

CURRENT AFFAIRS

WEEKLY



MAINS ARTICLE

GS-II

- INDIA TO GAIN 'ADVANTAGE' OVER CHINA IN SRI LANKA?
- INDIA'S NEW CHAPTERS WITH MALDIVES
- CASTE DISCRIMINATION IN INDIAN PRISON
- REGULATION OF INDIAN TEMPLES

GS-III

- INDIA'S TEXTILE SECTOR
- FOOD INFLATION AND FARMER REMUNERATION
- GROWTH OF INDIA'S AGRICULTURAL SECTOR
- MICRORNA: A NOBEL PRIZE-WINNING DISCOVERY
- HIGH-PERFORMANCE BUILDINGS AND THEIR IMPACT ON SUSTAINABILITY IN INDIA
- SC SLAMS CAQM FOR FAILING TO CONTROL STUBBLE BURNING

PRELIMS ARTICLE

INTERNATIONAL RELATIONS

- UK to Return Chagos Islands to Mauritius
- OPEC's Capacity
- World Association of Zoos and Aquariums (WAZA)
- Exercise Malabar 2024

POLITY & GOVERNANCE

- PM Internship Scheme
- Samagra Shiksha Abhiyan
- Centre approves 5 new classical languages
- Chenchus (Particularly Vulnerable Tribal Group)
- National Mission on Edible Oils

ECONOMY

- Union Cabinet Approves Major Agricultural and Employee Incentive Initiatives
- Input Tax Credit (ITC)

- SEBI's Liberalised MF Lite Framework
- Initial Public Offering (IPO)
- RBI's Shift in Monetary Policy Stance

SCIENCE & TECHNOLOGY

- India's fight against AIDS
- Type 1 Diabetes Treatment
- WHO approves first mpox test for faster diagnoses
- Marburg Virus Outbreak
- Tanks in Modern Warfare
- India's Missile Defense Capacity
- MQ-9B Drones

ENVIRONMENT

- Rio Negro (Amazon River Basin)
- Indian Wild Ass (Equus hemionus khur)
- Leopard Population in Odisha

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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

MAINS ISSUES

INDIA TO GAIN 'ADVANTAGE' OVER CHINA IN SRI LANKA?

CONTEXT

Recently, a significant leadership change occurred in Sri Lanka as the country elected a new President (Anura Kumara Dissanayake) amidst efforts to recover from a severe economic crisis. Observers are closely watching how Dissanayake balances relations between major powers, particularly India and China, especially given the island nation's strategic geopolitical location in the Indian Ocean.

India-Sri Lanka Relations

- India and Sri Lanka share a **long-standing relationship** characterized by **geographical proximity** and cultural ties. In response to the recent economic crisis, India provided substantial financial assistance, which helped Sri Lanka sustain essential imports and stabilize its economy.
- India and Sri Lanka share not only close trade relations, but also ethnic and religious ties.
- Sri Lanka has an important place in both **India's 'Neighbourhood First' policy and 'SAGAR' vision**.
- Trade Relations:** India stands as Sri Lanka's largest trade partner and one of its top investors, with total foreign direct investment surpassing USD 2.2 billion.
 - In 2021, India accounted for the largest share of foreign direct investment at USD 142 million, focusing primarily on sectors such as **petroleum, manufacturing, real estate, telecommunications, and banking and financial services**.

- However, in recent years, Sri Lanka has become an **arena of geopolitical rivalry and maritime competition** between India and China.

Neighbourhood First Policy

- Neighbourhood First Policy of India is a core component of India's foreign policy.
- It focuses on peaceful relations and collaborative synergetic co-development with its South Asian neighbors of the Indian subcontinent.
- This policy creates new avenues as well as leverages existing regional cooperation initiatives, such as **SAARC, SASEC, BBIN, and BIMSTEC**.
- It compliments India's Look East policy focused on Southeast Asia and Look West Policy focused on Middle East.

SAGAR' Vision

- SAGAR stands for "Security and Growth for All in the Region" is India's policy or doctrine of maritime cooperation in the Indian Ocean region.
- The policy was first announced by Prime Minister Narendra Modi in 2015.

What about China?

- Sri Lanka President Anura Dissanayake belongs to a party with strong left-wing ideology, which has led to a Marxist insurgency in the past.
- This ideological affinity could present China with another opportunity. However, Sri Lanka's engagement with the neighbourhood, especially **India**, could be dependent on how India engages with Sri Lanka.

- The relationship has been on a stronger footing off-late, making China's ambition in Sri Lanka not easy.
- Last year, India and Sri Lanka agreed to strengthen the maritime, air, energy, tourism, power, trade, and education sectors.
- India has already made significant moves to counter China's expansionist agenda in the island.
- India has also invested in a part of the **Colombo port, Kankesanthurai port, Trincomalee port, Jaffna and Hambantota airports**, amongst other infrastructure projects like a two-way petroleum pipeline.

Advantages for India

A strengthened relationship with Sri Lanka offers several advantages for India:

- **Geopolitical Stability:** A stable Sri Lanka helps mitigate the influence of other regional powers, enhancing security in the Indian Ocean.
- **Economic Opportunities:** With significant investments already made, India can further expand its presence in sectors such as energy, telecommunications, and manufacturing.
- **Regional Connectivity:** Proximity allows for better integration of economies, providing opportunities for trade and collaboration with South India.
- **Influence in the Region:** Strengthening ties helps India maintain its strategic interests in the Indian Ocean and counterbalance the influence of other nations.

Why Sri Lanka Matters to India?

Sri Lanka's significance to India is rooted in several key factors:

- **Strategic Location:** The country is strategically located at the crossroads of busy shipping routes. Positioned in the Indian Ocean, Sri Lanka is a crucial hub for maritime trade routes, impacting regional trade and security.
- **Cultural Connections:** The historical and cultural links between the two nations foster a sense of shared identity that is important for bilateral cooperation.
- **Economic Interdependence:** The strong trade relationship and presence of an Indian diaspora in Sri Lanka enhance economic ties and mutual benefits.
- **Regional Security:** The stability and alignment of Sri Lanka can influence broader regional dynamics, making it essential for India's strategic interests. The interests of India and Sri Lanka are "closely intertwined" in the realms of security and defence.

INDIA'S NEW CHAPTERS WITH MALDIVES

CONTEXT

The bilateral relationship between India and the Maldives has recently faced challenges, especially after President Mohamed Muizzu's rise to power on an anti-India platform. In an effort to stabilize and enhance their ties, India and the Maldives held talks where they agreed to transform the bilateral relationship to a "Comprehensive Economic and Maritime Security Partnership".

Key Highlights of the Deal/Agreement

- **Economic Assistance:** India will provide USD 30 billion and USD 400 million as part of a bilateral currency swap agreement to support the Maldives' economy. This financial aid aims to address ongoing foreign exchange challenges, as the Maldives faces a looming debt crisis.
 - ▶ The Maldives is facing a potential debt default as its foreign exchange reserves have dwindled to \$440 million, enough for just 1.5 months of imports.
- **Defence and Security Cooperation:** India will refit and repair a Maldivian Coast Guard vessel previously gifted to the Maldives. The two nations committed to enhance surveillance and monitoring capabilities for the Maldives National Defence Force (MNDF) through equipment provision and capacity building.
- **Free Trade Agreement (FTA):** Negotiations will be initiated for a Free Trade Agreement to harness economic potential and attract Indian investments in various sectors, particularly tourism.
- **Joint Agreements and Initiatives:** Five pacts were signed, including:
 - ▶ Training of judicial officers
 - ▶ Law enforcement training
 - ▶ Cooperation in sports and youth affairs
 - ▶ Measures to prevent corruption
 - ▶ Launch of the Rupay card in the Maldives.
- **Infrastructure and Social Projects:** India handed over 700 social housing units and inaugurated a new runway at Hanimaadhoo International Airport.
- **Maritime Security Collaboration:** Both nations agreed to cooperate on maritime security, addressing issues like piracy, illegal fishing, and drug trafficking in the Indian Ocean Region.
- **Diplomatic Expansion:** There are plans to establish a Maldivian consulate in Bengaluru and an Indian consulate in Addu City to facilitate trade and people-to-people connections.

Why Maldives assumes significance for India?

- **Strategic location:** The Maldives, situated in the Indian Ocean (a vital trade route), is strategically important to India, both for regional security and trade. The country lies at the crossroads of major shipping lanes.
 - ▶ Maldives' proximity to the west coast of India (barely 70 nautical miles from **Minicoy** and 300 nautical miles from **India's West coast**), and its location at the hub of commercial sea-lanes running through the Indian Ocean (particularly the **8° N and 1 1/2° N channels**) imbues it with significant strategic importance to India.
- **Security:** The Maldives' strategic location makes it essential for India's national interests, particularly in terms of **naval security and counter-terrorism**.
- **Countering China:** Ensuring stability and security in this region is of paramount importance for India, especially in the CONTEXT of rising Chinese influence in the Indian Ocean.

- **India's Foreign Policy:** Maldives is India's key maritime neighbour and an important partner in India's 'Neighbourhood First' policy and 'Security and Growth for All in the Region (SAGAR)'.
- India is one of the largest trading partners for the Maldives, and Maldivian exports to India include fish and other marine products, while India exports a variety of goods, including essential commodities and construction materials.

Case Study

- Relations between India and Maldives hit a rocky patch when the new President Mohamed Muizzu fought the 2023 Presidential election on the slogan of 'India Out'.
- Anti-India sentiments were deployed and attempts were made to spread disinformation.
- India-Maldives relations since the last year have served as a case study of the interplay between public sentiment, economic interests, and diplomatic relations.
- The power of the Indian middle class in influencing international relations through consumer choices has been clearly demonstrated.
- This phenomenon is likely to play an increasingly important role in shaping India's foreign policy and its relationships with neighbouring countries.

Areas of Cooperation:

- **Economic Cooperation:** India is a major economic partner, providing financial support and being a vital trading ally. Tourism plays a significant role in the Maldivian economy, and Indian tourists are among the largest groups visiting the islands.
- **Infrastructure Cooperation:** Projects like the Greater Male Connectivity Project, airport redevelopment, and strategic harbours demonstrate India's commitment to Maldives' sustainable development.
- **Military and Security Cooperation:** Joint exercises, comprehensive defence partnerships, and aid in maritime security highlight the military collaboration. India helped to prevent coup in 1988 which has the support of Tamil liberation forces.
 - ▶ Maldives is also the India's first line of defence against terrorism, piracy on the high seas, drug trafficking, narcotics, and other maritime crime.
- **Humanitarian Assistance Cooperation:** From socio-economic development projects to COVID-19 aid, India consistently supports Maldives in times of need.
- **Socio-Economic development projects:** India provided covishield vaccines, handing over of two sea ambulances and gave aid in building of Indira Gandhi memorial hospital.

India's Neighbourhood First Policy

- The Neighbourhood First Policy was introduced in 2008 by India's Ministry of External Affairs to manage relations with neighboring countries.

- It focuses on priority countries: Afghanistan, Bangladesh, Maldives, Myanmar, Nepal, Pakistan, and Sri Lanka.

SAGAR (Security and Growth for All in the Region)

- SAGAR was articulated by the Prime Minister in Mauritius in 2015.
- It envisions a free, open, inclusive, and prosperous Indo-Pacific region based on a rules-based international order.

These agreements signify a renewed commitment to cooperation in both economic and security domains, reflecting the strategic importance of the Maldives in the Indian Ocean and India's intention to maintain strong ties in the region.

UPSC PYQ

Q: Discuss the geopolitical and geostrategic importance of Maldives for India with a focus on global trade and/energy flows. Further also discuss how this relationship affects India's maritime security and regional stability amidst international competition? (2024)

CASTE DISCRIMINATION IN INDIAN PRISON

CONTEXT:

The Supreme Court of India recently ruled against **caste-based discrimination in prisons**, declaring several provisions in jail manuals unconstitutional. This landmark decision is aimed at addressing the long-standing practices that marginalize certain communities, particularly **Scheduled Castes (SC), Scheduled Tribes (ST), and Denotified Tribes (DNT)**.

Key Points Made by the Supreme Court

- **Violation of Fundamental Rights:** The Court held that caste-based discrimination in prisons violates Articles 14 (equality before law), 15 (prohibition of discrimination), and 21 (right to life with dignity) of the Constitution.
- **Directive for Immediate Reforms:** The Court directed all states and Union Territories to revise their prison manuals within three months to eliminate discriminatory provisions.
 - ▶ SC also directed Centre to make necessary changes to address caste-based discrimination in the **Model Prison Manual, 2016** and the **Model Prisons and Correctional Services Act, 2023** within a period of three months.
- **Critique of Caste-Based Labor Assignments:** The Court condemned the practice of assigning menial tasks to marginalized communities, arguing that it perpetuates caste hierarchies and fails to aid in the reformation and rehabilitation of prisoners.

Removing bias

The Bench says “everyone is born equal” and cannot suffer lifelong due to stigma attached to their caste.

The directions include:

- States and UTs should revise their Prison Manuals/Rules in three months
- Centre should address caste-based discrimination in the Model Prison Manual 2016 and the Model Prisons and Correctional Services Act 2023 in

three months

- “Caste columns” and references to caste in prisoners’ registers should be removed

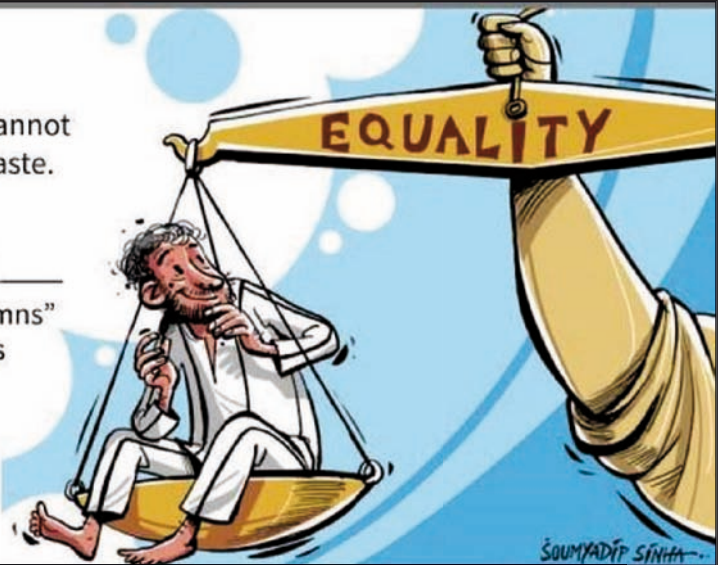


Figure No. 01

- **Caste as a Basis for Discrimination:** The judgment criticized the notion of categorizing inmates based on caste, asserting that this practice is an outdated remnant of colonial and pre-colonial systems designed to dehumanize individuals.
- **Forced Labor and Human Dignity:** The Court ruled that the selective assignment of menial jobs amounts to forced labor, violating the constitutional rights of marginalized communities.
- **Specific Recommendations:** The Court ordered the removal of caste-related references in prison records and manuals, emphasizing the need to provide an environment that respects equality and dignity for all inmates.
- **Condemnation of Practices Against DNTs:** The Court particularly targeted the systemic discrimination against Denotified Tribes, urging states to review classifications that treat them as habitual criminals.

Prevalence of Casteism in Jail

- **Historical Context:** Casteism in prisons has roots in colonial-era practices, where the British utilized caste divisions as a means of control. The persistence of these discriminatory practices reflects deep-seated societal biases.
- **Discriminatory Labor Assignments:** In many prisons, inmates from marginalized communities are assigned menial tasks, such as cleaning and maintenance, while higher caste inmates are given roles perceived as more respectable, such as cooking.
- **Segregation and Isolation:** Inmates from certain castes may face segregation within the prison system, exacerbating social hierarchies and reinforcing stigma even in confinement.
- **Forced Labor Practices:** Reports have documented instances where marginalized inmates are compelled to perform hazardous jobs, such as cleaning sewers, often under unsafe and degrading conditions.
- **Stereotyping and Stigmatization:** The classification of certain groups, particularly DNTs, as habitual criminals

perpetuates negative stereotypes and social stigma, affecting their treatment both inside and outside the prison system.

Reasons Behind Caste-Based Discrimination in Prisons

- **Colonial Legacy:** The structure of Indian prisons is influenced by colonial practices that used caste as a means of control and subjugation, leading to entrenched biases that persist today.
- **Societal Norms:** The broader societal acceptance of caste hierarchies contributes to discriminatory practices within prisons, reflecting the stigmatization of certain communities.
- **Lack of Oversight and Accountability:** Inadequate monitoring and oversight of prison regulations allow for the continuation of discriminatory practices without accountability, often embedded in outdated legal frameworks.
- **Insufficient Legal Protections:** While there are laws prohibiting caste-based discrimination, enforcement is often weak, and many provisions are outdated or not aligned with contemporary human rights standards.
- **Cultural Attitudes:** Deep-rooted cultural attitudes regarding caste and social hierarchy contribute to the persistence of discrimination, affecting both prison staff and inmate interactions.
- **Subject:** Polity & Governance (GS-II)
 - **Sub-topic:** Important Acts, Governance

REGULATION OF INDIAN TEMPLES

CONTEXT

The Supreme Court is currently hearing petitions regarding the alleged adulteration of ghee in the *laddu prasadam* of Lord **Venkateswara**, prompting Hindu organizations to renew their calls for the **liberation of temples from government control**.

How religious places are managed in India?

- While **Muslim and Christian** places of worship are managed by community-run boards or trusts, Hindu temples, alongside Sikh, Jain, and Buddhist sites, often fall under significant government control.
 - ▶ Hindu temples form the majority of the around 30 lakh places of worship in India (2011 census).
- In several Indian states, such as **Tamil Nadu and Andhra Pradesh**, temples are managed by government departments like the **Hindu Religious and Charitable Endowments (HR&CE)**, which oversee their administration, income, and expenditures.
- Several states—including **Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, Kerala, Maharashtra, Odisha, Himachal Pradesh, Bihar, Madhya Pradesh, and Rajasthan** — have enacted laws that give the government the power to administer temples, their incomes and expenditures.
- The erstwhile state of **Jammu and Kashmir** enacted The **Jammu and Kashmir Shri Mata Vaishno Devi Shrine Act, 1988**, to manage, specifically, the **Vaishno Devi Mata Shrine** in Katra, Jammu.

How states derive their authority to regulate temples?

- The Indian Constitution which came into force on January 26, 1950, guarantees fundamental religious rights to its citizens under Articles 25 and 26.
 - ▶ **Article 25** gives every individual the right to profess, practice or propagate his or her religion.
 - ▶ **Article 26** is the fundamental right available to ‘every religious denomination’ to
 - ◆ maintain and establish religious institutions
 - ◆ decide religious matters without any external interference
 - ◆ own and acquire properties and administer such properties in a lawful manner
- States derive their authority to regulate temples from **Article 25(2) of the Constitution**, allowing laws that govern economic activities associated with religious practices and promote social welfare.
- Religious endowments and institutions are in **List III (Concurrent List)** of the **Seventh Schedule**, which means both the Centre and states can legislate on the subject.
- However, almost every State Government in independent India has enforced **special code or laws or Acts** by which Hindu religious institutions viz. **temples, mutts and charities (endowments)** are controlled, if not fully administered, by the respective State Governments – leaving the Hindus and their communities, sects, etc to have no say in these matters.

Case Study of Tamil Nadu

- Tamil Nadu, the Land of Temples, has over 400 temples that are more than 1,000 years old, symbolizing Sanatan Dharma.
- Before independence, Tamil Nadu was part of the **Madras Presidency**, which included parts of present-day **Kerala, Andhra, Karnataka, and Odisha**.
- The **Madras Religious Endowments Act, 1926** (ACT II of 1927) was the first law to control Hindu institutions and served as a model for similar laws across India.
- By 1935, the provincial government took over the administration of large temples, often targeting those with extensive lands under the guise of protection.
- The **Madras Hindu Religious and Charitable Endowments Act, 1951** replaced the Religious Endowments Board with a government department, leading to increased encroachments on temple lands.

Historical Context of Government Control

- The origins of temple control can be traced back to the **Mauryan period**, but significant government involvement began during the 19th century under British colonial rule. Key acts during this period include
 - ▶ **Religious Endowments Act (1863)**: It allowed the British to interfere in temple administration
 - ▶ **Charitable and Religious Trusts Act (1920)**: It established a framework for oversight of religious institutions.
- **Following Independence**, various states enacted specific laws to regulate temples.
 - ▶ The **Madras Hindu Religious and Charitable Endowments Act (1951)** was one of the first, creating a system for government supervision over temple finances and management.
 - ▶ Other notable acts include the **Karnataka Hindu Religious Institutions and Charitable Endowments Act (1997)** and the **Telangana Charitable and Hindu Religious Institutions and Endowments Act (1987)**, which similarly established frameworks for oversight.



FACT BOX

Temple Economy of India

- Bharat is home to over 2 million temples.
- Unfortunately, more than 30,000 temples were destroyed in a period of 100 years (Mughal invasion).

- According to the NSSO survey, the temple economy is worth Rs 3.02 lakh crore, or about \$40 billion and 2.32 per cent of GDP. In reality, it could be much larger.
- According to the NSSO report, the cash donation to the Ram Temple in Ayodhya was Rs 5,450 crore. Muslim and Christian places of worship don't lag behind and more than 36 per cent Muslims, 35 per cent Christians, and 72 per cent Sikhs are likely to undertake religious tourism from 2022 to 2027.

Important government initiatives to develop temple economy

- Mahakal Lok Corridor, Ram Mandir, Kashi Vishwanath Dham Corridor
- Pilgrimage Rejuvenation and Spirituality Augmentation Drive (PRASAD)
- Heritage City Development and Augmentation Yojana (HRIDAY)

INDIA'S TEXTILE SECTOR

CONTEXT

The government recently announced ambitious plans for the **Indian textile and apparel sector**, targeting a total business of USD 350 billion annually by 2030 and aiming to generate 3.5 crore jobs. However, the sector has faced significant challenges in recent years, casting doubt on the feasibility of achieving this goal.

Current Status of the Sector

- The textile and apparel industry contributes nearly 2.3 per cent of India's GDP and 10.5 per cent to the total manufacturing Gross Value Added (GVA) in FY23.
- As of 2021, the Indian textile and apparel industry was valued at approximately USD 153 billion, with about USD 110 billion coming from domestic business.
- India ranks as the third largest textile exporter globally, holding a 5.4% market share, and has the second-largest manufacturing capacity in the world.
- Despite this, the industry experienced substantial growth in FY22, with exports reaching USD 43.4 billion.
- However, a downturn in demand starting in FY23 has led to a slump in both exports and domestic consumption, severely impacting manufacturing hubs, particularly in Tamil Nadu.

Challenges

- Export Slump:** Geopolitical issues and decreased demand from importing countries have negatively affected exports. High raw material prices, particularly for cotton and Man Made Fibres (MMF), have compounded the problem. The 10% import duty on cotton has made Indian cotton less competitive internationally, while new quality control orders for MMF have disrupted raw material availability.

- Traditional Business Disruptions:** The rise of e-commerce and direct-to-consumer retailing is changing the landscape, with new startups entering the market. There is also increasing pressure from foreign brands to adopt sustainability practices, complicating supply chain dynamics.
- Shifts in Consumer Preferences:** The demand for comfort wear, loungewear, and athleisure has surged, requiring manufacturers to adapt quickly to changing trends. Additionally, rural and semi-urban customers are increasingly favoring multi-brand outlets over lesser-known brands.
- Labor Costs and Productivity:** Labor constitutes about 10% of production costs, and with average daily wages for skilled workers at Rs 550 and unskilled at Rs 450, the industry needs to invest in technology and workforce skilling to enhance productivity and minimize waste.

Government/Policies for Textile Sector

PM MITRA: Pradhan Mantri Mega Integrated Textile Region and Apparel

- The PM MITRA scheme focuses on establishing **Mega Integrated Textile Regions and Apparel Parks** across India to stimulate investment, innovation, and growth in the textile sector.
- This initiative represents a collaborative effort between the Central and state governments to create high-quality industrial infrastructure, aligning with the **Prime Minister's 5F vision ("Farm to Fibre to Factory to Fashion to Foreign")**.
- Each park is managed by a **Special Purpose Vehicle (SPV)** jointly owned by the Central and state governments, with financial support provided by the **Ministry of Textiles**.

Production-Linked Incentive (PLI) Scheme

- The Production-Linked Incentive (PLI) Scheme is a strategic initiative aimed at boosting domestic manufacturing and reducing imports within the textile sector.
- It incentivizes companies based on their cumulative sales of domestically manufactured goods, specifically targeting man-made fiber (MMF) apparel, MMF fabrics, and technical textiles.

Samarth Initiative

- The Samarth initiative is a flagship skill development program led by the **Ministry of Textiles**, designed to enhance skills across the textile sector.
- This **demand-driven and placement-oriented scheme** aims to train 10 lakh individuals from 2017 to 2020, focusing on the entire textile value chain, excluding spinning and weaving.

- ▶ With over 85% of its beneficiaries being women, Samarth emphasizes gender inclusivity while targeting both organized and traditional sectors.

▫ National Technical Textiles Mission (NTTM)

- ▶ Launched in 2020, the National Technical Textiles Mission (NTTM) focuses on enhancing technical education, promoting research and innovation, and expanding market growth within the technical textiles domain over a four-year period.
- ▶ The mission prioritizes developing expertise in technical textiles and their applications, including geo, agro, medical, sports, and mobile textiles.

FOOD INFLATION AND FARMER REMUNERATION

CONTEXT

Recent working papers from the **Reserve Bank of India (RBI)** highlight significant **disparities in the remuneration** received by farmers across different agricultural sectors. While farmers growing staple vegetables like **tomatoes, onions, and potatoes (collectively known as TOP crops)** face challenges, those in the pulses and poultry sectors enjoy better financial returns.

Key Findings from RBI Working Papers

- The RBI's analysis explores various agricultural value chains, focusing on TOP crops, fruits (such as grapes, bananas, and mangoes), livestock (milk, poultry, and eggs), and pulses (gram, tur, and moong).
- It reveals that farmers growing fruits and vegetables receive only 31% to 43% of the consumer rupee, while those in the pulses and livestock sectors realize a significantly higher share, ranging from 65% to 75%.
- The recent spikes in food inflation are largely attributed to rising prices of TOP crops, which have notable weightage in the Consumer Price Index (CPI).

Challenges Faced by TOP Farmers

The lower remuneration for TOP crop farmers can be traced to several factors:

- **Fragmented Value Chains:** The value chain for TOP vegetables is inefficient and highly fragmented, primarily due to their perishable nature and the presence of numerous intermediaries. Farmers often end up receiving only about one-third of the price consumers pay for these vegetables, with wholesalers and retailers capturing the majority of the value.
- **Market Regulation:** The **Agricultural Produce Marketing Committees (APMCs)** regulate markets and set mandi fees, which can further diminish farmers' earnings.

- **Storage and Distribution Issues:** A lack of adequate storage facilities exacerbates the problem, as it limits farmers' ability to sell their produce at favorable prices.

Comparative Advantages of Other Sectors

- In contrast, farmers in the dairy and poultry sectors enjoy better returns. For example, dairy farmers receive around 70% of the consumer rupee, while poultry farmers earn about 56%.
- This is largely due to the establishment of efficient value chains, where cooperatives and integrators play a significant role in procuring and distributing products.
- The integration of production and distribution helps stabilize prices and enhance farmers' incomes.

Price Realization in Pulses

- Pulses have a longer shelf life, allowing farmers to realize a higher share of the consumer rupee.
- However, price spikes can occur due to demand-supply gaps, even though India is the world's largest producer of pulses.
- The government intervenes through imports and minimum support prices (MSP) to stabilize the market and protect farmers' incomes.

Enhancing Farmer Incomes: Suggested Solutions

To improve the financial status of TOP crop farmers, the RBI working papers propose several measures:

- **Privatization of Mandis:** Allowing private mandis could create competitive markets for farmers and increase their earnings.
- **Digital Market Integration:** Enhancing the **National Agriculture Market (e-NAM)** by linking it with APMCs could facilitate online trading, making it easier for farmers to reach consumers.
- **Strengthening Farmers' Collectives:** Scaling up Farmer Producers Organizations (FPOs) would empower small and marginal farmers by increasing their bargaining power.
- **Futures Trading:** Relaunching futures trading in commodities like potatoes and onions could help in better price discovery.
- **Improving Dairy Value Chains:** Enhancing operational efficiency in the dairy sector through better procurement practices and investment in feed and fodder production can further increase farmer incomes.



FACT BOX

National Agriculture Market (eNAM)

- **Launched in:** 2016

- National Agriculture Market (eNAM), a **pan-India electronic trading portal**, networks the existing Agriculture Produce Market Committee (APMC) mandis to create a unified national market for agricultural commodities.
- e-NAM platform promotes better marketing opportunities for the farmers to sell their produce through online competitive and transparent price discovery system and online payment facility.

Agricultural Produce Market Committee (APMC)

- **Established in:** 2003
- Presently, markets in agricultural products are regulated under the **Agricultural Produce Market Committee (APMC) Act** enacted by State Governments.
- The Agricultural Produce & Livestock Market Committee are established under the provisions of **APLM Act**.

GROWTH OF INDIA'S AGRICULTURAL SECTOR

CONTEXT

India's agricultural sector has shown notable growth over the past two decades, especially in the last ten years. This growth has been analyzed in a recent paper published by **NITI Aayog**, focusing on the performance of the sector in terms of **Gross Value Added (GVA)**.

Key Findings on Agricultural Growth

◦ Growth Rates Over Time:

- ▶ **1984-85 to 1993-94:** The average annual growth rate for agriculture was 2.9%.
- ▶ **1994-95 to 2003-04:** The growth rate remained the same at 2.9%.
- ▶ **2004-05 to 2013-14:** This period saw an increase in the growth rate to 3.5%.
- ▶ **2014-15 to 2023-24:** The growth rate further accelerated to 3.7%.
 - ◆ The increase in growth rates challenges the perception that the agricultural sector is in crisis, highlighting significant improvements over the last decade.
- **Production Estimates:** Government estimates indicate that cereal production rose from 185.2 million tonnes in 2004-05 to 303.6 million tonnes in 2022-23.
 - ▶ However, household cereal consumption has remained relatively flat at around 153-156 million tonnes. This has raised questions about the accuracy of production estimates, with the gap between production and consumption widening significantly.

◦ Subsector Performance:

- ▶ **Crops Subsector:** The crops subsector grew at an average rate of 2.3% from 2014-15 to 2022-23, lower than the previous period's growth of 3.4%.
- ▶ **Livestock and Fisheries:** These subsectors performed much better, with livestock growth at 5.8% and fisheries at 9.2% during the same period. This indicates a shift towards non-crop agricultural activities.

◦ State-Level Insights:

- ▶ **Top Performing States:** Thirteen states recorded an average agricultural growth of 4% or more from 2014-15 to 2022-23.
- ▶ **Underperforming States: Punjab, Haryana, and West Bengal** showed much lower growth rates of 2%, 3.4%, and 2.8%, respectively, primarily driven by poor crop growth.

Key Drivers of Growth

- **Market Demand:** The increase in agricultural growth is largely driven by growing consumer demand for diverse products like fruits, vegetables, milk, meat, and fish.
- **Diversification:** Farmers have diversified into horticulture, livestock, and fisheries. This shift is supported by advancements in agricultural technology, such as:
 - ▶ High-yielding crop varieties.
 - ▶ Improved irrigation methods (e.g., drip irrigation).
 - ▶ Enhanced breeding techniques in livestock.
- **Consumption Patterns:** There has been a noticeable shift in household consumption from basic caloric foods to those rich in proteins and micronutrients, indicating a changing diet among consumers.

Challenges Faced

Despite the positive growth trends, challenges remain:

- **Income Disparities:** Not all farmers are involved in high-growth areas like livestock and horticulture. According to the NSSO's 2018-19 survey:
 - ▶ 53% of farmers earned income from livestock.
 - ▶ Only 6.5% were engaged in horticulture.
 - ▶ 44.2% of agricultural households relied primarily on traditional crops (cereals, pulses, oilseeds).
- **Low Yield in Certain Crops:** Certain traditional crops like oilseeds and pulses still have low yields, leading to reliance on imports to meet domestic demand. In cotton, production levels have not improved significantly, remaining below previous highs.
- **Support Price Impact:** The existence of a minimum support price for crops like rice and wheat has not translated into improved growth for these sectors, indicating that demand-side factors and technological advancements may be more effective in driving agricultural growth.

TABLE 1

AVERAGE ANNUAL GROWTH IN VALUE OF OUTPUT* (2014-15 TO 2022-23) (IN %)

1. Fishing & Aquaculture	9.08
2. Livestock	5.76
(a) Milk	5.78
(b) Poultry Meat	9.22
(c) Eggs	6.58
3. Crops	2.34
(a) Horticultural Crops**	3.94
(b) Non-Horticultural Crops	1.64
Foodgrains	2.63
Cereals	2.40
Pulses	4.67
Oilseeds	2.96
Sugarcane	4.33
Cotton	0.11
Jute	-2.00
Tea & Coffee	1.29
Tobacco	-3.31

*At 2011-12 prices; **Includes Fruits & Vegetables and Condiments & Spices

TABLE 2

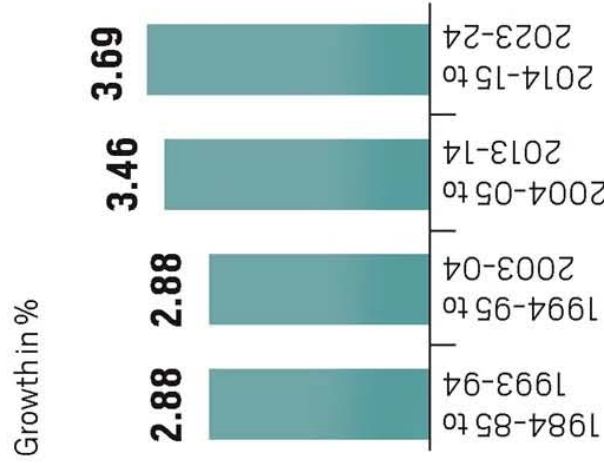
TOP AGRICULTURAL GROWTH STATES: 2014-15 TO 2022-23*

	Agriculture	Crops	Livestock	Fishing
Andhra Pradesh	7.97	3.65	8.41	18.45
Madhya Pradesh	6.9	5.96	12.6	15.31
Karnataka	6.32	4.53	11.49	11.74
Telangana	5.63	5.13	8.22	7.58
Tamil Nadu	5.39	2.72	9.73	3.65
Chhattisgarh	5.2	3.47	7.28	9.73
Odisha	5.11	4.45	5.16	11.79
Rajasthan	4.83	1.9	10.9	10.04
Jharkhand	4.73	3.59	6.18	11.88
Uttar Pradesh	4.64	4.44	5.17	7.98
Maharashtra	4.54	3.58	6.95	2.08
Bihar	4.3	1.83	8.28	7.84
Gujarat	4	2.44	5.59	5.75
ALL-INDIA	3.94	1.98	7.39	8.98

*Average annual % growth in Gross Value Added at 2011-12 prices.

CHART 1

AVERAGE ANNUAL GROWTH OF AGRICULTURE*



*Growth of Gross Value Added in Agriculture, Livestock, Forestry & Fishing at 2011-12 prices.

MICRORNA: A NOBEL PRIZE-WINNING DISCOVERY

CONTEXT

The **Nobel Prize in Medicine** was awarded to two US scientists, **Victor Ambros and Gary Ruvkun**, for their groundbreaking discovery of **microRNA**—a previously **unknown type of genetic switch**. This discovery holds promise for developing new medical treatments, although none are currently available to patients.

What is microRNA?

- Each cell in the human body contains the same genetic instructions, known as **DNA**.
- However, different cells (like brain cells and muscle cells) interpret these instructions differently.
- This process is called **gene regulation**, where certain parts of the DNA are activated or deactivated.
- **Role of RNA:** Ribonucleic acid (RNA) typically acts as a messenger, conveying instructions from DNA to proteins, which are essential for building and maintaining cells.
 - ▶ An example of this is the **messenger RNA (mRNA)** used in COVID-19 vaccines, which instructs cells to produce proteins that fight the virus.
- **MicroRNA (miRNA)** is a **small, non-coding RNA molecule** that plays a key role in regulating gene expression.
- Unlike **messenger RNA (Mrna)**, which carries instructions to make proteins, microRNA works by binding to specific mRNA molecules and preventing them from being translated into proteins or by degrading the mRNA altogether.

The Discovery of microRNA

- Ambros and Ruvkun discovered microRNA while studying the interactions of genes in a tiny roundworm known as *Caenorhabditis elegans* in the 1980s.
- Their research led to the identification of microRNA as a new type of gene regulator, distinct from traditional RNA.
- **Function of microRNA:**
 - ▶ Unlike messenger RNA, microRNA acts as a switch that can turn other genes on or off.
 - ▶ This adds a new layer of complexity to gene regulation, revealing that areas of DNA previously thought to be non-coding actually play significant roles in controlling gene expression.
 - ▶ There are more than 1,000 genes in the human body that respond to microRNA.

Potential Applications of microRNA

MicroRNA has the potential to revolutionize medical treatments, particularly in the following areas:

- **Cancer Treatment:** Some microRNAs function as tumor suppressors, helping to prevent cells from dividing

uncontrollably, while others can promote cell division, potentially leading to cancer. Understanding these mechanisms could lead to new cancer therapies.

- **Antiviral Drugs:** Many viruses utilize microRNAs for their lifecycle, leading researchers to develop antiviral drugs targeting these interactions. Treatments for hepatitis C are among the ongoing developments.
- **Biomarkers:** Scientists hope to use microRNA as biomarkers to detect specific types of cancer, aiding in diagnosis and treatment strategies.

HIGH-PERFORMANCE BUILDINGS AND THEIR IMPACT ON SUSTAINABILITY IN INDIA

CONTEXT

The conversation around sustainability in the building sector is increasingly crucial as buildings are significant contributors to global emissions. With urbanization accelerating, especially in countries like India, improving energy efficiency and reducing carbon footprints in construction is vital for achieving climate goals.

The Challenge of Building Emissions

- Buildings account for nearly 40% of total final energy consumption globally, primarily for operational needs like heating, ventilation, and lighting.
- This energy usage results in approximately 28% of energy-related carbon emissions.
- In India, buildings contribute over 30% of national energy consumption and 20% of carbon emissions.
- As India's urban population is projected to reach 600 million by 2030, addressing these issues becomes increasingly urgent.

What Are High-Performance Buildings (HPBs)?

- High-Performance Buildings (HPBs) and green buildings are terms often used interchangeably, but they have distinct objectives:
 - ▶ **Green Buildings:** Green buildings focus on reducing environmental impacts and energy consumption, often certified through established programs that assess sustainability across various categories, such as energy efficiency and water conservation.
 - ▶ **High-Performance Buildings:** HPBs aim for exceptional efficiency in all aspects, from energy and water use to occupant health and comfort. They utilize advanced technologies and smart design strategies to achieve results beyond local regulations, continuously tracking performance metrics.

Key Features of High-Performance Buildings

- ▶ **Site-Specific Design:** HPBs employ natural lighting, ventilation, and sustainable materials to maximize thermal efficiency and reduce energy demand.

- ▶ **Advanced Technologies:** These include energy-efficient HVAC systems, greywater recycling, rainwater harvesting, smart lighting controls, and sophisticated building management systems (BMS) that optimize resource use in real-time.

Benefits of High-Performance Buildings

HPBs provide numerous advantages that extend beyond environmental impact:

- **Operational Longevity:** Smart systems help ensure that building infrastructure lasts longer, reducing the need for frequent upgrades.
- **Economic Gains:** HPBs typically have higher property values and lower maintenance costs, leading to better returns on investment.
- **Intelligent Ecosystems:** By using automation and artificial intelligence, HPBs can adjust conditions based on occupancy and environmental factors, optimizing energy use.

SC SLAMS CAQM FOR FAILING TO CONTROL STUBBLE BURNING

CONTEXT

The Supreme Court of India recently addressed the **persistent issue of stubble-burning** in Punjab and Haryana, a practice that contributes significantly to air pollution in the National Capital Region (NCR), particularly around Diwali. The court has criticized the **Commission for Air Quality Management (CAQM)** for failing to prosecute violators of stubble-burning laws, despite having the authority to impose severe penalties. This issue has drawn public attention due to its direct impact on air quality and public health in the NCR.

Key Observations Made by the Supreme Court

- **Need for Criminal Prosecution:** The court emphasized that without criminal prosecution of farmers and public servants involved in stubble-burning, the issue will persist. It noted that the CAQM has not registered a single case of violation, undermining the effectiveness of its orders.
- **Failure of CAQM:** The Supreme Court criticized the CAQM for its inaction and lack of compliance with its own orders from June 2021 and April 2024. The court expressed dissatisfaction with the CAQM's focus on holding meetings rather than taking concrete action against violators.
- **Questioning CAQM's Monitoring:** The court questioned whether the CAQM had two experts on air pollution as part of its panel, indicating concerns about its capacity to tackle the issue effectively.
- **Call for Action Reports:** The court demanded action-taken reports from Punjab and Haryana within one week, indicating a serious approach to addressing the matter.

- **Penal Actions and Accountability:** The court pointed out that there have been no prosecutions under the CAQM Act despite the severe penalties outlined, calling for accountability for officials who have failed to enforce the law.
- **Response to Punjab's Arguments:** Punjab's justification for delaying penal action—citing the need for alternative incentives for farmers—was met with skepticism by the court, which emphasized that such political considerations should not interfere with legal responsibilities.

What is Stubble Burning?

- Stubble burning is a method of removing **paddy crop residues** from the field to sow **wheat**.
- This removal generally occurs from the last week of September to November.
- It is a process of setting on fire the straw stubble, left after the **harvesting of grains, like paddy, wheat, etc.**
- **Consequences:**
 - ▶ The process of burning farm residue is one of the major causes of air pollution in parts of north India, deteriorating the air quality.
 - ▶ Along with vehicular emissions, it affects the **Air Quality Index (AQI)** in the national capital and NCR.
- Paddy stubble burning is practised mainly in the Indo-Gangetic plains of Punjab, Haryana, and UP to clear the fields for rabi crop sowing.
 - ▶ The paddy crop is harvested between the first and last weeks of October in Punjab and Haryana.
 - ▶ Then, farmers sow the wheat crop from the first week of November until the middle of December.
- The major reason behind the stubble burning is the short time available between rice harvesting and sowing of wheat as delay in sowing wheat affects the wheat crop.

Impact

- **Pollution:** Stubble burning emits toxic pollutants in the atmosphere containing harmful gases like **Carbon Monoxide (CO), methane (CH₄), carcinogenic polycyclic aromatic hydrocarbons, volatile organic compounds (VOC).**
- **Soil fertility:** Soil becomes less fertile and its nutrients are destroyed when the husk is burned on the ground
- **Heat penetration:** Stubble burning generates heat that penetrates into the soil, causing an increase in erosion, loss of useful microbes and moisture.

Solutions to Stubble Burning

- Solutions to stubble burning include readily available and affordable super seeder machines that pluck out the crop residue and turn it into manure, incentivising sale of fodder from paddy harvest and flexible sowing dates for paddy as also paddy varieties with shorter cycles for harvesting.

◦ Important Artificial Machines

- ▶ Happy Seeder(used for sowing of crop in standing stubble)
- ▶ Rotavator(used for land preparation and incorporation of crop stubble in the soil)
- ▶ Zero till seed drill (used for land preparations directly sowing of seeds in the previous crop stubble)
- ▶ Baler (used for collection of straw and making bales of the paddy stubble)
- ▶ Paddy Straw Chopper (cutting of paddy stubble for easily mixing with the soil)
- ▶ Reaper Binder (used for harvesting paddy stubble and making into bundles)



FACT BOX

Role of the Commission for Air Quality Management (CAQM)

- CAQM is a statutory body.
- It is established under the Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas, Act 2021.

- Its main task is to manage air quality in Delhi and its surrounding areas, has been working to implement stricter measures each year to curb pollution in the national capital.
- **Graded Response Action Plan (GRAP)** is a framework designed to combat air pollution in the Delhi-NCR region.
 - ▶ It was introduced as an emergency response mechanism, and its implementation is triggered when the AQI reaches "poor" levels.
- **The Air Quality Index (AQI)** is issued by government agencies to gauge air pollution levels and communicate risks to the public.
 - ▶ It indicates how air pollution can affect health, with higher AQI values indicating more severe health concerns.
 - ▶ The AQI is calculated based on air pollutant concentrations over a specific period, and the results are categorised into ranges with corresponding health advisories.
 - ▶ According to the AQI scale, the air quality check between
 - ◆ 0 and 50 is "**Good**"
 - ◆ 51 and 100 "**Satisfactory**"
 - ◆ 101 and 200 "**Moderate**"
 - ◆ 201 and 300 "**Poor**"
 - ◆ 301 and 400 "**Very Poor**"
 - ◆ 401 and 450 "**Severe**"
 - ◆ Over 450 as "**Severe +**".



IMP

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SECTION - B

QUICK BYTES

UK TO RETURN CHAGOS ISLANDS TO MAURITIUS

CONTEXT:

The United Kingdom recently returned the sovereignty of the Chagos Archipelago to Mauritius.

Key-details of the Agreement

- This agreement resolves a **long-standing dispute that dates back over 50 years**, primarily surrounding the forced removal of the **indigenous Chagossian population** and the establishment of a crucial U.S. military base on **Diego Garcia**.
- The agreement allows Mauritius to implement a **resettlement program for the Chagossians**, supported financially by the UK.
- Operations at the **Diego Garcia military base** will continue for at least the next 99 years, with the UK providing annual payments and financial support to ensure the base's effective operation.
 - ▶ The U.S. military base on Diego Garcia is crucial for military operations in **Africa, West Asia, and Southeast Asia**. It serves as a staging ground for naval and air operations, making it a key asset in U.S. military strategy.
- The agreement aims to maintain regional security while addressing historical grievances.

About Chagos Archipelago

- The Chagos Archipelago is located in the Indian Ocean, about 1,000 miles south of India.
- It is an isolated atoll of tiny islands in the middle of the **Indian Ocean**, between **Africa and Western Australia**.

- The chain includes the **Salomon Islands, Peros Banhos, Nelson's Island, Three Brothers Islands, Eagle Islands, Danger Island, the Egmont Islands and Diego Garcia**, a strategically important US military base.
 - ▶ Diego Garcia is the **largest island** of the **Chagos cluster** and is also located on **major international trade routes**.

Historical Background:

- ▶ The islands were part of Mauritius until the UK separated them in the 1960s during Mauritius's path to independence.
- ▶ Prior to their eviction, the Chagossians lived on the islands for generations, relying on fishing and small-scale agriculture.
- **Forced Eviction:** The UK and U.S. established a military base on Diego Garcia in the 1970s, leading to the forced removal of over 1,000 Chagossians. The eviction process involved relocation to Mauritius and the Seychelles.
- **Legal and Diplomatic Developments:**
 - ▶ **ICJ Ruling (2019):** The International Court of Justice ruled against the UK's control over the islands, stating that the forced evacuation was unlawful. It called for the UK to withdraw its presence.
 - ▶ **UN Resolution:** A UN General Assembly resolution demanding the UK's withdrawal received support from 116 countries, indicating broad international condemnation of the UK's actions.

OPEC'S CAPACITY

CONTEXT

The Organization of Petroleum Exporting Countries (OPEC) possesses sufficient spare oil capacity to offset a complete loss of **Iranian oil supply**, should Israel take action against Iranian facilities. However, the dynamics change dramatically if Iran retaliates by targeting oil installations in Gulf nations.

About OPEC+

- The **Organization of the Petroleum Exporting Countries (OPEC)** was formed in 1960 by **Iraq, Iran, Kuwait, Saudi Arabia, and Venezuela**. The organization has since expanded to 13 members.
- **OPEC+** is an expanded version of OPEC that includes OPEC member countries and additional oil-producing nations, primarily those not in OPEC (**Russia, Mexico, Kazakhstan, and Oman**)
- In 2016, largely in response to dramatically falling oil prices driven by significant increases in U.S. shale oil output, OPEC signed an agreement with 10 other oil-producing countries to create what is now known as **OPEC+**.
 - Among these 10 countries was the **world's third-largest oil producer** in 2022, Russia, which produced 13% of the world total (10.3 million barrels per day [b/d]).
- **The current members of OPEC are:** Saudi Arabia, United Arab Emirates, Kuwait, Iraq, Iran, Algeria, Libya, Nigeria, Congo, Equatorial Guinea, Gabon and Venezuela.
- **Non-OPEC countries in the global alliance of OPEC+** are represented by Russia, Azerbaijan, Kazakhstan, Bahrain, Brunei, Malaysia, Mexico, Oman, South Sudan and Sudan.

OPEC's Spare Capacity

- OPEC+ has enough spare capacity to mitigate the shock of losing Iranian production.
- OPEC+ has cut production by a total of 5.86 million bpd to support oil prices amid sluggish global demand.
- Estimates indicate that Saudi Arabia could increase its output by 3 million bpd, while the United Arab Emirates has the potential to raise production by 1.4 million bpd.
- Despite OPEC's ability to compensate for Iranian losses, much of the spare capacity is concentrated in the **Middle East Gulf**, making it vulnerable to conflict escalation.
- The available spare capacity could be significantly reduced if attacks on energy infrastructure occur in the region. In such scenarios, the West may need to rely on strategic reserves to stabilize supply.
- **Iran's capacity:** Iran, a significant OPEC member, produces approximately 3.2 million barrels per day (bpd), accounting for about 3% of global oil output.
 - Despite U.S. sanctions, Iranian oil exports have surged to nearly 1.7 million bpd, primarily driven by demand from Chinese refiners, which disregard unilateral U.S. sanctions.



FACT BOX

India's Oil Landscape

- India, the **world's third biggest oil importer and consumer**, imports over 80% of its oil needs from overseas.
- Top five countries where India imports most of its crude oil from: **Iraq, United States, Nigeria, Saudi Arabia, UAE**
- India became the top buyer of Russian oil in July, surpassing China.
- India will become the largest source of global oil demand growth between now and 2030
- **Measures to Reduce Oil Imports**
 - In 2021, the Government allowed **100% Foreign Direct Investments (FDIs)** under the automatic route for all oil and gas PSUs.
 - **Coal Bed Methane** is being explored as an alternative source for India's energy needs.
 - The Government is also using **Underground Coal Gasification** to meet its energy demands internally.
 - **National Gas Hydrate Programme (NGHP)** to map gas hydrates as an alternate source of energy.
 - Open Acreage Licensing Policy (OALP)

WORLD ASSOCIATION OF ZOOS AND AQUARIUMS (WAZA)

CONTEXT

The **World Association of Zoos and Aquariums (WAZA)** — an alliance of global zoo and aquarium associations suspended the membership of the National Zoological Park, informally known as the Delhi zoo, over concerns about the poor condition in which the lone African elephant at the facility has been housed.

About WAZA

- **Founded:** 1935
- WAZA is the global alliance of regional associations, national federations, zoos and aquariums, dedicated to the care and conservation of animals and their habitats around the world.
- The membership consists of nearly 400 leading institutions and organisations around the world, and this number continues to grow.
- WAZA promotes cooperation between leading zoos, aquariums, national and regional associations, as well as with leading wildlife experts, academics, and universities.

- **Central Zoo Authority (CZA)** is India's statutory zoo regulatory body.



FACT BOX

African savanna elephants

- African savanna elephants are the largest species of elephant and the biggest terrestrial animal on Earth.
- There are two subspecies of African elephant:
 - ▶ Savanna elephant (*Loxodonta africana*)
 - ▶ Forest elephant (*Loxodonta cyclotis*)
- They have large ears—which allow them to radiate excess heat—and front legs which are noticeably longer than the hind legs.
- The largest populations are in Southern and Eastern African countries, including **Botswana, Zimbabwe, Tanzania, Kenya, Namibia, Zambia, and South Africa.**
- African elephants are listed as endangered by the IUCN.

EXERCISE MALABAR 2024

CONTEXT

The **28th edition** of the **multi-national Malabar Naval exercise**, hosted by the Indian Navy, commenced in the **Bay of Bengal**. The Royal Australian Navy hosted the 27th edition of the Malabar Naval exercise in August 2023 near Sydney.

About

- MALABAR was initiated in **1992** as a bilateral exercise between India and the US.
- It gained further traction as a significant maritime engagement, with Japan and Australia joining in subsequently.
- The exercise brings together like-minded nations to further enhance the ability to train and operate jointly, towards establishing the synergy critical to achieve shared objectives.
- The exercise is aligned with the Indian Government's vision of **Security & Growth for All in the Region (SAGAR)** and reflects India's growing engagement with like-minded nations.
- The exercise will feature participation of various Indian naval platforms, including guided missile destroyers, multi-purpose frigates, submarines, fixed wing MR, fighter aircraft and helicopters.
- **Australia:** HMAS Stuart, an Anzac Class Frigate with its MH-60R helicopter and P8 Maritime Patrol Aircraft
- **United States:** USS Dewey, an Arleigh Burke-Class Destroyer and P8 Maritime Patrol Aircraft.
- **Japan:** JS Ariake, a Murasame-class Destroyer

PM INTERNSHIP SCHEME

CONTEXT

The Central government launched the pilot phase of the **Prime Minister's Internship Scheme**, aiming to offer 1.25 lakh internship opportunities during the fiscal year 2024-25.

About the Scheme

- The Prime Minister's Internship Scheme was announced in the **Union Budget 2024-25**.
- The scheme aims to address youth unemployment by providing internships to **1 crore** young people over the next five years.
- These internships are intended to offer valuable workplace experience, making it easier for participants to secure jobs after completing the program.



FACT BOX

Schemes/initiatives aimed at skilling youth

- Skill India Mission
 - Pradhan Mantri Kaushal Vikas Yojana (PMKVY)
 - Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)
 - National Apprenticeship Promotion Scheme (NAPS)
 - Rural Self Employment Training Institutes (RSETIs)
 - Atal Innovation Mission (AIM)
 - National Skill Development Corporation (NSDC)
 - Udaan
 - The Entrepreneurship Development Program (EDP)
 - Integrated Skill Development Scheme (ISDS)
- Applicants who meet the eligibility requirements can apply online through the official portal to benefit from the Prime Minister Internship Scheme. The online portal developed by the **Ministry of Corporate Affairs (MCA)**.
- ### Eligibility Criteria
- ▶ Age range: 21 to 24 years
 - ▶ Should not be engaged in full-time employment
 - ▶ Individuals from families with government employees are not eligible
 - ▶ Graduates from prestigious institutions like IITs, IIMs, or those with qualifications such as CA or CMA are excluded
- The scheme is, however, open to youth trained at Industrial Training Institutes (ITIs) and Kaushal Kendras (skill centers).

- Selected participants will receive a monthly stipend of Rs. 4,500 from the government, with an additional Rs. 500 provided by companies as part of their corporate social responsibility (CSR) initiatives.

SAMAGRA SHIKSHA ABHIYAN

CONTEXT

The ongoing conflict between the Union and Tamil Nadu governments over the **National Education Policy (NEP), 2020**, has resulted in significant delays in funding for the **Samagra Shiksha Abhiyan (SSA)**. This situation has led to over 20,000 personnel in the State, including teachers and support staff, not receiving their salaries.

What is Sarva Shiksha Abhiyan?

- Launched in:** 2018
- Samagra Shiksha is an integrated scheme for school education sector extending from pre-school to class 12.
- It is Government of India's (GoI's) school education programme extending from pre-school to senior secondary classes.
- The scheme was launched to ensure equitable and inclusive quality education.
- Three existing schemes **Centrally Sponsored Schemes** are subsumed within Samagra Shiksha:
 - Sarva Shiksha Abhiyan (SSA)
 - Rashtriya Madhyamik Shiksha Abhiyan (RMSA)
 - Teacher Education (TE)
- The scheme is in accordance with **Sustainable Development Goal for Education (SDG-4)**.
 - Goal SDG-4.1** states that "By 2030, ensure that all boys and girls complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes".
 - Goal SDG 4.5** states that "By 2030, eliminate gender disparities in education and ensure equal access to all levels of Education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations"

CENTRE APPROVES 5 NEW CLASSICAL LANGUAGES

CONTEXT

The Union Cabinet approved the status of '**classical language**' for five additional languages: **Marathi, Bengali, Pali, Prakrit, and Assamese**.

About Classical Language

- The term "Indian classical languages" refers to a group of languages that have a long history and a rich, unique, and distinctive literary legacy

- The Indian government announced in 2004 that languages might hold the title of "Classical Language" of India if they fulfilled a number of certain requirements.
- It was established by the **Linguistic Experts' Committee and the Ministry of Culture**.
- To be designated as a classical language in India, a language must meet specific criteria:
 - High Antiquity:** The language should have an ancient recorded history of 1,500 to 2,000 years.
 - Heritage Literature:** There must be a significant body of ancient literature that is cherished by generations of speakers.
 - Diverse Textual Evidence:** Knowledge texts, including prose and poetry, along with epigraphical and inscriptional records, should exist.
 - Distinct Historical Form:** The classical form of the language may differ significantly from its contemporary iterations.
- The languages now recognized include widely spoken languages like **Marathi, Bengali, and Assamese, alongside Pali**, which is significant in Buddhist tradition and taught in universities.
- This decision increases the total number of recognized classical languages in India from **six to eleven**.
 - The currently recognised classical languages include **Tamil, Sanskrit, Telugu, Kannada, Malayalam, and Odia**.
 - The new additions include **Marathi, Pali, Prakrit, Assamese, and Bengali**.

CHENCHUS (PARTICULARLY VULNERABLE TRIBAL GROUP)

CONTEXT:

Recently, the plight of the Chenchus, one of the **Particularly Vulnerable Tribal Groups (PVTGs)** in Andhra Pradesh, has come to the forefront due to the significant **socio-economic challenges they face**.

About the Chenchus (children of the forest)

- The Chenchus are an **aboriginal tribe** that speaks Telugu and are considered **one of the oldest tribes in Andhra Pradesh**.
- They are the original inhabitants of the **Nallamala Hills**.
- The community is characterized by **low literacy rates** and a **subsistence economy**, relying heavily on forest resources for food and livelihood.
- The total Chenchu population stands at approximately 28,349.
- Traditionally, they have been food gatherers, depending on wild fruits, tubers, and non-timber forest produce.
- Living Conditions

- ▶ The living conditions of the Chenchus are starkly contrasted with the neighboring town of Dornala, which has experienced significant growth in recent years.
- ▶ In the hamlet of Panukumadugu, where many Chenchus reside, homes are simple thatched huts, with few pucca houses in disrepair.
- The mission aims to increase primary oilseed production from 39 million tonnes (2022-23) to 69.7 million tonnes by 2030-31.
- Together with NMEO-OP (Oil Palm), the Mission targets to increase domestic edible oil production to 25.45 million tonnes by 2030-31 meeting around 72% of our projected domestic requirement. This will be achieved by promoting adoption of high-yielding high oil content seed varieties, extending cultivation into rice fallow areas, and promoting intercropping.
- The Mission will harness ongoing development of high-quality seeds by using cutting-edge global technologies such as genome editing.
- **SATHI Portal:** The mission will soon launch a portal called the 'Seed Authentication, Traceability and Holistic Inventory (SATHI)' to enable states to establish advance tie-ups with seed-producing agencies, including private seed companies for a steady supply of high-yielding oilseeds seeds.



FACT BOX

Particularly Vulnerable Tribal Groups (PVTGs)

- The **Ministry of Home Affairs** has designated 75 tribal groups across 18 states and the Union Territory of Andaman and Nicobar Islands as **Particularly Vulnerable Tribal Groups (PVTGs)**.
- Identified as the most vulnerable among tribal communities, the concept of PVTGs was introduced in **1975** by the Government of India.
- Initially comprising 52 tribal groups, this category expanded in 1993 with the inclusion of 23 additional groups, bringing the current total to 75.
- PVTGs are more vulnerable among the tribal groups and are determined by the given criteria:
 - ▶ They have declining or stagnant populations
 - ▶ low levels of literacy
 - ▶ pre-agricultural levels of technology
 - ▶ Economically backward

NATIONAL MISSION ON EDIBLE OILS

CONTEXT

The Cabinet approved the **National Mission on Edible Oils - Oilseeds (NMEO-Oilseeds)**, aimed at boosting domestic oilseed production and achieving self-reliance in edible oils.

About NMEO-Oilseeds

- The National Mission on Edible Oils – Oilseeds (NMEO-Oilseeds) is a landmark initiative aimed at boosting domestic oilseed production and achieving self-reliance (Atmanirbhar Bharat) in edible oils.
- The Mission will be implemented over a seven-year period, from 2024-25 to 2030-31.
- The newly approved NMEO-Oilseeds will focus on enhancing the production of key primary oilseed crops such as **Rapeseed-Mustard, Groundnut, Soybean, Sunflower, and Sesamum**, as well as increasing collection and extraction efficiency from secondary sources like **Cottonseed, Rice Bran, and Tree Borne Oils**.



FACT BOX

Edible Oil Production

- India is heavily reliant on imports which account for 57% of its domestic demand for edible oils.
- **Largest oilseed-producing states:** Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.
- **Government measures to enhance domestic production of edible oils:**
 - ▶ National Mission on Edible Oils – Oil Palm (NMEO-OP)
 - ▶ Minimum Support Price (MSP) for mandated edible oilseeds
 - ▶ Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA)

UNION CABINET APPROVES MAJOR AGRICULTURAL AND EMPLOYEE INCENTIVE INITIATIVES

CONTEXT

The Union Cabinet has merged all centrally sponsored schemes for the agriculture sector into two umbrella schemes — the **Pradhan Mantri Rashtriya Krishi Vikas Yojana (PM-RKVY)** and the **Krishonnati Yojana (KY)**. The aim is to avoid duplication and ensure convergence.

Merger of Agricultural Schemes

The Cabinet decided to consolidate various Central schemes in agriculture into two new programs:

Pradhan Mantri Rashtriya Krishi Vikas Yojana (PM-RKVY):

- **Allocation:** Rs 57,074.72 crore
- This scheme aims to promote sustainable agriculture.
- The PM-RKVY comprises of the following schemes:
 - ◆ Soil Health Management
 - ◆ Rainfed Area Development
 - ◆ Agro Forestry
 - ◆ Paramparagat Krishi Vikas Yojana
 - ◆ Agricultural Mechanization including Crop Residue Management
 - ◆ Per Drop More Crop
 - ◆ Crop Diversification Programme
 - ◆ RKVY DPR component
 - ◆ Accelerator Fund for Agri Startups

Krishonnati Yojana (KY):

- **Allocation:** Rs 44,246.89 crore.
- It will address food security and agricultural self-sufficiency.
- The rationalisation of various schemes has been undertaken to avoid duplication, ensure convergence, and provide flexibility to states, and state governments will also be able to draw a comprehensive strategic plan suiting their requirements for the agriculture sector.

INPUT TAX CREDIT (ITC)

CONTEXT

In a significant development for the commercial real estate sector, the Supreme Court of India has permitted the **Input Tax Credit (ITC)** on construction expenses for buildings intended for lease. This ruling is expected to boost investments in commercial real estate and alleviate financial pressures for tenants.

What is Input Tax Credit (ITC)?

- **Input Tax Credit (ITC)** is a provision under the **Goods and Services Tax (GST) system** that allows businesses to claim a credit for the tax paid on inputs (goods or services) used in the course of their business.
- Essentially, it enables businesses to reduce their overall tax liability by offsetting the GST they pay on purchases against the GST they collect on sales.

Ruling

- The Supreme Court stated that if the construction of a building is essential for activities like renting or leasing, the building can be classified as “plant and machinery.”
- This classification allows businesses to claim ITC on the construction costs associated with such buildings.

- The ruling suggests that this ITC will be available retroactively.

Impact

- **Easing Financial Strain:** The ruling is expected to alleviate the financial burden of rent on tenants occupying commercial spaces, making leasing more affordable.
- **Broader Applicability:** The decision is not limited to commercial real estate; various industries, such as hotels, logistics, and infrastructure, will also benefit by claiming ITC on rentals for commercial properties.
- **Future Considerations:** Tax experts are pondering whether this ruling will extend to factory buildings, jetties, storage tanks, and similar structures. There is also speculation about potential amendments to GST laws to clarify ITC eligibility for real estate players.

SEBI’S LIBERALISED MF LITE FRAMEWORK

CONTEXT

SEBI has introduced the **Mutual Funds Lite (MF Lite)** framework to simplify the regulatory compliance for **passively managed mutual funds**.

What is SEBI’s liberalised MF Lite framework?

- The **Mutual Funds Lite (MF Lite)** framework is a **new set of rules** introduced by the **Securities and Exchange Board of India (SEBI)** to make it easier for companies to create and manage certain types of mutual funds, specifically **passively managed** ones like **index funds and exchange-traded funds (ETFs)**.
- **Simplified Rules:** The MF Lite framework offers simpler regulations for passively managed funds.
 - These funds follow specific rules for investing, so they don’t require as much oversight compared to actively managed funds, where managers make more decisions about investments.
- **Encouraging New Players:** By making it easier to start these types of funds, SEBI hopes to attract more companies to enter the mutual fund market. This means more options for investors.
- **Faster Approval Process:** The framework aims to speed up the approval process for new passive funds. This means that companies can launch their funds more quickly and without having to provide as much detailed information upfront.
- **Cost-Effective:** With less paperwork and quicker approvals, it will be cheaper for companies to set up new funds. This could lead to lower costs for investors as well.
- **More Competition and Innovation:** As new companies enter the market, there will be more choices for investors. This competition can lead to better investment options and potentially lower fees.

What are Passive funds?

- Passive funds are investment funds that aim to match the performance of a specific market index rather than actively selecting individual securities.
- They typically follow a buy-and-hold strategy, investing in the same assets that make up an index.
- **Active funds** employ a fund manager who participates in all buying and selling decisions. The fund manager manages the Fund with active investing by studying the market forces and the economy.
- **Key Features of Passive funds:**
 - ▶ **Index Tracking:** Passive funds replicate the performance of an index, such as the Nifty 50 or S&P 500. They invest in the same securities in the same proportions as the index.
 - ▶ **Lower Costs:** Because they don't require active management, passive funds usually have lower fees compared to actively managed funds.
 - ▶ **Less Frequent Trading:** Passive funds generally trade less often, leading to lower transaction costs.
 - ▶ **Predictable Returns:** Since they aim to match an index, the returns of passive funds are more predictable compared to actively managed funds, which can vary widely based on the manager's decisions.
 - ▶ **Examples:** Common types of passive funds include:
 - ◆ Index Funds
 - ◆ Exchange-Traded Funds (ETFs)

INITIAL PUBLIC OFFERING (IPO)

CONTEXT

Hyundai Motor India Ltd. (HMIL) announced India's largest ever initial public offer (IPO) of Rs 27,870 crore.

What is Initial Public Offering (IPO)?

- An Initial Public Offering (IPO) is a crucial process for companies looking to raise capital by selling securities to the public in the primary market.
- It allows businesses to access funds for growth and expansion while enhancing their credibility and visibility.
- In an IPO, investors buy shares directly from the company, becoming its owners and contributing to its share capital.
- This influx of funds enables the company to create fixed assets necessary for operations.
- A vibrant IPO market signals a healthy economy, as it indicates investor confidence and facilitates capital formation.

- Once shares are issued, shareholders can also sell their investments in the secondary market, ensuring liquidity.



FACT BOX

Capital Market

- The Capital market represents the "Primary Market" and the "Secondary Market".
- The capital market has two interdependent and inseparable segments, the new issuers (the primary market) and stock (secondary) market.
 - ▶ **Primary market** is used by issuers for raising fresh capital from the investors by making initial public offers or rights issues or offers for sale of equity or debt.
 - ▶ **Secondary market** promotes the growth of the primary market and capital formation, since the investors in the primary market are assured of a continuous market where they have an option to liquidate their investments.

RBI'S SHIFT IN MONETARY POLICY STANCE

CONTEXT

After nearly 29 months of a tight monetary policy marked by a significant increase in interest rates, the **Reserve Bank of India's (RBI) Monetary Policy Committee (MPC)** has made a notable change. Following its October meeting, the MPC shifted its policy stance from "**withdrawal of accommodation**" to "**neutral.**" This adjustment signals a **potential easing of interest rates**, with analysts predicting a possible rate cut in December.

Key Highlights

- **Current Policy Rate:** The policy rate stands at 6.5%, following a cumulative increase of 250 basis points from May 2022 to February 2023.
- **Change in Stance:** The MPC's shift to a neutral stance is the first since June 2022 and indicates that inflation concerns are being addressed.
- **Inflation Control:** India's benchmark inflation rate has recently stabilized within the RBI's target range of 2%-6% after exceeding it for five consecutive quarters from March 2022 to March 2023.
- **Future Projections:** GDP growth is projected at 7.2% for 2024-25, while inflation is expected to average 4.5%.
- **Expert Consensus:** Economists widely expect a 25 basis point rate cut in the December meeting, followed by another cut in February 2025.

Reasons behind the decision

- **Improved Inflation Outlook:** The MPC's decision reflects a belief that inflation is under control, with quarterly

inflation rates remaining within the target band for four out of the five quarters since March 2023. This change in inflation dynamics has allowed the MPC to reconsider its aggressive monetary tightening stance.

- **Global and Domestic Considerations:** The MPC is also mindful of global uncertainties, including geopolitical tensions and economic conditions. A softer policy stance could provide the necessary support to bolster domestic growth amid these challenges.
- **Economic Indicators:** Recent trends in key economic indicators, such as manufacturing, bank credit, and GST revenue growth, suggest a shift in economic activity that justifies a more accommodative monetary policy.
- **Strategic Sequencing:** The MPC’s approach of first changing the stance before considering a rate cut allows for flexibility in monitoring inflationary pressures and assessing economic conditions without committing to immediate cuts that could spur inflation.

What do stances of the RBI mean?

RBI’s Monetary Policy Stances	
‘Neutral’ stance	<p>A neutral stance indicates that the RBI maintains flexibility in adjusting policy rates based on prevailing economic conditions.</p> <p>This means that the central bank is open to either increasing or decreasing interest rates, depending on data related to inflation and economic growth.</p> <p>This policy is aimed at tightening the monetary policy to reduce liquidity in the economy.</p> <p>It prioritises keeping inflation within the target levels and indicates a shift away from policies that encourage borrowing and spending.</p>
‘Accommodative’ stance	<ul style="list-style-type: none"> ◦ An accommodative stance refers to a monetary policy approach where the central bank is inclined to increase the money supply to stimulate economic growth. ◦ This typically involves reducing interest rates, with no prospect of a rate increase.
‘Hawkish’ stance	<ul style="list-style-type: none"> ◦ A hawkish stance reflects the central bank’s focus on controlling inflation. ◦ During such periods, the central bank is likely to raise interest rates to limit the money supply and dampen demand. This signals a tight monetary policy approach.

‘Calibrated tightening’	<ul style="list-style-type: none"> ◦ ‘Calibrated tightening’ indicates that while rate cuts are not being considered in the current policy cycle, any rate increases will be gradual and measured. The central bank might not opt for a rate hike in every policy meeting, but its stance leans towards tightening. Rate adjustments can also occur outside scheduled policy meetings if necessary.
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INDIA’S FIGHT AGAINST AIDS

CONTEXT

India plays a crucial role in the **global fight against HIV/AIDS**, and its efforts are vital for achieving the **Sustainable Development Goal (SDG) of ending AIDS as a public health threat by 2030**.

Key Insights

- World leaders pledged to end the AIDS pandemic as a public health threat by 2030. India is also committed to achieve the United Nations’ Sustainable Development Goal (SDG) of ending HIV/AIDS as a public health threat by 2030.
- **Progress in India:** India has shown significant commitment and results in combating HIV, with annual new infections falling by 44% between 2010 and 2023—outpacing the global average.
- **New Infections:** In 2023, India recorded approximately 68,000 new HIV infections, averaging about 185 daily.
- **Global Context:** As of 2023, nearly 40 million people worldwide were living with HIV, with a person dying every minute due to lack of treatment.



FACT BOX

Fact Box:

What is HIV (human immunodeficiency virus)?

- HIV (*human immunodeficiency virus*) is a virus that attacks cells that help the body fight infection, making a person more vulnerable to other infections and diseases.
- It is spread by contact with certain bodily fluids of a person with HIV, most commonly during unprotected sex (sex without a condom or HIV medicine to prevent or treat HIV), or through sharing injection drug equipment.
- If left untreated, HIV can lead to the disease **AIDS (acquired immunodeficiency syndrome)**.

AIDS is the **late stage of HIV infection** that occurs when the body's immune system is badly damaged because of the virus.

- **Treatment:** The human body can't get rid of HIV and no effective HIV cure exists. However, effective treatments are available that enable individuals to manage the virus and lead healthy lives.
- **Antiretroviral Therapy (ART):** ART consists of medications specifically designed to treat HIV. When taken consistently as prescribed, ART can significantly reduce the amount of HIV in the bloodstream, a process known as viral suppression.
 - ▶ **Viral Load:** The term "viral load" refers to the amount of HIV present in the blood. ART can lower this to very low levels, and if the viral load becomes so low that it is undetectable by standard laboratory tests, this is referred to as having an undetectable viral load.
 - ▶ **Living with HIV:** Individuals with HIV who maintain an undetectable viral load through consistent ART can live long, healthy lives. Importantly, they will not transmit the virus to HIV-negative partners through sexual contact.
- **Prevention Methods:** In addition to treatment, there are effective strategies to prevent HIV transmission:
 - ▶ **Pre-Exposure Prophylaxis (PrEP):** PrEP is a medication taken by individuals at high risk of contracting HIV to help prevent infection from sexual activity or injection drug use.
 - ▶ **Post-Exposure Prophylaxis (PEP):** PEP involves taking HIV medications within 72 hours after a potential exposure to the virus, reducing the likelihood of HIV establishing an infection.
- **India's Measures:**
 - ▶ National AIDS and STD Control Programme (2021-2026)
 - ▶ HIV and AIDS (Prevention and Control) Act 2017

UPSC PYQ

Q: Which of the following diseases can be transmitted from one person to another through tattooing? (2013)

- (1) Chikungunya
- (2) Hepatitis B
- (3) HIV-AIDS

Select the correct answer using the codes given below:

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

Solution: (b)

TYPE 1 DIABETES TREATMENT

CONTEXT

A woman from Tianjin, China, has made history by becoming the **first person to successfully reverse her type 1 diabetes through an innovative stem cell procedure.**

What is Type 1 Diabetes?

- Diabetes is a **Non-Communicable Disease (NCD)** that occurs either when the pancreas does not produce enough insulin (a hormone that regulates **blood sugar, or glucose**), or when the body cannot effectively use the insulin, it produces.
 - ▶ **Type 2 diabetes** is age-related; it often develops at the age of 45 and beyond.
 - ▶ **Type 1 diabetes** is largely genetic in nature, while Type 2 depends on the lifestyle of the individual.
- Type 1 diabetes is an **autoimmune disorder** where the immune system attacks and destroys insulin-producing cells in the pancreas.
- This condition forces patients to rely on external insulin and immunosuppressants for management.
- Unlike type 2 diabetes, which is often associated with lifestyle factors, type 1 diabetes has no known cure, with the closest option previously being islet-cell transplants—a procedure limited by a shortage of donor cells.

The Innovative Stem Cell Procedure

- In this landmark case, Chinese researchers utilized the patient's own stem cells, reprogramming them into insulin-producing islet cells. These reprogrammed cells were injected into the abdominal muscles, a novel approach that allows for real-time monitoring via MRI.
- **Procedure Details:**
 - ▶ **Stem Cell Harvesting:** Healthy stem cells were extracted from the patient's bone marrow, blood, or cord blood.
 - ▶ **Conditioning:** The patient underwent chemotherapy or radiation to prepare for the transplant.
 - ▶ **Transplantation:** The stem cells were injected to replace the damaged cells.
 - ▶ **Recovery:** The patient was monitored for progress.
- Within just two and a half months post-treatment, the patient began producing sufficient insulin independently, eliminating the need for external insulin.

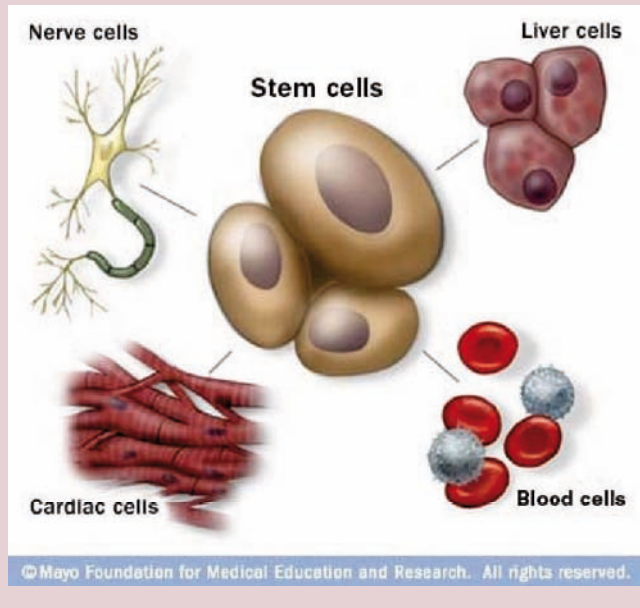


FACT BOX

What Are Stem Cells?

- Stem cells are unique cells in the body with the remarkable ability to develop into many different cell types.

- They play a critical role in growth, development, and tissue repair.
- All stem cells regardless of their source have three general properties:
- They are capable of dividing and renewing themselves for long periods
 - ▶ They are unspecialized
 - ▶ They can give rise to specialized cell types
- Types of Stem Cells
 - ▶ **Embryonic Stem Cells:** These stem cells are derived from embryos and can differentiate into any cell type in the body. They are considered pluripotent, meaning they have the potential to develop into almost any tissue.
 - ▶ **Adult Stem Cells:** Found in various tissues in the body, these stem cells are more specialized. They typically give rise to the cell types of their specific tissue. For example, hematopoietic stem cells in bone marrow can produce different types of blood cells.
 - ▶ **Induced Pluripotent Stem Cells (iPSCs):** Scientists can reprogram adult cells to become pluripotent stem cells. This technology allows for the creation of stem cells without using embryos, making it a valuable tool for research and potential therapies.



WHO APPROVES FIRST MPOX TEST FOR FASTER DIAGNOSES

CONTEXT

The World Health Organization (WHO) has recently approved the **Alinity m MPXV assay**, a **real-time PCR diagnostic test** for mpox that provides immediate results.

About recent Mpox Diagnosis

- The “real-time PCR test”, Alinity m MPXV assay enables the detection of the virus by testing swabs of skin lesions.

- **Immediate Results:** Previously, patients often waited days for test results. This new test will enable health workers to confirm suspected mpox cases more efficiently, which is crucial for controlling outbreaks.
- **Global Impact:** Mpox has been detected in **16 African countries** this year, leading to over **800 deaths**. The WHO notes that limited testing capacity and delays in confirming cases contribute to the continued spread of the virus.
- **Emergency Use Listing:** The Alinity m MPXV assay is the first mpox diagnostic test to be listed under the WHO’s Emergency Use Listing (EUL) procedure, which allows for the expedited availability of unlicensed tests during public health emergencies.

What is Mpox?

- Mpox, formerly known as monkeypox, is a **viral zoonotic disease** caused by the **mpox virus**.
- It primarily spreads through human-to-human contact and contact with infected animals.
- The disease can manifest with symptoms including **fever, aches, and skin lesions**.
- Recent outbreaks, particularly in Africa, have raised significant public health concerns, prompting international health organizations to take action.

MARBURG VIRUS OUTBREAK

CONTEXT

Rwanda is currently facing a serious health crisis with the emergence of the Marburg virus, a deadly pathogen that poses a significant threat to the country’s fragile healthcare system.

What is the Marburg Virus?

- Marburg virus is one of the deadliest known pathogens, with case fatality rates ranging from 24% to 88% depending on the outbreak and case management.
- The virus was first identified during an outbreak in Marburg, Germany, in 1967. Since then, outbreaks have predominantly occurred in Africa.
- Marburg belongs to the **filovirus** family, which also includes Ebola. Both viruses share clinical similarities and can cause outbreaks with high fatality rates.
- **Spread:** The initial human infections with Marburg virus were linked to prolonged exposure to mines or caves inhabited by colonies of Rousettus bats, particularly the Egyptian fruit bat. However, the World Health Organization (WHO) notes that the virus also spreads through human-to-human transmission. This can occur:
 - ▶ **Directly:** Through contact with the blood and bodily fluids of infected individuals.
 - ▶ **Indirectly:** Via surfaces and materials (such as bedding or clothing) that are contaminated with these fluids.

- **Symptoms of Marburg Virus Disease:** The incubation period for MVD ranges from 2 to 21 days. Initial symptoms include: **High fever, Severe headache, Muscle aches, Severe watery diarrhea, Abdominal pain and cramping, Vomiting**
- As the disease progresses, many patients develop **hemorrhagic symptoms**, which can include **bleeding from the digestive system, nose, gums, and vagina**. Most fatalities occur due to severe blood loss and shock, typically 8 to 9 days after symptoms begin.
- **Prevention and Treatment of MVD:** Currently, there are no approved vaccines or specific treatments for Marburg virus disease. However, the WHO recommends supportive care, which includes:
 - ▶ **Rehydration:** Using oral or intravenous fluids.
 - ▶ **Symptom management:** Treating specific symptoms to improve survival rates.
- **Tank Upgrades:** The Indian Army plans to upgrade T-72 tanks with enhanced engines to improve performance.
- **Zorawar Tank:** The Zorawar tank has been developed by DRDO's Combat Vehicles Research & Development Establishment (CVRDE) in collaboration with Larsen & Toubro (L&T). The project, named after the historic General Zorawar Singh Kahluria, took approximately three years to complete.

Key Features of Zorawar

- ▶ **Weight:** 25 tonnes, making it light enough for air transport by helicopter.
- ▶ **Speed:** Capable of traveling at about 60 kilometers per hour on land.
- ▶ **Deployment:** Designed for high-altitude areas and able to perform effectively in both mountainous and desert terrains.
- **Light Battle Tank (LBT):** India announces to soon have its own indigenously developed Light Battle Tank (LBT).

TANKS IN MODERN WARFARE

CONTEXT

The **Ukraine conflict** has highlighted the **vital role of battle tanks** in contemporary warfare, emphasizing the necessity of armored vehicles alongside long-range firepower. In the backdrop of this, the stand-off between India and China in Eastern Ladakh has pushed both nations to adapt their military strategies, including the deployment of tanks at high altitudes.

India's Military Build-Up

Following the 2020 Galwan clash, India significantly strengthened its military presence in Ladakh. The deployment strategy shifted from short-term rotations to longer tenures, ensuring a more acclimatized and prepared force. Key developments included:

- **Tank Regiments:** India deployed T-72 tanks and later reinforced these units with T-90s (also known as "Bhishma") and other mechanized elements.
- **T-90** is the main battle tank of India's mechanised forces since 2003. It is renowned for its firepower, mobility and protection.
- **T-90 Bhishma tank:** The Indian Army has achieved a significant milestone in its modernisation efforts with the successful overhaul of the T-90 Bhishma tank.
- **Main Battle Tank (MBT) Arjun:** It is a multi-laboratory programme of DRDO with CVRDE as the lead Laboratory. It is a state-of-the-art tank with superior fire power, high mobility, and excellent protection.
- **Ajeya tank:** CI-Ajeya tank is the modernized version of T-72. The tank capability was enhanced with Global Positioning System (GPS), Explosive Reactive Armour (ERA) and Integrated Fire Detection and Suppression System (IFDSS) to the level of contemporary combat vehicles.
- **K9 Vajra:** Although primarily a self-propelled howitzer, it has capabilities that complement tank operations. It is equipped with a 155-mm gun and advanced targeting systems. It has high mobility and rapid deployment features.



FACT BOX

What are Military Tanks?

- Military tanks are heavily armored, tracked combat vehicles designed primarily for frontline warfare. They serve various roles on the battlefield, combining mobility, firepower, and protection.
- Types of Military Tanks
 - ▶ **Main Battle Tanks (MBTs):** The primary armored fighting vehicles designed for frontline combat (e.g., T-90, M1 Abrams).
 - ▶ **Light Tanks:** Lighter, more mobile tanks designed for reconnaissance and rapid maneuvers (e.g., the Zorawar, under development in India).
 - ▶ **Infantry Fighting Vehicles (IFVs):** Although not traditional tanks, they provide similar support roles and carry infantry into battle (e.g., BMP-2).

INDIA'S MISSILE DEFENSE CAPACITY

CONTEXT

In light of the recent Iranian missile attack on Israel, there are pressing questions about India's own missile defense capabilities.

Ballistic Missile Defense (BMD) Program

- The BMD program was launched in 2000 post-Kargil War to create a multi-layered defense shield against ballistic missile threats.
- **Phases:** The BMD program consists of two phases:
 - ▶ **Phase I:** It focuses on high-altitude interception using systems like Prithvi Air Defence (PAD) and Advanced Air Defence (AAD).

- ▶ **Phase II:** This phase extends capabilities to neutralize ballistic missiles in endo-atmospheric and low exo-atmospheric regions. The two-stage solid-propelled ground-launched missile system demonstrated successful interception capabilities.

▣ **Key Components of BMD**

- ▶ **Prithvi Air Defence (PAD):** It is designed for exo-atmospheric interception, this system targets incoming ballistic missiles at high altitudes.
- ▶ **Advanced Air Defence (AAD):** It is focused on endo-atmospheric interception, it complements the PAD by dealing with missiles at lower altitudes.

S-400 Triumph System

- India signed a USD 5.5 billion deal with Russia in 2018 for five S-400 systems, with three units already operational.
- **Capabilities:**
 - ▶ **Range:** The S-400 can engage targets up to 400 kilometers away, effectively covering a vast area.
 - ▶ **Target Tracking:** It can track 300 targets simultaneously and engage 60-80 targets, employing a dual-missile strategy for each target.
 - ▶ **Counter-Stealth:** The system’s advanced radar (AESA 1L119 NEBO SVU) is said to pose significant challenges for stealth aircraft, including the American F-35.

BrahMos missile system

- The BrahMos is a **ramjet supersonic cruise missile** of a **short-range** developed by **Defence Research and Development Organisation (DRDO)** and the **Russian Federation’s NPO Mashinostroyeniya**.
- BrahMos was named after two major rivers of India and Russia: **Brahmaputra and Moskva**.
- The technology used in this joint venture is based on the **Russian P-800 Oniks cruise missile** and similar sea-skimming cruise missiles from Russia.

▣ **Features:**

- Stealth Technology
- Advanced guidance system
- High Target Accuracy (irrespective of weather conditions)
- Constant supersonic speed
- Operates on ‘Fire and Forget’ Principle
- BrahMos can be launched from land, aircraft, ships, and even submarines.
- One of the heaviest missiles, weighing up to 2.5 tonnes.
- **Surface-to-Air Missile Systems:**
 - ▶ **Akash Missile System:** A versatile surface-to-air missile capable of intercepting aerial threats, including aircraft and missiles, at ranges up to 30 kilometers. While not specifically designed for ballistic missile defense, it enhances overall air defense capabilities.

- ▶ **Barak-8:** A joint development with Israel, this medium-range surface-to-air missile system can engage various aerial threats, including missiles and drones, at ranges up to 70 kilometers.



FACT BOX

What is a missile?

- A missile is a guided airborne ranged weapon capable of self-propelled flight usually by a **jet engine or rocket motor**.
- The word missile referred to any projectile that is thrown, shot or propelled towards a target; this usage is still recognized today.
- Missiles are thus also called **guided missiles or guided rockets** (when in rocket form).
- **Types:** Missiles are generally classified on the basis of their Type, Launch Mode, Range, Propulsion and Warhead.
- **Based on launch mode:**
 - ▶ Surface -to -Surface Missile
 - ▶ Surface-to-Air Missile
 - ▶ Surface (Coast)-to-Sea Missile
 - ▶ Air-to-Air Missile
 - ▶ Air-to-Surface Missile
 - ▶ Sea-to-Sea Missile
 - ▶ Sea-to-Surface (Coast) Missile
 - ▶ Anti-Tank Missile
- **Depending upon the speed such missiles are classified as:**
 - Subsonic cruise missile
 - Supersonic cruise missile
 - Hypersonic cruise missile

MQ-9B DRONES

CONTEXT

The **Cabinet Committee on Security (CCS)** has approved significant defense deals aimed at enhancing India’s military capabilities, particularly in the naval domain. This includes the indigenous construction of nuclear-powered attack submarines and the acquisition of **31 MQ-9B remotely piloted aircraft (RPAs)** from the **United States**.

About MQ-9B Drone

- The MQ-9B is a **high-altitude, long-endurance (HALE)** remotely piloted aircraft system developed by General Atomics.
- It is designed for a range of missions, including **intelligence, surveillance, and reconnaissance (ISR) operations**.

- The MQ-9B can operate in various environments and is equipped with advanced sensors, including **synthetic aperture radar and electro-optical/infrared (EO/IR) cameras**, allowing it to conduct detailed surveillance and reconnaissance tasks.
- Additionally, the drone can perform precision strikes on strategic targets, making it a versatile asset for military operations.
- The Indian Armed Forces will receive a mix of **16 Sky Guardian** and **15 Sea Guardian** variants, which will be assembled in India.
- The acquisition is part of a broader effort to enhance India's operational capabilities in both land and maritime domains, particularly in light of recent geopolitical tensions.
- The use of MQ-9B drones is expected to provide India with improved situational awareness and the ability to conduct effective operations across diverse scenarios.

INDIA JOINS ENERGY EFFICIENCY HUB

CONTEXT

The Union Cabinet has approved the country's membership in the **Energy Efficiency Hub**, a global initiative aimed at enhancing the deployment of energy efficiency measures.

About the Energy Efficiency Hub

- The Energy Efficiency Hub was established in 2020 as a successor to the **International Partnership for Energy Efficiency Cooperation (IPEEC)**, of which India was a member.
- **Hosting:** The Hub is hosted at the **International Energy Agency (IEA)** in France.
- **Members:** As of July 2024, the Hub includes 16 member countries: Argentina, Australia, Brazil, Canada, China, Denmark, the European Commission, France, Germany, Japan, Korea, Luxembourg, Russia, Saudi Arabia, the United States, and the United Kingdom.
- **Objectives and Functions**
 - ▶ **Collaboration:** The Hub aims to foster collaboration among governments, international organizations, and private sector entities. It serves as a platform for sharing knowledge, best practices, and innovative solutions related to energy efficiency.
 - ▶ **Global Impact:** By joining the Hub, India will be able to collaborate with other member states, sharing its expertise while learning from international best practices.
- The **Bureau of Energy Efficiency (BEE)**, the statutory agency in India, has been designated as the implementing body for the Hub.
- **Benefits of Membership**
 - ▶ **Accelerating Transition:** India's participation in the Energy Efficiency Hub is expected to accelerate the transition to a low-carbon economy and enhance energy security.

- ▶ **Climate Commitment:** This move aligns with India's updated **Nationally Determined Contributions (NDC)** submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2022, where India committed to reducing emissions intensity of its GDP by **45% by 2030 from 2005 levels**.
- ▶ **Long-term Strategy:** India also outlined its long-term climate action strategy at COP27 in 2022, aiming for **net-zero emissions by 2070** and about 50% of its cumulative electric power installed capacity to come from non-fossil fuel-based energy resources by 2030.

RIO NEGRO (AMAZON RIVER BASIN)

CONTEXT

One of the Amazon River's main tributaries has dropped to its lowest level ever recorded. The level of the Negro River at the port of Manaus is at 12.6 metres, compared to a normal level of about 21 metres.

About

- The Rio Negro (Colombia) is one of the largest tributaries of the Amazon River and the largest blackwater river in the world.
- The Rio Negro starts as the Guainía River and flows along the Colombian and Venezuelan border before crossing into Brazil where it becomes the Rio Negro.
- The Negro River drains about 10 per cent of the Amazon basin and is the world's sixth-largest by water volume.
- Manaus, the biggest city in the rainforest, is where the Negro joins the Amazon River.



FACT BOX

Amazon River Basin

- The Amazon River Basin is the world's largest drainage system.
- **Coverage (countries):** The basin occupies much of **Brazil and Peru**, and also parts of **Guyana, Colombia, Ecuador, Bolivia, Suriname, French Guiana, and Venezuela**.
- The Amazon has over 1,100 tributaries, 17 of which are over 1,500 kilometres (930 mi) long.
- **Course:** The Amazon River originates in the **Peruvian Andes** at an elevation of 5,598 meters. It begins as a small tributary called the **Carhuasanta**, located just 192 km from the Pacific Ocean.
 - ▶ As it flows east, the river becomes the **Hornillos**, which merges into the Apurimac. This major tributary eventually connects with the **Ene, Tambo, and Ucayali rivers**.



Figure No. 02

- ▶ The Amazon descends steadily toward the Atlantic Ocean, dropping at a rate of 1.5 cm per kilometer over its 6,400 km course. In some sections, it expands to a width of 10 km and allows large ships to navigate up to Iquitos, Peru.
- The Amazon Basin supports the **world's largest rainforest**, which accounts for more than half the total volume of rainforests in the world.
- Behind the Amazon, the next-longest river is the **Yangtze River**, which is only about 85 miles shorter than the Amazon.

(see figure No. 02 above)

INDIAN WILD ASS (EQUUS HEMIONUS KHUR)

CONTEXT

The population of Indian Wild Ass (*Equus hemionus khur*), found only in Gujarat, has risen from 6,082 in 2020 to 7,672 in 2024, an increase of about 26.14%, according to 10th Wild Ass Population Estimation – 2024.

About Asiatic wild ass (*Equus hemionus*)

- The Asiatic wild ass (*Equus hemionus*), also called the

- **onager**, has five subspecies (*Equus hemionus hemionus*, *E. h. kulan*, *E. h. onager* and *E. h. hemippus*), of which the *khur* (*Equus hemionus khur*), or *ghorkhad* as it is called in Gujarat, is one.
- It is an **odd toed ungulate of the family Equidae**.
- They are primarily found in the Little Rann of Kutch (LRK) in Gujarat, in a protected area called the Wild Ass Sanctuary.
 - ▶ The LRK has dual characteristics — that of a wetland and a desert.
- Khurs are generalist herbivores, i.e., they consume a wide variety of plants for their nutrition.
- It is solitary and shy animal, present in low densities across its distribution range.
- **Conservation status:**
 - ▶ It was classified as **endangered** by the **International Union for Conservation of Nature (IUCN)** in its **2008 report**.
 - ▶ It is also listed under **Schedule I of the Wildlife Protection Act, 1972**.

LEOPARD POPULATION IN ODISHA

CONTEXT

In Odisha, concerns over poaching and illegal wildlife trade have raised alarms about the declining leopard population. However, recent developments indicate a positive trend in their numbers, providing hope for conservation efforts.

Key Highlights

- **Population Increase:** The leopard population in Odisha has increased by **22%**, rising from **568** in 2022 to **696** in 2024.
- **Current Estimates:** The All Odisha Leopard Estimation 2024 reports a population range of **668 to 724**, with a median count of **696** leopards.
- **Comparison with Previous Census:** The current population still lags behind the **2018 census** conducted by the National Tiger Conservation Authority (NTCA), which recorded **760 leopards**.
- **Monitoring Methodology:** The estimation involved monitoring **47 forest divisions** and utilizing **camera traps** to identify individual leopards based on their unique rosette patterns.
- **Significant Findings:** The report highlighted the discovery of **melanistic leopards** (black leopards) in Odisha's forests, adding to the diversity of the leopard population.
- **Poaching Concerns:** Despite the increase in numbers, poaching remains a significant threat. Between 2018 and 2023, **59 leopard skins** were seized from wildlife smugglers, and overall, **116 leopards** were killed.

- **Protected Areas:** The highest leopard abundance is found in **protected areas**, notably the **Similipal Tiger Reserve**, which is crucial for the leopard population's sustainability. Other key habitats include the **Satkosia landscape** and the **Hirakud Wildlife Division**.
- **Future Plans:** The Forest department plans to synchronize the All Odisha Leopard Estimation with the annual All Odisha Tiger Estimation, expanding data collection on both big cats and their habitats.



FACT BOX

About Leopard

- Leopard (*Panthera pardus*) is one of the five big cat species of the genus Panthera.
- They are the **smallest of the large cats**, which includes lions, tigers, and jaguars.
- **Habitat:** Forests, subtropical and tropical regions, savannas, grasslands, deserts, and rocky and mountainous regions.
 - ▶ They can live in both warm and cold climates.
 - ▶ Of all the big cat species, leopards are the only known species that live in both desert and rainforest habitats.
- **Geography:** Their range covers a large stretch of Africa, parts of the Middle East, and Asia, including China, India, and eastern Russia.
 - ▶ Madhya Pradesh has the maximum number of leopards in the country





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