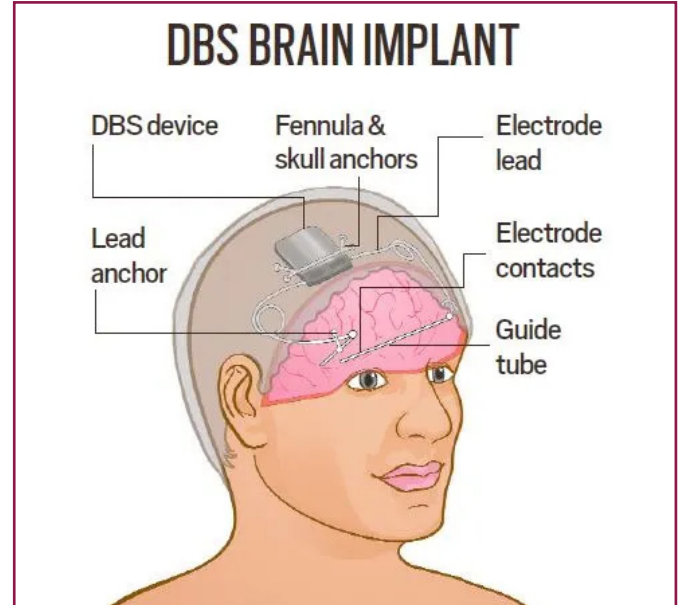
WORLD'S FIRST BRAIN IMPLANT TO CONTROL EPILEPTIC SEIZURES

CONTEXT:

Oran Knowlson, a teenager from the UK, recently made headlines for becoming the **first person worldwide to receive a brain implant** aimed at reducing epileptic seizures. This deep brain stimulation (DBS) device, surgically implanted into his skull and connected to electrodes targeting the brain's thalamus, has successfully reduced his daytime seizures by an impressive 80%.

About DBS device

- The DBS device delivers constant **electrical impulses** to disrupt **seizure-causing brain signals**.



- It offers a promising alternative for patients resistant to traditional anti-seizure medications or those for whom surgery is not viable.
- It is surgically placed in the skull, electrodes inserted into the **thalamus (brain's relay station)**.
- **Effectiveness:** Reduced Knowlson's seizures by 80%.

Comparison with Existing Treatments:

- ▶ **Medication:** Many patients are resistant (30%) to available anti-seizure drugs.
- ▶ **Surgery:** Effective but invasive; removes seizure-originating brain areas.

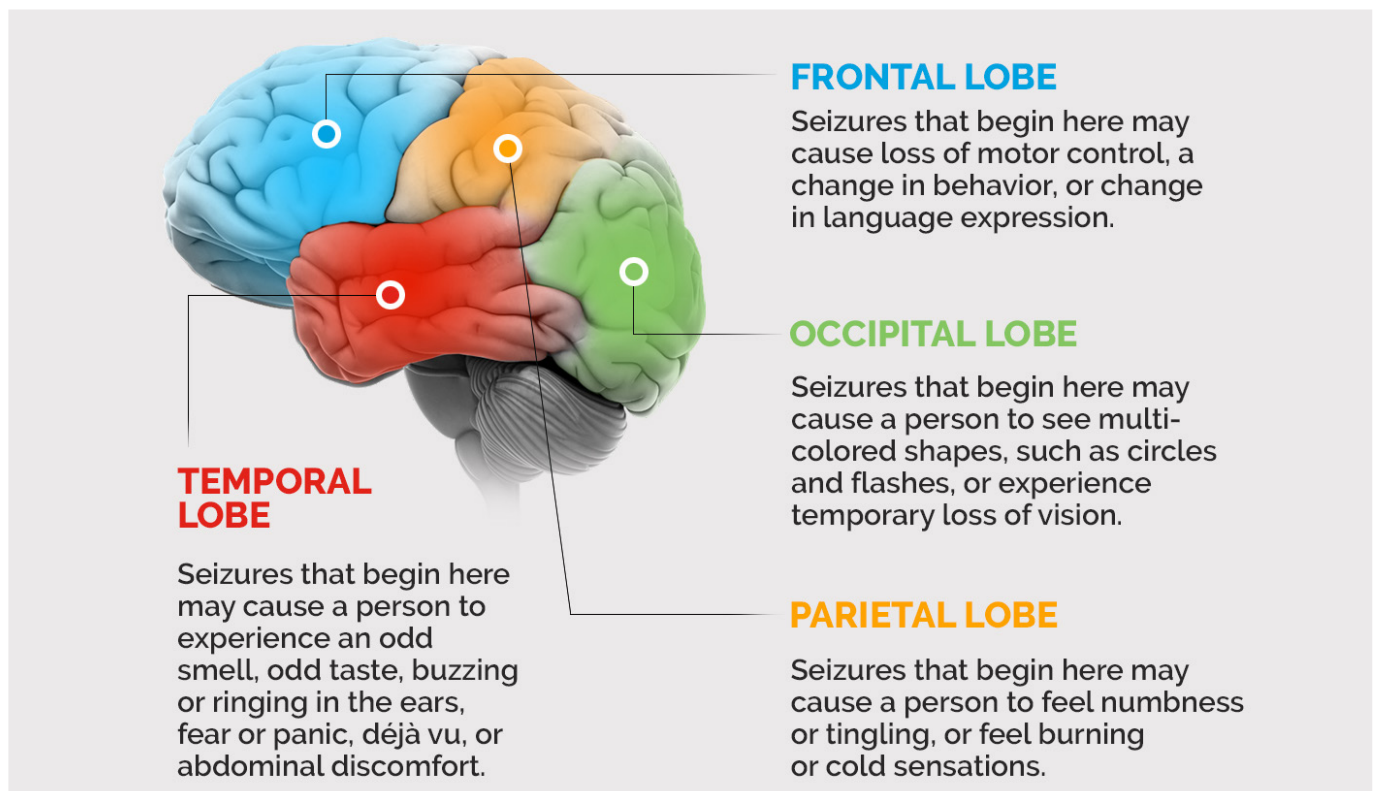


Figure: 07

- ▶ **Ketogenic Diet:** High-fat, low-carb diet also used to control seizures.



FACT BOX

- Epilepsy is a condition characterized by recurring seizures due to abnormal brain activity.
- Causes include **head trauma, brain tumors, infections, or genetics.**
- It affects daily life and increases the risk of accidents.
- **Epilepsy Prevalence in India:** 3 to 11.9 per 1,000 people (Lancet, 2022).

◦ Effectiveness Comparison:

- ▶ **DBS:** Reduces seizures by about 40%.
- ▶ **Surgery:** Decreases seizures by nearly 90%.

(see figure no. 7 on previous page)

ABHYAS (HIGH SPEED EXPENDABLE AERIAL TARGET)

CONTEXT:

Defence Research and Development Organisation (DRDO) has successfully completed six consecutive developmental trials of **High Speed Expendable Aerial Target (HEAT) 'ABHYAS'** with improved booster configuration from the **Integrated Test Range (ITR)**, Chandipur, Odisha.

About:

- ABHYAS is an autonomous aerial target developed at **Aeronautical Development Establishment (ADE) by DRDO.**
- It simulates realistic threats for training in weapon systems.
- Equipped with autopilot, it uses systems like **RCS, Visual, and IR augmentation.**
- This indigenous system is designed for **autonomous flying** with the help of an auto pilot, a laptop-based Ground Control System for aircraft integration, pre-flight checks, and autonomous flight.
- It also has a feature to record data during flight for post-flight analysis.

FALCON 9 ROCKET GROUNDED AFTER SATELLITE MISHAP

CONTEXT:

The US Federal Aviation Administration (FAA) has grounded **SpaceX's Falcon 9 rocket** following a recent failure (first since 2015). The incident involved the **rocket's upper stage engine malfunction**, which left 20 Starlink internet satellites in an unusable low orbit.

What is Falcon 9?

- Falcon 9 is a **reusable rocket** developed by SpaceX, powered by **liquid oxygen and rocket grade kerosene (RP-1).**
- **It consists of two stages:**
 - ▶ the reusable first stage with nine Merlin engines
 - ▶ the second stage with a single Merlin engine
- The rocket's first stage is powered by nine Merlin engines, while the second stage uses a single Merlin Vacuum engine optimized for use in the vacuum of space.
- It is capable of transporting payloads and crew to low Earth orbit and beyond. Falcon 9 is the only U.S. rocket capable of sending NASA crews to the **International Space Station.**
- **Payload Capacity:** Falcon 9 can transport payloads weighing up to 22,800 kilograms (50,300 pounds) to **low Earth orbit (LEO)** and up to 8,300 kilograms (18,300 pounds) to **geostationary transfer orbit (GTO).**
- **Versatility:** It is used for a variety of missions including satellite deployment, cargo resupply to the International Space Station (ISS), and crewed missions under **NASA's Commercial Crew Program.**

The workhorse rocket has launched more than 350 times since its debut in June 2010.

SUKHOI SU-30 FIGHTER JETS

CONTEXT

India's HAL is in talks to produce and export **Sukhoi Su-30 fighter jets**, marking a significant advancement in India's defense manufacturing capabilities.

About SU-30 Fighter Jets?

- The **Su-30 (Flanker-C) Russian Multirole Fighter Aircraft** is a **twin-engine, two-seat supermaneuverable fighter aircraft** developed in the Soviet Union by Russia's Sukhoi Aviation Corporation.
- It is a multirole fighter for **all-weather, air-to-air, and air-to-surface** deep interdiction missions.
- The Su-30 started out as an internal development project in the Sukhoi Su-27 family by Sukhoi.
- The design plan was revamped and the name was made official by the Russian Defense Ministry in 1996.
- Of the Flanker family, the Su-27, Su-30, Su-33, Su-34, and Su-35 have been ordered into limited or serial production by the Defense Ministry.

CHANDIPURA VIRUS

CONTEXT:

The National Institute of Virology (NIV) in Pune confirmed the first fatality of a four-year-old girl due to Chandipura virus in Gujarat. The virus has led to 15 suspected deaths across nearly a dozen districts in the state.

About:

- **Virus Characteristics:** Chandipura virus (CHPV) is an arbovirus transmitted primarily through sandfly bites. It causes acute encephalitic illness, mainly affecting children.
- **Symptoms and Diagnosis:** Symptoms include high fever, seizures, vomiting, and altered sensorium. Diagnosis is typically confirmed through PCR testing and viral culture.
- **Treatment and Prevention:** There is no specific antiviral treatment; management is supportive. Prevention focuses on controlling sandfly populations and avoiding bites through insect repellent and protective clothing.

SAFETY-RELATED WORKS IN RAILWAYS- THE “KAVACH” SYSTEM

CONTEXT:

The **Economic Survey 2023-24** indicated limited progress on safety-related works such as the deployment of the automatic train protection system Kavach and overhaul of signaling systems at all stations.

About the Kavach system:

- Kavach, an automatic train protection (ATP) system, developed by the Research Design and Standards Organisation (RDSO) in collaboration with the Indian industry.
- It is a state-of-the-art electronic system with Safety Integrity Level-4 (SIL-4) standards.
- It is meant to protect by preventing trains to pass the signal at Red (which marks danger) and avoid collision.
- It activates the train’s braking system automatically if the driver fails to control the train as per speed restrictions.
- In addition, it prevents the collision between two locomotives equipped with functional Kavach systems. The system also relays SoS messages during emergencies.
 - ▶ SoS means, a call or request for help or rescue.

Current deployment:

- It has been deployed on 1,465 route km in the South-Central Railway, the Survey states.
 - ▶ This is just 2.14% of the total railway network of 68,426 route km and 7,349 railway stations.

INDIA’S BALLISTIC MISSILE DEFENCE SYSTEM

CONTEXT:

India recently achieved a significant milestone in its defence capabilities with the successful flight-testing of the **second phase of its Ballistic Missile Defence (BMD) System**. This system is designed to protect against hostile missiles with ranges up to 5,000 km.

Phases of India’s BMD Programme

- India’s BMD programme is structured into two phases. The first phase has been completed, while the second phase, known as **Phase-II AD (Endo-atmospheric missile)**, is currently underway.
- Phase-II aims to validate intercept systems for a new range category, enhancing India’s defence capabilities in both endo-atmospheric and low exo-atmospheric regions.
 - ▶ **Exo-atmospheric missiles** are capable of completing missions in the upper-most region of the earth’s atmosphere.
 - ▶ **Endo-atmospheric missiles** are the ones that operate within the earth’s atmosphere that covers an altitude below 100 km.
- **Key Features of Phase-II AD Endo-atmospheric Missile:** Phase-II AD is an indigenous, two-stage, solid-propelled missile system designed for intercepting various types of enemy ballistic missiles within the altitude range of endo-atmospheric to low exo-atmospheric regions.

TRANSFER TECHNOLOGY FOR DETECTION OF TUBERCULOSIS (TB)

CONTEXT:

The **Indian Council of Medical Research (ICMR)** has initiated efforts to introduce an **affordable, rapid, and user-friendly testing technology** for detecting **tuberculosis (TB)**. This move comes in response to the staggering toll of TB in India, which claims an estimated 480,000 lives annually.

About the Technology

- ICMR has developed a pioneering TB detection system based on **CRISPR Cas technology**.
- This system, considered the world’s most economical for TB testing, utilizes DNA from saliva samples.
- It can identify TB bacteria early and process over 1,500 samples simultaneously in about two hours, making it suitable even for primary health centers in rural areas.
- **Challenges in TB Diagnosis:** India faces challenges in TB diagnosis, with a significant number of cases going unreported or inadequately treated, especially in the private sector.

About Tuberculosis (TB)

- TB is caused by a bacterium known as Mycobacterium tuberculosis, which belongs to a family of around 200 bacteria species called **Mycobacteriaceae**.
- **Types of TB:** TB primarily affects the lungs (pulmonary TB) in humans. However, it can also affect other organs (extra-pulmonary TB).

Historical Context:

- TB is an ancient disease, with evidence of its existence dating back to 3000 BC in Egypt.
- **Treatability:** TB is treatable and curable with appropriate medication and management.
- **Transmission:** TB spreads from person to person through the air. When individuals with lung TB cough, sneeze, or spit, they release TB germs into the air, which can be inhaled by others.
- **Treatment:** Current biomedical strategies to reduce new infections include the
 - ▶ **BCG vaccine**, which protects against severe forms of childhood TB
 - ▶ **Tuberculosis preventive treatment (TPT)** which aims to cover other household contacts, clinical-risk groups apart from children younger than five years and household contacts with HIV
 - **Effective rifamycin-based regimes**

World TB Report 2023

- According to the World TB Report 2023, India recorded an average of 199 new infections in every 100,000 people in 2022.
- An estimated 13% of treated patients and 2.5% of new cases were multi-drug resistant or resistant to the first-line drug rifampicin.
- Nearly 400,000 people die of TB each year in the country.

National and international initiatives:

- National TB Elimination Programme (NTEP)
- National Strategic Plan (NSP) for Tuberculosis Elimination (2017-2025)
- TB Harega Desh Jeetega Campaign
- TB Free India Campaign
- Revised National Tuberculosis Control Programme (RNTCP)
- International Union Against
 - Tuberculosis and Lung Disease (The Union)
 - The country aims to accelerate efforts to reduce TB morbidity and mortality, with a target to eliminate TB by 2025.

MONEYPOX OUTBREAK IN CONGO

CONTEXT

The current monkeypox (mpox) outbreak in Congo has resulted in over 27,000 cases and claimed more than 1,100 lives since the start of 2023, primarily affecting children.

About Monkeypox (mpox)

- Monkeypox, caused by the monkeypox virus, is a viral infection that spreads through close contact. It typically

causes flu-like symptoms and can lead to pus-filled lesions on the body.

- The virus belongs to the **Orthopoxvirus genus** in the **Poxviridae family**. It is an enveloped double-stranded DNA virus and is related to viruses like **vaccinia, cowpox, and variola (smallpox)**.
- **Transmission:** Monkeypox spreads from person to person through direct contact with infected skin or lesions, including those in the mouth or genital areas.
- The global monkeypox outbreak was declared a **Public Health Emergency of International Concern (PHEIC)** in 2022.
- **Genetic Clades:** There are two main genetic clades of the virus:
 - ▶ **Clade 1:** More severe, with up to 10% mortality rate among those infected.
 - ▶ **Clade 2:** Less severe, with over 99% recovery rate. The 2022 outbreak was caused by Clade 2.

▣ Variants:

- ▶ The current outbreak in Congo started with an endemic strain known as **Clade I**.
- ▶ A new variant, **Clade Ib**, has emerged, showing increased spread among children.
- ▶ **Clade IIb**, another variant, caused an international health emergency in 2022, spreading mainly through sexual contact among men who have sex with men.

KERALA BRACES FOR NIPAH OUTBREAK

CONTEXT

Kerala is on alert following a confirmed case of Nipah virus in a 14-year-old boy from Malappuram district.

About Nipah Virus (NiV)

- Nipah virus is zoonotic, transmitted from animals to humans, often through fruit bats of the Pteropus genus.
- It can also spread through contaminated food or directly between people.
- **Natural Hosts:** Fruit bats, particularly those of the Pteropus genus, serve as the natural hosts for Nipah virus. These bats do not show apparent signs of illness from the virus.
- **Symptoms and Severity:** In humans, NiV can cause a range of illnesses, from asymptomatic infection to acute respiratory problems and fatal encephalitis (brain inflammation).
 - ▶ Case fatality rates vary between 40% to 75%, depending on clinical management.
- **Treatment:** Currently, there are no specific treatments or vaccines available for either humans or animals. Supportive care remains the only option for managing NiV infections.

- WHO lists **Nipah virus as a priority disease** under its Research and Development Blueprint due to its potential for outbreaks.
- **Monoclonal antibodies** from Australia have shown promise in neutralizing NiV and are being stored in Pune's National Institute of Virology for emergency use.

KERALA RELEASES GUIDELINES ON AMOEBIC MENINGOENCEPHALITIS

CONTEXT

The Health Department of Kerala has issued special guidelines for **Amoebic Meningoencephalitis** after three deaths and two infections among children in the state, marking the first such technical release for the disease in India.

About Amoebic Meningoencephalitis

- Amoebic Meningoencephalitis is caused by **Naegleria Fowleri**, a free-living amoeba found in warm freshwater sources.
 - The infection occurs when contaminated water enters the body through the nose and travels to the brain.
 - It is a rare disease, infecting approximately one in 26 lakh people who come into contact with contaminated water.
 - The disease primarily affects children and young people, mostly in their early to mid-20s, during warmer months.
 - **Symptoms** include severe headache, fever, nausea, vomiting, and neck stiffness, appearing within nine days of infection.
 - **Diagnosis** involves a PCR test of spinal cord fluid, distinguishing it from bacterial meningitis.
 - **Treatment** involves a combination of five drugs effective against amoebas.
- ▣ **Preventive Measures:**
- ▶ Avoid diving or jumping into stagnant freshwater.
 - ▶ Use nose plugs or pinch the nose shut when in contact with freshwater.
 - ▶ Keep the head above water while swimming.
 - ▶ Use boiled, filtered, or sterile water for nasal irrigation.
 - ▶ Maintain cleanliness and proper chlorination in swimming pools and water bodies.

PC EMULATOR

CONTEXT

Apple recently approved a PC emulator for its iOS App Store, marking a significant shift in its policies towards emulation software. This move allows users to run classic software and games on **iOS, iPadOS, and tvOS devices**.

What is a PC Emulator?

- A PC emulator is software that enables a computer or device to mimic the functionality of another system.
- It allows software designed for one platform to run on another that it was not originally compatible with.
- Emulators are commonly used for testing software across different operating systems, running applications from older systems, and playing games from retro consoles.

▣ Why Did Apple Allow Emulators on the iOS App Store?

- ▶ Previously, Apple had strict guidelines prohibiting emulators on its platform. However, recent updates to the App Store guidelines now permit retro game console emulators, mini games, and HTML5 mini apps.
- ▶ The approval of UTM SE, a computer emulator app, follows Apple's efforts to address antitrust concerns and accusations of monopolistic practices related to its App Store policies.
- ▶ Allowing emulators could prevent users from resorting to third-party app stores for downloading emulation software in regions like the **European Union**, where Apple has faced regulatory scrutiny.

ROGUE WAVES

CONTEXT:

Rogue waves, which are unusually large and unpredictable compared to surrounding waves, pose significant risks to ships, coastal infrastructure, and human safety. Despite their known dangers, forecasting rogue waves has historically been challenging and lacked effective methods. However, researchers have trained an AI programme to distinguish wave patterns that preceded rogue waves.

Understanding Rogue Waves

- Rogue waves typically occur in oceans, defying **average sea state conditions**.
- These waves can be twice the size of surrounding waves and often result from the convergence of distant swells or compression of ocean currents.
- **Consequences:** The unpredictability of rogue waves has resulted in numerous fatalities and ship sinkings.



FACT BOX

Sea State

- In oceanography, sea state refers to the condition of the surface of a large body of water at a certain location, at a certain point of time.
- The World Meteorological Organization (WMO) sea state code characterises sea state based on wave height on a scale of 0 (no waves) to 9 (waves over 14 m).

GENETICALLY MODIFIED MUSTARD (DMH-11)

CONTEXT

A two-judge Bench of the Supreme Court recently delivered a split verdict on whether to allow the environmental release of GM mustard, highlighting ongoing deliberations and concerns surrounding its adoption and impact in India.

About Genetically Modified Mustard (GM Mustard (DMH-11))

- In 2022, the **Genetic Engineering Appraisal Committee (GEAC)** recommended the environmental release of **genetically-modified (GM) mustard variety DMH-11**.
- This variety, known as **Dhara Mustard Hybrid-11**, has been developed using the '**barstar-barnase**' system to make it **herbicide-resistant and improve yields**.

Benefits of DMH-11:

- ▶ DMH-11 has demonstrated the potential to increase yields by about 30% compared to traditional varieties.
- ▶ Existing mustard varieties yield around 1,000-1,200 kilograms per hectare, while global averages reach 2,000-2,200 kilograms per hectare.
- **Mustard Cultivation in India:** Mustard (*Brassica juncea*) is a crucial winter crop in India, cultivated across approximately 6.5-7 million hectares primarily in states like **Rajasthan, Haryana, Punjab, and Madhya Pradesh**.



FACT BOX

What are GM Crops?

- Genetically-modified (GM) crops are plants whose DNA has been altered using genetic engineering techniques to introduce desirable traits that do not naturally occur. These traits can enhance resistance to pests, diseases, or herbicides, and improve crop yields.

GM Crops in India:

- ▶ India permits the import of GM soybean and canola oil.
- ▶ *Bacillus thuringiensis* cotton (Bt cotton) is the only GM crop approved for cultivation in India.
- ▶ For other GM seeds, India had maintained stringent regulations until recent developments.

Genetic Engineering Appraisal Committee (GEAC)

- ▶ The Genetic Engineering Appraisal Committee (GEAC) operates under the **Ministry of Environment, Forest and Climate Change** and is responsible for evaluating and permitting the commercial release of GM crops in India.

- ▶ It is mandated by the **Environment Protection Act 1986**.

BEKI RIVER'S CHANGING COURSE

CONTEXT

In Lower Assam, the **Beki River**, a tributary of the Brahmaputra, has triggered a crisis by altering its course, displacing thousands and wreaking havoc on state infrastructure. The roots of the issue date back to changes initiated in 2004 when the Beki River started carrying a significant silt load from both itself and the **Manas River**.

Causes of Course Alteration

- The **Integrated Flood and Erosion Management Plan of 2022**, supported by the World Bank, highlighted the increased flood hazard and severe erosion along the Beki River's path.
- **Periodic releases of water** from the Kurichu Dam in Bhutan further escalated floods and erosion downstream, altering the Beki's natural course significantly.
- **Lack of proactive bank protection measures** and failures in coordination between the water resources department, district administration, and public works department exacerbated the crisis.



FACT BOX

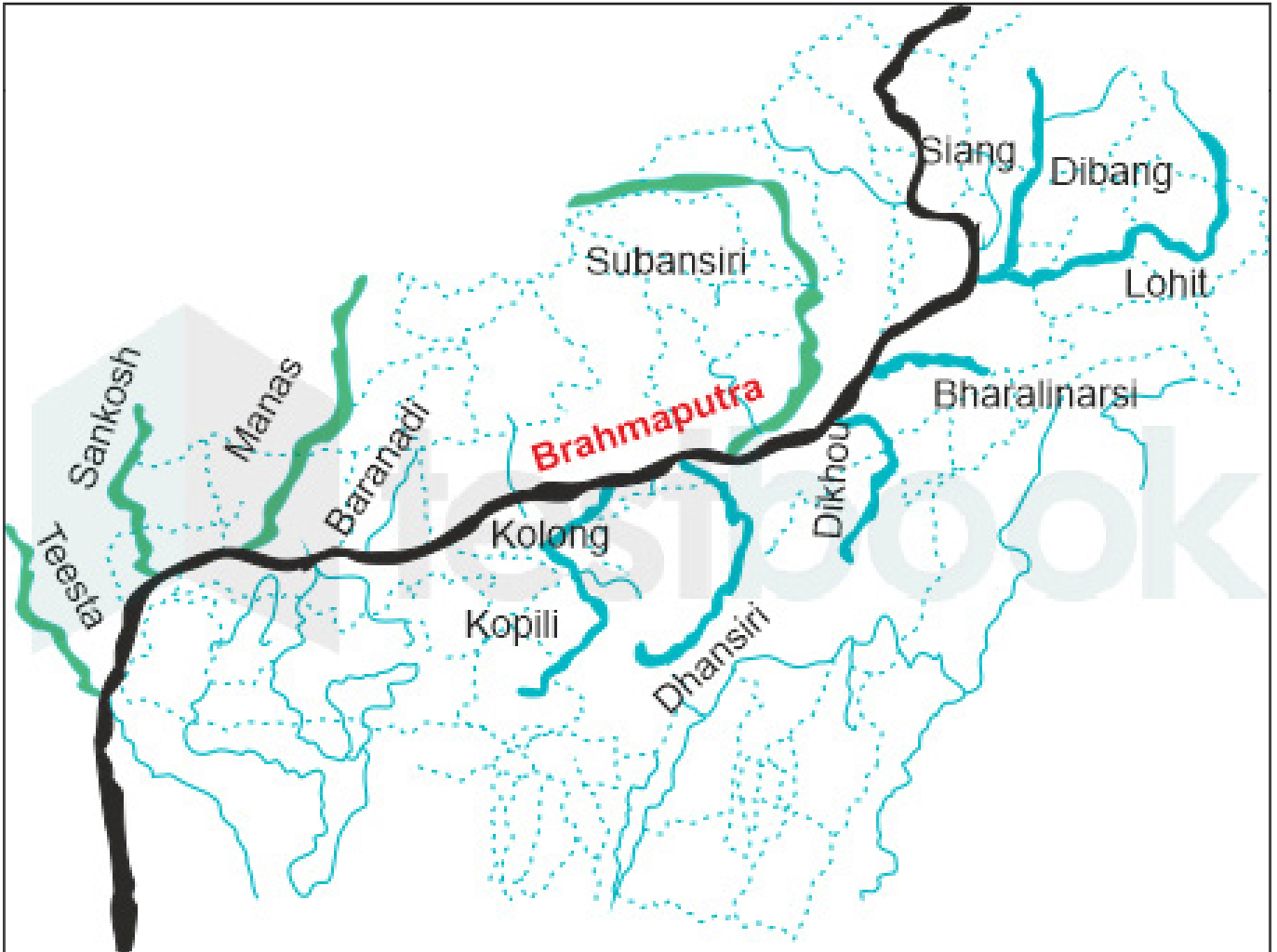
About Beki River

- **Origin:** Bhutan
- Beki, locally as the Kurisu River, is a tributary (right bank) of the Brahmaputra, which flows along the Manas National Park.
- Flowing through Assam, it eventually **merges into the Bay of Bengal**.

Other major tributaries of Brahmaputra

- **North:** Subansiri, Ronganadi, Dikrong, Buroi, Borgong, Jiabharali, Dhansiri (North) Puthimari, Manas, Beki, Aie, Sonkosh
- **South:** Noadehing, Buridehing, Desang, Dikhow, Bhogdoi, Dhansiri, Kopilli, Kulsi, Krishnai, Dhdhnoi, Jinjiran

(see map no. 2 on next page)



Map: 2 (Beki River)

INDIAN ASTRONAUTS SELECTED FOR AXIOM-4 MISSION TO ISS

CONTEXT

The Indian Space Research Organisation (ISRO) has identified two astronauts from its Gaganyaan program for the upcoming Axiom-4 mission to the International Space Station (ISS), scheduled tentatively for October 2024. This mission is a collaboration between NASA and the private US company Axiom Space.

About Axiom-4 Mission

- The Axiom-4 mission is a private spaceflight to the **International Space Station**.
- It is operated by Axiom Space and used a SpaceX Crew Dragon spacecraft.
- The mission marks **NASA's fourth private astronaut mission**, organized in partnership with Axiom Space.
- The mission is part of NASA's broader strategy to transition **low Earth orbit activities** from government-led initiatives to a marketplace where NASA is one of many customers.

- It involves transporting astronauts to the ISS aboard SpaceX's Dragon spacecraft for a fourteen-day mission duration.
- **Significance of the mission:**
 - ▶ It will help in increasing global access to space
 - ▶ It will normalise living and working in microgravity.



FACT BOX

International Space Station (ISS)

- The International Space Station (ISS) is a large spacecraft that orbits Earth in **low-earth orbit**, approximately 400 km above the Earth's surface.
- It serves as a **space laboratory** where astronauts conduct experiments in microgravity conditions.

Key Points:

- **Operational Status:** Currently, the ISS is the only operational space laboratory. It has been continuously inhabited since 2000.

- **Participants:** The ISS is a collaborative effort involving five space agencies:
 - ▶ NASA (United States)
 - ▶ Roscosmos (Russia)
 - ▶ JAXA (Japan)
 - ▶ ESA (Europe)
 - ▶ CSA (Canada)
- **Orbit and Speed:** The ISS completes approximately 16 orbits around the Earth daily, with each orbit taking about one and a half hours.
- **Purpose:** It serves as a platform for various scientific experiments, space exploration studies, and technological advancements in a zero-gravity environment.

EARTH OBSERVATION (EO) DATA

CONTEXT:

An estimated \$3.8 trillion could be generated by Earth observation (EO) data by 2030, according to a new **World Economic Forum (WEF)**.

What is Earth Observation Data?

- Earth observation (EO) data refers to information gathered about Earth's physical, chemical, and biological systems using various sensor technologies.
- These include satellites, aircraft, underwater devices, and even people equipped with specialized equipment.

Applications in Environmental Protection:

- ▶ **Monitoring Natural Ecosystems:** EO data monitors variables like soil moisture, atmospheric conditions, and temperature changes on land and sea. It tracks changes in land cover and detects the presence of chemicals and radiation levels.
- ▶ **Protecting Ecosystems:** EO plays a crucial role in safeguarding ecosystems like mangroves and coral reefs.
 - ◆ Mangroves, vital for marine life and carbon storage, are monitored to prevent loss from human activities and natural disasters.
- ▶ **Disaster Prevention and Response:** EO data aids in early warning systems for wildfires and helps identify illegal deforestation. It detects gas leaks from pipelines and other sources, reducing greenhouse gas emissions.
- ▶ **Optimizing Resource Use:** EO optimizes shipping routes to save fuel and minimize emissions. It monitors crop health, allowing for efficient use of fertilizers and water.
- ▶ **Environmental Impact Reduction:** By applying EO technologies, global greenhouse gas emissions could potentially be reduced by 3.6% annually, equivalent to 2 gigatonnes.

AFRICAN SWINE FEVER (ASF)

CONTEXT:

A recent outbreak of African swine fever (ASF) has been reported from a farm in Kerala's Thrissur district.

Key Facts about African Swine Fever (ASF)

- ASF is a viral disease that affects pigs and wild boar, causing high fatality rates.
- It is not harmful to humans but severely disrupts socioeconomic systems in affected regions.
- **Transmission:**
 - ▶ Direct contact with infected animals
 - ▶ Ingestion of contaminated animal products
 - ▶ Contact with contaminated equipment or clothing
 - ▶ Bites from infectious ticks
- **Symptoms:** Fever, abortions, bleeding, sudden deaths, depression, loss of appetite, skin hemorrhages, vomiting, and diarrhea.
- **Control and Treatment:** There are currently no vaccines or cures for ASF. Control measures involve strict biosecurity protocols, movement restrictions, and culling of infected animals.

STRYKER ARMoured INFANTRY COMBAT VEHICLES

CONTEXT

The Army is set to initiate the trials of the US-made Stryker armoured infantry combat vehicles here in both deserts and high-altitude Ladakh soon. India and the US selected the Stryker under the **US-India Initiative on Critical and Emerging Technologies (iCET)** for joint production trials.

What is Stryker armoured infantry combat vehicles?

- The Stryker armored infantry combat vehicle is a family of **eight-wheel-drive vehicles** developed jointly by General Dynamics Land Systems Canada and the United States.
- It originated from the GDLS Canada LAV III 8×8 vehicle, which itself evolved from Switzerland's **Mowag Piranha III**.
- Named after American soldiers Stuart S. Stryker and Robert F. Stryker, the vehicle entered US Army service as the first new military vehicle since the 1980s Abrams tank.

Features of the Stryker:

- ▶ **Design:** V-hull armored infantry vehicle.
- ▶ **Armament:** Equipped with a 30 mm cannon and a 105 mm mobile gun.

- ▶ **Protection:** Made from high-hardness steel with basic protection against 14.5mm rounds on the front and 7.62mm ball ammunition from all directions. Features bolt-on ceramic armor for added protection.
- ▶ **Mobility:** Can be transported by Chinook helicopters, which are used by the Indian Air Force.

▣ Variants:

- ▶ **Infantry Carrier Vehicle (ICV):** Main variant for transporting infantry.
- ▶ **Mobile Gun System (MGS):** Variant equipped with a 105 mm gun for direct fire support.

▣ Purpose in India:

- ▶ India and the US selected the Stryker under the US-India Initiative on Critical and Emerging Technologies (iCET) for joint production trials.
- ▶ The Indian Army aims to replace its fleet of over 2,000 BMP-II vehicles with modern wheeled and tracked infantry combat vehicles.



FACT BOX

US-India Initiative on Critical and Emerging Technologies (iCET)

- **Launched in:** 2023
- iCET involves multiple streams for cooperation and collaboration between the United States and India on critical and emerging technologies.
- Critical and Emerging Technologies (CETs) are a subset of advanced technologies that has great significance and are critical in a nation's progress.
- CETs include supercomputing, cloud computing, etc.

What are Infantry Combat Vehicles (ICVs)

- Infantry Combat Vehicles (ICVs) are armored vehicles designed to transport infantry soldiers into combat while providing protection and fire support.
- The mainstay ICV currently in use is the **BMP-2, of Russian origin**, capable of carrying a squad of infantry.
- India is focused on modernizing its ICV fleet to enhance battlefield capabilities.

Key-highlights

- **Taxonomy for Climate Finance:** The government will introduce a taxonomy for **climate finance**. This framework will enable companies to secure capital at favorable rates for green projects like renewable energy, battery storage, and emerging sustainable technologies.
- The taxonomy is expected to boost the market for **green bonds**, facilitating investments in environmentally friendly sectors.
- Taxonomies help provide a framework that classifies economic activities based on their environmental sustainability. This helps streamline climate finance towards sustainable businesses. The **European Union, South Africa, and Canada** have their own climate finance taxonomy.

▣ Transition of Hard-to-Abate Industries

- ▶ Hard-to-abate industries will move from energy efficiency targets to emission-based goals. They will shift from the current **'Perform, Achieve and Trade'** regulations to carbon market-based regulations.
- ▶ This shift aims to drive investments in sustainable technologies and establish a framework for carbon market development, crucial for decarbonization efforts.
- **Promotion of Pumped Hydro Storage:** To address the intermittency of renewable energy sources like solar and wind, the government plans to promote pumped hydro storage projects. This technology helps store renewable energy for use during periods when solar and wind energy are not available.
- **Development of Small Nuclear Reactors:** The government will collaborate with the private sector to set up small nuclear reactors. Research and development efforts will focus on small modular reactors and other advanced technologies for nuclear energy.
- **Renewable Energy Targets:** India aims to add 50 GW of renewable energy capacity annually from FY24 to FY28. By 2030, the country targets achieving 500 GW of installed electricity capacity from non-fossil fuel sources, including renewable energy and nuclear power.
- **Development of Pathways:** The government is advancing energy transition through initiatives such as advanced ultra super critical thermal power plants and modular nuclear reactors. Fiscal support is also extended to technologies like pumped storage and rooftop solar, reflecting a comprehensive approach to diversifying the energy mix.
- **Solar Energy Focus:** In the solar sector, the government is expanding the list of exempted capital goods used in manufacturing solar cells and panels within the country.
 - ▶ **Customs duty exemptions** on solar glass and tinned copper interconnects for solar cells and modules imported into India are being removed.
 - ▶ Despite short-term cost implications for domestic power producers, these measures aim to strengthen the domestic supply chain to support India's ambitious goal of achieving 50 GW of renewable energy annually.

ENERGY TRANSITION

CONTEXT:

In her budget speech, Finance Minister Nirmala Sitharaman outlined significant policy measures aimed at accelerating India's energy transition away from fossil fuels. These initiatives are crucial for reducing carbon emissions and promoting sustainable development.

- **PM Surya Ghar Muft Bijli Yojana:** Finance Minister Nirmala Sitharaman highlighted the positive response to the PM Surya Ghar Muft Bijli Yojana, aimed at promoting rooftop solar panel installations with subsidies for up to 1 crore households. The scheme has garnered over 1.28 crore registrations and 14 lakh applications, underscoring its role in democratizing access to clean energy and reinforcing India's commitment to an inclusive energy future.

BANNI GRASSLANDS

CONTEXT

The **Central Zoo Authority (CZA)** has approved a cheetah conservation breeding centre in **Gujarat's Banni grasslands**, allowing for the **reintroduction of the big cat** to the state after many years.

About Banni Grasslands:

- **Location:** Banni grasslands, along with **Kachchh Desert Sanctuary**, cover about 5000 square kilometers in Gujarat's Kachchh district in the northwest.
- **Geography:** It lies south of the Rann of Kachchh mudflats and some parts can get flooded by seawater during the rainy season.
- **Surroundings:** Banni is bordered by Narayan Sarovar Wildlife Sanctuary on the west and Kachchh Wildlife Sanctuary on the east.
- The area is home to 40,000 Maldharis, a pastoral community known for raising high-yielding buffaloes and cows.



FACT BOX

Cheetah (*Acinonyx jubatus*)

- The Cheetah is one of the oldest species among large cats, dating back over five million years to the Miocene era.
- It holds the title of being the **world's fastest land mammal**.
- Currently, the cheetah is listed as **vulnerable** on the **IUCN Red List of threatened species**.
 - ▶ The **Asiatic cheetah**, a subspecies, is critically endangered according to the IUCN Red List, and is believed to survive only in Iran.
- India's last known cheetah died in Chhattisgarh in 1947. Following this, the cheetah was officially declared extinct in India in 1952.
- **Reintroduction:** India brought Cheetah from Namibia and South Africa in 2022 to reintroduce them into Indian habitat.

ANCIENT ICE OF ANTARCTICA

CONTEXT:

Antarctica, a vast expanse of white, holds a surprising secret: its **eastern and western regions** froze over at vastly different times. This disparity may hold clues to why West Antarctica is more vulnerable to today's warming trends.

Key-highlights

- **Timeline of Freezing:** Recent research reveals that **Eastern Antarctica** locked in its **permanent ice sheets** about 34 million years ago. However, it took another 7 million years for Western Antarctica to experience the same ice formation. This delay is significant as it correlates with a pivotal shift in **Earth's climate from a greenhouse to an icehouse state**.
- **Impact of Climate Shift:** The transition to an icehouse climate initiated the growth of massive ice sheets in Antarctica, reshaping global climate patterns ever since. During the initial major phase of Antarctic glaciation around 34 million years ago, there is no evidence of ice in what is now West Antarctica.
- **Climate Conditions:** At that time, West Antarctica likely hosted dense **broadleaf forests** due to a **cool-temperate climate** that deterred ice formation. In contrast, **East Antarctica**, particularly in the **Northern Victoria Land**, had conditions conducive to permanent ice formation, supported by moist air masses from the **Transantarctic Mountains**.
- **Challenges in West Antarctica:** The advance of ice towards West Antarctica's **Amundsen Sea** sector was hindered by milder air and ocean temperatures. However, ice did begin its spread towards the **Ross Sea sector** earlier, facilitated by favorable climatic conditions and geographical features.
- **Current Vulnerabilities:** Today, many parts of West Antarctica are below sea level, making them inherently more susceptible to warming-induced ice loss. Even slight increases in temperature can accelerate the melting of the West Antarctic ice sheet, a phenomenon already observed.



FACT BOX

- West Antarctica, also known as **Lesser Antarctica**, is a significant region within the Antarctic continent, located in the **Western Hemisphere**.
- It encompasses the **Antarctic Peninsula** and is distinct from East Antarctica by the imposing **Transantarctic Mountains**.
- West Antarctica is dominated by the **expansive West Antarctic Ice Sheet**, a massive ice formation covering the region.
- It is bordered by the **Ross Sea**, partially covered by the **Ross Ice Shelf**, and the **Weddell Sea**, mostly covered by the **Filchner-Ronne Ice Shelf**.

West Antarctica comprises:

- ▶ The Antarctic Peninsula, which includes **Graham Land and Palmer Land**.
- ▶ Ellsworth Land, Marie Byrd Land, and King Edward VII Land.
- ▶ Offshore islands like Adelaide Island.
- ▶ **Significant ice shelves** such as the **Filchner-Ronne Ice Shelf** bordering the **Weddell Sea**, and the **Ross Ice Shelf** bordering the **Ross Sea**.
- It is characterized by its unique geography and the presence of vast ice shelves that play crucial roles in global climate dynamics.

PEOPLE'S BIODIVERSITY REGISTER (PBR)

CONTEXT

With the city expanding and with unplanned urbanisation, documentation of ecologically rich spaces in the People's Biodiversity Register (PBR) is a step towards conservation and benefit sharing of traditional knowledge

What is a People's Biodiversity Register (PBR)?

- The People's Biodiversity Register (PBR) is a mandated repository of information on flora, fauna, local livelihoods, and traditional knowledge about medicinal herbs and plants.
- It is governed by the **Biological Diversity Act, 2002**.
- The PBR serves as a comprehensive database that documents locally available bio-resources, including the landscape and demographics of specific areas.
- It aims to protect intellectual property rights associated with traditional knowledge.
- It is crucial for conservation efforts amidst urban expansion and unplanned urbanization.
- **Implementation:** The **National Biodiversity Authority (NBA)** oversees PBR activities at the national level, while state biodiversity boards and local Biodiversity Management Committees (BMCs) coordinate at state and local levels respectively.

Role in Conservation and Benefit Sharing:

- ▶ The PBR facilitates conservation efforts by identifying ecologically rich spaces and documenting traditional knowledge.
- ▶ It ensures benefit sharing from the commercial use of biological resources and associated traditional knowledge.

KUNO'S CHITAL POPULATION

CONTEXT:

The **Cheetah Project** has made headlines due to plans to relocate surplus cheetahs from **Kuno National Park** to **Gandhi Sagar Wildlife Sanctuary**. This decision follows concerns over a **decline in the chital population**, the primary prey for cheetahs, and challenges posed by leopard predation.

Key Findings:

- Kuno National Park currently hosts 26 cheetahs, including 13 cubs.
- Concerns arose as **Kuno's chital population**, the main prey for cheetahs, decreased by over 25% since 2022.
- Leopard predation on chital is a significant issue, despite efforts to control it.
- **Introducing Larger Cats:** To address the issue of leopard predation and balance the predator-prey dynamics, the project is considering introducing larger cats like tigers into Kuno. Tigers are viewed as natural competitors to leopards and could potentially reduce their impact on the chital population.
- **Project Challenges and Efforts:** Efforts are ongoing to bolster the chital numbers in Kuno, including plans to bring in 1,500 more from other areas. Meanwhile, Gandhi Sagar Wildlife Sanctuary faces hurdles in removing leopards from prey enclosures to facilitate the introduction of cheetahs.



FACT BOX

About Cheetal (*Axis axis*)

- Chital or cheetal (*Axis axis*), also known as the spotted deer, chital deer, and axis deer, is a deer species native to the Indian subcontinent.
- **Distribution:** India, Sri Lanka, Bangladesh, Bhutan and a small group in Pakistan
- Only males have antlers, and their bodies are larger than females.
- **IUCN:** Least Concern

Kuno National Park (Madhya Pradesh)

- Kuno National Park has spread over an area of 748.76 sq. km.
- **Kuno River**, one of the major tributaries of **Chambal River** flows through the entire length bisecting the National Park division.
- It is known for the leopard, Jackal, Chinkara.

Gandhi Sagar Wildlife Sanctuary (Madhya Pradesh)

- Gandhi Sagar is a wildlife sanctuary located at eastern Madhya Pradesh.

- This region is known as a **Nimar region** which touches its border with Rajasthan.
- The forest of this sanctuary is part of **Khathiar-Gir dry deciduous forest**.
- It is part of World famous **Chaturbhuj Nala rock shelters**.

PM 2.5 POLLUTION

CONTEXT

The Lancet study reveals a serious link between air pollution and deaths in Indian cities like Delhi. Pollution particles like **sulfur dioxide and nitrogen dioxide** can cause respiratory issues like coughing and chest tightness.

Key-highlights of the Study

- Between 2008 and 2019, 7.2% of all deaths (approximately 33,000 each year) in 10 cities in India every year can be attributed to air pollution levels that are below India's national clean air threshold.
 - ▶ Delhi recorded the highest number of air pollution-related deaths in the study period - a staggering 11.5% i.e. 12,000 deaths each year.
- India's clean air norms are presently well above the World Health Organisation guideline of 15 micrograms in every cubic meter of air.



FACT BOX

What is PM 2.5?

- PM 2.5 are tiny particles smaller than 2.5 microns, much smaller than a human hair. They're a mix of various chemicals and can be partly liquid, unlike solid dust particles. When these particles are mainly liquid, they're called aerosols.
 - ▶ **Natural kinds of aerosols** include dust, sea salt and volcanic ash
- **Man-made sources** include factory and auto emissions, coal combustion and biomass burning for clearing land or farming.
- PM 2.5 particles are especially harmful as they can bypass our body's defenses like nose hairs and mucus. They can penetrate deep into our lungs, reach the alveoli, and even enter the bloodstream, posing serious health risks.

THE NEW SPECIES DISCOVERY IN INDIA

CONTEXT:

In 2023, India witnessed the discovery of 641 new species, comprising both plants and animals. This marks a significant contribution to biodiversity science and conservation efforts in the country.

Key Findings:

Plant Discoveries:

- ▶ Notable discoveries include **Curcuma kakchingense**, a new species of **turmeric** found in Manipur, and **Asystasia venui**, a flowering plant discovered in West Bengal.
- ▶ **West Bengal led in new plant discoveries** with 52 taxa, followed by Kerala and Uttarakhand.
- ▶ The discoveries encompass wild relatives of horticultural, agricultural, medicinal, and ornamental plants, enriching India's botanical diversity.

Animal Discoveries:

- Significant animal discoveries include **Capra himalayensis**, distinguishing the **Himalayan Ibex** from the **Siberian Ibex**, and **Miniopterus srinii**, a new species of bat found in Karnataka.
- **Kerala reported the highest number of new animal species** with 101 additions, followed by West Bengal and Tamil Nadu.
- **Invertebrates** dominated with 564 new species, particularly insects (369 species), while vertebrates accounted for 77 discoveries, primarily fish species.

Regional Contributions:

- Southern states like **Kerala, West Bengal, and Tamil Nadu** recorded the most new species discoveries, emphasizing the region's biodiversity richness.
- The **Western Ghats and North Eastern Regions** were highlighted as **hotspots** contributing 14% of the total new discoveries.

Scientific Publications:

- The **Zoological Survey of India** and the **Botanical Survey of India** published annual reports documenting these discoveries—'**Animal Discoveries 2023**' and '**Plant Discoveries 2023**', respectively.
- These publications underscore India's ongoing efforts in taxonomy and conservation biology.
- **Fauna of India Checklist Portal**: Launched by the Environment Minister, this portal provides comprehensive information on all known animal taxa in India, covering 36 phyla and over 1,04,561 species.
- It includes endemic, threatened, and scheduled species, supporting biodiversity conservation initiatives nationwide.

CONSERVATION OF GIB AND LESSER FLORICAN

CONTEXT:

The Ministry of Environment, Forest and Climate Change (MoEFCC) has approved Rs 56 crore for the next phase of the conservation of Great Indian Bustard (GIB) and Lesser Florican.

Background

- The conservation programme has been running since 2016 for long-term recovery of critically endangered GIB and Lesser Florican. As of now, around 140 GIBs and fewer than 1,000 Lesser Floricans are surviving in the wild.
- The two species have faced severe decline over the years due to hunting, habitat loss and depredation of eggs by other predators.

About Great Indian Bustard (*Ardeotis nigriceps*)

- The Great Indian Bustard (*Ardeotis nigriceps*) is a large bird native to the Indian subcontinent, known for its presence in dry grasslands and steppe regions. It is often referred to as the Indian Bustard and is one of the heaviest flying birds alive today.
- **Population:** Less than 140 individuals remain, mostly in fragmented areas of western Rajasthan and Gujarat.
- **Habitat:** Historically found across India, it now survives in small numbers primarily in Rajasthan’s Desert National Park and Gujarat’s Banni Grassland Reserve.
- **Threats:** Hunting, loss of natural habitats, and infrastructure development like electric poles.

Significance:

- **State Bird:** Designated as the State bird of Rajasthan, it symbolizes the region’s natural heritage.
- **Flagship Species:** Known as a flagship species for grassland ecosystems, its presence reflects the overall health of these habitats.

Protection Status:

- **IUCN Red List:** Critically Endangered, indicating a high risk of extinction in the wild.
- **CITES:** Listed under Appendix I, which prohibits international trade to protect its survival.
- **CMS:** Also listed under Appendix I, ensuring international cooperation for its conservation.
- **Wildlife (Protection) Act, 1972:** Listed under Schedule 1, providing legal protection within India.

About Lesser Florican

- The Lesser Florican is the **smallest bird in the bustard family**, known for its impressive leaping breeding display. Once abundant in Indian grasslands, it is now critically endangered and on the brink of extinction.

Population and Distribution:

- **States:** Madhya Pradesh, Gujarat, Maharashtra, Karnataka, Telangana, Andhra Pradesh, and Rajasthan.
- **Breeding Grounds:** It survives mainly in the Ajmer landscape of Rajasthan, which is one of its last remaining breeding habitats despite human activity.

- The species is known for its **strong flying ability**, it undertakes a long annual migration from breeding grounds in Gujarat to wintering grounds in southern India, crossing the **Gulf of Khambhat** in a single journey.

Protection Status:

- **IUCN:** Critically Endangered

BORNEO ELEPHANT (ELEPHAS MAXIMUS BORNEENSIS)

CONTEXT:

The **smallest elephant** known to mankind namely the **Bornean elephant** has unfortunately been classified as **‘Endangered’** officially by the **International Union for the Conservation of Nature (IUCN)**.

About:

- The Bornean elephant is the largest mammal on the island of Borneo (despite being smaller than their African counterparts, standing at 8.2-9.8 feet tall)
- They are unique to the island of Borneo.
- These elephants inhabit the Malaysian state of Sabah and the Indonesian state of Kalimantan on the island of Borneo.
- They have long tails that sometimes touch the ground, relatively large ears, and straighter tusks.
- While Borneo elephants are smaller in size than their African counterparts, at 8.2-9.8 feet tall, the Bornean elephant is the largest mammal on the island.
- More than half of the animals’ forest habitat (60 per cent) has been lost in the last four decades, mainly due to logging and the widespread planting of commercial oil palm.

MAINLAND SEROW (CAPRICORNIS SUMATRAENSIS)

CONTEXT:

The mainland serow, a mammal that looks like a cross between a goat and an antelope, has been recorded at the lowest elevation beyond Bhutan, its natural home, in Assam.

About:

- The Mainland Serow (*Capricornis sumatraensis thar*) is a mammal that resembles a cross between a goat and an antelope.
- It is found across various habitats extending from the Himalayas on the Indian subcontinent to southern China, mainland Southeast Asia, and Sumatra.
- The mainland serow inhabits areas at altitudes of 200 metres to 3,000 metres.

- Its habitat is across the border in the **Phibsoo Wildlife Sanctuary** and the **Royal Manas National Park** in Bhutan.
- The species possesses guard hairs on its coat that are bristly or coarse and cover the layer of fur closest to its skin to varying degrees.
- The animal has a mane that runs from the horns to the middle of the dorsal aspect of the animal between the scapulae covering the skin.
- There are four additional species of serow:
 - ▶ Japanese Serow (*C. crispus*)
 - ▶ Formosan Serow (*C. swinhoei*)
 - ▶ Burmese Red Serow (*C. rubidus*)
 - ▶ Thar, or Himalayan Serow (*C. thar*)
- **Conservation Status:**
 - ▶ **IUCN status:** Vulnerable
 - ▶ **CITES:** Appendix I

RED PANDA (AILURUS FULGENS)

CONTEXT:

A Red Panda, also called as lesser Panda, was sighted by a team of forest department officials at Mayudia in **Lower Dibang valley** district of Arunachal Pradesh for the first time in this area.

About:

- It is a small mammal native to the **eastern Himalayas and southwestern China**.
- The red panda is slightly larger than a domestic cat with a bear-like body and thick russet fur.
- The belly and limbs are black, and there are white markings on the side of the head and above its small eyes.
- Red pandas are very skillful and acrobatic animals that predominantly stay in trees. Almost 50% of the red panda's habitat is in the Eastern Himalayas.
- **IUCN Status:** Endangered

NEW SPECIES OF HORNED FROG (XENOPHRYS APATANI)

CONTEXT:

Researchers from the Zoological Survey of India (ZSI) have identified a **new species of horned frog** in Northeast India, previously mistaken for another species found in Vietnam and China.

Key-facts of the Species:

- Initially misidentified as *Xenophrys maosonensis*, the newly described frog is now recognized as *Xenophrys apatani*.

- The species is named after the **Apatani tribe of Arunachal Pradesh**, where it was first reported.
- This leaf-litter dwelling frog, distinguished by **small horns and dark brown coloration**, inhabits tea leaf environments.
- There is a significant genetic difference of 4.4% to 5.5% from its Vietnamese counterpart, prompting the species' reclassification.
- *Xenophrys apatani* contributes to **India's herpetofaunal diversity**, particularly in the Eastern Himalayas and Indo-Burma biodiversity hotspots.

About Apatani tribe

- The Apatani tribe is a prominent ethnic group residing in the **Ziro valley of Arunachal Pradesh**, in the eastern Himalayas.
- **Language and Religion:** They speak the **Tani language** and follow traditional beliefs, worshipping the sun and the moon.
- **Festivals:** Dree, Myoko, Yapung, and Murung. Dree is celebrated with prayers for a prosperous harvest and the well-being of humanity, while Myoko celebrates friendship akin to a modern Friendship Day.
- The Apatanis practice a unique form of agriculture where rice and fish are cultivated together, a method known as integrated rice-fish farming.
- In their terraced mountain fields, the Apatanis cultivate three principal varieties of rice: **Emeo, Pyape, and Mypia**.

GHARIAL (GAVIALIS GANGETICUS)

CONTEXT:

A lone female has been spotted for more than three years in a stretch of the river within the **Kaziranga National Park and Tiger Reserve**.

About the Reptile Species

- Indian Gharial (*Gavialis gangeticus*) is the only surviving member of an ancient family of crocodiles
- Indian gharial is one of the largest river-dwelling crocodile species of the world.
- Adult gharials exhibit a strong association with river systems, often displaying seasonal migratory patterns.
- **India's largest gharial population** resides in the **National Chambal Sanctuary** (77% of the global adult population). The remaining gharial populations in India are found in Katarniaghat Wildlife Sanctuary, the Gandak River (Indo-Nepal border), Corbett National Park, the Son River, Mahanadi River, and Hastinapur Sanctuary.

Conservation Status:

- ▶ **International Union for Conservation of Nature (IUCN) Red List:** Critically endangered
- ▶ **Wildlife Protection Act, 1972:** Schedule 1

- In 2009, a gharial reintroduction programme has been launched for saving the gharials in India.

YAK (BOS GRUNNIENS)

CONTEXT:

A Nature study shows that researchers identified a bone as being Denisovan & analysed other mammalian bones found at the site to find that the ancient humans fed on & processed these bones.

About:

- The yak (*Bos grunniens*) is a large, long-haired bovine native to the Himalayan region and Tibetan Plateau.
- These hardy animals are well-adapted to high altitudes, cold temperatures, and low oxygen environments.
- **Habitat:** They typically live at elevations between 3,000-5,000 meters (9,800-16,400 feet).
- **IUCN Status:** Vulnerable

SALINE LAKES

CONTEXT:

Recently, many saline lakes have been shrinking and experiencing declining water quality. This trend is exacerbated by human activities such as **pollution, water diversions, and climate change** impacts like **reduced precipitation** and **increased temperatures**.

What are Saline Lakes?

- Saline lakes make up 44% of all lakes around the world.
- They differ from freshwater lakes because they lack a consistent outlet for water, causing dissolved salts to accumulate from inflows.
- Their water levels fluctuate naturally and are sensitive to disturbances, whether natural or human-induced.

Changes in Saline Lakes (Examples)

- ▶ **Lake Urmia, Iran:** Once one of the largest saline lakes, Lake Urmia has drastically shrunk due to unsustainable human practices. This has led to environmental problems, reduced tourism, agricultural challenges, and biodiversity loss.
- ▶ **Aral Sea:** Once the fourth-largest inland water body, the Aral Sea has significantly diminished due to poorly planned irrigation projects. Efforts to restore it have faced immense challenges with lasting environmental and socio-economic consequences.



FACT BOX

Saline Lakes in India

- In India, Saline lakes are typically found in **arid and semi-arid regions** where evaporation rates exceed precipitation, leading to the accumulation of salts in water bodies.

Some notable saline lakes in India include:

- ▶ **Sambhar Lake:** Located in Rajasthan, it is India's largest saline lake and an important source of salt production.
- ▶ **Chilika Lake:** Located in Odisha, it is the largest coastal lagoon in India and includes areas with saline and brackish water.
- ▶ **Pulicat Lake:** Located in Andhra Pradesh and Tamil Nadu, it is the second largest brackish water lake in India and has saline components.
- ▶ **Great Rann of Kutch:** While not a lake in the traditional sense, this salt marsh in Gujarat experiences seasonal flooding and drying, resulting in saline conditions.
- ▶ **Wular Lake:** Located in Jammu and Kashmir, it is the largest freshwater lake in India but experiences seasonal variations in salinity.

UPSC PYQ

Q: With reference to India, Didwana Kuchaman, Sargol and Khatu are the names of- (2021)

- (a) glaciers
- (b) mangrove areas
- (c) ramsar sites
- (d) saline lakes

Solution: (d)

SUSTAINABLE ROSEWOOD TRADE

CONTEXT:

In a bid to ensure the sustainable harvest and trade of rosewood species, the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)** has rolled out new guidelines for its member countries.

Key-highlights of the Guidelines:

- The guidelines emphasize capacity-building efforts for managing CITES-listed rosewood species.
- In particular, the focus is on 13 high-priority and 14 medium-priority species identified in the Report on the Conservation and Trade of CITES-Listed Rosewood Tree Species [*Leguminosae (Fabaceae)*].
- ***Pterocarpus erinaceus*:** A significant portion of the discussions centered around ***Pterocarpus erinaceus***, commonly known as African rosewood.
 - ▶ Native to West Africa, this species is among the most threatened due to over-exploitation and illegal trade.
 - ▶ CITES has recommended trade suspensions for range states of ***Pterocarpus erinaceus*** to address these concerns.

- **Non-Detriment Findings (NDFs):** The guidelines called for strengthening of **Non-Detriment Findings (NDFs)** for tree species.
 - NDFs are essential for ensuring that international trade in CITES-listed species does not harm their populations in the wild.
 - They support sustainable global trade, benefiting both the countries where these species originate and the industries in the production and destination countries.



FACT BOX

About Rosewood (*Dalbergia latifolia*)

- Rosewood (*Dalbergia latifolia*) refers to several dark-red hardwood tree species native to tropical areas.
- The Rosewood is a tropical hardwood with a tight, even grain.
- **Rosewood's native range:** India, Brazil, Honduras, Jamaica and Africa.
- CITES oversees the international trade of several rosewood species, including those in the genera *Dalbergia*, *Azalia*, *Khaya*, and *Pterocarpus*.
- These species are listed in Appendix II of CITES, meaning they are not currently threatened with extinction but could become so if their trade is not strictly regulated.
- *D. latifolia* logs is banned from export under the Indian Forest Act.
- **IUCN Red List:** Vulnerable
- **CITES Status:** Appendix II

Breeding occurs during the monsoon season in India, with nests built in shallow water using plant material.

- **IUCN Status:** Vulnerable

PYTHON (PYTHONIDAE)

CONTEXT:

In a bid to address global food insecurity, scientists are exploring the potential of python farming as a sustainable and efficient source of protein.

About:

- It is among the world's largest snake species which can live up to 30 years in wild.
- It is found in tropical and subtropical regions of Africa, Asia, and Australia.
- Reticulated python is the world's longest snake, capable of reaching over 9 meters in length.
- It is Adaptable to various environments including forests, grasslands, and wetlands which makes it invasive species for e.g. Burmese pythons in Florida Everglades causing ecological disruption.
- It is an important indicator species which contributes to ecosystem balance by controlling population of small to medium-sized mammals.
- **IUCN Status:** Varies by species, some listed as **Vulnerable or Near Threatened**.
- **Economic Value:** Skin used in luxury leather goods industry

SARUS CRANE (GRUS ANTIGONE)

CONTEXT:

The latest summer census taken up for sarus crane sightings shows that their count has risen across Uttar Pradesh (UP). However, the bird could not be sighted in Ghaziabad district.

About

- The Sarus Crane (*Grus antigone*) is the world's tallest flying bird, known for its striking appearance and graceful behavior.
- The sarus crane is easily distinguished from other cranes in the region by its overall grey colour and the contrasting red head and upper neck.
- **Diet:** Sarus Cranes are omnivores, feeding on a variety of plants, grains, insects, and small vertebrates. They forage in shallow water and wetland areas.
- **Breeding:** They are monogamous, forming lifelong pairs.

NEW SPECIES OF DOGFISH SHARK (SQUALUS HIMA)

CONTEXT

In a significant discovery, scientists from the Zoological Survey of India (ZSI) have identified a new species of **dogfish shark**, named *Squalus hima*, off the coast of Kerala.

Characteristics of *Squalus hima*

- *Squalus hima* belongs to the genus *Squalus*, commonly known as **spurdogs**.
- These dogfish sharks are characterized by smooth dorsal fin spines, angular short snouts, small mouths almost as wide as their snouts, and bodies without spots.
- They are exploited for their liver oil, which contains high levels of squalene, a highly sought-after ingredient in the pharmaceutical industry for making high-end cosmetic and anti-cancerous products.



FACT BOX

About Dogfish Sharks

- Dogfish sharks are small with slender bodies and pointed snouts.
- They are bottom-dwelling sharks that can be found near coasts around the world and are known to migrate long distances.
- With over 130 different species, they form the second-largest order of sharks, Squaliformes.

Zoological Survey of India (ZSI)

- **Established in:** 1916
- **Objective:** to promote survey, exploration, and research leading to advancements in our knowledge of various aspects of India's rich biodiversity.
- The survey has its roots in the establishment of the Zoological Section of the Indian Museum at Calcutta in 1875.



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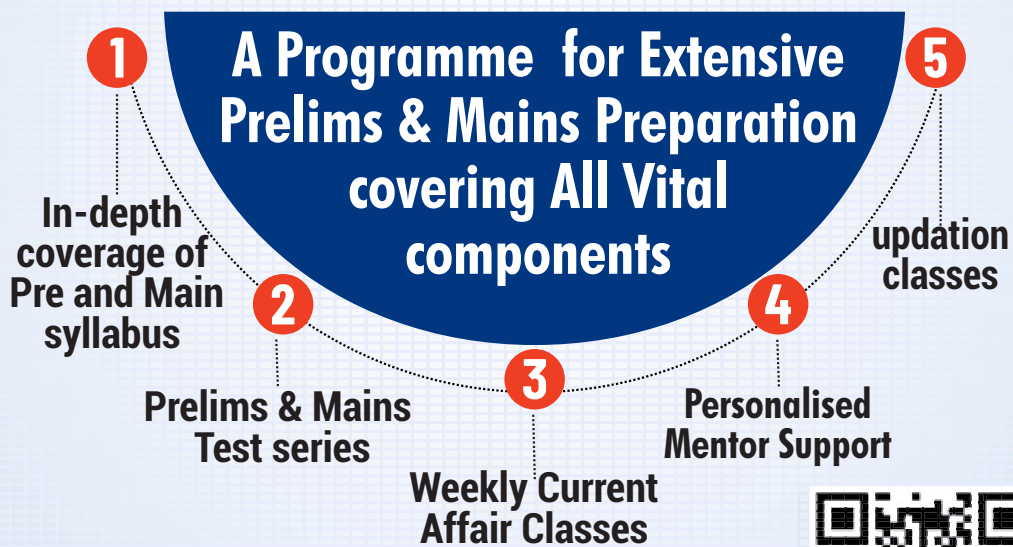
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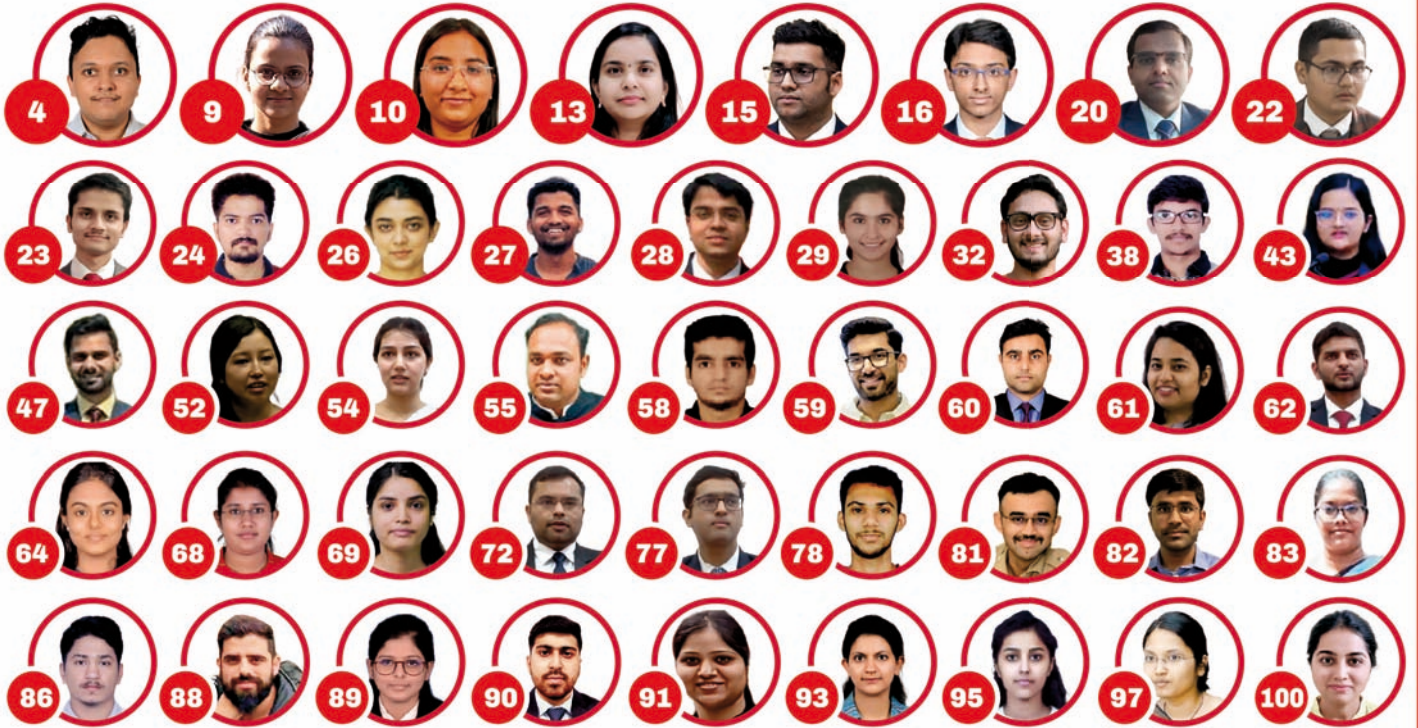
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