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A. Polity & Governance

1. Bihar, Andhra Pradesh demand for Special Category Status

1. The demand for 'special category status' for Andhra Pradesh and Bihar is anticipated to grow louder with the formation of a coalition government at the Centre.
2. The new government depends on regional parties for support. This reliance is likely to strengthen these states' demands for more financial aid and development benefits.

What is Special Category Status?

1. Special Category Status (SCS) is **a classification granted by the Central Gover**nment to aid the development of states that face significant geographical and socio-economic challenges.
2. The Constitution does not have a specific provision for SCS. This classification was introduced based on the recommendations of the 5th Finance Commission in 1969.
3. The concept was the brainchild of **Dhananjay Ramchandra Gadgil**, the deputy chairman of the Planning Commission (now NITI Aayog), who formulated the Third Five-Year Plan.
4. Jammu and Kashmir, Assam, and Nagaland were the first states to receive Special Category Status in 1969.

What Are the Criteria Decided to Grant Special Status?

1. **Hilly Terrain:** States with difficult mountainous regions receive additional support to overcome development challenges.
2. **Low Population Density/Tribal Population:** States with sparse populations or significant tribal communities get extra resources to ensure balanced growth.
3. **Border Location:** States along international borders are provided enhanced aid for security and infrastructure needs.
4. **Economic Backwardness:** States that are economically underdeveloped and lack essential infrastructure receive financial assistance to boost development.

What is the current status of state with special status?

1. Over the time 11 States including **Assam, Nagaland, Himachal Pradesh, Manipur, Jammu and Kashmir, Meghalaya, Sikkim, Tripura, Arunachal Pradesh, Mizoram and Uttarakhand** have been accorded the special category state status.
2. Indeed, the **14th Finance Commission recommended to abolish the 'special category status'** for states, **except for the North-eastern and three hill states.**

What are benefits arising from Special Category Status?

1. **Higher Central Funding:** Special Category Status states receive 90% of the funds required for Centrally-Sponsored Schemes from the Centre, compared to 60% or 75% for other states. The remaining funds are provided by the state governments.
2. **Unspent Funds:** Any unspent money in a financial year does not lapse; instead, it is carried forward for future use.
3. **Tax Concessions:** States with Special Category Status enjoy significant concessions in excise duties, customs duties, income tax, and corporate tax.
4. **Increased Budget Allocation:** 30% of the Centre's Gross Budget is allocated to Special Category states, providing them with substantial financial support.

Why is Bihar Demanding for Special Category Status?

1. **Economic and Structural lagging:** Bihar struggles with significant economic challenges, including limited industrial development and investment.
2. **Bifurcation of state** : The state's bifurcation led to industries moving to Jharkhand, worsening unemployment and economic growth issues.

3. **Natural Disasters:** Bihar frequently faces natural calamities, such as floods in the northern region and droughts in the southern part.
4. **Infrastructure Deficits:** The state's inadequate infrastructure hinders development, with poor road networks, limited healthcare, and challenges in education. In 2013, the **Raghuram Rajan Committee** categorized Bihar as **"least developed."**
5. **Poverty and Social Development:** Bihar has a high poverty rate, with 26.59% of its population classified as **multidimensionally poor** in 2022-23, according to a NITI Aayog survey.

Why is Andhra Pradesh Demanding Special Category Status?

1. **Bifurcation of the State:** Since its division in 2014, Andhra Pradesh has sought Special Category Status due to revenue losses from the transfer of Hyderabad to Telangana.
2. **Increase Employment:** Special Category Status is essential for rapid industrialization in the primarily agrarian state, which would create employment opportunities for youth and contribute to overall state development.
3. **Encouraging Investments:** Granting SCS would attract investments in sectors like speciality hospitals, five-star hotels, manufacturing industries, IT services, and premier institutions for higher education and research.
4. **Infrastructure Development:** Andhra Pradesh lacks a major capital city with established infrastructure after the bifurcation, as Hyderabad, the former capital, was retained by Telangana.
5. **Backwardness in Key Sectors:** The state has several backward districts, particularly in the Rayalaseema and north coastal regions.

Challenges of Granting Special Category Status (SCS)

1. **Resource Allocation:** Granting SCS requires the central government to provide additional financial assistance, which can strain its resources and budget allocations.
2. **Dependency on Central Assistance:** States with SCS often become overly dependent on central funding, potentially discouraging efforts toward self-sufficiency and independent economic growth.
3. **Equity Concerns:** Granting SCS to one state may lead to demands from other states, raising concerns about fairness and equity in resource distribution across the country.
4. **Political Tensions:** The allocation of SCS can become a politically contentious issue, leading to regional tensions and disputes between states that feel they are equally deserving.
5. **Long-Term Financial Commitments:** SCS involves long-term financial commitments from the central government, which may limit its flexibility to address other emerging national priorities.
6. **Impact on Fiscal Discipline:** States with SCS might engage in less disciplined fiscal practices, knowing they have guaranteed financial support from the Centre, which could lead to inefficiencies and financial mismanagement.

Way Forward

1. To ensure fairness and transparency in granting Special Category Status (SCS), the criteria need revisiting.
2. The **2013 Raghuram Rajan Committee** suggested using a **'multi-dimensional index'** for fund allocation, which could address socio-economic challenges more effectively. Policies should be implemented to reduce states' reliance on central aid by promoting self-sufficiency and economic diversification.
3. Additionally, analysts propose enhancing the rule of law for sustainable growth. States should create comprehensive development plans that include:
   a. **Education Revamp:** Improve early childhood development, teacher training, and integrate technology in pedagogy.
   b. **Skilling and Job Creation:** Focus on aligning skill development with industry needs and fostering entrepreneurship through initiatives like the SIPB.
   c. **Infrastructure Development:** Invest in irrigation systems and transport networks to connect rural and urban areas and support agricultural trade.
   d. **Women's Empowerment and Social Inclusion:** Address gender equality and social stratification through education, skill development, and financial inclusion initiatives.

Union Budget 2024-25: Special Packages for Both states

In Union Budget 2024-25 Special Packages for both states Bihar and Andhra Pradesh were announced.

Announcements made:

1. **Irrigation and Flood Mitigation:** Financial support of Rs. 11,500 crore to projects such as the Kosi-Mechi intra-state link and other schemes in Bihar.
2. **Purvodaya: Vikas bhi Virasat bhi:** Plan for endowment rich states in the Eastern parts covering Bihar, Jharkhand, West Bengal, Odisha and Andhra Pradesh for generation of economic opportunities to attain Viksit Bharat.
3. **Update on Andhra Pradesh Reorganization Act 2014:**
   a. Financial support of ₹15,000 crores will be arranged in FY 24- 25.
   b. Completion of Polavaram Irrigation Project ensuring food security of the nation.
   c. Essential infrastructure such as water, power, railways and roads in Kopparthy node on the Vishakhapatnam-Chennai Industrial Corridor and Orvakal node on Hyderabad-Bengaluru Industrial Corridor.

About Special Packages to States

1. Special Packages refers **to support provided to states facing geographical and socio-economic challenges**, offering them additional financial assistance and other benefits.
2. Constitution has provisions that **address the issues of specific States, or States that have a special status** with regard to certain matters mentioned in the Constitution.
   a. For instance, in **Articles 371A to H**.
3. On the contrary, **special packages are purely discretionary.** They may be need-based, but the need is not the proximate reason for granting a special package.
   a. It is an **additional grant under Article 282**, which falls under 'Miscellaneous Financial Provisions'.
   b. **Article 282 (Discretionary Grants):** Empowers both Centre and states to make any grants for any public purpose, even if it is not within their respective legislative competence.

2. ADCs Demand to pass 125th constitutional amendments bill

1. In July 2024, the **Chief Executive Magistrates (CEMs)** from **10 Autonomous District Councils (ADCs)** in the states of Assam, Meghalaya, Mizoram, and Tripura demand the passage of the **125th Constitutional Amendment Bill**.
   a. In response, the Union government decided to establish a committee led by the **Minister of State for Home Affairs** to address the issues related to the Bill.
   b. The **Constitution (125th Amendment) Bill, 2019** was introduced in the Rajya Sabha in Jan 2019 to amend the provisions related to the Finance Commission and the Sixth Schedule of the Constitution.

Key Amendments Proposed in the 125th Constitutional Amendment Bill

1. The Bill seeks to enhance the financial, executive, and administrative powers of tribal autonomous councils under the Sixth Schedule of the Constitution.

Village and Municipal Councils

1. The Bill proposes the **formation of Village and Municipal Councils** in addition to the existing **District and Regional Councils**.
2. **Village Councils**: These will be established for individual villages or clusters of villages in rural areas.
3. **Municipal Councils**: These will be created in urban areas within each district.
4. **District Councils** will be empowered to legislate on:
   a. The number and composition of Village and Municipal Councils.
   b. The delimitation of constituencies for elections to these councils.
   c. The powers and functions of the Village and Municipal Councils.

Rules for Devolution of Powers

1. The **Governor** will have the authority to create rules for devolving powers and responsibilities to Village and Municipal Councils. These rules may include:

a. The preparation of economic development plans.
b. The implementation of land reforms.
c. Urban and town planning.
d. Regulation of land use, among other responsibilities.

2. The Bill also proposes that the Governor may set rules for the disqualification of council members due to defection.

State Finance Commission

1. The Bill calls for the establishment of a Finance Commission in these states to assess the financial conditions of District, Village, and Municipal Councils.
2. The Commission will provide recommendations on:
   a. The distribution of taxes between the states and District Councils.
   b. Grants-in-aid to District, Village, and Municipal Councils from the state's Consolidated Fund.

Elections to Councils

1. Elections for District, Regional, Village, and Municipal Councils will be conducted by the **State Election Commission**, which is appointed by the Governor in these four states.

Current Status of the Bill

1. The **Constitution (125th Amendment) Bill, 2019**, was introduced in the Rajya Sabha and subsequently referred to the **Departmental-Related Standing Committee on Home Affairs**.
2. The committee highlighted several concerns in its 2020 report, and the Bill has since remained pending.

Sixth Schedule of the Constitution

1. **Scope:** The Sixth Schedule provides for the administration of tribal areas in Assam, Meghalaya, Tripura, and Mizoram, ensuring the protection of tribal rights.
2. **Constitutional Basis:**
   a. **Article 244 (2):** Applies the provisions of the Sixth Schedule to the administration of tribal areas in the States of Assam, Meghalaya, Tripura, and Mizoram.
   b. **Article 275 (1):** Guarantees grants-in-aid from the Consolidated Fund of India.
3. **Autonomy:**
   a. The Sixth Schedule allows for **self-governance** through Autonomous District Councils (ADCs).
   b. These councils have the authority to legislate on matters such as land, forests, agriculture, inheritance, customs, and taxation.
4. **Governance:** ADCs operate similarly to small states, holding legislative, executive, and judicial powers.

What are Autonomous District Councils (ADCs)?

1. ADCs are constitutional bodies established under the **Sixth Schedule (Article 244)** in Northeast India. They are designed to safeguard the cultural identities and natural resources of the tribal populations.
2. **Governor's Authority:** The Governor has the **power to organize, reorganize, and modify** the autonomous districts, including their areas and boundaries.
3. **Tribal Distribution:** In cases where multiple tribes reside in a district, the Governor can create autonomous regions within that district.
4. **Composition:**
   a. **District Council:** Each district is governed by a council composed of 30 members, with 26 elected members and 4 nominated by the Governor. The term of service for these members is five years.
   b. **Regional Council:** Each autonomous region has its own council.
5. **Administration:** The district and regional councils are responsible for managing their respective areas.
   a. They may also establish village councils or courts to resolve tribal disputes, with appeals handled as per the Governor's directives.
6. **Current Status:** Currently, there are 10 autonomous councils: three each in Assam, Meghalaya, and Mizoram, and one in Tripura.

3. President returns Punjab Bill seeking removal of Governor as Chancellor

1. The Punjab Universities Laws (Amendment) Bill, 2023, aimed at **replacing the governor with the chief minister as the chancellor** of state universities, was returned by the President.

2. The bill had been reserved for the President's assent by the Punjab Governor.

Reservation of State Bills for President's Consideration:

1. **Article 200** of the Constitution empowers the **Governor to reserve a bill passed by the state legislature** for the President's consideration.
2. Enactment of such a bill then depends on the President's assent or refusal of assent, and the **Governor plays no further role.**
3. If the President directs the Governor to return the bill to the state legislature for reconsideration, the **legislature must reconsider it within 6 months** and present it again to the President.
   - However, the President is not obligated to give assent to the reconsidered bill.

Other Powers of Governor on State Bills:

1. After a bill is passed by the state Legislative Assembly, the Governor has four options:
   a. **Grant Assent**: This makes the bill a law.
   b. **Withhold Assent**: This effectively rejects the bill.
   c. **Return Bill for Reconsideration:** If the legislative assembly passes the bill again, with or without amendments, the Governor must give assent.
   d. Reserve the Bill for the President's Consideration.

Supreme Court Judgements on Governor's Legislative Powers

1. **State of Punjab Case (2023)**
   a. **Central Ruling:** A Governor cannot obstruct the legislative process by indefinitely withholding assent to a bill. If they choose to withhold assent, they are obligated to return the bill to the legislative assembly.
2. **Shamsher Singh Case (1974)**
   a. **Core Principle:** Governors are not empowered to exercise discretionary powers when deciding to withhold assent or return a bill. They must act in accordance with the advice provided by the Council of Ministers.

These landmark Supreme Court judgments underscore the limitations on a Governor's legislative powers, emphasizing their role as a constitutional head who primarily acts on the advice of the elected government.

4. Supreme Court's Judgment on Mineral Taxation

1. Supreme Court's Constitution Bench said that states have power to levy tax on mineral rights.
2. This power is not constrained by the Mines and Minerals (Development and Regulation) Act (MMDRA), 1957.
3. The Court's ruling was delivered with an 8:1 majority, with one dissenting opinion cautioning about potential negative consequences of states' mineral taxation rights.

Key Observations by the Court:

Constitutional Basis:

1. The power to tax mineral rights is explicitly listed in Entry 50 of List II (State List) of the Indian Constitution.
2. Parliament's residuary powers do not extend to subjects specifically enumerated in the State List.
3. While Parliament can impose limitations on state taxation through legislation, the MMDRA lacks provisions doing so.
4. Entry 54 of List I (Union list) empower the Union to regulate minerals but does not grant taxing authority.

Land Rights:

1. The term "land" in Entry 49 of List II includes mineral-bearing lands, enabling states to tax them.
2. Overturning Previous Ruling:
3. The Court overruled its 1989 judgment and clarified that royalty on minerals is not a tax and is not covered under MMDRA.

2023 Amendments to the MMDRA

1. **Exploration License**: Introduction of a new license for deep-seated and critical minerals, permitting reconnaissance and prospecting.
2. **Central Government Auction**: The central government is empowered to auction mining leases and composite licenses for certain critical minerals.
3. The auction will be conducted by the central government, but the lease or license will be granted by state governments.
4. Removal of Minerals from Atomic Minerals List: Certain minerals like lithium, beryllium, and titanium have been removed from the list of atomic minerals.

About the Mines and Minerals (Development and Regulation) Act (MMDRA), 1957:

1. **Purpose**: Regulates the mining sector in India.
2. **Types of Licenses:**
   - Reconnaissance permit
   - Prospecting license (for exploring and proving mineral deposits)
   - Mining lease (for mineral extraction)
   - Composite license (for both exploration and extraction)

5. The Telecommunications Act, 2023: Replacing the Century Old Colonial Laws

1. On In July, 2024, The Union Government issued Gazetted Notification for enforcing section 6-8, 48 and 59(b) of the Telecommunications Act. 2023.
   - Noteworthy, The Telecommunications Bill, 2023, was passed by the Parliament in December 2023, received the assent of President of India on December 24, 2023.
2. This act is Guided by the **principles of** Samavesh (Inclusion), Suraksha (Security), Vriddhi (Growth), and Tvarit (Responsiveness), the Act aims to achieve the vision of Viksit Bharat (Developed India).
3. It **aims to update and unify telecom laws**, by replacing outdated following laws:-
   i.The Indian Telegraph Act of 1885,
   ii.The Indian Wireless Telegraph Act, 1933 and
   iii.Telegraph Wires (Unlawful Possession) Act, 1950.

The salient features of the sections that have been brought into force with effect from July 05, 2024

1. **Optimal utilization of spectrum:** The Act provides **legal framework** for efficient utilization of **scarce spectrum** through processes such as secondary assignment, sharing, trading, leasing and surrender of spectrum. It also enables the utilisation of spectrum in a flexible, liberalised and technologically neutral manner. It also empowers the Central Government to establish an enforcement and monitoring mechanism for the purpose.
2. **Prohibition of use of equipment which block telecommunications**: The Acts prescribes, with immediate effect, the use of any equipment which blocks telecommunication, unless permitted by the Central Government.
3. **Criteria for appointment as Chairperson and Members of TRAI**: **Section 59(b)** of the Act will amend section 4 of the TRAI Act 1997 and prescribes criteria for appointment of Chairperson and Members of TRAI.
4. **Under Section 59(b)** of the Act, specific criteria have been established for the appointment of the Chairperson and Members of the regulatory body:-
   a. **For Government Service Personnel:**
      i. **Chairperson:** A person must have held the post of **Secretary** to the Government of India or an equivalent position in the Central or State Government.
      ii. **Member:** A person must have held the post of **Additional Secretary** to the Government of India or an equivalent position in the Central or State Government.
   b. **For Non-Government Service Personnel**:
      i. **Chairperson:** A person must have at **least thirty years** of professional experience and have served as a member of the board of directors or as a chief executive of a company in relevant areas.
      ii. **Member**: A person must have at least **twenty-five years** of professional experience and have served as a member of the board of directors or as a chief executive of a company in relevant areas.

Salient features of the Telecommunications Act, 2023

1. Authorisation will be required from the central government to: (i) establish and operate telecommunications networks, (ii) provide telecommunications services, or (iii) possess radio equipment.
2. Spectrum will be allocated through auction, except for specified entities and purposes for which it will be assigned administratively.
3. Telecommunication may be intercepted on specified grounds including security of the state, public order,

or prevention of offences. Telecom services may be suspended on similar grounds. Suspension and interception of telecommunication services, which go into effect under the Act, have been in place under the older laws as well.

- The previous Telegraph Laws empowered Government to intercept messages under a mechanism, which had survived judicial review for decades, and inspired similar regimes.

4. New rules add a mandate of protecting users **from spam and malicious communications**. The central government may provide for measures to protect users such as requiring prior consent to receive specified messages, and creation of a do not disturb register.
5. Creating **sandboxes for innovation** — meaning building a **controlled environment** in which organisations can test and experiment with new technologies and ideas without the risk of failure — is a new provision which will come into force.
6. With these new rules in place, the universal service obligation fund will become Digital Bharat Nidhi, which can be used for funding research and development, and pilot projects instead of just supporting the establishment of telecom services in rural areas.
7. The Act proposes to bring over-the-top (OTT) services under the definition of telecommunications. This would subject them to similar regulations as traditional telecom services.
8. With the new Act, the **Universal Service Obligation Fund (USOF)** will become **Digital Bharat Nidhi**, which can be used to fund research and development and pilot projects instead of just supporting the establishment of telecom services in rural areas.
9. The Act also provides a legal framework for Regulatory Sandbox to facilitate innovation and deployment of new technology.
10. The Act provides an effective **Right of Way (RoW)** framework, **both on public and private property**.
    a. The definition of public entities has been **broadened to include government agencies**, local bodies, and PPP projects like airports, seaports, and highways. Public entities shall be obligated to provide right of way except in special circumstances.
11. The Act grants the government wide-ranging powers, including the ability to:
    - Suspend or prohibit use of telecom equipment from countries or individuals for national security reasons.
    - Take over, manage, or suspend any or all telecommunication services or networks in the interest of national security.
    - Waive entry fees, license fees, penalties, etc., to promote consumer interests, market competition, or national security.

6. Should Education Be Brought Back To The State List?

1. Education is essential for a good quality of life and the overall development of society. It shapes economic, social, and cultural progress.
2. Recently, **incidents like the NEET UG and CSIR NET paper leaks have brought back the debate** on how education should be managed in India.
    - These issues have led to discussions about whether education should be moved back to the State List, giving states more control over it.
    - **Presently, education is under concurrent list of Schedule 7** of the Constitution enabling both the Centre as well as the States to enact laws.

Historical Background:

1. The modern education system in India was introduced by the British, who made significant changes through initiatives like the Macaulay Committee, Woods' Despatch, Hunter Commission Report, and the Indian University Act of 1904.
2. The Government of India Act, 1935, established a federal structure, dividing powers between the central government (Union) and provincial governments (States). Education was placed under the provincial list, meaning it was managed by the states.
3. After independence, education continued to be a state subject, allowing states to control their own educational policies. It was listed under the State List in the Seventh Schedule of the Constitution.
4. During the Emergency in the mid-1970s, the **Swaran Singh Committee** recommended moving

education to the Concurrent List. This would allow both the **central and state governments** to legislate on educational matters, aiming for a **more unified national education policy**.

5. This recommendation was implemented through the **42nd Constitutional Amendment in 1976,** adding **entry 25 to List III—Concurrent List**. This entry covered **education, including technical and medical education, universities, and vocational training.** The change took effect on January 3, 1977.
6. Later, the 44th Constitutional Amendment attempted to address some issues from the Emergency period, but education remained on the Concurrent List.

Major Constitutional Provisions for Education

1. **Article 21A:** Requires the State to provide free and compulsory education for all children aged **six to fourteen years.** This rule was added by the 86th Amendment Act, 2002, and started on April 1, 2010.
2. **Article 41:** The State must, within its resources, ensure the right to work, education, and public help in cases of unemployment, old age, sickness, disability, and other types of need.
3. **Article 45:** The State should work to provide early childhood care and education for all children until they turn six years old.
4. **Article 46:** The State must focus on improving the education and economic conditions of Scheduled Castes, Scheduled Tribes, and other weaker sections, protecting them from injustice and exploitation.
5. **Article 51A(k):** Parents or guardians are required to ensure educational opportunities for their children between the ages of six and fourteen.
6. **Article 350A:** States should provide primary education in the mother tongue for children from linguistic minority groups. The President can direct states to ensure this.
7. **Fifth Schedule:** Pertains to the administration of tribal areas in states like Rajasthan, Gujarat, and Maharashtra. It allows for the creation of Tribal Advisory Councils that can manage education and other aspects of governance in tribal regions.
8. **Sixth Schedule:** Deals with the administration of tribal areas in the northeastern states, providing for the establishment of autonomous councils that can manage education and local affairs.
9. **Union List (Seventh Schedule):**
    a. **Entry 64:** Covers institutions for scientific or technical education funded fully or partly by the Government of India and declared by Parliament as important national institutions.
    b. **Entry 66:** Deals with setting standards and coordinating higher education, research, and scientific and technical institutions.
10. **Eleventh Schedule:**
    a. **Entry 17:** Covers primary and secondary education.
    b. **Entry 18:** Includes technical training and vocational education.
    c. **Entry 19:** Addresses adult and non-formal education.
11. **Twelfth Schedule (Article 243W):**
    a. **Entry 13:** Focuses on promoting cultural, educational, and aesthetic aspects.

For and Against bringing education back to the State List:

Arguments	For Bringing Education Back to the State List	Against Bringing Education Back to the State List
1. **Fundamental Principles**	Aligns with the original design of the Indian Constitution where education was under State List. Promotes federal balance by restoring power to state governments.	National integration is better fostered with a uniform education system. The Right to Education Act ensures minimum standards across India.
2. **Policy and Implementation**	Customized local policies can better cater to regional needs and cultural contexts. Reduces policy conflicts that arise between national and state policies.	Standardized skills align with national job market needs. Central oversight ensures quality and consistency in national institutions.

3. Resource Management	States, being significant investors in education, should have control over resource allocation.	A unified approach is needed for national challenges like digital literacy and climate change.
4. Quality and Accountability	Accurate merit assessment with state-defined admission criteria. Enhanced accountability with state management of educational institutions.	Quality issues in primary education, particularly in rural areas, indicate problems with state-level management.

Way Forward

1. To improve India's education system, it's important to **balance national consistency with local flexibility**. Instead of shifting the education from concurrent list "Collaborative Federalism" approach should be adopted. The central government may set essential standards while allowing states to customize policies to fit their specific needs.
2. Outcome-based funding should be introduced that will link financial resources to educational results, motivating states to boost quality.
3. Moreover, Decentralizing school management will help local communities address their unique educational challenges.
4. Reforms in teacher training and transfer policies will make the teaching workforce more effective and motivated as highlighted by **TSR Subramanian Committee Report (2009).**
5. A standardized national assessment framework, paired with state-specific benchmarks, will support fair comparisons and respect regional differences.
6. Using technology will also ensure everyone has fair access to education, especially in remote areas.
7. Finally, a flexible National Curriculum Framework will align national goals with state-specific needs, leading to a more effective and responsive education system.

International Practices to Govern Education Systems

1. **United States:** State and local governments set education standards, while the federal government provides financial aid and ensures equal access to education.
2. **Canada:** Education is managed by the provinces, each handling its own education system.
3. **Germany:** The Länder (states) have legislative power over education, meaning each state makes its own education laws.
4. **South Africa:** Two national departments oversee education, while provincial departments handle local implementation and management.
5. **Finland's Model:** Finland's education system does not rely on standardized tests. Instead, it focuses on collaboration between schools, teachers, and students to create a supportive learning environment.

7. Centre to Revise Criteria for Classical Language Status

With many languages including Marathi, Bengali, Pali, Meitei and Tulu, seeking classical status, the Central government has decided to change the criteria for **classical status to any language.**

- **a.** In July, 2024 the **Linguistics Expert Committee of the Union Culture Ministry has submitted a report suggesting changes in the criteria for according classical status to any language.**
- **b.** The Linguistics Expert Committee comprises representatives of the Union Ministries of Home, Culture and four to five linguistic experts at any given time. It is **chaired by the president** of the **Sahitya Akademi**.
- **c.** The new criteria will be officially notified once **approved by the Union Cabinet**.

About Classical Language:

1. The term classical language or the **Shastriya Bhasha** or the **Semmozhi (Tamil)**, is an umbrella term for the languages of India.
   - India has **six classical languages as of now**: Tamil (2004) , Sanskrit (2005) , Telugu (2008), Kannada (2008) , Malayalam (2013) and Odia (2014).

2. In 2004, the Government of India declared that languages that met certain strict criteria could be accorded the status of a "Classical Language" of India. It includes(criteria)-
   a. **High Antiquity**: The language should have high antiquity in its early texts/recorded history over a period of 1,500-2,000 years.
   b. **Valuable Heritage**: A body of ancient literature or texts that is considered a valuable heritage by generations of speakers.
   c. **Original Literary Tradition**: The literary tradition should be original and not borrowed from another speech community.
   d. **Distinct Language and Literature**: The language and literature should be distinct from its modern format; there may also be a discontinuity between the classical language and its later forms or its offshoots.

Benefits of Classical Language Status:

1. **International Awards**: Two major annual international awards for scholars of eminence in the said languages.
2. **Centre of Excellence**: A centre of excellence for studies in the classical language is set up.
3. **Professional Chairs**: The University Grants Commission is requested to create a certain number of Professional Chairs in Central universities for the languages that get the classical tag.

The Constitutional Provisions for Languages

1. **Article 343 (Official language of the Union)** announces that the official language of the Union shall be Hindi in Devanagari script.
2. **Article 344** provides for the **constitution of a Commission** by the President on **expiration of five years** from the commencement of the Constitution for the progressive use of Hindi for official purposes of the Union.
3. **Article 351** (Directive for development of the Hindi language) of the Constitution provides that it shall be the **duty of the Union to promote the spread of the Hindi language** to develop it so that it may serve as a medium of expression for all the elements of the composite culture of India.
4. **Languages in the Eighth Schedule:** The Eighth Schedule to the Constitution consists of the following 22 languages:
   a. Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri.
      I. Of these languages, **14 were initially included.**
      II. **Sindhi** language was added in 1967 **(21st Amendment Act).**
      III. Three more languages **Konkani, Manipuri and Nepali** were included in 1992 **(71st Amendment Act).**
      IV. **Bodo, Dogri, Maithili and Santhali** were added in 2004 **(92nd Amendment Act).**
   b. **Demands of Languages for Inclusion in the Eighth Schedule:** At present, there are **demands for inclusion of 38** more languages in the Eighth Schedule. Example: Angika, Banjara, Bazika, Bhojpuri etc.
   c. **Present Status on Inclusion of Languages in the Eighth Schedule:** As the **evolution of dialects and languages is dynamic**, influenced by socio eco-political developments, the matter is still under government consideration and the decision will be taken in line with the recommendation of the **Pahwa (1996) and Sitakant Mohapatra (2003) Committee.**

Language of The Union:

1. **Article 120:** Deals with the language to be used in **Parliament.**
2. **Article 210:** Similar to Article 120 but applies to the **State Legislature.**
3. **Article 343:** Declares **Hindi in Devnagari script** as the official language of the Union.

Regional Languages:

1. **Article 345:** Allows the state legislature to adopt **any official language** for the state.
2. **Article 346:** Specifies the **official language for communication** between states and between states and the Union.

3. **Article 347:** Allows the **President to recognise any language** spoken by a section of the population of a state if demanded.

Special Directives:

1. **Article 29:** It **protects the interests of minorities.** It states that any section of citizens with a distinct language, script, or culture has the **right to preserve it.**
2. **Article 350:** Ensures that every person has the right to submit a representation for the **redress of any grievance in any language** used in the Union or the State.
   a. **Article 350A:** Directs States to provide **adequate facilities for instruction in the mother tongue** at the primary stage of education to children belonging to linguistic minority groups.
   b. **Article 350B:** Establishes a **Special Officer for linguistic minorities appointed by the President,** tasked with investigating matters relating to safeguards provided for linguistic minorities under the Constitution.

Contributions of Grierson to Indian Languages

1. Sir George Abraham Grierson was an Irish linguist renowned for his "Linguistic Survey of India" (LSI), conducted between 1898 and 1928. The LSI is a monumental work that documented 179 languages and 544 dialects across British India, resulting in 19 volumes.
2. Grierson's survey provided detailed descriptions of phonetics, grammar, vocabulary, and literary traditions, preserving crucial linguistic data, especially for lesser-known languages.
3. His focus on vernacular languages highlighted India's linguistic diversity, offering a comprehensive resource for linguists, historians, and cultural scholars.
4. The LSI remains one of the most extensive linguistic surveys ever undertaken, showcasing Grierson's significant contribution to the study and preservation of Indian languages.

8. Divorced Muslim Woman's Right to Maintenance under CrPC

1. **In a landmark ruling,** the Supreme Court on **July 10, 2024** ruled [**Mohd Abdul Samad vs The State of Telangana**] that divorced Muslim women can **demand maintenance** from their ex- husbands under **Section 125 of the Code of Criminal Procedure (CrPC), 1973.**
2. Upholding the Telangana High Court ruling, The Supreme Court has rejected a Muslim man's appeal against allowing his ex-wife to seek maintenance.

What is a Maintenance?

1. Maintenance is the financial support given by one person to another, typically during divorce, to help cover living expenses like housing and food.

What is the recent dispute?

1. A Muslim man challenged a Telangana High Court's directive to pay **₹10,000 interim maintenance to his ex-wife.**
2. The wife argued that she must be provided maintenance as per **Section 125 of the Code of Criminal Procedure, 1973 (CrPC).**
   - Section 125 of CrPC is **a secular law** which is applicable to all citizens. It allows people who are unable to support themselves, such as spouses, children, or parents, to claim financial support from certain relatives.
3. Husband, on the other hand, argued that maintenance should be governed by the **Muslim Women (Protection of Rights on Divorce) Act, 1986**, as it prevails over Section 125 of the Code of Criminal Procedure, 1973 (CrPC).

Decoding the dispute streaming from personal law

1. Each religious community in India is governed by its own set of personal laws in matters such as marriage, divorce, adaptation, inheritance and maintenance. Hindu law governs Hindus, Muslim personal law applies to Muslims, and the Special Marriage Act covers inter-religious marriages.

2. Earlier, Muslim women could ask for maintenance but not beyond the period of **iddat** as per the personal laws of Muslims.
   - The **period of iddat** is a time when a Muslim woman waits after her marriage ends. It lasts **for about 3 months** or until she has her period three times. During this time, she can't marry again.
   - Iddat provides time for emotional adjustment after divorce, ensures financial support, and helps determine the father of a child.
3. But, in the **Shah Bano case (1985) [Ahmad Khan vs Shah Bano Begum [1985],** the Supreme Court ruled that Muslim women can get maintenance beyond the iddat period under Section 125 of CrPC as it is a secular law applicable to everyone.
4. Later, the government passed a law called the Muslim Women (Protection of Rights on Divorce) Act, 1986 overturning the Supreme Court's ruling. It restricted Muslim women's right to seek maintenance to only the iddat period.

Takeaway of recent judgment

1. **Right to Maintenance**: A divorced Muslim woman can claim maintenance from her husband under Section 125 of the Cr.PC, a secular law, regardless of their divorce under religious personal law.
2. **Validation of Section 125 Cr.PC**: This section mandates that anyone with sufficient means must maintain his wife or minor children if they cannot support themselves. The term "wife" includes divorced women who have not remarried.
3. **Affirmation of Constitutional Philosophy**: Maintenance is crucial for supporting destitute, deserted, and deprived women, aligning with **Article 15(3)** of the Constitution, which allows for special provisions for women.
4. **Harmonization with Personal law:** The Muslim Women (Protection of Rights on Divorce) Act, 1986, provides maintenance to divorced Muslim women but does not prevent them from claiming maintenance under Section 125 CrPC.
5. **Endorsement of verdict:** In **Danial Latifi Case** 2001, the Supreme Court ruled that a divorced Muslim woman could seek maintenance under Section 125 CrPC, even if divorced under Muslim personal law.
6. **Redefinition of 1986 Act**: The MWPRD Act was challenged for allegedly discriminating against Muslim women and violating their rights to equality and dignity. The Supreme Court **upheld the Act's constitutionality** but interpreted it to require husbands to prepare for the divorced wife's future needs during the iddat period.

The Muslim Women (Protection of Rights on Divorce) Act, 1986:

1. **Purpose**: The Act protects the rights of divorced Muslim women, including provisions for maintenance and related matters. It was a response to the Shah Bano case, affirming that Section 125 CrPC applies to all, regardless of religion.
2. **Provisions**:
   a. Divorced Muslim women are entitled to reasonable and fair maintenance from their former husbands, paid within the iddat period (typically three months).
   b. The Act also covers the payment of mahr (dower) and the return of marriage gifts.
   c. Women can opt to be governed by Sections 125 to 128 of the CrPC if both parties agree.
3. **Section 125 of the CrPC:**
   A. Provision: A first-class Magistrate can order a person with sufficient means to provide a monthly allowance for the maintenance of:
   I. His wife, if she cannot maintain herself.
   II. His legitimate or illegitimate minor children.
   III. His adult children with physical or mental disabilities.
   IV. His parents, if they cannot maintain themselves.
4. **Supreme Court Observations:**
   a. The Supreme Court stated that Section 125 CrPC applies to all women, ensuring that divorced Muslim women can seek maintenance under this section despite the 1986 Act.
   b. The Court noted that Section 3 of the 1986 Act does not restrict Section 125 CrPC but offers an additional remedy.
   c. The Court emphasized the importance of financially empowering wives without independent income, including those divorced through now-illegal triple talaq.

Impact:

1. **Protection of Women's Rights**: Ensures financial support for divorced Muslim women.
2. **Social Justice**: Prevents women from falling into destitution.
3. **Interfaith Harmony**: Recognizes women's rights across religious communities.
4. **Future Implications:** Will pave the way for securing just, fair and inclusive social order
5. **Reform of Personal Laws**: May prompt a re-examination of personal laws concerning women's rights.
6. **Strengthening of Women's Rights**: Enhances women's access to justice.
7. **Promoting Social Justice**: Focuses on protecting marginalized communities' rights.

Conclusion:

The Supreme Court's ruling reaffirms divorced Muslim women's right to seek maintenance under Section 125 CrPC, emphasizing social justice and the State's role in ensuring women's support.

9. Bombay High court upholds hijab ban in colleges

1. On **June 26, 2024**, the **Bombay High Court** upheld a hijab ban at Chembur's N G Acharya and D K Marathe College, stating that the dress code was in the **"larger academic interest" of students**.
2. The court dismissed a plea by 9 students and supported the 2022 Karnataka High Court ruling that validated a similar ban in government colleges.

The Dress Code Controversy

1. In May 2024, Chembur College issued a new dress code, effective from June, following a controversy in August when girls wearing hijabs were denied entry for not complying with uniform rules.
2. The new code bans burqas, niqabs, hijabs, and religious symbols like badges, caps, or stoles. Boys must wear shirts with trousers, and girls are required to wear modest Indian or Western clothing.

Students' contention

1. Nine aggrieved women students approached the HC, **terming the college's instructions "arbitrary and discriminatory".**
2. They claimed the college had "no power and authority" to issue such restrictions and argued that the niqab and hijab were an **"essential religious practice"** as per the Quran and Hadith, integral to their religious belief.
3. The students said that the college's restrictions are "**impeding their access to education**" and **violating their fundamental rights under Article 19(1)(a) (Right to Freedom of Expression) and Article 25 (Right to Freedom of Religion) of the Constitution.**
4. They also claimed the decision was in **violation of University Grants Commission (Promotion of Equity in Higher Educational Institutions) Regulations, 2012** meant to increase access to higher education for SC, ST, OBC and minority communities.

College administration's response

1. The college administration, however, argued that the dress code was applicable to **all students, across religious and community lines**.
2. It said that the objective behind the rules was **to not reveal students' religion.**
3. The college also said that this was an internal matter, and a part of its **right to maintain discipline.**
4. Indeed, the ruling is in compliance with the **2022 judgement of Karnataka High Cour**t which stated that wearing the hijab or niqab was **"not an essential religious practice"** for women professing Islam.

Bombay HC judgement

1. A two judges bench of Bombay high court held that the dress code issued by the college was in **"larger academic interest",** and "[did] not suffer from infirmity so as to violate provisions of Article 19(1)(a) and Article 25 of the Constitution".
2. "The object behind issuing the same is that the dress of a student should not reveal his/her religion, which

is **a step towards ensuring that the students focus on gaining knowledge and education which is in their larger interest**," the bench stated.

3. The Bench also **rejected** that the "donning (wearing) of a hijab or niqab is an essential religious practice of petitioners".
4. The Bench explained that aside from the English translations of two specific Islamic texts—***Kanz-ul-Iman*** (a well-known translation and commentary of the Quran) and ***Sunan Abu Dawud*** (a collection of Hadiths, or sayings of the Prophet Muhammad)—no other evidence or material was provided to support the claim being discussed.
5. The Bench held that since the instructions issued were "applicable to all students irrespective of their caste, creed, religion or language", they **did not violate UGC guidelines**.
6. It held that between competing rights of a student to choose a dress of her choice, and an institution to maintain discipline on its premises, an individual **cannot seek to impose her rights against the 'larger rights' of the college.**
7. "This is for the reason that students are expected to attend the educational institution to receive appropriate instructions for advancement of their academic careers. The insistence for following the dress code is within the college premises and the petitioners' freedom of choice and expression is not otherwise affected," the Bench said.

Agreement with Karnataka HC judgment

1. Justice Chandurkar, who authored the Bombay high court judgement, expressed "full agreement" with the view expressed by the **full Bench of the Karnataka High Court** in 2022, which stated that the "**prescription of a dress code is intended to achieve uniformity amongst students in the school/college so as to maintain discipline and avoid disclosure of one's religion."**
2. The Karnataka HC had held that "the dress code when prescribed for all students was intended **to treat them as one homogeneous class** so as to serve constitutional secularism".

Judicial Preceding's on Hijab Ban

1. **Bombay High Court, 2003:** In *Fathema Hussain Sayed v Bharat Education Society*, the court ruled that the **Quran does not mandate wearing a headscarf**, and a student not wearing one does not violate Islamic principles.
2. **Kerala High Court, 2015:** Two petitions challenged the All India Pre-Medical Entrance dress code, which required light clothes with half sleeves and slippers. The CBSE defended the dress code as a measure against unfair practices. The court directed the CBSE to allow accommodations for students wearing religious attire.
3. **Amna Bint Basheer v CBSE, 2016:** The Kerala High Court confirmed that wearing a hijab is an essential religious practice but upheld the CBSE dress code, permitting additional measures and safeguards similar to those in 2015.
4. **Kerala High Court, 2018:** In *Fathima Thasneem v State of Kerala*, the court supported a Christian missionary school's decision to deny headscarves, ruling that the school's "collective rights" outweigh individual student rights.
5. **Supreme Court Split Verdict on Hijab Ban Case, 2022:** On October 13, 2022, the Supreme Court two judges bench delivered a split verdict **on the Karnataka Hijab Ban appeal**. Justice Gupta, on one hand, upheld the ban, arguing it promoted unity and avoided inequality in secular institutions. Conversely, Justice Dhulia quashed the ban, emphasizing individual rights and the importance of choice. The case, which touches on rights to equality, religious practice, and education, will now be reviewed by a larger Bench appointed **by CJI Lalit**.

Doctrine of Essentiality

1. The Doctrine of Essentiality helps determine which religious practices are protected by India's Constitution. It says that practices vital to a religion cannot be restricted by the government. It means that religious freedom covers both beliefs and essential practices but must still follow constitutional rules. This idea was first established in the case Shri Shirur Mutt Case, 1954.
2. There are two ways to decide what is essential:
   a. One, where religious leaders define it based on sacred texts (reference in religious text), and
   b. Another, where courts look at the difference between religious and non-religious matters (secular).

Key Cases:

1. Ram Prasad Seth v. State of U.P. (1957): Bigamy was not considered essential to Hinduism.
2. Church of God v. K.K.R. Majestic Colony Welfare (2000): Using loudspeakers for prayers is not an essential religious practice.
3. Dr. Noorjehan Safia Niaz v. State of Maharashtra (2016): Excluding women from dargahs was not seen as essential to Islam.
4. Shayara Bano v. Union of India (2017): The practice of triple talaq was not considered an essential practice in Islam.

Way Ahead

1. The Bombay High Court's decision on the hijab ban is an important step in the debate, upholding dress code rules in schools. However, this ruling is currently being challenged at the Supreme Court. The final decision from the Supreme Court will be crucial in setting a clear legal standard.
2. The key challenge is finding a balance between students' religious freedoms and schools' right to enforce dress codes. It's important to ensure that dress codes respect students' rights while allowing schools to maintain their policies.
3. Currently, there are no national guidelines for dress codes. The University Grants Commission (UGC) should create clear, uniform policies that consider all views and religious practices. This will help ensure fair and inclusive rules for everyone.

10. UP Assembly approved Anti-Conversion law

1. In July 2024, the Uttar Pradesh Legislative Assembly approved the Uttar Pradesh Prohibition of Unlawful Conversion of Religion (Amendment) Bill, 2024.
   a. This Bill significantly **tightens the original 2021 anti-conversion law**.
   b. Since 2017, several states have enacted or revised anti-conversion laws to curb religious conversions via marriage, deception, coercion, or inducement.
   c. Significantly, **these laws** are purportedly designed to **address "love jihad"** — a concept promoted mainly by Hindutva groups, suggesting that inter-faith marriages may involve forced conversions.

About Religious Conversions

1. Religious conversion refers to the act of abandoning adherence to one religious denomination and affiliating with another. It involves adopting the beliefs associated with a particular religion while excluding others.

Constitutional Rights

According to various judicial pronouncements, forceful religious conversion is deemed to violate fundamental rights under the Indian Constitution, including:

a. **Article 14 (Equality before the Law):** Ensures that all individuals are treated equally and prohibits discrimination.

b. **Article 21 (Right to Life):** Guarantees the right to life and personal liberty, which includes the freedom to make personal choices, such as religious beliefs.

c. **Article 25 (Freedom of Conscience & Freedom to Profess, Practice & Propagate Religion):** Protects an individual's right to freedom of conscience and the freedom to profess, practice, and propagate their religion.

Important Judgments

1. **Stanislaus v/s State of MP, 1977:** Constitution bench of the Supreme Court ruled that Article 25(1) doesn't

give the right to convert but only the right to spread tenets of one's own religion. Thus, only voluntary conversions are valid in India.

2. **Shafin Jahan v. Asokan K.M.,2018:** Popularly known as Hadiya (Akhila Ashokan) case (Media promoted as "love jihad" case), the Supreme court awarded that every person has the right to marry and enter into a legal contract if he/ she attains the age of majority without any interference.

Why was the amendment proposed?

1. According to the Bill's statement of reasons, the existing legislation needed to be made **"as stringent as possible"** due to the alleged "organized and well-planned" involvement of "foreign and anti-national elements and organizations" in demographic changes through unlawful conversion.
2. It further claims that the penal provisions of the 2021 Act were **"not sufficient to prevent and control religious conversion and mass conversion"** in cases involving minors, disabled individuals, mentally challenged persons, women, and those belonging to the Scheduled Castes or Scheduled Tribes.
3. While the constitutional validity of the law is being challenged in the Supreme Court, state government data show that between January 1, 2021, and April 30, 2023, 427 cases were registered under the Act, leading to 833 arrests.

Provisions related to penalties

1. This Bill increased the jail terms and fines for all offenses under the law. Previously, a person convicted of unlawful conversion faced a minimum prison term of 1 year and a maximum of 5 years, along with a fine of Rs 15,000.
2. **Under the amended Bill**, the minimum imprisonment for such offenses has been raised to 5 years and the maximum to 10 years, with the fine increased to Rs 50,000.
3. For unlawful conversions involving a minor, a woman, or a person belonging to the Scheduled Caste or Scheduled Tribe communities, the penalty has been increased from a prison term of 2-10 years to 5-14 years, and the minimum fine has been raised from Rs 25,000 to Rs 1 lakh.

The amendment also introduces two new categories of offenses.

1. **First,** a newly added sub-section to Section 5 imposes a minimum prison term of 7 years, which can extend up to 14 years, for anyone who secures "foreign" funds or funds from "illegal institutions" for the purpose of unlawful conversion. In addition, they will be required to pay a fine of Rs 10 lakh.
2. **Second,** if the accused causes any person to fear for their life or property, assaults or uses force, promises or instigates marriage, conspires or induces any minor, woman, or person to traffic or otherwise sells them, they shall face a minimum imprisonment of 20 years, which can be extended to life imprisonment. Courts are also required to award appropriate compensation to victims, to be paid by the accused.
    - This compensation can be up to Rs 5 lakh and is in addition to any fines imposed.

Procedure of criminal complaint

1. Under **Section 4 of the original Act, only "any aggrieved person" or "his/her parents, brother, sister, or any other person** who is related to him/her by blood, marriage, or adoption" was authorized to file a criminal complaint for unlawful conversion.
    - However, despite this limitation, police authorities were reportedly allowing FIRs to be lodged by right-wing activists and other unauthorized third parties, including elected local representatives.
2. This led the Allahabad High Court to clarify multiple times that such **complaints can only be filed by the aggrieved person** or their immediate family.

However, the amendment now legitimizes third-party complaints.

1. The revised provision allows "any person" to file an FIR for any violation of the Act, as outlined in **Chapter 13 of the Bharatiya Nagarik Suraksha Sanhita, 2023 (BNSS),** the new law governing criminal procedure.
2. This chapter deals with the powers of police officers to investigate upon receiving information about the commission of a crime.

Provisions related to bail

The amendment introduces strict **"twin conditions of bail,"** similar to those in laws like the Narcotic Drugs and Psychotropic Substances Act, 1985, the Prevention of Money Laundering Act, 2002, and the Unlawful Activities (Prevention) Act, 1967.

1. All offenses related to **unlawful conversion are now cognisable and non-bailable** and can only be adjudicated by a sessions court or higher judicial forums.
2. Under the revised Section 7, an accused cannot be granted bail without first giving the public prosecutor an opportunity to oppose the bail application.
3. If the public prosecutor objects, the sessions court may grant bail only if "there are reasonable grounds for believing that [the accused] is not guilty of such offense" and that they are unlikely to commit any crime if released on bail.
4. This reverse burden of proof on the accused makes the provision extremely stringent, effectively making it almost impossible for anyone to obtain bail until the trial is completed.

Other State's Anti-Conversion Laws

1. In addition to Uttar Pradesh, States such as Odisha, Madhya Pradesh, and Arunachal Pradesh have had anti-conversion laws for decades.
   - **Odisha (1967):** First state to enact a law restricting religious conversions.
   - **Madhya Pradesh (1968):** Introduced the Madhya Pradesh Dharma Swatantraya Adhiniyam, which requires notification to the District Magistrate for any conversion activities, with penalties for non-compliance.
2. While Chhattisgarh (2000 and 2006), Gujarat (2003), Himachal Pradesh (2006 and 2019), Jharkhand (2017), and Uttarakhand (2018) have implemented such laws more recently.

Legal Challenges

1. High-profile cases and judicial reviews have drawn significant attention to issues surrounding anti-conversion laws. Some of these cases have challenged the constitutionality and fairness of these laws, leading to legal battles that examine the boundaries of religious freedom and individual rights.
2. Courts have occasionally intervened to address concerns about the misuse of these laws or to clarify their application, highlighting ongoing debates about their impact and effectiveness.
3. The constitutional validity of the amendment is expected to be challenged in the Supreme Court.
4. A batch of petitions challenging the original legislation and similar anti-conversion laws enacted by BJP-ruled states are already pending before a three-judge Bench led by Chief Justice of India D.Y. Chandrachud.
   a. However, these petitions have not been scheduled for hearing since April 2023, leaving them unresolved.
5. Meanwhile, in May, while hearing a separate case challenging an unlawful religious conversion charge, a Bench of Justices J.B. Pardiwala and Manoj Mishra noted that certain provisions of the 2021 Act might contravene Article 25 of the Constitution, which guarantees freedom of religion.

Conclusion

The Uttar Pradesh Prohibition of Unlawful Conversion of Religion (Amendment) Bill, 2024, has significantly tightened the existing anti-conversion law in the state. It has increased penalties for offenses, broadened the scope for filing complaints, and made bail provisions more stringent. While the stated intent is to curb forced conversions, concerns remain about its potential misuse and its impact on religious freedom and individual rights. The constitutional validity of the amendment is likely to be challenged in the Supreme Court, and the ongoing legal battles surrounding anti-conversion laws highlight the complex interplay between religious freedom, individual liberties, and social concerns in India.

11. Centre lifts ban on Govt. staff joining RSS activities

1. In July 2024, the Indian government lifted a ban that restricted public servants from participating in activities of the **Rashtriya Swayamsevak Sangh (RSS)**.
2. The **Department of Personnel and Training (DoPT)** issued this decision, removing mentions of the RSS from official memorandums from the years 1966, 1970, and 1980.
   a. This circular applies only to central government employees.
   b. State governments have separate Conduct Rules for their employees and issue relevant instructions independently.

Rules About Government Employees Joining RSS

1. **DoPT's Directive:** The DoPT announced the removal of the RSS references in the **Official Memorandums (OM)** from 1966, 1970, and 1980.
   a. The RSS is no longer classified as a **"political"** organization. Central government employees can now participate in RSS activities without violating **Rule 5(1) of the Conduct Rules**.
   b. However, this change does not apply to the **Jamaat-e-Islami**, which remains categorized as a political organization, barring government officials from its activities.
2. **Rule 5 of the Central Civil Services (Conduct) Rules, 1964:** This rule prohibits government employees from joining political parties or engaging in political activities.

Overview of Official Memorandums (OM) from 1966, 1970, and 1980

OM of 1966:

1. Issued on **November 30, 1966**, by the **Ministry of Home Affairs (MHA).**
2. This circular clarified the government's stance against employees participating in the RSS and Jamaat-e-Islami, citing these activities as against government policy.
3. The circular referenced **Rule 5 of the Central Civil Services (Conduct) Rules, 1964**, warning of disciplinary actions against those involved with these organizations.
4. A similar rule exists under the **All India Services (Conduct) Rules, 1968**, for IAS, IPS, and Indian Forest Service officers.

OM of 1970:

1. On July 25, 1970, the MHA reiterated that government employees should face disciplinary measures for breaching the 1966 instructions.
2. During the **Emergency period (1975-1977)**, the government directed actions against members of several organizations.
3. These include the RSS, Jamaat-e-Islami, Ananda Marg, and Communist Party of India (Marxist–Leninist) Liberation (CPI-ML), whose activities were banned at the time.

OM of 1980:

1. On October 28, 1980, a directive was issued emphasizing the need for a secular outlook among government employees and the elimination of communal biases.

Position Before 1966

1. Before 1966, government employees were governed by the **Government Servants' Conduct Rules of 1949**, which explicitly (in a clear and detailed manner) barred (banned) participation in political activities.
2. This prohibition was reiterated in **Rule 23 of the 1949 rules**, which aligns with Rule 5 of the Central Civil Services (Conduct) Rules, 1964, and the All-India Services (Conduct) Rules, 1968.

Penalties for Rule Violations

1. Violating Rule 5 of the Central Civil Services (Conduct) Rules, 1964, or the All India Services (Conduct) Rules, 1968, can lead to severe consequences, including dismissal from service.
2. Both rules stipulate (specify) that if there is any doubt regarding a party's political nature or an activity's compliance, the government's decision is final.

About Rashtriya Swayamsevak Sangh (RSS)

1. The Rashtriya Swayamsevak Sangh (RSS) is a **Hindu nationalist volunteer organization** established in **1925** in **Nagpur** by **Dr. K.B. Hedgewar**.
2. It was created in response to perceived (considered) threats to Hindu culture and society, particularly during British rule in India.
3. The RSS aims to promote the **concept of Hindutva**, emphasizing Hindu cultural and national identity.
4. **Pre-Independence Period:** The RSS played a key role in mobilizing social and cultural activities among Hindus. It concentrated on community service, education, and the promotion of Hindu values.
5. **Post-Independence Era:** After India gained independence in 1947, the RSS came under scrutiny, particularly after Mahatma Gandhi was assassinated by Nathuram Godse in 1948.
    a. The organization was banned temporarily but was later allowed to resume activities.
6. **Ideology:** The RSS's core ideology influenced by **Vinayak Damodar Savarkar** and it holds that India is fundamentally a Hindu nation.
    b. It emphasizes the importance of preserving Indian culture and heritage, striving to unite people under a common national identity.
    c. The organization is involved in various social service activities, including education, healthcare, and disaster relief, promoting the concept of "Seva" (service) among its members.
7. **Contribution to the Freedom Struggle:** Although the RSS did not actively participate in the Indian independence movement, it contributed to the socio-political awakening among Hindus.
8. **History of Bans on RSS:**
    a. **1948:** Banned after Gandhi's assassination; reinstated in 1949 after the organization pledged loyalty to the Constitution.
    b. **1966:** Ban on government employees joining the RSS, reiterated in 1970 and 1980.
    c. **1975-1977:** Banned during the Emergency imposed by Indira Gandhi; ban lifted in 1977.
    d. **1992:** Banned following the Babri Masjid demolition; ban lifted in 1993 after a commission found the ban to be unjustified.
9. **Structure and Operations:** The RSS functions through a widespread network of **shakhas** (branches) across India and abroad, focusing on physical, intellectual, and cultural training.
    a. It has inspired the creation of various other organizations, including the **Vishva Hindu Parishad (VHP), Bajrang Dal,** and **Akhil Bharatiya Vidyarthi Parishad (ABVP).**

About the Jamaat-e-Islami

1. **Founded in 1941** in British India by **Abul A'la Maududi**. It is a socio-religious and political organization.
2. It focuses on promoting Islamic values and implementing Islamic principles in both society and governance. The organization advocates for establishing an Islamic state governed by **Sharia law**.
3. The Government of India officially banned Jamaat-e-Islami Jammu and Kashmir in March 2019 under the **Unlawful Activities (Prevention) Act (UAPA)**.
    a. UAPA was passed in 1967. It aims at effective prevention of unlawful activities associations in India.
    b. Unlawful activity refers to any action taken by an individual or association intended to disrupt the territorial integrity and sovereignty of India.

Ananda Marga

1. Ananda Marga was established in **1955** by **Prabhat Ranjan Sarkar.** It is a socio-spiritual organization known for its **Progressive Utilization Theory (Prout)**.
2. Prout is a socio-economic model that emphasizes the physical, mental, and spiritual development of all individuals.

12. SDG India Index 2023-24 by NITI Aayog

1. In July 2024, the 4th edition of **SDG India Index 2023-24**, was released by NITI Aayog.
2. This index is the country's principal tool for measuring national and subnational progress on the **Sustainable Development Goals (SDG)** released by United nation organisation.

About SDG index

1. The **SDG India Index**, launched by **NITI Aayog** in **2018**, tracks how well Indian States and Union Territories (UTs) are doing on **16 Sustainable Development Goals (SDGs).**
2. It uses **113 indicators** to measure progress, with scores ranging from **0 to 100**—where 100 means all targets have been met.
3. This index not only shows how much progress has been made but also encourages States and UTs to learn from each other and improve.
4. By aligning with national priorities, the SDG India Index helps integrate sustainable development goals into the broader plans and policies of the country, ensuring that everyone works together towards these goals.

Key Findings

1. **Countrywide performance :**The composite score for **India** improved from **57 in 2018 to 66 in 2020-21 to further to 71 in 2023-24**
   a. Noteworthy advancements have been observed **in Goals 1 (No Poverty), 8 (Decent Work and Economic Growth), 13 (Climate Action).** These are **now in the 'Front Runner'** category (a score between 65–99).
   b. **Goal 13 (Climate Action)** has shown the most substantial improvement, with its **score increasing from 54 to 67.**
   c. Goal 1 (No Poverty) follows closely, with its score rising significantly **from 60 to 72**. The progress underscores the effects of the focused programmatic interventions and schemes of the Union and State Governments in improving the lives of citizens.
2. **State and UT performance**
   a. The **SDG India Index 2023-24** shows a positive trend in the SDG performance of States and Union Territories (UTs). Scores for States now range from 57 to 79, while UTs score between 65 and 77, reflecting improvement from the 2020-21 edition.
   b. Following 4 category of state/UT's has been identified for performance evolution-

Category	Rank
Aspirant	0–49
Performer	50–64
Front-Runner	65–99
Achiever	100

Top Performers: Kerala and Uttarakhand emerged as the best-performing states, each scoring 79 points.

   c. **Lowest Performers**: Bihar scored the lowest with 57 points, followed by Jharkhand with 62 points.
   d. The number of **Front Runner** States and UTs has grown, with 32 now in this category, compared to 22 in 2020-21. This year, 10 new States and UTs, like Arunachal Pradesh, Assam, Chhattisgarh, and Uttar Pradesh, joined the Front Runner group.
   e. Overall, all States have improved their scores, with Assam, Manipur, Punjab, West Bengal, and Jammu and Kashmir seeing the biggest jumps, each increasing by 8 points since 2020-21.

Key interventions driving SDG achievements in India

1. **PM Awas Yojana (PMAY):** Over 4 crore houses built.
2. **PM Ujjwala Yojana:** 10 crore LPG connections provided.
3. **Jal Jeevan Mission:** Tap water connections for over 14.9 crore households.
4. **Ayushman Bharat:** Over 30 crore beneficiaries under the health scheme.
5. **National Food Security Act (NFSA):** Coverage for over 80 crore people.
6. **Ayushman Arogya Mandirs:** Access to primary medical care and affordable generic medicines.
7. **Direct Benefit Transfer (DBT):** ₹34 lakh crore distributed via PM-Jan Dhan accounts.
8. **Skill India Mission:** 1.4 crore youth trained, 54 lakh reskilled.
9. **PM Mudra Yojana:** 43 crore loans totaling ₹22.5 lakh crore.
10. **Renewable Energy:** Solar power capacity increased from 2.82 GW to 73.32 GW.
11. **Digital Infrastructure:** 97% reduction in internet data costs, boosting financial inclusion.
12. **Sanitation:** 11 crore toilets and 2.23 lakh Community Sanitary Complexes in rural areas.

Goal-Wise Results

Goal	Key Results
Goal 1 – No Poverty	- Multidimensional poverty **halved from 24.8% to 14.96% between 2015-16 and 2019-21.** - 99.7% employment under MGNREGA - 95.4% of households in pucca/semi-pucca houses - 41% covered under health insurance (up from 28.7%)
Goal 2 – Zero Hunger	- 99.01% coverage under National Food Security Act (NFSA), 2013 - Increased rice and wheat productivity - GVA in agriculture per worker up from ₹0.71 lakhs to ₹0.86 lakhs
Goal 3 – Good Health	- Maternal Mortality Rate: 97 per 100,000 - Under-5 mortality rate reduced to 32 - 93.23% children fully immunized - 97.18% deliveries in health institutions
Goal 4 – Quality Education	- Adjusted Net Enrolment Rate: 96.5% (up from 87.26%) - Pupil Teacher Ratio is 18 (Target – 30) - 88.65% schools with electricity and drinking water - 100% parity in Higher Education
Goal 5 – Gender Equality	- Sex ratio at birth: 929 females per 1,000 males - Female to male Labour Force Participation Rate: 0.48 - 74.1% of family planning needs met - 53.90% of women own and use a mobile phone
Goal 6 – Clean Water and Sanitation	- All districts verified as ODF - 99.29% of rural households with improved drinking water sources - 94.7% of schools with functional toilets for girls - Reduced water overexploitation from 17.24% to 11.23%
Goal 7 – Affordable and Clean Energy	- Highest score among all SDGs, from 51 to 96 - 100% households with electricity - Clean cooking fuel connections up from 92.02% to 96.35%

Goal 8 – Decent Work and Economic Growth	- 5.88% annual GDP per capita growth (2022-2023) - Unemployment rate reduced from 6.2% (2018-19) to 3.40% (2022-23) - Labour Force Participation Rate increased from 53.6% (2018-19) to 61.60% (2022-23) - 95.70% of households with a bank/ post office account - 55.63% of PMJDY accounts held by women
Goal 9 – Industry, Innovation and Infrastructure	- 99.70% of habitations connected with all-weather roads under PMGSY (up from 47.38% in 2017-18) - 93.3% of households own at least one mobile phone - 95.08% of villages have 3G/4G mobile internet coverage
Goal 10 – Reduced Inequalities	- 45.61% of Panchayati Raj Institution seats held by women - 28.57% representation of SC/ST in state legislative assemblies
Goal 11 – Sustainable Cities and Communities	- Sewage treatment capacity increased from 38.86% (2018) to 51% (2020-21) - Municipal solid waste processed increased from 68% (2020) to 78.46% (2024) - 97% of wards with 100% door-to-door waste collection - 90% of wards with 100% source segregation under SBM (U)
Goal 12 – Responsible Consumption and Production	- 91.5% of biomedical waste treated (2022) - 54.99% of hazardous waste recycled/ utilized (up from 44.89% in 2018-19)
Goal 13 – Climate Action	- Score improved by 13 points, from 54 (Performer) to 67 (Front Runner) - Disaster preparedness score: 19.20 - Renewable energy generation increased from 36.37% (2020) to 43.28% (2024) - 94.86% of industries comply with environmental standards
Goal 15 – Life on Land	- Score increased from 66 (2020-21) to 75 (2023-24) - 25% of geographical area under forests and tree cover - 1.11% increase in carbon stock in forest cover
Goal 16 – Peace, Justice and Strong Institutions	- 95.5% Aadhaar coverage (as of March 2024) - 89% of births registered for children under five (NFHS-5) - 71.3% charge sheeting rate for IPC crimes (NCRB 2022)

Key concern

1. **Goal 10 – Reduced Inequalities**: This goal saw a decline in points from 67 in 2020-21 to 65 in 2023-24. This reduction highlights ongoing wealth disparities and suggests that inequality remains a significant issue in India, particularly in employment opportunities for lower socioeconomic groups. It also addresses gender inequality in workforce participation.
2. **Goal 5 – Gender Equality**: Gender Equality received the lowest score among all goals, with only a slight improvement from the previous year. Key concerns include the sex ratio at birth, women's ownership of land and assets, and labor force participation. States with a sex ratio below 900 at birth are particularly affected.
3. **Goal 4 – Quality Education**: The Quality Education goal increased by 4 points to 61. Despite this improvement, challenges persist, especially in central India. The primary issue is not access to education but the quality, which impacts employment opportunities.

B. International Relations

1. 24th SCO Summit, 2024

1. In July 2024, the ***24th Meeting of the SCO Council of Heads of State*** (SCO Summit) held in Astana, under the presidency of Kazakhstan.
2. Indian External Affairs Minister, Dr. S. Jaishankar will lead the Indian delegation to Astana for the Summit.

SCO chairmanship for the next term

1. People's Republic of China will assume the SCO chairmanship for the next term, and Qingdao, China will be appointed the SCO's tourism and cultural capital for 2024-2025.
2. Earlier, **India** hosted the 23rd Meeting of the SCO Council of Heads of State on **04 July 2023 (first-ever presidency of SCO) in virtual format.**

Key Outcomes of the Summit

1. **New Membership:** Belarus joined the **SCO *as its 10th member state***. India's External Affairs Minister met with his Belarusian counterpart to enhance bilateral relations.
2. **Astana Declaration:** The summit led to the **adoption of the Astana Declaration** and the approval of 25 key agreements focusing on energy, security, trade, finance, and information security.
3. **SCO Development Strategy:** The SCO's Council of Heads of State approved the ***SCO Development Strategy*** up to **2035**.
   - This includes resolutions addressing terrorism, separatism, extremism, anti-drug strategies, energy cooperation, economic growth, and collaboration in protected areas and eco-tourism.
4. **Additional Commitments:** Members committed to signing a memorandum to combat illegal drug trafficking and an action plan for international information security cooperation.

Issues Highlighted by India

1. **Rising Tensions:** India emphasized the strain on international relations and global economic growth due to ongoing conflicts, increasing global tensions, trust deficits, and the proliferation of geopolitical hotspots.
2. **Terrorism:** Combating terrorism was a top priority. India highlighted the challenge of cross-border terrorism and **called for isolating nations supporting terrorists**. A decisive response to cross-border terrorism and measures to prevent radicalization were urged.
3. **Climate Change:** India called on **SCO members to work toward significant emissions reductions** through transitioning to alternative fuels, adopting electric vehicles, and building climate-resilient infrastructure.
4. **Connectivity:** India stressed the importance of robust connectivity for economic development and fostering cooperation. Respect for sovereignty, territorial integrity, and non-discriminatory trade rights in connectivity projects was emphasized.
5. **Technology:** India advocated for the creative application of technology and highlighted its **leadership in AI**. It expressed its commitment to working within the SCO on an AI cooperation Roadmap.
6. **Central Asia:** India recognized its deep ties with Central Asia and emphasized the region's central role in the SCO. It highlighted its increased engagement with the region through exchanges, projects, and activities.
7. **Cooperation:** India emphasized the people-centric nature of SCO cooperation and its role in fostering mutual growth. It organized several cultural and intellectual events during its presidency.

About the SCO

1. The Shanghai Cooperation Organisation (SCO) is a regional intergovernmental organization focusing on political, economic, and security-related issues.
2. It originated from the "Shanghai Five" group formed in 1996 to address concerns related to extremist religious groups and ethnic tensions.
3. The SCO was officially established in 2001 with six members and now has ten members, including India.
4. It fosters cooperation among member states in security, economic development, and cultural exchange.

Relevance of the SCO for India

1. **Regional Cooperation:** The SCO strengthens India's ties with Central Asia and facilitates engagement with major regional players.
2. **Counter-Terrorism Efforts:** The SCO's RATS supports member states in counter-terrorism activities, offering India a valuable framework for joint exercises, intelligence analysis, and information sharing.
3. **Challenges:** India faces challenges in managing complex bilateral relationships, balancing ties with China and Russia, addressing regional security concerns, ensuring economic benefits, and maintaining strategic autonomy.

Conclusion

India's involvement in the SCO offers opportunities for regional cooperation and counter-terrorism efforts but also presents challenges requiring careful diplomatic and strategic management.

2. India- Austria Relations

1. In July, 2024 the Indian PM made an official trip to Austria, the first by an Indian leader in 41 years, commemorating 75 years of diplomatic ties between the two nations.
2. PM Narendra Modi's recent trip to Vienna marked the first visit by an Indian PM to Austria since June 1983, when Indira Gandhi visited the country.

Key Highlights of the Prime Minister's Visit to Austria

1. PM Narendra Modi and Chancellor Nehammer emphasized the importance of **strengthening economic and technological ties** between India and Austria. They welcomed **the first high-level bilateral Business Forum** and discussed collaboration opportunities in green and digital technologies, renewable energy, and water management.
2. The **launch of the India-Austria Startup Bridge** aimed to promote innovation and entrepreneurship between the two countries.
3. Both nations reaffirmed their **commitment to a free and open Indo-Pacific region** and advocated for a peaceful resolution to the Ukraine conflict.
4. The two countries committed to **working together on renewable energy, particularly focusing on Austria's Hydrogen Strategy** and India's Green Hydrogen Mission.
   - They also **expressed support for the EU's 2050** climate neutrality target, Austria's goal for 2040, and India's goal for net-zero emissions by 2070.
5. The leaders highlighted the **long-standing cultural exchanges** between India and Austria and noted the growing interest in **yoga and Ayurveda** in Austria.
6. India supported Austria's candidature for the UNSC in 2027-28, while Austria backed India's candidature for 2028-29. Additionally, India invited Austria to join the International Solar Alliance.

India- Austria Relations

1. India and Austria officially **established diplomatic relations on May 19, 1949**, soon after India's independence in 1947.
2. Over the decades, **several high-level visits have taken place**, including Indian Prime Ministers Jawaharlal Nehru, Indira Gandhi, and Narendra Modi visiting Austria, and Austrian Presidents and Chancellors visiting India.
   - Both countries have consistently supported each other in various multilateral forums like the United Nations, with Austria appreciating India's role in the Non-Aligned Movement.
3. **Bilateral trade** has expanded significantly over the years. Key sectors include machinery, electronic goods, chemicals, and textiles.
   - Austrian companies have shown interest in investing in India, particularly in sectors like infrastructure, renewable energy, and technology.

4. India and Austria have a **rich history of cultural exchange**, with Indian art, music, and dance being showcased in Austria and Austrian cultural elements being introduced in India.
   - Several academic exchanges and partnerships exist between universities and research institutions in both countries, fostering closer educational ties.
5. Both nations have **collaborated on various scientific projects**, including renewable energy, environmental protection, and technology transfer.
   - Austria has been a partner in India's innovation ecosystem, contributing to technological advancements in areas like clean energy and smart city initiatives.

Current Status and Future Prospects

1. **Strengthening Ties-** In recent years, both countries have sought to deepen their relationship, particularly in areas like climate change, digital transformation, and sustainable development.
2. **Vision for the Future-** The relationship is expected to grow stronger, with a focus on expanding trade, investment, and people-to-people connections, as well as collaborating on global challenges.

Significance of India-Austria Relations

1. **Geo-political Importance:** Both nations uphold the **principles of democracy and pluralism** and have collaborated on global issues like reforms to the UN Security Council.
   - Austria has endorsed India's bid for a permanent seat on the UNSC, acknowledging India's increasing influence on the world stage.
2. **Technological Importance:** Austria possesses advanced expertise in Green Hydrogen and other renewable technologies. This expertise is highly valuable for India's Green Hydrogen Mission and its goal of achieving net-zero emissions by 2070.
3. **Shared Global Perspectives:** Both countries have adopted balanced positions on the Russia-Ukraine conflict, maintaining diplomatic and commercial ties amidst global tensions. Austria's neutral stance is rooted in the 1955 Austrian State Treaty.

Challenges and Solutions: India-Austria Cooperation

Challenges	Solutions
Geographical Distance: Significant distance limits interactions.	Mobility Partnership Agreement, virtual collaboration tools.
Trade Imbalance: Favors Austria; India imports high-value goods, exports less.	Diversify India's exports, promote value-added products.
Differences in Economic Structures: India: services & agriculture; Austria: industrial & manufacturing.	Collaborate on renewable energy, tech; align strengths.
Visa Delays: Slow processes hinder people-to-people connections.	Mobility Partnership Agreement, streamlined procedures.

3. 22nd India-Russia annual Summit

Prime Minister of India officially visited Russia in July 2024 for the 22nd India-Russia Annual Summit.

Key Outcomes of the Visit

President Vladimir Putin conferred Russia's highest civilian honour, the **"Order of Saint Andrew the Apostle,"** on PM Narendra Modi.

- The Order of Saint Andrew the Apostle was established by Tsar Peter the Great in 1698 and reinstated in 1998, featuring a double-headed eagle emblem and a light blue silk moire ribbon.
- The award is named after Saint Andrew, the patron saint of Russia and Scotland, known for spreading Christianity across Europe and Asia.

I. Trade and Economic Partnership

1. "Enduring and Expanding Partnership" with a focus on economic growth.
2. **Bilateral Trade Target:** Set an ambitious goal of reaching USD 100 billion in bilateral trade by 2030.
3. **Bilateral Settlement System:** Promote the use of national currencies for trade settlements.
4. **Cooperation Agreements:**
   a. Signed a program for India-Russia cooperation in trade, economic, and investment spheres in the Russian Far East for 2024-2029.
   b. Signed an agreement on cooperation principles in the Arctic zone of the Russian Federation.

II. Military Cooperation

- **Joint Manufacturing:** Agreed to boost joint manufacturing in India, focusing on spare parts and components for maintaining Russian-origin arms and defense equipment. This will be carried out under the Make-in-India program.

III. Stance on Ukraine

- **Peaceful Resolution:** Expressed support for a peaceful resolution of the conflict surrounding Ukraine through dialogue and diplomacy. Emphasized the importance of engagement between both parties involved.

IV. Consular Services

- **New Consulates:** India will open two new consulates in Kazan and Yekaterinburg to better serve the needs of the growing Indian community in Russia.

Contemporary Significance of India-Russia Relations

I. Strategic Convergence

a. **China's Rise:** Both countries are concerned about China's growing influence in their respective neighborhoods and seek to prevent China from becoming a regional hegemon.

b. **Multipolar World Order:** India and Russia advocate for a multipolar world order, opposing unilateral actions by any single country.

II. Military Collaboration

a. **Evolving Dynamic:** The military relationship has evolved from a buyer-seller dynamic to one of joint research, design, and production of advanced defense systems and technologies.

b. **Examples of Collaboration:**
   - Joint production of Brahmos cruise missiles.
   - Joint production of Kalashnikov AK 203 assault rifles.

III. Protecting Strategic Autonomy

a. **Balancing Dependence:** Strong ties with each other allow India and Russia to counterbalance their increasing dependence on the USA and China, respectively, signaling an independent foreign policy course.

b. **Russia's Support:** Russia approved the sale of Brahmos missiles to the Philippines, intended to deter China in the South China Sea, despite growing Russia-China relations.

IV. Combatting Terrorism

a. **Shared Goal:** Both countries are committed to the quick finalization and adoption of the Comprehensive Convention on International Terrorism within the UN framework.

V. Multilateral Cooperation

a. **Active Engagement:** India and Russia actively cooperate in various multilateral forums, including the UN, BRICS, NSG, and SCO.

b. **Example**: Both countries supported the addition of new member states to the expanded BRICS family.

Significance of the India-Russia Relationship

Significance for Russia

1. **Geopolitical**
   a. **India, as a major west-friendly democracy, can encourage Russia towards dialogue.**
      i. **Example:** India hasn't explicitly criticized the Russian invasion of Ukraine, calling instead for a peaceful resolution through dialogue.
2. **Economic**
   a. **India's large market offers potential for defense and crude oil sales, especially given Russia's boycott by the West.**
      i. **Russia is India's fourth-largest trading partner, with current trade at around $65.5 billion.**
3. **Multilateral**
   a. **India's membership in non-Western organizations like BRICS and the Shanghai Cooperation Organization strengthens their credibility.**

Significance for India

1. **Political**
   a. Russia has historically never hurt India's interests and has maintained neutrality in India-China ties
2. **Multilateral Reforms**
   a. Russia supports India's permanent membership in a reformed and expanded UN Security Council
3. **Defense**
   a. Russia is India's top military supplier, accounting for 36% of total defense imports
      i. Russia supplies platforms like the S400 air defense system and newer frigates such as 'Tushil'
4. **Connectivity**
   a. Russia can enhance India's connectivity with Central Asia and Eurasia through projects like INSTC, the Northern Sea Route, and the Chennai-Vladivostok Eastern Maritime Corridor
5. **Economic**
   a. The Indian pharmaceutical sector is now a top medicine supplier in Russia
6. **Energy**
   a. Russia is India's top crude oil supplier, and discounted oil and fertilizer purchases have helped keep India's inflation in check.
7. **Technological Cooperation**
   a. Examples include the Kudankulam Nuclear Power Plant and the GAGANYAAN mission
8. **Regional Stability**
   a. Russia plays a key role in efforts to bring peace and stability in Afghanistan

Challenges in the Indo-Russia Relationship

I. Political & Geopolitical Challenges

a. **Criticism of PM's visit:** PM Modi's recent visit to Russia has faced criticism from Ukraine and the USA over its timing and optics, showcasing the delicate balance India must maintain.

b. **Growing Russia-China ties:** The 'no limits' partnership between Russia and China, with bilateral trade surpassing $240 billion, is a concern for India as it navigates its own relationship with China.

c. **Rapprochement with Pakistan:** Russia's growing ties with Pakistan, including discounted oil supplies and an invitation to join the INSTC, complicate India's regional dynamics.

d. **India-US convergences:** India's increasing alignment with the West, especially the US, on economic and security matters (like the Quad), adds another layer of complexity to the Indo-Russian relationship.

II. Economic Challenges

a. **Rising trade deficit:** India faces a massive trade deficit with Russia, with imports at $61.4 billion and exports at just $4.3 billion in 2023-24. This impacts the Rupee-Rouble trade mechanism, leaving Russian banks with surplus Indian Rupees.

b. **Limited gains from connectivity projects:** While initiatives like the Chennai-Vladivostok maritime corridor and the INSTC aim to boost trade, they face obstacles. The Far East lacks access to foreign markets due to sanctions, and the recent Nagorno-Karabakh conflict has impacted the INSTC.

III. Defense Challenges

a. **Low interoperability:** The postponement of Indra exercises in 2022 and 2023 highlights the low level of interoperability between Indian and Russian armed forces.

b. **Stalled military deals:** No major military deals have been finalized since the S-400 agreement, largely due to the threat of US sanctions under CAATSA.

Way Forward

I. Enhancing Trust & Cooperation:

a. **Reinforce mutual trust:** Both countries need to address apprehensions arising from Russia-China ties and India-US convergences.

b. **Broaden collaboration:** Joint projects like the nuclear power plant in Bangladesh and developmental partnerships in Central Asia can add new dimensions to the relationship.

II. Boosting Economic Ties:

a. **Diversify trade:** Expand trade beyond oil to include traditional sectors like metallurgy, chemicals, and space. Involve the private sector to broaden the economic relationship.

b. **Fast-track FTA:** Expedite negotiations on a Free Trade Agreement between India and the Russian-led Eurasian Economic Union.

III. Strengthening Defense Cooperation:

a. **Implement RELOS:** The Reciprocal Exchange of Logistics Agreement will simplify military exchanges for exercises, training, and HADR efforts.

b. **Hold defense talks:** Military-to-military dialogue is needed to resolve India's concerns regarding defense spare parts and maintenance.

IV. Deepening People-to-People Ties:

a. **Strengthen Tier II diplomacy:** Foster connections with the new generation, academia, and media. Station Indian correspondents in Russia to enhance understanding.

4. India's First Overseas Jan Aushadhi Kendra in Mauritius

1. This initiative exemplifies the deepening relations between India and the littoral and island nations of the Indian Ocean Region (IOR).
2. The Indian Ocean countries comprise 36 littoral and 11 hinterland states.

Importance of IOR's littoral and Island nations for India

1. **Strategic Location:** Their proximity to sea lines of communications like the Malacca Strait is crucial for global trade, preventing piracy, and ensuring maritime security.
   a. 80% of India's external trade and 90% of its energy trade happen through the IOR.
2. **Vision of regional Leadership:** The IOR is emerging as a new theater for geopolitical competition between global powers like the USA, France, and China.
   a. It is crucial for pursuing India's vision of a net security provider while also containing the rising footprint of China.
3. **Blue Economy:** Marine fisheries in the IOR supply about 15% of the world's fish catch (FAO, 2020). The IOR is also important for sustainable deep-sea mining.
4. **Climate Security:** The Indian Ocean has warmed faster than any other ocean since the 1950s (IPCC report 2021).
   a. Rapid population growth and rising climate disasters require collective action to prevent human vulnerability and regional insecurity.

C. SECURITY

1. 5th Positive Indigenisation List

1. In July 2024, the Ministry of Defence (MoD) has released a **5th Positive Indigenisation List (PIL)** featuring defence items.
   a. This initiative aims to enhance self-reliance, reduce imports, and encourage the growth of the domestic defence sector.

Key Highlights

Purpose and Scope:

1. The 5th PIL includes **346 items** focused on promoting self-reliance (Aatmanirbharta) in defence and reducing the reliance on imports by **Defence Public Sector Undertakings (DPSUs)**.
2. These items are to be sourced exclusively from Indian manufacturers, including Micro, Small, and Medium Enterprises (MSMEs) and startups.
3. The list encompasses a variety of strategically significant items, such as Line Replacement Units (LRUs), systems, sub-systems, assemblies, sub-assemblies, spares, components, and raw materials.

Implementation:

1. The list is published on the **MoD's Srijan portal**, which acts as a platform for DPSUs and service headquarters (SHQs) to present defence items for indigenisation to private industries.
2. DPSUs, including Hindustan Aeronautics Limited (HAL), Bharat Electronics Ltd (BEL), and Bharat Dynamics Ltd (BDL), have started issuing Expressions of Interest (EoIs) and Requests For Tender or Proposals (RFPs).

Impact:

1. Indigenisation of these items is projected to substitute imports worth over Rs 1,000 crore.
2. This move provides confidence to the domestic defence sector, promoting the development of defence products without facing competition from imports.

Future Goals:

1. The MoD plans to expand the list annually up to 2025, further increasing the number of indigenised items.
2. This gradual approach aims to achieve greater self-reliance in defence production over the long term.

Positive Indigenisation List (PIL)

1. The PIL specifies items that the Indian armed forces must purchase exclusively from domestic manufacturers, whether from the private sector or DPSUs.
2. Introduced in the **Defence Acquisition Procedure (DAP) 2020**, the list aims to substitute imports with indigenous production of major systems, platforms, weapons, sensors, and munitions.
3. It includes a wide range of items essential for enhancing India's defence capabilities and promoting self-reliance in the defence sector.

Progress:

1. The 1st PIL was introduced in **August 2020**, with subsequent lists bringing the total to 4,666 items.
2. Till date, 2,970 items, with an import substitution value of Rs 3,400 crore, have been indigenised.
3. Over 36,000 defence items have been offered for indigenisation, with more than 12,300 items indigenised in the last three years. Consequently, DPSUs have placed orders with domestic vendors worth Rs 7,570 crore.

Need for Indigenisation of Defence in India

Import Dependency

1. **Arms Importation**: India remains the **world's largest arms importer** despite efforts to develop its domestic defence industry.
2. **Global Share**: From 2019 to 2023, India represented **9.8% of global arms imports**, highlighting a strategic vulnerability in its defence procurement.

Strategic Autonomy

1. **Reduction of Dependency**: Heavy reliance on foreign arms limits India's strategic autonomy. Indigenisation can reduce dependence on external sources and supports self-reliance in essential defence technologies.
2. **National Security**: Indigenous production ensures continuous availability of defence equipment during geopolitical tensions and crises, enhancing national security.
3. **Political Leverage**: A self-sufficient defence industry strengthens India's position in international negotiations and defence collaborations.

Economic Benefits

1. **Job Creation and Innovation**: Indigenisation supports the domestic economy by generating employment, encouraging innovation, and driving industrial growth.
2. **Foreign Exchange**: It reduces the outflow of foreign exchange, aiding in economic stability.
3. **Cost-Effectiveness**: Producing defence equipment domestically can be more cost-effective in the long term, lowering procurement, maintenance, and logistical costs associated with imports.

Sustainable Development

1. **Harmonious Growth**: Indigenisation promotes sustainable development by ensuring that the defence industry grows in alignment with national interests and environmental considerations.

Status of Indigenisation in the Defence Sector

1. **Rise in Exports**
   a. **Record Exports**: In FY 2023-24, defence exports reached a record Rs 21,000 crore, marking a 32% increase from the previous fiscal year.
   b. **Historical Growth**: Over the past decade, defence exports have surged 31 times compared to FY 2013-14.
   c. **Sector Contribution**: The private sector and Defence Public Sector Undertakings (DPSUs) contributed approximately 60% and 40% to this growth, respectively.
   d. **Policy Support**: Growth is driven by policy reforms, 'Ease of Doing Business' initiatives, and digital solutions provided by the Government to enhance defence exports.
2. **Achievements:** Production includes advanced systems like the 155 mm Artillery Gun 'Dhanush', Light Combat Aircraft 'Tejas', INS Vikrant Aircraft Carrier, and the Advanced Towed Artillery Gun (ATAG) howitzer.
3. **Reduction in Import Dependency:** Spending on foreign defence procurement has dropped from 46% to 36% in the past four years, reflecting the impact of indigenisation efforts.
4. **Growth in Domestic Procurement Share:** The share of domestic procurement in total defence procurement has increased from 54% in 2018-19 to 68% in the current year.
   a. Out of this, 25% of the defence budget allocated for procurement from private industry.

Initiatives Related to Indigenisation in the Defence Sector

1. **Defence Procurement Policy (DPP) 2016**
   a. **Priority for Indigenous Products**: DPP 2016 has introduced the **"Buy-IDDM"** (Indigenous Designed and Manufactured) category, giving it the highest priority.
   b. **Objective**: This policy aims to boost local production capabilities and reduce reliance on imports.
2. **Defence Acquisition Procedure (DAP) 2020**
   a. **Aims** to support the Atmanirbhar Bharat Abhiyaan in defence manufacturing.
   b. **Key Features**: Priority for indigenous procurement; Reservations for MSMEs and small shipyards; Increased indigenous content; Introduction of new categories to promote 'Make in India'
   c. **Focus**: Encourages the indigenisation of imported spares to improve self-reliance through import substitution.
3. **Industrial Licensing:** Licensing has been simplified with extended validity, making investment in the defence sector easier.

4. **Foreign Direct Investment (FDI):** The FDI policy now permits up to **74% foreign investment** under the automatic route, encouraging foreign investment in defence manufacturing.
5. **Make Procedure**
   a. The "Make" procedure in DPP promotes the design, development, and manufacturing of indigenous defence equipment.
   b. Part of the Make in India initiative, involving both public and private sectors to build local capabilities.
6. **Defence Industrial Corridors:** Two corridors in **Uttar Pradesh** and **Tamil Nadu** aim to attract investments and build a comprehensive defence manufacturing ecosystem.
7. **Innovative and Supportive Schemes**
   a. **Mission DefSpace**: Initiated to advance space technology for defence applications.
   b. **Innovations for Defence Excellence (iDEX)**: Launched in April 2018, it supports innovation by engaging start-ups, MSMEs, and research institutions.
      o The 'iDEX Prime' framework, introduced in 2022, provides up to Rs 10 crore in grants for high-end solutions.
   c. **SRIJAN Portal**: Facilitates indigenisation by listing 19,500 previously imported items for local production, with 4,000 items attracting interest from the Indian industry.
8. **Research and Development (R&D)**: 25% of the R&D budget is allocated for industry-led R&D, promoting technological advancement and innovation in the defence sector.

2. DRDO Approves Seven Technologies for Development by Private Sector

In July,2024 The **Defence Research and Development Organisation (DRDO)** sanctioned seven new projects for the private sector under the **Technology Development Fund scheme**.

a. It aims to promote **indigenous development** and strengthen the **military industrial ecosystem**.

Key Points:

1. **Technology Development Fund Scheme**: The **DRDO** has approved seven projects under the **Technology Development Fund scheme**, which aims to nurture industries, especially **Micro, Small and Medium Enterprises (MSME)** and start-ups.
2. **Private Sector Involvement**: The private sector has been roped in to develop these technologies, marking a significant step towards promoting **indigenous development** and **self-reliance** in the defence sector.

Seven Approved Technologies:

Technology	Description
1. **Underwater Launched Unmanned Aerial Vehicles (ULUAV)**	The project for development of **Underwater Launched Unmanned Aerial Vehicles has been awarded to Sagar Defence Engineering** Pvt. Ltd., Pune. The objective is to develop versatile marine battlefield accessories for **multiple combat roles, including ISR and maritime domain awareness.**
2. **Indian Regional Navigation Satellite System-based timing acquisition and dissemination system**	This technology aims to develop a system that can provide accurate timing and **synchronization for various military applications.**
3. **Long-range remotely operated vehicles for detection and neutralisation**	This technology aims to develop **remotely operated vehicles** that can detect and **neutralize threats at long ranges**, enhancing the military's capabilities in surveillance and combat.

4. **Development of ice-detection sensor for aircraft**	This technology aims to develop sensors that can **detect ice formation on aircraft, enhancing safety and reducing the risk of accidents.**
5. **Development of Graphene-based smart and e-textiles for multifunctional wearable applications**	This technology aims to develop **wearable devices that can provide real-time monitoring and feedback** to soldiers, enhancing their performance and safety.
6. **Development of radar signal processor with active antenna array simulator**	This technology aims to develop advanced **radar systems that can detect and track targets with greater accuracy and speed.**
7. **Scenario and sensor simulation toolkit**	This technology aims to develop simulation tools that **can mimic real-world scenarios, enabling the military to train and prepare for various combat situations.**

Benefits:

The **indigenous development** of these technologies will strengthen the **military industrial ecosystem**, promoting **self-reliance** and reducing dependence on foreign technologies.

Impact on Defence Sector:

The development of these technologies will have a significant impact on the **defence sector**, enhancing the military's capabilities in **surveillance**, **combat**, and **logistics**.

Analysis:

1. **Promoting Indigenous Development**: The **DRDO's** move to involve the private sector in defence technology development is a significant step towards promoting **indigenous development** and **self-reliance** in the defence sector.
2. **Boost to MSMEs and Start-ups**: The **Technology Development Fund scheme** will provide a boost to **MSMEs** and **start-ups**, enabling them to contribute to the development of **cutting-edge defence technologies**.
3. **Strengthening Military Industrial Ecosystem**: The **indigenous development** of these technologies will strengthen the **military industrial ecosystem**, promoting collaboration between the public and private sectors.
4. **Enhancing National Security**: The development of these technologies will enhance **national security** by providing the armed forces with advanced capabilities and promoting **maritime domain awareness**.
5. **Reducing Dependence on Foreign Technologies**: The **indigenous development** of these technologies will reduce India's dependence on **foreign technologies**, promoting **self-reliance** and sovereignty in the defence sector.

What is the Defence Research and Development Organisation (DRDO)?

1. **DRDO** is the **R&D wing** of the **Ministry of Defence, Govt of India**, with a vision to empower India with **cutting-edge defence technologies.**
2. **DRDO** was formed in 1958 by merging the then-existing **Technical Development Establishment (TDEs)** of the Indian Army and the **Directorate of Technical Development and Production (DTDP)** with the **Defence Science Organisation (DSO)**.
3. **Mission:** to achieve **self-reliance** in critical defence technologies and systems, while equipping our armed forces with state-of-the-art weapon systems and equipment in accordance with requirements laid down by the three Services.

Conclusion:

The **DRDO's** approval of seven technologies for development by the private sector marks a significant step towards promoting **indigenous development** and **self-reliance** in the defence sector. The involvement of the private sector, especially **MSMEs** and **start-ups**, will provide a boost to the development of **cutting-edge defence technologies**, strengthening the **military industrial ecosystem** and enhancing **national security**.

3. ZORAWAR TANK

Defence Research and Development Organisation (DRDO) unveils prototype of the country's indigenous light Zorawar tank.

About

1. It is Jointly developed by the DRDO and private sector firm L&T.
2. Named after the legendary General Zorawar Singh who led multiple successful victories in Tibet.
3. India is developing an indigenous light tank under **'Project Zorawar'** for quicker deployment and movement in high-altitude warfare in places like eastern Ladakh and Arunachal Pradesh.
4. Light tanks are battlefield tanks with a **maximum weight of 25 tonnes - with a margin of 10 percent** - with the same firepower as its regular tanks.
5. Amphibious tanks i.e. they can cross rivers and other water bodies much more easily than its predecessors, like the heavy weight T72 and T90 tanks.
   - All-weather capability and can target tanks, armoured vehicles, UAVs and precision guided munitions, among others.
6. Anti-aircraft and ground role centric weapons besides advanced multipurpose smart munitions and gun tube launched anti-tank guided missiles.
7. Equipped with advanced technologies such as artificial intelligence (AI), integration of tactical surveillance drones, etc.

Significance of these tanks for India's defence:

1. These light tanks will allow the Indian Army to match or increase its capabilities in mountain warfare.

2. These tanks can exploit the limited space available in mountainous terrains by way of enhanced mobility and additional warfare.

3. Current Indian tanks such as T-90, T-72, Arjun weigh between 40-68.5 tonnes, which makes it difficult to deploy them. As compared to these, Zorawar tanks have a weight around 25 tonnes and physical dimensions which enables its easy transportation by air, road and water.

4. This light and agile tank is capable of operations in the most challenging environment in the world with minimal logistic support, including high-altitude areas along India's northern borders with China.

5. This light tank has been designed by DRDO and private company L&T.

Induction into Army of Zorawar Tanks:

1. India Army aims to procure a total of 354 such light tanks which is estimated to cost Rs 17,500 crore which has been given preliminary approval or 'acceptance of necessity' by Defence Acquisition Council in December 2022. Defence Acquisition Council is headed by Union Defence Minister.

2. These tanks will be inducted into the Indian Army by 2027.

4. Project 75 (I)

As the procurement of new submarines under P-75(I) goes on, the Defence Research and Development Organisation (DRDO) has taken up a preliminary study on the design and development of an indigenous conventional submarine under Project-76.

What is Project 75(I)?

1. Project 75(I) **is a follow-up to Project 75** and **improves upon the design and technology** of its predecessor.

2. Project-75(I) is a defense procurement initiative by India's Ministry of Defence (MoD) focused on acquiring six advanced diesel-electric submarines equipped with Air Independent Propulsion (AIP) for the Indian Navy.

3. The initiative seeks to acquire diesel-electric attack submarines equipped with fuel cells and an Air-Independent Propulsion System (AIP) for the Indian Navy, with the goal of strengthening India's naval power and fostering indigenous submarine-building capabilities.

Difference between Project 75 and Project 75(I)?

1. Project 75(I) **is a follow-up to Project 75** and **improves upon the design and technology** of its predecessor.

2. The conventional diesel-electric submarines such as the Scorpene, under Project 75, come with improved stealth features such as advanced acoustic absorption techniques, low radiated noise levels, long-range guided torpedoes, tube-launched anti-ship missiles, sonars and sensor suites.

3. However, as electrical batteries power them, they need to surface every 48 hours to be recharged.
4. The AIP technology will improve on this in Project 75I building six submarines that **can stay submerged for up to two weeks.**
    a. An AIP module acts as a force multiplier as it **enables conventional submarines to remain submerged for a longer duration** thereby **increasing their endurance and reducing chances of detection.**
5. These submarines **may even be larger in size compared to the ones under Project 75.**
6. Another staggering difference between the projects is the budget, while Project 75 came to just Rs 23,000 crore, Project 75(I) is beginning at almost double the budget at a staggering Rs 43,000 crore.

Air Independent Propulsion (AIP)

1. This technology designed for conventional (non-nuclear) submarines.
2. Submarines generally fall into two categories: conventional and nuclear. Conventional submarines are powered by diesel-electric engines, which require them to surface nearly every day to intake atmospheric oxygen for fuel combustion.
3. However, with an AIP system installed, a submarine would only need to surface for oxygen once a week.
4. The AIP system, developed indigenously, is a significant mission of the Naval Materials Research Laboratory (NMRL) under DRDO (Defence Research and Development Organisation) and is considered one of DRDO's ambitious projects for the Navy.

Fuel cell-based Air Independent Propulsion (AIP)

1. In a fuel cell-based Air Independent Propulsion (AIP) system, energy is generated by an electrolytic fuel cell that combines hydrogen and oxygen, producing only water as a byproduct, which minimizes marine pollution.
2. These cells are highly efficient and operate without moving parts, which helps the submarine maintain low acoustic noise levels.

Advantages of AIP

1. AIP significantly boosts the combat effectiveness of a diesel-electric submarine by greatly extending its submerged endurance.
2. Fuel cell-based AIP offers superior performance compared to other technologies.
3. AIP technology enables conventional submarines to stay submerged much longer than standard diesel-electric ones.
4. Diesel-electric submarines need to surface regularly to run generators that recharge their batteries, essential for underwater operation.
5. The more frequently a submarine surfaces, the higher the risk of detection.
6. AIP allows a submarine to remain submerged for over two weeks, in contrast to the two to three days typical for diesel-electric submarines.

Disadvantages of AIP

1. Installing AIP increases the length and weight of submarines and necessitates on-board storage and supply of pressurized liquid oxygen (LOX) for all three AIP technologies.
2. Systems like MESMA (Autonomous Submarine Energy Module) and the Stirling engine generate some acoustic noise due to moving parts, and the overall cost of the submarine increases by approximately 10%.

5. Recent Trends of Terrorism in Jammu & Kashmir

1. Recently, a CRPF inspector was killed when terrorists attacked a joint team of the force and the Special Operations Group (SOG) of Jammu and Kashmir Police in Udhampur district.
2. This is not the first attack in recent time, which indicates a sensitive phenomena in Jammu and Kashmir.
3. After The situation of terrorism in Jammu & Kashmir (J&K) has undergone significant changes over the years, influenced by both local and global factors. J&K has long been a center of insurgency, with its origins dating back to the late 1980s.

4. Over the **past three years (2019-2022),** there has been a significant increase in militancy in the Jammu region, contributing to 40% of the deaths of security personnel. This indicates that the epicenter of such incidents may have shifted from the Kashmir Valley to the Jammu division.

Background

1. The insurgency in Jammu and Kashmir started in the late 1980s, driven by political dissatisfaction and backed by external support from Pakistan.
2. Key events, like the 1989 abduction of Rubaiya Sayeed, the daughter of then Union Home Minister Mufti Mohammad Sayeed, marked the onset of a violent phase.
3. Over time, militant groups such as Hizbul Mujahideen and Lashkar-e-Taiba emerged, playing a significant role in shaping the conflict's course.

Reasons for the Recent Rise in terrorism in Jammu

1. **Reactivation of Proxy War:** Pakistan's attempt to reassert its influence after the abrogation of Article 370.
2. **Thinning of Security Grid:** The redeployment of forces to the border with China after the Galwan clashes has left Jammu vulnerable.
3. **Security Situation in Kashmir:** Heightened security in Kashmir Valley pushes militants to seek opportunities in Jammu, where security is relatively relaxed.
   - This also allows them to regroup and stabilize their cadres in the Kashmir Valley.

Reasons for the Persistence of Terrorism in J&K

1. **External Factors**
   a. **State-sponsored terrorism:** Pakistan's support to terrorist groups.
   b. **Porous borders**: Difficult terrain facilitates infiltration of militants and weapons.
   c. Ideological influence from global extremist groups.
2. **Internal Factors**
   a. **Political instability:** Frequent changes in governance and absence of elected governments create a power vacuum.
   b. **Religious & ethnic tensions:** Exploited by terrorist groups to incite communal violence.
   c. **State highhandedness:** Alienation of the local population due to measures like AFSPA and internet shutdowns.
   d. **Over Ground Workers (OGWs):** Provide logistical and non-combat support to militants, making them difficult to counter.

Way Forward

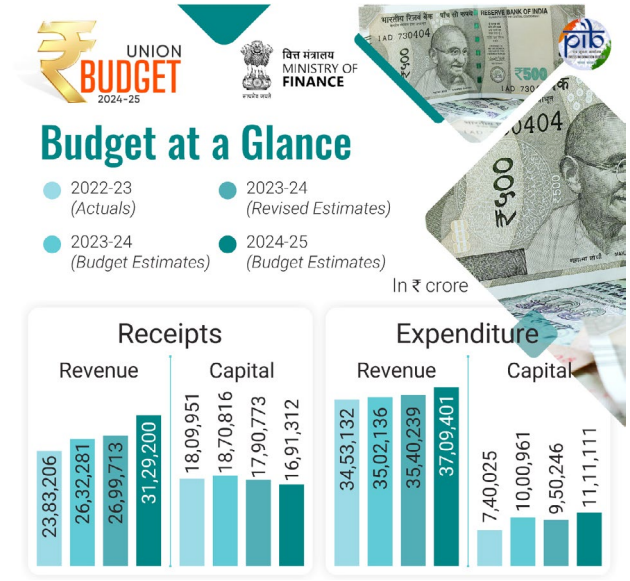
1. **Political Solutions:** Conduct **free and fair elections** to restore faith in democracy.
   - Strengthen local governance by empowering local bodies and Panchayats.
   - In this regard, recent announcement of assembly election in J&K by the Election Commission of India in September and October 2024 is a step in right direction.
2. **Security & Intelligence**: Enhance border security and vigilance.
   - Improve intelligence gathering and analysis, focusing on HUMINT.
3. **Border Management**: Strengthen border infrastructure and deploy forces strategically.
   - Utilize technology effectively to prevent infiltration.
4. **Development:** Invest in infrastructure, education, skill development, and local entrepreneurship to create opportunities.
5. **Confidence Building Measures (CBMs) & Counter-radicalization**: Foster civilian-military cooperation and rehabilitate former militants.
   - Develop community-based programs to counter extremist narratives.
   - Monitor and counter online radicalization.
6. **Diplomatic Efforts**: Engage with the international community to isolate terrorist groups and their sponsors.
   - Seek cooperation in curbing terror financing and cross-border terrorism.
   - e.g., India's diplomatic efforts at FATF to highlight Pakistan's role in supporting cross-border terrorism.

6. Exercises/ Operations in News

Name	Type	Participants	Brief Description
Maitree 2024	Military Exercise	India and Thailand	• **Edition**-13th • **Held at**- Tak Province, Thailand. • This year's drill is special because it starts up again after a break caused by the COVID-19 pandemic.
Rim of the Pacific (RIMPAC)	Naval Exercise	29 countries including India	• It is the **world's largest naval exercise**. • Indian multi-role stealth frigate INS Shivalik represented India.
KHAAN QUEST 2024	Military Exercise	Multinational	• **Edition**-21st • **Held at** Ulaanbaatar, Mongolia • The first KHAAN QUEST took place in 2003 as a partnership between the US and Mongolia. Since then, it has grown into a major Multinational Peacekeeping Exercise. • The 21st version was held in 2024.
Nomadic Elephant-2024	Military Exercise	India and Mongolia	• **Held at** Umroi, Meghalaya. • 'Its main goal is to help players get better at tactical and operational skills in joint action situations.
EX PITCH BLACK 2024	Air Force Exercise	India, Australia and other nations	• **Held at** Darwin, Australia • It is **a biennial, multi- national** exercise. • This edition is slated to be the largest in the 43 year long history of Ex Pitch Black, which includes participation by 20 countries, with over 140 aircraft and 4400 military personnel of various air forces.
Exercise Sagar Kavach - 01/24	coastal security exercise	Indian Navy, Coast Guard, Marine Police, fisheries, customs and other security agencies were engaged	• **Held along Andhra Pradesh coast.**
Attacking Falcon	Military Exercise	China and Belarus	• **11-day joint military training exercises** began from 8th july 2024 • The joint exercises are being held at a training ground near the city of Brest on the Belarus-Poland border and some 40 miles from Belarus' border with Ukraine.

D. ECONOMY

1. Union Budget 2024-2025



- **The Union Budget 2024-25 was presented by Finance Minister Nirmala Sitharaman on July 23, 2024.**
  - **This was her seventh consecutive budget.**
  - The budget is significant as it surpasses the **record of six consecutive budgets presented by Morarji Desai.**
- This budget presentation is a **quinquennial event in India, typically occurring once every five years.** Because Union Budget is presented twice:
  - **first as an interim budget by the outgoing government and,**
  - **Then as a full budget by the newly-formed government.**

Constitutional Reference related to Budget :

1. ANNUAL FINANCIAL STATEMENT

- According to Article 112 of the Constitution, the Government of India must present a statement detailing the projected receipts and expenditures for each financial year, which spans from April 1st to March 31st, before Parliament.
- This Annual Financial Statement is the primary Budget document and is often called the Budget Statement.

2. Historical Context

- **The Government of India had two separate budgets (railway and general budget) until 2016.**
- The railway budget was **merged with the general budget in 2016, scrapping a 92-year-old practice.**
- **Evolution-**The Budget was first introduced in India on April 7, 1860, transitioning from the East India Company to the British Crown.
  - The first Indian Budget was presented by James Wilson on February 18, 1869. Mr. Wilson was the Finance Member of the India Council, which advised the Indian Viceroy.

Focus of the Budget

1. This budget is significant for its emphasis on four main areas: Employment, Skilling, MSMEs (Micro, Small, and Medium Enterprises), and the Middle Class.
2. These priorities demonstrate the government's dedication to promoting inclusive growth and tackling the challenges faced by different sectors of the economy.
3. Four major castes emphasized:
   - 'Garib' (Poor)
   - 'Mahilayen' (Women)
   - 'Yuva' (Youth)
   - 'Annadata' (Farmer)
4. This budget outlines sustained efforts across nine key priorities aimed at creating abundant opportunities for everyone:
   - Enhancing productivity and resilience in Agriculture
   - Employment & Skilling
   - Inclusive Human Resource Development and Social Justice
   - Boosting Manufacturing & Services
   - Urban Development
   - Ensuring Energy Security
   - Strengthening Infrastructure
   - Fostering Innovation, Research & Development
   - Implementing Next Generation Reforms

Nine Budget Priorities for 'Viksit Bharat' (Developed India)

Priority 1: Boosting Agricultural Productivity and Resilience

- **Financial Allocation:** ₹1.52 lakh crore for agriculture and allied sectors
- **Climate-Resilient Crop Varieties:**
  - Introduction of 109 high-yielding, climate-resilient varieties
  - It covers 32 field and horticulture crops
- **Natural Farming Initiatives:**
  - Objective to achieve 1 crore farmers to adopt natural farming practices in net 2 years
  - Support: Establishment of 10,000 bio-input resource centers
  - Benefits: Reduced chemical inputs, improved soil health, and potential for premium pricing of produce
- **Digital Public Infrastructure (DPI) for Agriculture:**
  - Objective: Comprehensive digitization of agricultural data
  - Coverage: All farmers and their landholdings
  - Implementation Period: 3 years

Priority 2: Enhancing Employment and Skill Development

- **Women-Centric Initiatives:**
  - Working Women Hostels: To be established in collaboration with industry
  - Crèches: Provision of childcare facilities to support working mothers
  - Skilling Programs: Tailored to women's needs and market demands
  - Market Access: Promotion of women Self-Help Group (SHG) enterprises
- **Skill Development Loan Scheme:**
  - Revision of Model Skill Loan Scheme
  - New Limit: Up to ₹7.5 lakh
  - Purpose: Facilitate access to skill development programs
- **Higher Education Support:**
  - Loan Facilitation: Up to ₹10 lakh for higher education in Indian institutions
  - Target: Youth not eligible for existing government schemes
  - Aim: Broaden access to quality higher education

Priority 3: Inclusive Human Resource Development and Social Justice

- **Purvodaya Initiative:**
  - Focus: Development of Eastern India
  - Key Project: Industrial node at Gaya (part of Amritsar-Kolkata Industrial Corridor)
  - Power Sector Boost: New 2400 MW power plant at Pirpainti (₹21,400 crore investment)
- **Andhra Pradesh Special Package:**
  - Financial Support: ₹15,000 crore through multilateral development agencies
  - Industrial Development: Nodes at Kopparthy and Orvakal
- **Women-Led Development:**
  - Total Allocation: Over ₹3 lakh crore for women and girl-centric schemes
- **Tribal Development:**
  - Program: Pradhan Mantri Janjatiya Unnat Gram Abhiyan
  - Coverage: 63,000 villages in tribal-majority and aspirational districts
  - Beneficiaries: 5 crore tribal people
- **North-Eastern Region Development:**
  - Banking Access: 100 new India Post Payment Bank branches

Priority 4: Strengthening Manufacturing and Services Sectors

- **MSME Support:**
  - Credit Guarantee Scheme: Collateral-free loans for machinery purchase
  - Stress Period Support: New mechanism to ensure continued bank credit
  - Mudra Loans: Enhanced limit of ₹20 lakh under 'Tarun' category
- **Trade Receivables Discounting System (TReDS):**
  - Expanded Scope: Turnover threshold for mandatory buyer onboarding reduced to ₹250 crore
- **Food Processing Industry:**
  - Support for 50 multi-product food irradiation units in MSME sector
- **E-Commerce Export Hubs:**
  - Public-Private Partnership model
  - Target: MSMEs and traditional artisans
  - Objective: Facilitate international market access

- **Critical Mineral Mission:**
  - Focus: Domestic production, recycling, and overseas acquisition of critical minerals
- **Offshore Mineral Exploration:**
  - First tranche of offshore block auctions for mineral mining

Priority 5: Urban Development and Housing

- **Transit-Oriented Development:**
  - Target: 14 large cities with populations over 30 lakh
  - Scope: Formulation of development plans and financing strategies
- **Urban Housing Initiative:**
  - Investment: ₹10 lakh crore over 5 years
  - Central Assistance: ₹2.2 lakh crore
  - Program: PM Awas Yojana Urban 2.0
  - Beneficiaries: 1 crore urban poor and middle-class families
- **Street Market Development:**
  - Target: 100 weekly 'haats' or street food hubs annually
  - Duration: 5 years
  - Location: Select cities

Priority 6: Ensuring Energy Security and Transition

- **Energy Transition Policy:**
  - Objective: Balance employment, growth, and environmental sustainability
- **Pumped Storage Projects:**
  - Focus: Promote electricity storage capabilities
- **Nuclear Energy Initiatives:**
  - R&D: Small and modular nuclear reactors
  - Collaboration: Public-private partnerships for technology development
- **Advanced Ultra Super Critical (AUSC) Thermal Power:**
  - Project: 800 MW commercial plant
  - Collaboration: Joint venture between NTPC and BHEL
- **Carbon Market Development:**
  - Target: 'Hard to abate' industries
  - Transition: From 'Perform, Achieve and Trade' to 'Indian Carbon Market' mode

Priority 7: Infrastructure Development

- **Central Government Infrastructure Investment:**
  - Allocation: ₹11,11,111 crore (3.4% of GDP)
- **State Infrastructure Support:**
  - Provision: ₹1.5 lakh crore as long-term interest-free loans
- **Rural Connectivity:**
  - Program: Pradhan Mantri Gram Sadak Yojana (PMGSY) Phase IV
  - Target: All-weather connectivity to 25,000 rural habitations
- **Irrigation and Flood Mitigation:**
  - Bihar Projects: ₹11,500 crore for Kosi-Mechi intra-state link and others
  - Support for Assam, Himachal Pradesh, Uttarakhand, and Sikkim
- **Tourism Development:**
  - Focus Areas: Temple corridors, monuments, wildlife sanctuaries, and natural landscapes
  - Specific Projects: Vishnupad Temple Corridor, Mahabodhi Temple Corridor, Rajgir development

Priority 8: Promoting Innovation and R&D

- **Anusandhan National Research Fund:**
  - Purpose: Support basic research and prototype development
- **Private Sector R&D Financing:**
  - Pool: ₹1 lakh crore
  - Objective: Spur research and innovation at commercial scale
- **Space Economy Expansion:**
  - Venture Capital Fund: ₹1,000 crore
  - Goal: 5x growth in space economy over 10 years

Priority 9: Implementing Next Generation Reforms

- **Rural Land Management:**
  - Introduction of Unique Land Parcel Identification Number (ULPIN) or Bhu-Aadhaar
  - Digitization of cadastral maps and land registries
  - Integration with farmers registry

- **Urban Land Digitization:**
  - GIS mapping of urban land records
- **Labor Market Reforms:**
  - Integration of e-shram portal for one-stop solution
  - Open architecture databases for labor market dynamics
  - Job-aspirant to employer/skill provider connection mechanism
- **NPS** Vatsalya:
  - New plan for parental contributions to minors' account

Prime Minister's Employment and Skilling Package

This comprehensive package aims to address unemployment and skill gaps in the Indian workforce, targeting 4.1 crore youth over a 5-year period.

A. Employment Schemes

1. **Scheme A - First Timers:**
   a. Eligibility: Newly registered employees in EPFO
   b. Benefit: Up to ₹15,000 salary support
   c. Duration: Provided in 3 installments over first month
   d. Objective: Encourage formal employment for first-time job seekers
   e. The scheme is expected to benefit 210 lakh youth.
2. **Scheme B - Job Creation in Manufacturing:**
   a. Target: Boost employment in the manufacturing sector
   b. Incentive: Direct support for both employee and employer EPFO contributions
   c. Duration: First 4 years of employment
   d. Aim: Stimulate job creation in the manufacturing sector, a key area for economic growth
3. **Scheme C - Support to Employers:**
   a. Benefit: Reimbursement of up to ₹3,000 per month for employer's EPFO contribution
   b. Duration: 2 years
   c. Condition: Applicable for each additional employee hired
   d. Purpose: Incentivize employers to increase their workforce

B. Skilling Initiatives

- **New Centrally Sponsored Skilling Scheme:**
  - Target: 20 lakh youth over 5 years
  - Scope: Upgrade 1,000 Industrial Training Institutes (ITIs)
  - Method: Hub and spoke arrangement for efficient skill dissemination
- **Internship Program:**
  - Scale: 1 crore youth in 500 top companies
  - Duration: Over 5 years
  - Objective: Provide practical industry exposure to enhance employability

Economic Overview

- India's economic growth remains strong despite global uncertainties
- **Inflation is low and stable, moving towards the 4% target**
- Core inflation (non-food, non-fuel) is at 3.1%
- **Total Receipts**: ₹32.07 lakh crore (excluding borrowings)
  - This figure represents the government's expected income from various sources, including taxes, disinvestments, and other non-tax revenues.
- **Total Expenditure:** ₹48.21 lakh crore
  - This includes all government spending, including both revenue and capital expenditures.
- **Net Tax Receipt:** ₹25.83 lakh crore
  - This is the amount the government expects to collect in taxes after accounting for states' share.
- **Fiscal Deficit:** 4.9% of GDP
  - The fiscal deficit represents the difference between total revenue and total expenditure. The government aims to reduce this to below 4.5% in the following year, indicating a commitment to fiscal consolidation.

Fiscal Management

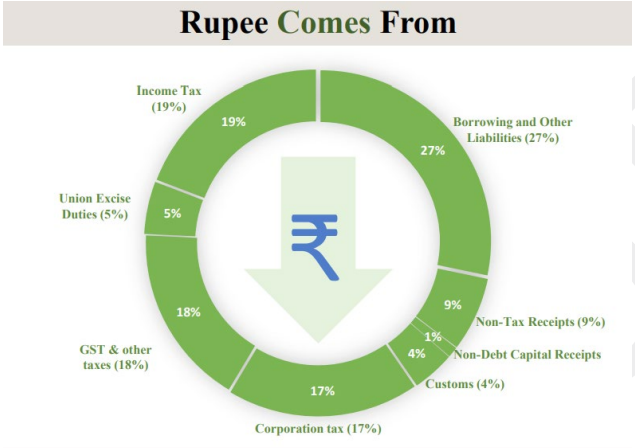
- **Total receipts (excluding borrowings):** ₹32.07 lakh crore
- **Total expenditure:** ₹48.21 lakh crore
- **Net tax receipts**: ₹25.83 lakh crore

- **Fiscal deficit:** 4.9% of GDP
- **Gross and net market borrowings through dated securities:** ₹14.01 lakh crore and ₹11.63 lakh crore respectively
- **Aim to reach deficit below** 4.5% by next year

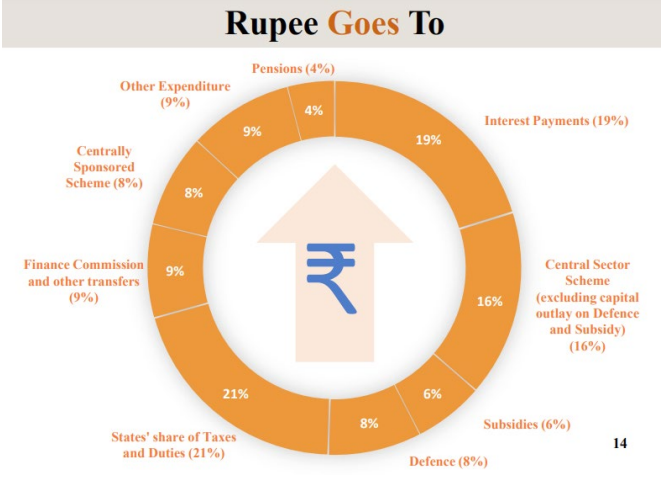
Inflation Management

- **Current Status**: Inflation is reported to be low and stable, moving towards the 4% target.
- **Core Inflation: 3.1%** (excluding food and fuel)
- This indicates that the **Reserve Bank of India's monetary policy has been effective in controlling inflation,** providing a stable economic environment for growth.

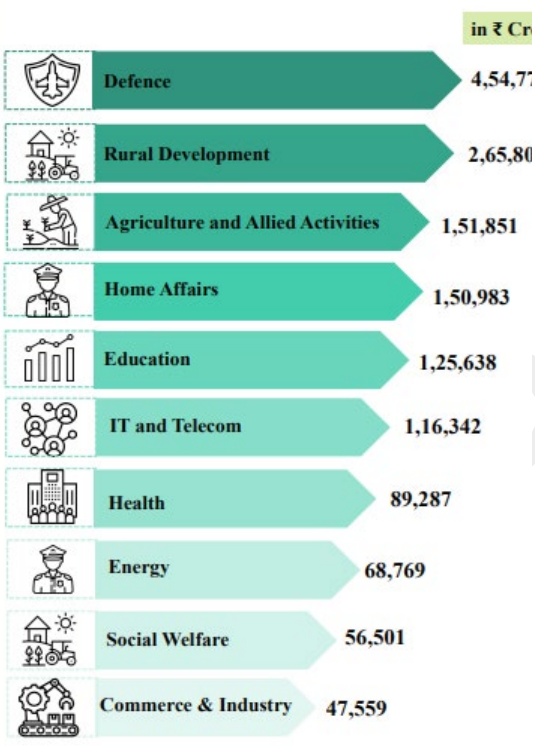
Rupee comes from :



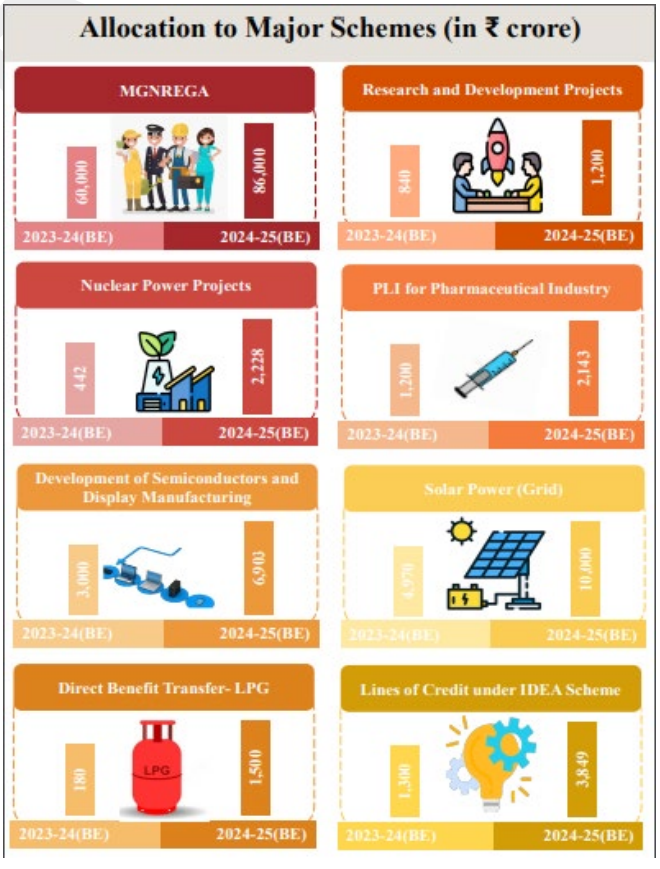
Rupees Goes To :



Expenditure of Major Items :



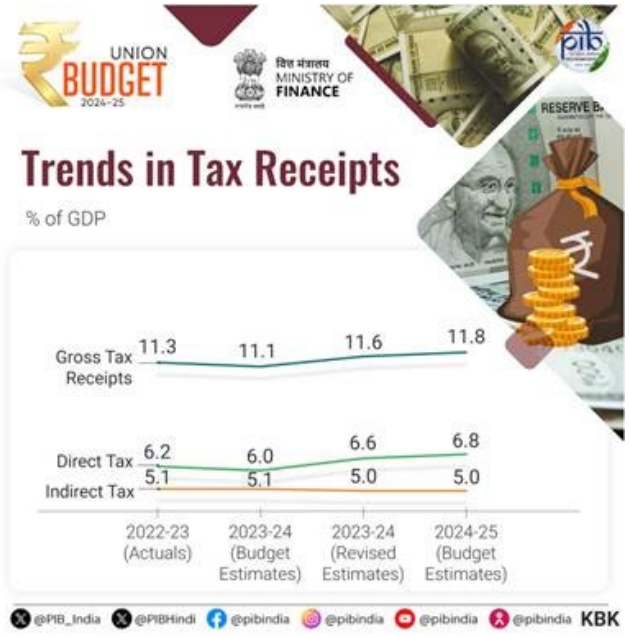
Allocation to Major Schemes :



Key Initiatives and Allocations

Agriculture and Allied Sectors	• ₹1.52 lakh crore allocated • Comprehensive review of agriculture research setup • **109 new high-yielding and climate-resilient crop varieties** • **1 crore farmers to be initiated into natural farming in next two years** • 10,000 need-based bio-input resource centres to be established • Focus on self-sufficiency in pulses and oilseeds • Digital Public Infrastructure (DPI) in agriculture to cover farmers and their lands in 3 years
Employment and Skilling	• **₹2 lakh crore package for 4.1 crore youth over 5 years** • ₹1.48 lakh crore allocated for education, employment, and skilling • Three Employment Linked Incentive schemes • New centrally sponsored skilling scheme • 20 lakh youth to be skilled over 5 years • **1,000 Industrial Training Institutes to be upgraded** • Model Skill Loan Scheme revised (up to ₹7.5 lakh loans) • Financial support for higher education loans (up to ₹10 lakh) • Comprehensive scheme for internship opportunities in 500 top companies for 1 crore youth in 5 years
Social Development and Inclusive Growth	• Purvodaya plan for eastern region development **(Bihar, Jharkhand, West Bengal, Odisha, Andhra Pradesh)** • Pradhan Mantri Janjatiya Unnat Gram Abhiyan for tribal communities (63,000 villages, 5 crore tribal people) • **100 new India Post Payment Bank branches in North East** • **₹2.66 lakh crore for rural development** • More than ₹3 lakh crore allocated for schemes benefiting women and girls
MSMEs and Manufacturing	• New self-financing guarantee fund (up to ₹100 crore per applicant) • Mudra loan limit increased to ₹20 lakh from ₹10 lakh • 50 multi-product food irradiation units • 100 food quality and safety testing labs with NABL accreditation • E-Commerce Export Hubs in PPP mode
Urban Development	• **PM Awas Yojana Urban 2.0: ₹10 lakh crore investment for 1 crore families** • Water supply, sewage, and waste management projects for 100 large cities • Development of 100 weekly 'haats' or street food hubs annually for five years
Innovation and Research	• Anusandhan National Research Fund for basic research and prototype development • **₹1 lakh crore financing pool for private sector-driven research and innovation** • ₹1,000 crore venture capital fund for space economy • Goal to expand space economy 5 times in the next 10 years

Tax Reform



Indirect Taxes

GST : Buoyed by GST's success, tax structure to be simplified and rationalised to expand GST to remaining sectors.

Sector specific customs duty proposals

Medicines and Medical Equipment:

- Three cancer drugs namely TrastuzumabDeruxtecan, Osimertinib and Durvalumab fully exempted from custom duty.
- Changes in Basic Customs Duty (BCD) on x-ray tubes & flat panel detectors for use in medical x-ray machines under the Phased Manufacturing Programme.

Mobile Phone and Related Parts:

- BCD on mobile phone, mobile Printed Circuit Board Assembly (PCBA) and mobile charger reduced to 15 per cent.

Precious Metals:

- Customs duties on gold and silver reduced to 6 per cent and that on platinum to 6.4 per cent.

Other Metals:

- BCD removed on ferro nickel and blister copper.
- BCD removed on ferrous scrap and nickel cathode.
- Concessional BCD of 2.5 per cent on copper scrap.

Electronics:

- BCD removed, subject to conditions, on oxygen free copper for manufacture of resistors.

Chemicals and Petrochemicals:

- BCD on ammonium nitrate increased from 7.5 to 10 per cent.

Plastics:

- BCD on PVC flex banners increased from 10 to 25 per cent.

Telecommunication Equipment:

- BCD increased from 10 to 15 per cent on PCBA of specified telecom equipment.

Trade facilitation:

- For promotion of domestic aviation and boat & ship MRO, time period for export of goods imported for repairs extended from six months to one year.
- Time-limit for re-import of goods for repairs under warranty extended from three to five years.

Critical Minerals:

- 25 critical minerals fully exempted from customs duties.
- BCD on two critical minerals reduced.

Solar Energy:

- Capital goods for use in manufacture of solar cells and panels exempted from customs duty.

Marine products:

- BCD on certain broodstock, polychaete worms, shrimp and fish feed reduced to 5 per cent.
- Various inputs for manufacture of shrimp and fish feed exempted from customs duty.

Leather and Textile:

- BCD reduced on real down filling material from duck or goose.
- BCD reduced, subject to conditions, on methylene diphenyl diisocyanate (MDI) for manufacture of spandex yarn from 7.5 to 5 per cent.

Direct Taxes:

- Efforts to simplify taxes, improve tax payer services, provide tax certainty and reduce litigation to be continued.

- Enhance revenues for funding development and welfare schemes of government.
- 58 per cent of corporate tax from simplified tax regime in FY23, more than two-thirds taxpayers availed simplified tax regime for personal income tax in FY 24.

Simplification for Charities and of TDS:

- Two tax exemption regimes for charities to be merged into one.
- 5 per cent TDS rate on many payments merged into 2 per cent TDS rate.
- 20 per cent TDS rate on repurchase of units by mutual funds or UTI withdrawn.
- TDS rate on e-commerce operators reduced from one to 0.1 per cent.
- Delay for payment of TDS up to due date of filing statement decriminalized.

Simplification of Reassessment:

- Assessment can be reopened beyond three years upto five years from the end of Assessment Year only if the escaped income is ₹ 50 lakh or more.
- In search cases, time limit reduced from ten to six years before the year of search.

Simplification and Rationalisation of Capital Gains:

- Short term gains on certain financial assets to attract a tax rate of 20 per cent.
- Long term gains on all financial and non-financial assets to attract a tax rate of 12.5 per cent.
- Exemption limit of capital gains on certain financial assets increased to ₹ 1.25 lakh per year.

Tax Payer Services:

- All remaining services of Customs and Income Tax including rectification and order giving effect to appellate orders to be digitalized over the next two years.

Litigation and Appeals:

- 'Vivad Se Vishwas Scheme, 2024' for resolution of income tax disputes pending in appeal.
- Monetary limits for filing direct taxes, excise and service tax related appeals in Tax Tribunals, High Courts and Supreme Court increased to ₹60 lakh, ₹2 crore and ₹5 crore respectively.
- Safe harbour rules expanded to reduce litigation and provide certainty in international taxation.

Employment and Investment:

- Angel tax for all classes of investors abolished to bolster start-up eco-system,.
- Simpler tax regime for foreign shipping companies operating domestic cruises to promote cruise tourism in India.
- Safe harbour rates for foreign mining companies selling raw diamonds in the country.
- Corporate tax rate on foreign companies reduced from 40 to 35 per cent.

Deepening tax base

- Security Transactions Tax on futures and options of securities increased to 0.02 per cent and 0.1 per cent respectively.
- Income received on buy back of shares in the hands of recipient to be taxed.

Social Security Benefits.

- Deduction of expenditure by employers towards NPS to be increased from 10 to 14 per cent of the employee's salary.
- Non-reporting of small movable foreign assets up to ₹20 lakh de-penalised.

Other major proposal in Finance Bill

- Equalization levy of 2 per cent withdrawn.

Changes in Personal Income Tax under new tax regime

- Standard deduction for salaried employees increased from ₹50,000 to ₹75,000.
- Deduction on family pension for pensioners enhanced from ₹15,000/- to ₹25,000/-

Revised tax rate structure:

0-3 lakh rupees	Nil
3-7 lakh rupees	5 per cent
7-10 lakh rupees	10 per cent
10-12 lakh rupees	15 per cent
12-15 lakh rupees	20 per cent
Above 15 lakh rupees	30 per cent

Salaried employee in the new tax regime stands to save up to ₹ 17,500/- in income tax.

Conclusion

The Union Budget 2024-25 lays out a detailed plan for India's economic growth, with an emphasis on inclusive development, infrastructure expansion, and strategic reforms. By targeting crucial sectors such as employment, agriculture, energy transition, and tax simplification, the budget seeks to boost economic activity while maintaining fiscal responsibility. The success of these initiatives will rely on efficient implementation and the capacity to adjust to evolving global economic conditions.

2. Economic Survey, 2023-24

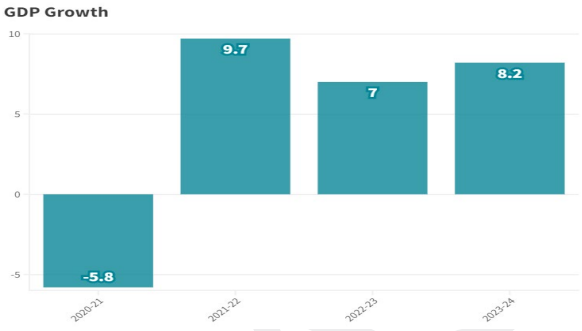
1. On July 22, 2024 **Union Finance Minister Nirmala Sitharaman presented** the Economic Survey, 2023-24.
   - **a.** Notably, the Economic Survey is a comprehensive report on the state of the Indian economy.
   - **b.** The survey is **usually released on January 31**, but in election years like 2024, it is **released in July after the dissolution of parliament and the conclusion of elections.**

What is the Economic Survey?

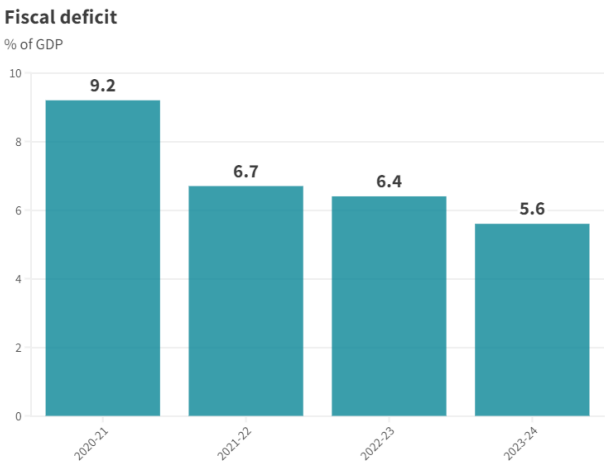
1. The Economic Survey is a comprehensive report that assesses the national economy's performance for the financial year about to conclude.
2. It is compiled by the Economic Division of the Department of Economic Affairs (DEA) in the Union Finance Ministry, with oversight from the Chief Economic Adviser.
3. The inaugural Economic Survey was presented for the year 1950-51, and it was presented alongside the Budget until 1964.
4. The survey typically addresses key sectors of the economy, including services, agriculture, and manufacturing, along with significant policy areas such as fiscal trends, employment conditions, and inflation.
5. Additionally, the survey includes a detailed statistical abstract.

Main highlights of the Economic Survey

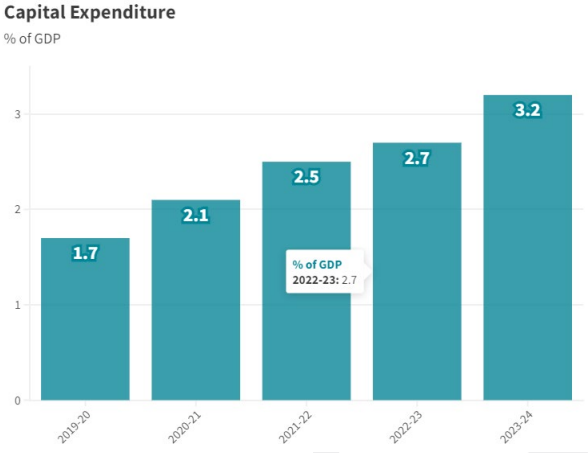
Chapter 1: State of the Economy – Steady as She Goes



- **GDP Growth Projection:**
  - a. Projection of 6.5–7% real GDP growth for FY25
  - b. Market expectations are on the higher side
- **Economic Performance FY24:**
  - a. Real GDP grew by 8.2%
  - b. Exceeded 8% in three out of four quarters
  - c. Gross Value Added (GVA) grew by 7.2%
  - d. Net taxes at constant prices grew by 19.1%
- **Inflation Management:**
  - a. Retail inflation reduced from 6.7% in FY23 to 5.4% in FY24
  - b. Achieved through administrative and monetary policy management
- **External Sector:**
  - a. Current Account Deficit (CAD) improved to 0.7% of GDP in FY24
  - b. Down from 2.0% in FY23
- **Post-Pandemic Recovery:**
  - a. Real GDP in FY24 was 20% higher than FY20 levels
  - b. A feat achieved by very few major economies
- **Fiscal Measures:**
  - **a. 55% of tax collected from direct taxes, 45% from indirect taxes**
  - b. Enhanced capital spending allocation
  - c. Free food grains provided to 81.4 crore people



- India has maintained a reduction in its fiscal deficit, defying the global trend of rising deficits. Recent data shows that the fiscal deficit has declined from 6.4% of GDP in FY23 to 5.6% of GDP in FY24.

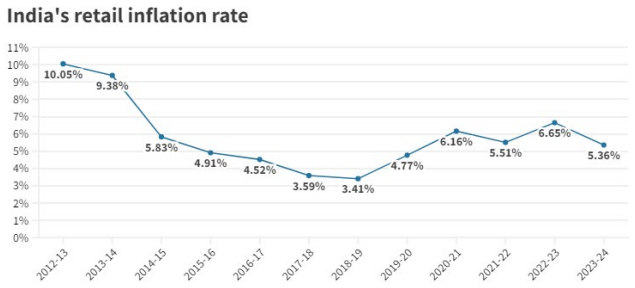


- India's capital expenditure in FY24 rose to ₹9.5 lakh crore, marking a 28.2% increase year-over-year and nearly tripling the amount from FY20.
- The government's emphasis on capital expenditure has been a crucial driver of economic growth, even amid global uncertainty.

Chapter 2: Monetary Management and Financial Intermediation - Stability is the Watchword

- **Banking Sector Performance:**
  - RBI maintained steady policy rate at 6.5%
- **Credit Growth:**
  - Credit disbursal by Scheduled Commercial Banks: ₹164.3 lakh crore
  - 20.2% growth by end of March 2024
  - Double-digit and broad-based growth
- **Money Supply:**
  - Broad money (M3) growth: 11.2% (YoY) as of 22 March 2024
  - Excluding impact of HDFC merger with HDFC Bank
- **Banking Sector Health:**
  - Gross and net non-performing assets at multi-year lows
  - Improved bank asset quality
- **Sector-wise Credit Growth:**
  - Robust growth in services and personal loans
  - Agriculture and allied activities: Double-digit growth
  - Industrial credit growth: 8.5% (up from 5.2% a year ago)
- **Insolvency and Bankruptcy Code (IBC):**
  - Recognized as an effective solution for twin balance sheet problem
  - 31,394 corporate debtors disposed of in 8 years
  - Total value: ₹13.9 lakh crore
- **Capital Markets:**
  - Primary capital markets facilitated ₹10.9 lakh crore capital formation in FY24
  - Market capitalization to GDP ratio: Fifth largest globally
- **Financial Inclusion:**
  - Recognized as an enabler for sustainable economic growth
  - Next challenge: Digital Financial Inclusion (DFI)
- **Emerging Trends:**
  - Reduced dominance of banking support to credit
  - Rising role of capital markets
  - India poised to be one of the fastest-growing insurance markets
  - Indian microfinance sector: Second largest globally after China

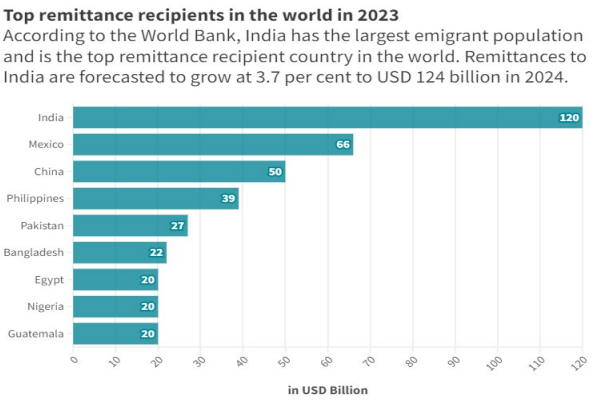
Chapter 3: Prices and Inflation - Under Control



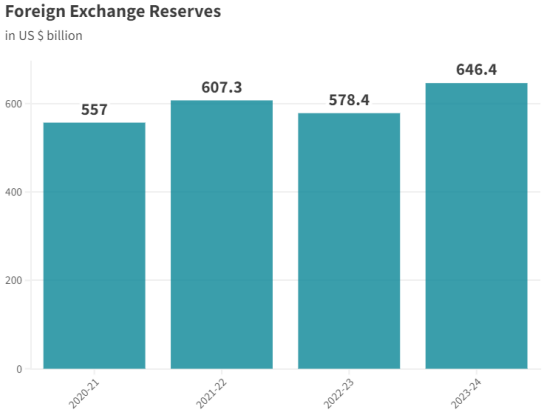
- **Inflation Management:**
  a. Retail inflation at 5.4% - lowest since the pandemic
  b. Government interventions and RBI's measures credited
- **Fuel Price Management:**
  a. Price cuts for LPG, petrol, and diesel
  b. LPG price reduced by ₹200 per cylinder
  c. Petrol and diesel prices lowered by ₹2 per litre
- **Core Inflation:**
  a. Core services inflation: Nine-year low in FY24
  b. Core goods inflation: Four-year low
  c. Core consumer durables inflation declined
- **Agricultural Challenges:**
  a. Extreme weather events, depleted reservoirs, crop damage
  b. Food inflation: 7.5% in FY24 (up from 6.6% in FY23)
- **Government Actions:**
  a. Dynamic stock management
  b. Open market operations
  c. Subsidized provision of essential food items
  d. Trade policy measures
- **State-wise Inflation:**
  a. 29 States and Union Territories: Inflation below 6% in FY24
  b. Higher overall inflation states tend to have wider rural-to-urban inflation gap
- **Future Projections:**
  a. RBI projects inflation to fall to 4.5% in FY25 and 4.1% in FY26
  b. IMF forecasts: 4.6% in 2024 and 4.2% in 2025 for India

Chapter 4: External Sector - Stability Amid Plenty

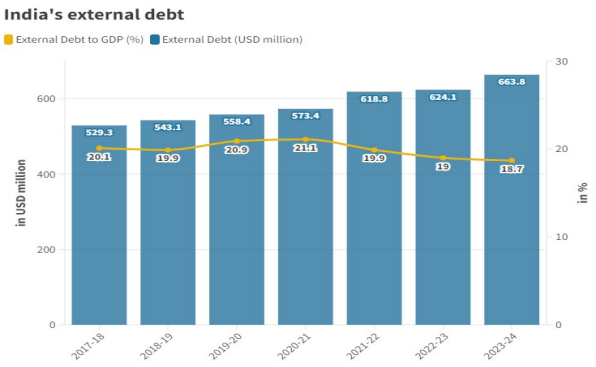
1. **Logistics Performance:**
   a. India's rank improved from 44th in 2018 to 38th in 2023
   b. World Bank's Logistics Performance Index
2. **Current Account Deficit:**
   a. Narrowed to 0.7% in FY24
   b. Improved due to moderation in merchandise imports and rising services exports
3. **Global Export Share:**
   a. India's share in global goods exports: 1.8% in FY24
   b. Up from average of 1.7% during FY16-FY20
4. **Services Exports:**
   a. Grew by 4.9% to USD 341.1 billion in FY24
   b. Driven by IT/software services and 'other' business services
5. **Remittances:**



   a. India is the top remittance recipient country globally
   b. Reached USD 120 billion in 2023
   c. **Forex Reserves**: Sufficient to cover more than 10 months of projected imports for FY25.



6. **External Debt:**



a. India's **external debt indicators remain stable, with external debt at 18.7% of GDP as of March 2024.**

b. Additionally, **foreign exchange reserves cover 97.4% of total debt,** indicating a comfortable position.

Chapter 5: Medium-Term Outlook – A Growth Strategy for New India

- **Key Policy Focus Areas:**
  - **i.** Improving young population's health quality
  - **ii.** Job and skill creation
  - **iii.** Tackling inequality
  - **iv.** Tapping agriculture sector potential
  - **v.** Addressing MSME bottlenecks
  - **vi.** Deepening corporate bond market
  - **vii.** Dealing with Chinese conundrum
  - **viii.** Managing green transition
- **Amrit Kaal Growth Strategy:**
  - **i.** Boosting private investment
  - **ii.** Expansion of MSMEs
  - **iii.** Agriculture as growth engine
  - **iv.** Financing green transition
  - **v.** Bridging education-employment gap
  - **vi.** Building capacity of States
- **Growth Target:**
  - **i.** 7%+ growth requires tripartite compact between Union Government, State Governments, and private sector

Chapter 6: Climate Change and Energy Transition: Dealing with Trade-Offs

- **International Recognition:**
  - India recognized as only G20 nation in line with 2-degree Celsius warming
- **Renewable Energy Progress:**
  - Non-fossil sources in installed electricity generation capacity: 45.4% (as of 31 May 2024)
- **Emission Reduction:**
  - **i.** Reduced emission intensity of GDP by 33% from 2005 levels in 2019
  - **ii.** GDP CAGR (2005-2019): 7%, Emissions CAGR: 4%
- **Clean Energy Initiatives:**
  - **i.** Coal Gasification Mission launched
  - **ii.** Annual energy savings: 51 million tonnes of oil equivalent
  - **iii.** Cost savings: ₹1,94,320 crore
  - **iv.** Emissions reduction: 306 million tonnes
- **Green Bonds:**
  - **i.** Sovereign green bonds issued: ₹16,000 crore (Jan-Feb 2023)
  - **ii.** Additional ₹20,000 crore (Oct-Dec 2023)

Chapter 7: Social Sector - Benefits that Empower

- **Welfare Approach:**
  - Focus on increasing impact per rupee spent
  - Digitization as force multiplier in healthcare, education, and governance
- **Welfare Expenditure Growth:**
  - CAGR of 12.8% between FY18 and FY24
  - Compared to nominal GDP CAGR of 9.5%
- **Inequality Reduction:**
  - Gini coefficient declined:
    - Rural: 0.283 to 0.266
    - Urban: 0.363 to 0.314
- **Healthcare:**
  - Over 34.7 crore Ayushman Bharat cards generated
  - 7.37 crore hospital admissions covered
  - 22 mental disorders covered under Ayushman Bharat – PMJAY
- **Education:**
  - 'Poshan Bhi Padhai Bhi' programme for early childhood education
  - Vidyanjali initiative benefited over 1.44 crore students
  - Higher education enrolment increase:
    - Driven by SC, ST, and OBC sections
    - 31.6% increase in female enrolment since FY15

- **Research and Development:**
  - Nearly one lakh patents granted in FY24
  - Up from less than 25,000 in FY20
- **Housing and Infrastructure:**
  - PM-AWAS-Gramin: 2.63 crore houses constructed in last nine years
  - Gram Sadak Yojana: 15.14 lakh km road construction completed since 2014-15

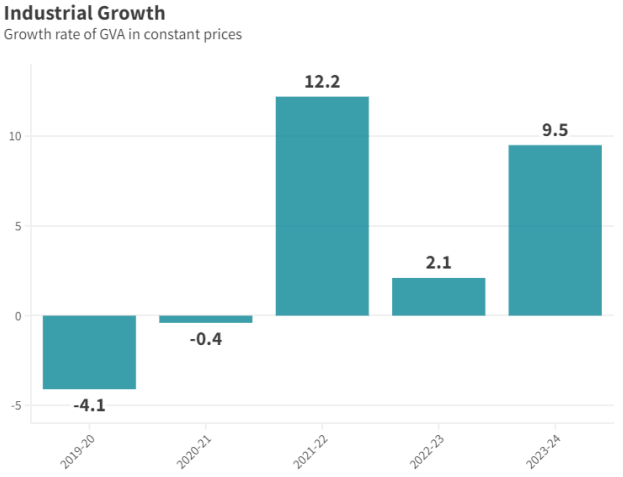
Chapter 8: Employment and Skill Development: Towards Quality

- **Labor Market Improvements:**
  - Unemployment rate declined to 3.2% in 2022-23
  - Quarterly urban unemployment rate (15 years and above): 6.7% in Q1 2024
- **Sectoral Employment:**
  - Agriculture: 45%
  - Manufacturing: 11.4%
  - Services: 28.9%
  - Construction: 13.0%
- **Youth Employment:**
  - Youth (15-29 years) unemployment rate declined from 17.8% (2017-18) to 10% (2022-23)
  - Two-thirds of new EPFO subscribers from 18-28 years band
- **Gender Perspective:**
  - Female labor force participation rate (FLFPR) rising for six years
- **Organized Manufacturing Sector:**
  - Employment recovered above pre-pandemic level
  - Employment per factory continuing pre-pandemic rise
- **Wage Growth:**
  - Rural areas: 6.9% CAGR (FY15-FY22)
  - Urban areas: 6.1% CAGR (FY15-FY22)
- **Factory Employment:**
  - 11.8% growth in factories employing more than 100 workers (FY18 to FY22)
- **EPFO Additions:**
  - Net payroll additions more than doubled: 61.1 lakh (FY19) to 131.5 lakh (FY24)
  - EPFO membership grew at 8.4% CAGR (FY15-FY24)
- **Gig Economy:**
  - Expected to expand to 2.35 crore workers by 2029-30
- **Job Creation Needs:**
  - Need to generate 78.5 lakh jobs annually until 2030 in non-farm sector
- **Demographic Shift:**
  - Working-age population to increase from 50.7 crore (2022) to 64.7 crore (2050)
- **Public Investment Impact:**
  - 2% of GDP investment can generate 11 million jobs (70% for women)

Chapter 9: Agriculture and Food Management – Plenty of Upside Left If We Get It Right

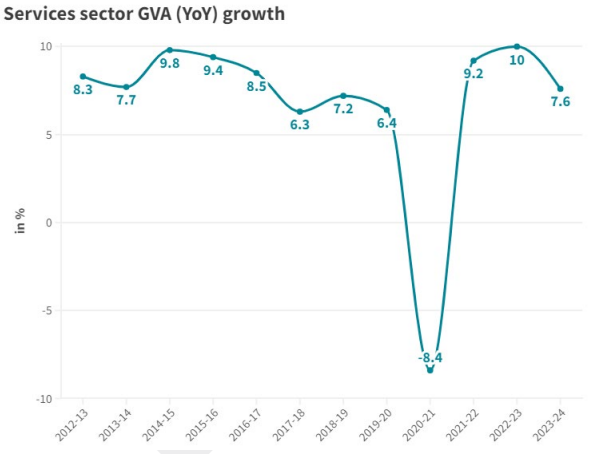
- **Sector Growth:**
  - Agriculture and allied sector: 4.18% average annual growth rate (last five years)
- **Allied Sectors:**
  - Emerging as robust growth centers
  - Promising sources for improving farm incomes
- **Agricultural Credit:**
  - Total credit disbursed: ₹22.84 lakh crore (as of 31 January 2024)
  - 7.5 crore Kisan Credit Cards issued with ₹9.4 lakh crore limit
- **Micro Irrigation:**
  - 90.0 lakh hectares covered under Per Drop More Crop (PDMC) scheme (2015-16 to 2023-24)
- **Research Investment:**
  - ₹13.85 payoff for every rupee invested in agricultural research

Chapter 10: Industry - Small and Medium Matters



- **Industrial Growth:**
  - 9.5% growth rate supporting overall economic growth of 8.2% in FY24
- **Manufacturing Sector:**
  - 5.2% average annual growth rate in last decade
  - Key growth drivers: chemicals, wood products, furniture, transport equipment, pharmaceuticals, machinery, and equipment
- **Coal Production:**
  - Accelerated production reduced import dependence
- **Pharmaceutical Market:**
  - World's third-largest by volume
  - Valuation: USD 50 billion
- **Textile Industry:**
  - World's second-largest clothing manufacturer
  - Among top five exporting nations
- **Electronics Manufacturing:**
  - 3.7% of global market share in FY22
- **PLI Schemes Impact:**
  - Attracted over ₹1.28 lakh crore investment (until May 2024)
  - Led to production/sales of ₹10.8 lakh crore
  - Generated over 8.5 lakh jobs (direct & indirect)

Chapter 11: Services - Fuelling Growth Opportunities



- **Sector Contribution:**
  - 55% of overall Gross Value Added (GVA)
  - 65% of active companies (16,91,495 as of 31 March 2024)
  - **Sector Growth**: Estimated to have grown by 7.6% in FY24.
  - **PMI Performance**: Services PMI above 50 since August 2021, indicating continuous expansion for 35 months.
- **Global Services Exports:**
  - 4.4% of world's commercial services exports in 2022
  - Computer and business services: 73% of India's services exports (9.6% YoY growth in FY24)
- **Digital Services:**
  - 6.0% share in global digitally delivered services exports (up from 4.4% in 2019)
- **Aviation Sector:**
  - 15% YoY increase in total air passengers handled in FY24
  - 7% YoY increase in air cargo handled (33.7 lakh tonnes in FY24)
- **Financial Services:**
  - Outstanding services sector credit: ₹45.9 lakh crore (March 2024)
  - 22.9% YoY growth
- **Railways:**
  - 5.2% increase in passenger traffic originating in FY24
  - 5.3% increase in revenue-earning freight in FY24
- **Tourism:**
  - Over 92 lakh foreign tourist arrivals in 2023 (43.5% YoY increase)
- **Real Estate:**
  - Highest residential sales since 2013 (33% YoY growth)
  - 4.1 lakh units sold in top eight cities
- **Global Capability Centres (GCCs):**
  - Grown from over 1,000 centres in FY15 to more than 1,580 in FY23
- **E-commerce:**
  - Expected to cross USD 350 billion by 2030
- **Telecommunications:**
  - Tele-density increased from 75.2% (March 2014) to 85.7% (March 2024)
  - Internet density increased to 68.2% (March 2024)
  - 6,83,175 km of Optical Fibre Cable laid, connecting 2,06,709 Gram Panchayats

Chapter 12: Infrastructure – Lifting Potential Growth

- **Public Sector Investment:**
  - Pivotal role in funding large-scale infrastructure projects
- **National Highways:**
  - Average construction pace increased from 11.7 km/day (FY14) to 34 km/day (FY24)
- **Railways:**
  - 77% increase in capital expenditure over past 5 years
  - Significant investments in new lines, gauge conversion, and doubling
  - Introduction of Vande metro trainset coaches planned for FY25
- **Airports:**
  - 21 new terminal buildings operationalized in FY24
  - Increased passenger handling capacity by 62 million per annum
- **Logistics Performance:**
  - Improved rank in International Shipments category: 22nd in 2

Chapter 13: Climate Change and India: Why We Must Look at the Problem Through Our Lens

- **Global Climate Change Strategies:**
  - Current global strategies are flawed and not universally applicable
  - Western approach doesn't address the root problem of overconsumption
- **Need for Approaches:**
  - One-size-fits-all approach is ineffective
  - Developing countries need freedom to choose their own pathways
- **India's Ethos:**
  - Emphasizes harmonious relationship with nature
  - Contrasts with culture of overconsumption in developed world
- **Sustainable Housing:**
  - Shift towards 'traditional multi-generational households' proposed as pathway to sustainable housing
- **Mission LiFE:**
  - Focuses on human-nature harmony
  - Promotes mindful consumption over overconsumption
  - Addresses root cause of global climate change problem
- **Critique of Western Approach:**
  - Does not seek to address overconsumption
  - Instead focuses on substituting means to achieve overconsumption

3. Committee for Revising the Base Year for National Accounts

1. In July 2024, the **Ministry of Statistics and Programme Implementation (MoSPI)** has established a committee to oversee the revision of the base year for national accounts.
2. The committee consists of **26 members** and is chaired by **Biswantah Goldar**.
3. It is tasked with recommending a **new base year** for national accounts, possibly aligning it with indices such as the **Wholesale Price Index**, **Producer Price Index**, and **Consumer Price Index**.

Current and Proposed Base Year:

a. The current base year for national accounts is **2011-12**.
b. A proposal has been made to revise this base year to **2020-21**.

Base Year

The base year for national accounts is selected to allow comparisons between different years.
It helps assess changes in purchasing power and facilitates the calculation of growth rates adjusted for inflation.

4. **Objective of the Revision:**
   a. The revision aims to **improve the accuracy** of economic analysis and policy formulation.
   b. This will be achieved by **reviewing existing databases** and **incorporating new data sources**.
5. **Historical Context:**
   a. In 2015, India revised the base year of the GDP series from 2004-05 to 2011-12.

b. This revision was in line with the **United Nations System of National Accounts (SNA) 2008**.
c. The SNA provides internationally agreed-upon recommendations on compiling measures of economic activity.

6. **Need for Change**
   a. **Accuracy:** Updating the base year for GDP calculation aligns with global practices, ensuring that economic data is captured more accurately.
   b. **Global Alignment:** The GDP estimates based on 2011-12 did not accurately reflect the current economic scenario.
   c. **Frequency:** Ideally, the base year should be updated **every five years** to reflect the evolving economy.

4. India's Balance of Payments

1. In July 2024, the **Reserve Bank of India (RBI)** released data indicating that India's current account recorded a surplus in the fourth quarter (January-March) of the 2023-24 financial year.
2. This marks the first surplus after 11 consecutive quarters of deficits.
3. This surplus highlights the importance of India's Balance of Payments (BoP), highlighting its role in influencing currency exchange rates, sovereign credit ratings, and overall economic health.

About the Balance of Payments (BoP)

1. The Balance of Payments (BoP) is a key economic indicator that includes all financial transactions between India and other countries.
2. It serves as a comprehensive record of the money flowing in and out of the country, with inflows recorded as positive and outflows as negative.
3. The BoP reflects India's economic exchanges with the global economy and is crucial in assessing the relative demand for the rupee against foreign currencies, thereby affecting exchange rates and economic stability.

Components of the Balance of Payments

1. **Current Account:**
   a. **Trade of Goods:** This component tracks the **physical imports and exports of goods**, providing insights into the balance of trade. A deficit occurs when imports exceed exports.
   b. **Trade of Services (Invisibles):** This includes sectors such as Information Technology (IT), tourism, and remittances. Despite deficits in the trade of goods, these sectors contribute positively to India's current account.
   c. In the fourth quarter of 2023-24, India recorded a **current account surplus due to gains in services** (invisibles), although there was a **deficit in the trade of goods**.
2. **Capital Account:**
   a. **Investment Flows:** The capital account records investments such as **Foreign Direct Investment (FDI)** and **Foreign Institutional Investments (FII)**, which are vital for economic growth and stability.
   b. It also includes other financial flows such as commercial borrowings, banking transactions, investments, loans, and capital flows.
   c. In the fourth quarter of 2023-24, India registered a **net surplus of USD 25 billion** in the capital account.

Disequilibrium

1. A disequilibrium in the balance of payments occurs when there is either a surplus or deficit.
2. A BoP surplus indicates that a country's income from exports, services, and investments surpasses its expenditures on imports and external commitments.
3. Conversely, a deficit shows that expenses exceed earnings, leading to the need for external financing or the sale of assets to bridge (fill) the gap.

Challenges

1. The complexity of accurately recording international transactions can lead to **errors and omissions** in BoP calculations.
2. **Continuous deficits** may pose a risk to economic stability, potentially leading to a reliance on external borrowing or assistance from global financial institutions like the International Monetary Fund (IMF).
3. It's important to note that deficits are not always harmful, nor are surpluses always beneficial.
    a. For example, a deficit could represent strategic investments, while a surplus might result from reduced imports rather than a strong economy.

Managing Balance of Payment (BoP)

1. **Foreign Exchange Reserves:** The Reserve Bank of India (RBI) manages fluctuations in the BoP by adjusting foreign exchange reserves through market interventions.
    a. This management also involves tools such as adjusting interest rates, conducting open market operations, and influencing borrowing and spending.
    b. Open Market Operations (OMOs) are a monetary policy tool used by the Reserve Bank of India (RBI) to regulate the money supply in the economy.
2. **Policy Interventions:** Governments introduce trade policies and regulatory measures to maintain a stable BoP, which is essential for sustainable economic growth.
3. **Deflation:** Deflation involves intentionally reducing the money supply or aggregate demand, potentially leading to lower domestic prices.
    a. This can increase the competitiveness of exports and reduce consumption, including imports. However, deflation carries risks such as economic slowdown, recession, and higher unemployment rates.
4. **Foreign Investment Promotion:** Promoting foreign investment is a strategy to strengthen the capital account.
    a. This can be achieved through tax incentives, improving infrastructure, creating a favourable business environment, and streamlining regulations for foreign businesses.
    b. These actions can attract foreign capital and technology, potentially boosting export capacity.

5. Employment Rates rise in FY24

In July 2024, Reserve Bank of India (RBI) in its recent data indicates a significant improvement in India's employment rate, rising by **6% in FY24** compared to **3.2% in FY23**.

1. This marks a **positive development** in the labour market.

Insights from RBI Data on Employment Growth in India

1. **Overall Employment Rate**: The RBI's India KLEMS database, which tracks Capital (K), Labour (L), Energy (E), Material (M), and Services (S), reports that **total employment in India increased** to 57.75 crore in 2022-23, up from 56.56 crore in 2021-22.
2. This database consists of 27 industries and provides estimates at both broad sectoral and all-India levels, covering Gross Value Added, Labour Employment, Capital Stock, and inputs like Energy, Material, and Services.

Female Employment Trends

1. The unemployment rate for women saw a **significant reduction**, falling from 9.2% in January–March 2023 to 8.5% in January–March 2024.
2. Additionally, the **worker population ratio (WPR) for women** in **urban areas increased** from 20.6% in January–March 2023 to 23.4% in January–March 2024, indicating a **rising trend in female workforce participation**.

Periodic Labour Force Survey (PLFS)

The latest quarterly bulletin of the Periodic Labour Force Survey (PLFS), published by the **Ministry of Statistics and Programme Implementation (MoSPI)** in May 2024, highlights a **decline in the unemployment rate (UR)** in **urban areas**.

Citigroup Report

1. Citigroup's report expressed concerns that even with a 7% GDP growth rate, India might face challenges in generating sufficient employment due to its demographic advantage.
2. The report raised issues regarding the **quality of jobs and potential underemployment**, particularly noting that agriculture, which employs 46% of the workforce, contributes less than 20% to the GDP.

Labour Ministry's Response

1. **Positive Employment Data:** The Ministry of Labour and Employment countered Citigroup's claims by referencing comprehensive employment data from the Periodic Labour Force Survey (PLFS) and RBI's KLEMS.
2. **Creation of Employment Opportunities:** The Ministry highlighted that over 8 crore employment opportunities were generated between 2017-18 and 2021-22, with an average of more than 2 crore jobs annually.
3. **EPFO Subscribers:** Additionally, more than 6.2 crore net subscribers were added to the Employees' Provident Fund Organisation (EPFO) from September 2017 to March 2024.

About Periodic Labour Force Survey Quarterly Bulletin (January-March 2024)

1. Periodic Labour Force Survey (PLFS) provides key estimates related to employment and unemployment, including the **Labour Force Participation Rate (LFPR)**, **Worker Population Ratio (WPR)**, and **Unemployment Rate (UR)**.
2. It also measures the activity status of individuals based on **'Usual Status'** and **'Current Weekly Status.'**
3. The National Sample Survey Office (NSSO) initiated the PLFS in April 2017.
4. The survey aims to provide timely estimates of employment and unemployment indicators in urban areas on a quarterly basis and offers annual estimates for both rural and urban areas.

Key Findings

1. **Unemployment Rate (UR):** In urban areas, the unemployment rate for individuals aged 15 years and above slightly declined from 6.8% in January–March 2023 to 6.7% in January–March 2024.
   a. The female unemployment rate dropped from 9.2% in January–March 2023 to 8.5% in the same period in 2024.
2. **Labour Force Participation Rate (LFPR):** The Labour Force Participation Rate in urban areas for individuals aged 15 years and above increased from 48.5% in January–March 2023 to 50.2% in January–March 2024.
   a. The female LFPR in urban areas also showed an upward trend, rising from 22.7% in January–March 2023 to 25.6% in January–March 2024.
3. **Worker Population Ratio (WPR):** There was an increase in the Worker Population Ratio for individuals aged 15 years and above in urban areas, from 45.2% in January–March 2023 to 46.9% in January–March 2024.
   a. The female WPR in urban areas improved, moving from 20.6% in January–March 2023 to 23.4% in January–March 2024.

Indicator	Definition
Labour Force Participation Rate (LFPR)	Percentage of persons in the labor force (i.e., working or seeking or available for work) in the population.
Worker Population Ratio (WPR)	Percentage of employed persons in the population.
Unemployment Rate (UR)	Percentage of persons unemployed among the persons in the labor force.
Activity Status - Usual Status	Determined based on the activities pursued by the person during the last 365 days preceding the date of the survey.
Activity Status - Current Weekly Status (CWS)	Determined based on the activities pursued by the person during the last 7 days preceding the date of the survey.

6. Cooperatives and Their Evolution in India

1. In July 2024, the Union Home Minister and Minister of Cooperation addressed the **'Sahkar se Samriddhi'** (Prosperity through Cooperation) event, held in Gujarat to mark the **102nd International Day of Cooperatives**.

About Cooperatives

1. Cooperatives are **member-owned**, **people-centered enterprises** that operate to fulfil the **economic, social, and cultural needs and aspirations** of their members.

> The **International Day of Cooperatives** is observed every year on **6th July**.
> The theme for 2024 is **"Cooperatives Building a Better Future for All."**
> This theme is in line with the objectives of the upcoming **UN Summit of the Future**, which focuses on **"Multilateral solutions for a better tomorrow."**
> The 2023 UN Secretary-General's Report on **Cooperatives in Social Development** recognized the role of cooperatives in promoting the economic and social well-being of all individuals, including marginalized groups.

India has one of the largest cooperative networks globally, with over **800,000 cooperatives** spanning various sectors such as agriculture, credit, dairy, housing, and fisheries.

2. The cooperative sector significantly contributes to the Indian economy, accounting for –
   a. **20% of agricultural loans,**
   b. **35% of fertilizer distribution,**
   c. **31% of sugar production,**
   d. **13% of wheat procurement, and**
   e. **20% of paddy procurement**.

Cooperatives in the Pre-Independence Era

1. **First Cooperative Act in India:** The **Indian Famine Commission (1901)** led to the enactment of the **Cooperative Credit Societies Act in 1904**, followed by the **Cooperative Societies Act, 1912**.
2. **Maclagan Committee:** In 1915, **Sir Edward Maclagan** chaired a committee to assess whether the cooperative movement was progressing on a sound economic and financial basis.
3. **Montague-Chelmsford Reforms:** The **Montague-Chelmsford Reforms of 1919** designated cooperation as a **provincial subject**, further driving the cooperative movement.
4. **Post Economic Depression, 1929:** Committees in Madras, Bombay, Travancore, Mysore, Gwalior, and Punjab were established to explore possibilities for restructuring cooperative societies.
5. **Gandhian Socialist Philosophy:** Mahatma Gandhi believed that **cooperation was essential for building a socialistic society and achieving complete decentralization of power**.
   a. He viewed **cooperation as a key mechanism for empowering people**.
   b. In South Africa, Gandhi established the **'Phoenix Settlement'** as a cooperative based on a socialistic model.
   c. He also founded the **Tolstoy Farm** as a cooperative rehabilitation settlement for families impacted by the South African freedom struggle.

Cooperatives in Post-Independence India

1. **First Five-Year Plan (1951-56):** Emphasized the role of cooperatives in promoting comprehensive community development.
2. **Multi-State Co-operative Societies Act, 2002:** Established guidelines for the creation and functioning of multi-state cooperatives.
3. **97th Constitutional Amendment Act of 2011:** Made the **right to form cooperative societies** a **fundamental right** under **Article 19**.
   a. Introduced a new **Directive Principle of State Policy** concerning cooperative societies under **Article 43-B**.
   b. Added **Part IX-B** to the Constitution, titled **"The Co-operative Societies" (Articles 243-ZH to 243-ZT)**.
   c. Empowered Parliament to legislate on **multi-state cooperative societies (MSCS)** and authorized state legislatures to regulate other cooperative societies.

4. **Establishment of Union Ministry of Cooperation (2021):** Took over responsibilities related to cooperative affairs, which were previously managed by the Ministry of Agriculture.
5. **Multi-State Co-operative Societies (Amendment) Act, 2022:** Introduced the **Co-operative Election Authority**, which is responsible for overseeing board elections in multi-state cooperative societies.

Impact of Cooperatives

1. **Empowering Marginalized Communities:** The **Amul Dairy Cooperative in Gujarat** involves more than **3.6 million milk producers**. Many of these producers are from small and marginal farms.
   a. The cooperative enhances rural communities by offering fair prices for milk. It also promotes economic independence, especially for women.
2. **Boosting Agricultural Productivity and Marketing: Indian Farmers Fertiliser Cooperative Limited (IFFCO)** is the **world's largest fertilizer producer**.
   a. It supports farmers by providing essential agricultural inputs such as fertilizers, seeds, and credit. These inputs are offered at competitive prices, which leads to higher productivity and increased farm incomes.
3. **Facilitating Access to Essential Services: Kerala State Milk Marketing Federation (Milma)** is a dairy cooperative.
   a. It procures milk from farmers and supplies it to consumers in Kerala at affordable prices. This ensures market access for producers and provides essential dairy products to the population.
4. **Promoting Inclusive Growth and Job Creation:** According to a NITI Aayog report, sugar cooperatives in Maharashtra employ over 500,000 people.
   a. This employment includes both direct and indirect jobs. The cooperatives make a significant contribution to rural job creation and income generation.

Government Measures to Strengthen Cooperatives

1. **Umbrella Organization for Urban Co-operative Banks (UCBs)**
   a. The **Reserve Bank of India (RBI)** has granted approval to the **National Federation of Urban Co-operative Banks and Credit Societies Ltd. (NAFCUB)** to establish an **Umbrella Organization (UO) for the UCB sector**.
   b. This organization will provide essential IT infrastructure and operational support to around 1,500 UCBs.
2. **Promoting Transparency and Sustainability**
   a. **Model Bye-Laws** have been introduced for **Primary Agricultural Credit Societies (PACS)**, transforming them into multipurpose, multidimensional, and transparent entities.
   b. The government has launched the **world's largest decentralized grain storage plan** in the cooperative sector in 2023.
   c. The aim is to establish a PACS in every panchayat by 2029, aligning with Prime Minister Modi's vision of **'Sahkar se Samriddhi'** (Prosperity through Cooperation).
3. **Other Initiatives**
   a. A **National Cooperative Database** has been set up to serve as an authentic and updated data repository.
   b. The **National Cooperative Development Corporation (NCDC)** has issued bonds worth Rs 2000 crore to support cooperative welfare.
   c. Cooperatives have been included as **'buyers'** on the **Government e-Marketplace (GeM) portal**.
   d. The NCDC's scope has been expanded to enhance its range and depth.
   e. The **National Cooperative Organic Limited (NCOL)** has been established to promote organic farming and ensure fair pricing.
   f. **Bharat Organic Atta** has been launched to support organic agriculture.

Challenges faced by the cooperatives in India and their Solutions

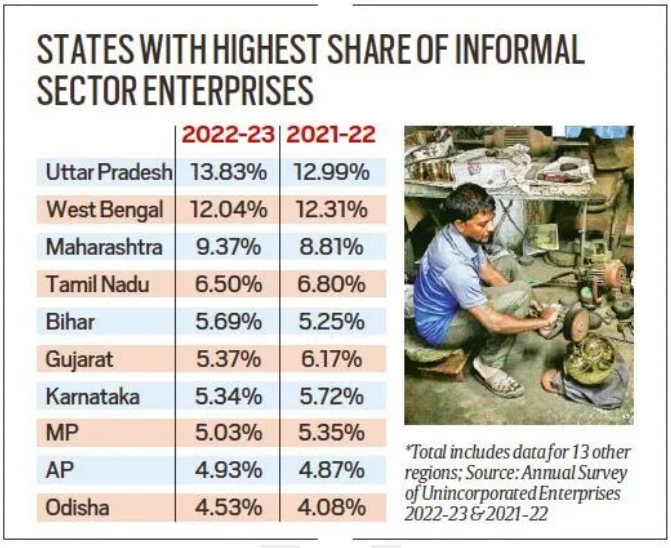
Challenges faced by Cooperatives	Solutions
Governance Challenges: Cooperatives often struggle with transparency, accountability, and democratic decision-making processes.	**Enhance Governance Practices:** Implement digital platforms for financial reporting, conduct regular audits, and promote active member participation in decision-making processes.
Limited Access to Financial Resources: Many cooperatives, especially those serving marginalized communities, face difficulties in accessing financial resources. They often lack the necessary collateral or formal documentation.	**Improve Access to Financial Resources:** Establish cooperative development funds with flexible collateral requirements; explore alternative financing options such as crowdfunding and social impact bonds.
Socio-economic Disparities and Exclusion: Cooperatives frequently encounter challenges related to inclusivity and structural inequalities, which can lead to the exclusion of certain groups and hamper the cooperative's mission of equitable participation.	**Promote Inclusivity:** Develop outreach programs to educate and attract members from marginalized communities, addressing their specific needs and challenges.
Infrastructural Constraints: Infrastructural limitations and poor connectivity can affect the efficiency and effectiveness of cooperatives, restricting their ability to reach broader audiences and markets.	**Strengthen Infrastructure:** Advocate for government investment in rural infrastructure to improve connectivity and market access for cooperatives.
Lack of Technical and Managerial Capacities: Absence of training and skill development programs is another significant challenge, leading to outdated knowledge and practices among members and managers.	**Build Capacity:** Collaborate with government agencies and training institutions to provide skill-building workshops for cooperative members and managers.
Social and Cultural Factors: A lack of awareness about the cooperative model and its benefits among potential members limits participation. Social hierarchies and caste-based divisions can create barriers to equitable participation and representation within cooperatives.	**Raise Awareness:** Launch targeted awareness campaigns in local languages to inform potential members about the benefits and principles of cooperatives.

7. Annual Survey of Unincorporated Enterprises (2022-23)

1. In July 2024, the **Ministry of Statistics and Programme Implementation (MoSPI)** released the **Annual Survey of Unincorporated Enterprises for the year 2022-23**.
2. **Establishment Growth:** The number of establishments grew from 5.97 crore in 2021-22 to **6.50 crore** in 2022-23 **(5.88% growth)**.
    a. The majority were in the **services sector** (38%), followed by **trade** (35%) and **manufacturing** (27%).
    b. Retail trade and apparel manufacturing accounted for over 40% of the sector.
3. **Gross Value Added (GVA):** GVA grew by **9.83%** annually. **Maharashtra**, Uttar Pradesh, and Tamil Nadu topped the GVA rankings in 2022-23.
    a. **Gross value added (GVA)** is the measure of the total value of goods and services produced in an economy (area, region or country). The amount of value-added to a product is taken into account.
4. The survey highlights that in 2022-23, **Uttar Pradesh**, **West Bengal**, and **Maharashtra** had the **largest share of informal sector enterprises** in both rural and urban regions.
    a. **Decreased Share:** There was a decline in the share of informal sector enterprises in states like **Gujarat**, **Haryana**, **Karnataka**, **Kerala**, **Madhya Pradesh**, **Tamil Nadu**, and **West Bengal** in the post-pandemic year 2022-23.

b. **Increased Enterprises: Uttar Pradesh** saw the **highest increase** in the number of **unincorporated non-agricultural enterprises** among the major states.

5. **Employment:** Employment rose to **11 crore workers** in 2022-23, up from 9.8 crore in 2021-22.
   a. **Uttar Pradesh, Maharashtra**, and **West Bengal** employed over **1/3rd of this workforce**.
   b. **Female workforce participation increased** slightly, from 25.52% to 25.63%.
   c. In **manufacturing**, **54%** of proprietary establishments were **led by women**.
6. **Registration Trend:** The percentage of registered establishments grew from 29.4% in ASUSE 2021-22 to 36.8% in ASUSE 2022-23.
7. **Digital Usage:**
   a. **Internet Use:** Increased for entrepreneurial purposes from 7.7% to 13.5% in rural areas, and from 21.6% to 30.2% in urban areas.
   b. **Digitization:** Reflects a growing adoption of IT and digital platforms in the sector.
8. **Share of Informal Sector Enterprises (2022-23 vs. 2021-22)**
   a. **Uttar Pradesh:** Increased by 0.84% of total informal sector enterprises.
   b. **West Bengal:** Decreased by 0.27% of total informal sector enterprises.
   c. **Maharashtra:** Increased by 0.56% of total informal sector enterprises.
   d. **Delhi:** Increased by 0.79% of total informal sector enterprises.
9. **Informal Sector Workers (2022-23 vs. 2021-22)**
   a. **Uttar Pradesh:** An increase of 0.27 crore workers (from 1.30 crore).
   b. **West Bengal:** An increase of 0.03 crore workers (from 1.02 crore).
   c. **Maharashtra:** An increase of 16.19 lakh workers.
10. **Total Workers in Unincorporated Non-Agricultural Sector2022-23:** The total number of workers **increased** by 1.17 crore (from 9.79 crore to 10.96 crore).
    a. **Urban Workers:** Increased by 0.69 crore (from 5.03 crore to 5.72 crore).
    b. **Rural Workers:** Increased by 0.48 crore (from 4.76 crore to 5.24 crore).



Survey Methodology

1. **Coverage**:
   a. **Geographical**: Entire India, excluding remote villages in Andaman and Nicobar Islands.
   b. **Sectoral**: Unincorporated non-agricultural establishments in Manufacturing, Trade, and Other Services.
   c. **Ownership**: Included proprietorships, partnerships (excluding Limited liability partnership), Self Help Groups (SHGs), cooperatives, societies/trusts.
2. **Data Collection**:
   a. **2021-22**: Conducted via Pen-and-Paper Personal Interview (PAPI) mode.
   b. **2022-23**: Conducted via **Computer-Assisted Personal Interview (CAPI)** mode.
   c. **Reference Period**: Data typically referenced a '**monthly' period**, with some annual data from audited accounts.

8. India-UK Free Trade Agreement (FTA)

1. In July 2024, the Britain's Labour Party came victorious in the elections which could influence the FTA negotiations.
   a. Labour's win may provide the political stability needed to finalize the FTA, contrasting with the post-Brexit instability.

2. The discussions on the **India-UK Free Trade Agreement (FTA)** began with the objective of boosting trade and economic ties between the two nations.
3. The agreement is nearing completion and is expected to be signed by the end of the year.
    a. Formal negotiations for the India-UK FTA started in January 2022. Several rounds of talks have been conducted since then, addressing various trade and investment matters.
4. Once completed, it will mark India's first comprehensive free trade agreement with a European country and is expected to be the 3rd trade agreement signed by the UK post-Brexit.

What Are the Respective Expectations?

India's Expectations:

1. **Market Access:** India aims for greater access to the UK market for its goods and services, focusing on areas like textiles, pharmaceuticals, and IT services.
2. **Investment Opportunities:** India looks to attract increased UK investments into its expanding economy.
3. **Ease of Business Mobility:** India seeks favourable visa policies to facilitate the movement of its professionals to the UK.

UK's Expectations:

1. **Reduced Tariff Barriers:** The UK seeks to lower tariff barriers for its exports to India, especially for products such as scotch whiskey and automobiles.
2. **Expanded Market Reach:** The UK aims to tap into India's extensive consumer market.
3. **Post-Brexit Opportunities:** The UK looks to establish strong trade ties with India as part of its strategy to diversify trade partnerships after Brexit.

What Are the Benefits of the FTA?

For India:

1. **Boost in Exports:** Increased access to the UK market can enhance Indian exports, particularly in key sectors.
2. **Enhanced Investment:** The FTA is anticipated to attract more UK investments, contributing to India's economic growth.
3. **Job Creation:** Improved business mobility is expected to generate jobs in both countries, especially in sectors like IT and services.

For the UK:

1. **Competitive Advantage:** Lowering high tariff barriers allows UK exporters to offer products at more competitive prices in India.
2. **Economic Growth:** Increased exports to India can stimulate economic growth in the UK.
3. **Diverse Markets:** Strengthening trade relations with India enables the UK to diversify its markets post-Brexit, reducing dependence on the EU.

Key Issues Under Discussion

1. **Business Mobility:** Streamlining visa processes to facilitate the movement of professionals, encouraging the exchange of skills and expertise.
2. **Scotch Whiskey:** The UK is advocating for lower tariffs to boost its exports of scotch whiskey to India.
3. **Automobiles:** Talks are centered around reducing tariffs and harmonizing standards for automobiles, including electric vehicles.
4. **Farm Products:** Striking a balance in agricultural trade to protect local farmers while ensuring beneficial trade flows.
5. **Pharmaceuticals:** Enhancing market access for Indian generic medicines in the UK and vice versa.
6. **Rules of Origin:** Defining clear criteria to ensure that only products genuinely made in India or the UK qualify for the benefits under the FTA.
7. **Investment Agreement:** Establishing legal protections to encourage bilateral investments and create a stable environment for investors.

Challenges in the India-UK Free Trade Agreement

Challenge	Details	Significance
Business Mobility	Movement of professionals between India and the UK.	Easing visa regulations is crucial for both nations. The UK seeks to benefit from Indian professionals' expertise, while India aims to expand opportunities for its workforce abroad.
Scotch Whiskey	Tariffs on Scotch whiskey.	The UK is pushing for reduced tariffs to boost Scotch whiskey exports to India. Lower tariffs could increase consumption in India, benefiting the UK's economy, but India must consider its revenue.
Automobiles (Including EVs)	Trade in automobiles, particularly electric vehicles.	UK aims to export more vehicles, including electric ones, aligning with India's environmental goals. Reduced tariffs and standard alignment could enhance technology exchange and market access.
Agricultural Products	Sensitivity around agricultural trade in the FTA discussions.	India wants to protect its agricultural sector from imports, while the UK seeks market access for its farm products. Balancing local farmer protection with beneficial trade is essential.
Pharmaceuticals	The role of the pharmaceutical sector in the FTA.	India, a major exporter of generic medicines, could benefit from easier access to the UK market. The UK seeks to enter the Indian market with lower tariffs, promoting competition and innovation.
Rules of Origin	Establishing rules of origin for products traded under the FTA.	Clear rules of origin are needed to ensure only products genuinely produced in India or the UK benefit from the FTA, protecting industries and preventing misuse by third-party countries.
Separate Investment Agreement	Discussions on a separate investment agreement within FTA.	An investment agreement would provide legal safeguards, promoting bilateral investments and creating a stable environment for economic growth and cross-border capital flows.
Visa Regulations for Indian Professionals	Visa regulations concerning the number and types of visas for Indian professionals.	Adjustments in visa policies will impact the movement of skilled professionals. The UK benefits from Indian talent, while India seeks ample opportunities for its professionals in the UK.

9. Mutual Funds vs. AIFs

1. The **Securities and Exchange Board of India (SEBI)** is introducing a new investment option aimed at investors who are willing to accept higher risk in pursuit (search) of greater returns.
2. This category is designed to fill the gap between conventional mutual funds and more exclusive services such as portfolio management.
    a. A mutual fund is a company that pools money from many investors and invests the money in securities such as stocks, bonds, and short-term debt.
    b. The combined holdings of the mutual fund are known as its portfolio.
    c. Portfolio management is the process of managing individuals' investments so that they maximise their earnings within a given time frame.
    d. Furthermore, such practices ensure that the capital invested by individuals is not exposed to too much market risk.

Alternative Investment Funds (AIFs) and Mutual Funds

1. At present, investors have limited choices. Mutual funds are accessible with lower minimum investments but come with a lower risk profile.
2. On the other hand, **Portfolio Management Services (PMS)** and **Alternative Investment Funds (AIFs)** are tailored for high net-worth individuals, requiring

higher minimum investments and accommodating a higher risk tolerance.

a. **Portfolio Management Services (PMS)** are professional financial services that help investors manage their investments and maximize returns while minimizing risk.
b. PMS services are customized to meet an investor's financial goals, risk tolerance, and investment expectations.
c. An **Alternative Investment Fund (AIF)** is a type of investment vehicle in India that pools together funds from investors and invests them in accordance with a defined investment policy to benefit the investors.
d. AIFs can include private equity, venture capital, hedge funds, and other forms of investment funds that do not fall under the typical categories like mutual funds or collective investment schemes.

Feature	Mutual Funds	PMS/ AIFs
Investors	Small investment amounts (Retail investors)	Large investment amounts, typically over ₹50 lakh (High Net-worth Individuals)
Risk	Comparatively lower	Higher risk tolerance
Nature of Products	Standard products for all investors	Customized products
Regulation	Strictly regulated by SEBI	Regulated by SEBI, but with less stringent oversight compared to mutual funds

Emergence of Unregulated Investment Products

1. SEBI has identified that the absence of certain regulated options has led some investors who are willing to invest substantial amounts and have a higher risk tolerance to fall victim to unregulated investment schemes.
2. Such schemes promise unrealistic returns to these investors.
3. The proposed solution by SEBI is a regulated investment product.

Key Features of the New Asset Class Proposed by SEBI

1. **Investment Size:** The **minimum investment** required is **Rs. 10 lakh**, which is considerably lower than the minimum investment for other high-risk options like PMS or AIFs, where the starting point is typically Rs. 50 lakh.
2. **Returns and Risk:** While this new product carries a **higher risk** compared to mutual funds, it also offers the potential for **higher returns**. Importantly, it will be **regulated**, unlike some unauthorized investment schemes.
3. **Distinct Nomenclature:** SEBI suggests using a unique name for this new asset class to clearly distinguish it from traditional Mutual Funds (MFs), Portfolio Management Services (PMS), Alternative Investment Funds (AIFs), Real Estate Investment Trusts (REITs), and Infrastructure Investment Trusts (InvITs).

Securities and Exchange Board of India (SEBI)

1. SEBI is a **statutory body** established in **1992** under the **Securities and Exchange Board of India Act, 1992**, with the mandate to protect investors' interests and oversee the securities market.
2. The headquarters of SEBI is located in Mumbai, with regional offices situated in Ahmedabad, Kolkata, Chennai, and Delhi.
3. Prior to SEBI's creation, the capital markets were regulated by the **Controller of Capital Issues** under the **Capital Issues (Control) Act, 1947**.
4. In 1988, the government formed SEBI as the regulatory authority for capital markets through a resolution.
5. Initially set up as a non-statutory body, SEBI gained autonomy and statutory powers following the enactment of the SEBI Act in 1992.
6. The SEBI Board consists of a Chairman along with full-time and part-time members. SEBI also forms committees as necessary to address specific issues.
7. The **Securities Appellate Tribunal (SAT)** was established to protect the rights of individuals affected by SEBI's decisions. It consists of a Presiding Officer and two Members.
8. SAT possesses the **powers of a civil court**, and appeals against its decisions can be directed to the Supreme Court.

10. India's Patent Achievement in 2024

1. In July 2024, the Union Minister of Commerce and Industry announced that India granted approximately **one lakh patents in 2024**, showcasing a remarkable rise in patent approvals.

About Patents

1. A patent is a **legal protection** granted to an inventor, ensuring that others cannot make, use, or sell the invention without permission.
2. Patent rights are **territorial**, meaning they are only valid within the issuing country, and there is **no global patent system**.
3. **Legal Framework in India:** India's patent system is governed by the **Patents Act, 1970**.
    a. This act is periodically updated to reflect the changing environment, with the latest amendments being made under the **Patents (Amendment) Rules, 2024**.
4. **Criteria for Patentability:** For an invention to be patentable in India, it must meet the following criteria:
    a. **Novelty:** The invention must be new.
    b. **Non-obviousness:** It should not be apparent to someone with knowledge and experience in the subject.
    c. **Industrial Applicability:** The invention must be useful in some kind of industry.
    d. It must also **not fall under the exclusions specified in Sections 3 and 4 of the Patents Act, 1970**.

About Patents Act, 1970

1. The Patents Act, 1970 came into force in **1972** which replaced the **Indian Patents and Designs Act, 1911**.
2. **Key Amendments in 2005:**
    a. The act was passed to bring India's patent system into compliance with the **WTO TRIPS Agreement**.
    b. **Product Patent:** Extended to all technological fields, including food, drugs, chemicals, and microorganisms. The term for product patent protection is **20 years**.
    c. **Exclusive Marketing Rights (EMRs):** These were removed, and provisions for granting compulsory licenses were introduced.
        o EMRs means the right to sell or distribute the article or substance covered in a patent or patent application in the country.
    d. **Opposition Provisions:** The Act introduced processes for both **pre-grant and post-grant opposition** to patents. The act allows anyone to file an opposition against a patent's grant after it's published but before it's granted.
    e. **Compulsory licensing:** The act provides for **compulsory licensing** if patented inventions are not accessible at reasonable prices.
        o For example, the act allows for the granting of compulsory licenses to export medicines to countries that don't have the manufacturing capacity to import them.
    f. **Section 3:** This section outlines what is **not** considered an **invention** under the law.
        o It includes frivolous (non-serious) claims, inventions that violate natural laws, those that are against public order or morality, scientific principles, abstract theories, and discoveries of natural substances, whether living or non-living.
    g. **Section 3(d)**: This section prevents the **evergreening of patents** by disallowing patents for new forms of known substances that don't have significant productiveness.
    h. **Section 4:** This section specifies that **inventions related to atomic energy are not eligible** for patents.
        o According to this section, any invention related to atomic energy that falls under **sub-section (1) of section 20 of the Atomic Energy Act, 1962**, cannot be granted a patent.

Key Changes in the Patents (Amendment) Rules, 2024

1. **Reduced Timeline for Request for Examination (RFE):**
    a. The deadline for filing a **Request for Examination (RFE)** has been shortened from **48 months to 31 months** from the priority date. This change **aims to speed up the patent examination process**.

2. **Simplified Submission of Form 3:**
   a. Applicants are now required to submit a single, updated Form 3 after receiving the **First Examination Report (FER)**. The **Patent Office** issues this examination report, commonly referred to as the FER.
3. **Introduction of the 'Certificate of Inventorship':**
   a. A new provision has been introduced to recognize the contributions of inventors to patented inventions.
   b. Previously, Indian patent certificates did not identify inventors, but this amendment allows for their recognition.
4. **Frequency of Filing Patent Working Statements**
   a. The frequency for filing statements regarding the working of patents has been reduced from once per financial year to once every three financial years.
5. **Amendments in Pre-grant and Post-grant Opposition Procedures**
   a. The time frames for submitting recommendations by an Opposition Board and for applicants' responses have been revised.
   b. This amendment aligns with the **Delhi High Court's decision in the 2023 Syngenta Limited v. Controller of Patents and Designs case**.

Global Innovation Performance

1. **Global Innovation Index (GII) 2023:** India ranked 40th out of 132 countries in the Global Innovation Index 2023, a notable improvement from its 46th rank in 2021 and 81st in 2015.
2. **Patent Application Surge:** A study by the World Intellectual Property Organization highlighted that India saw a 31.6% increase in patent applications in 2022, surpassing countries like China and the U.K. in growth rate.

Significance of Granting Patents

1. **Promoting Innovation and Research:** Patents grant exclusive rights that motivate and reward innovation.
2. **Attracting Foreign Direct Investment (FDI):** Countries with strong intellectual property protection are more likely to attract FDI.
   a. A robust intellectual property environment assures foreign investors that their innovations will be protected, encouraging investment in India.
3. **Building a Knowledge-Based Economy:** The protection of intellectual property, such as copyrights and trademarks, promotes the creation and commercialization of intellectual assets in areas like literature, arts, music, and branding, which supports the growth of a knowledge-based economy.

Challenges and Solutions in the Patenting System

Challenges	Solutions
Lengthy Approval Process: Patent offices often take months or even years to review applications, creating delays for inventors seeking to secure their rights.	**Simplifying Procedures** with online filing systems and user-friendly interfaces. Provide clear, accessible guidelines for patent drafting and prosecution.
Backlog of Patent Applications: The high volume of applications often leads to backlogs in patent offices, further extending the time required for approvals.	**Addressing Backlogs:** Implement efficient case management and disposal strategies to clear backlogs in patent applications.
Limited Awareness and Education: Many inventors, particularly small businesses and individuals, lack sufficient knowledge about the patenting process, which can hamper their ability to protect their inventions.	**Raising Awareness:** Integrate intellectual property (IP) education into academic curriculums, particularly in STEM fields. Establish IP support centers and provide pro bono legal services for small businesses.

Resource Constraints: The patenting process can be costly, involving attorney fees, application fees, and maintenance fees, which can be a significant barrier for inventors with limited financial resources.	**Providing Financial Support:** Introduce government subsidies and fee reductions for individual inventors and startups. Encourage patent pools and collaborative research to reduce costs.
Stringent Patentability Criteria: India's specific provisions under Section 3 of the Patents Act exclude certain types of inventions from being patented, posing challenges for innovations in those areas.	**Relaxing Patentability Criteria:** Review and align patentability criteria with international standards. Offer pre-filing consultations to assess the patentability of inventions.
Issues of Biopiracy and Traditional Knowledge: Protecting genetic resources and traditional knowledge from biopiracy presents complex challenges within the patent system.	**Protecting Traditional Knowledge:** Implement stricter regulations and effective enforcement against biopiracy. Develop a national database of traditional knowledge to ensure better protection.

Related Conventions/Treaties (India signatory to all)

1. **WIPO Administered (first recognised IPR under):**
   a. Paris Convention for the Protection of Industrial Property 1883 (Patents, Industrial Designs)
   b. Berne Convention for the Protection of Literary and Artistic Works 1886 (Copyrights)
2. **WTO-TRIPS Agreement:**
   a. Ensures adequate standard of protection
   b. Argues for incentives for technology transfer to developing countries
3. **Budapest Treaty 1977:**
   a. International recognition of the deposit of micro- organisms for the purposes of patent procedure
4. **Marrakesh VIP Treaty 2016:**
   b. Facilitate access to published works by visually impaired persons and persons with print disabilities
   c. IPR also outlined in Article 27 (Universal Declaration of Human Rights)

India and Indian Performing Right Society Limited (IPRS) Initiatives

1. **National IPR Policy 2016:**
   a. **Motto:** "Creative India; Innovative India"
   b. Compliant with TRIPS Agreement
   c. Brings all IPRs to single platform
   d. **Nodal Dept:** Department of Industrial Policy & Promotion (Ministry of Commerce)
2. **National (IP) Awareness Mission (NIPAM)**
3. **Kalam Program for Intellectual Property Literacy and Awareness Campaign (KAPILA)**
4. Celebration of **World Intellectual Property Day:** 26th April

11. Harnessing AI and New Energy for Economic Growth

India's GDP has nearly doubled over the past decade which has reached **USD 3.5 trillion** marking it as one of the fastest-growing major economies in the world.

1. To sustain and enhance this growth, prioritizing Artificial Intelligence (AI) and new energy technologies is essential as these can significantly impact the entire economy.

- **Compute** is used to refer the capacity to perform complex calculations, specific hardware equipment like semiconductors, or as a unit of measurement expressed in floating-point operations per second (FLOPS) that quantifies a computer's ability to execute high-performance tasks like machine learning.
- A country's compute capacity can be measured by the total number of GPUs available, or in terms of FLOPS. Under the **IndiaAI mission**, the government intends to build compute infrastructure of 10,000 or more GPUs.

Key Emerging Sectors for India's Economic Growth

Developing India's Own AI Infrastructure

1. Although India's economy has seen significant digital growth, its compute penetration remains limited.
    a. Despite the success in Information Technology (IT) services, these services only constitute **1%** of the USD 30 trillion global technology market.
2. In contrast, countries like China have rapidly increased their investments in AI, investing hundreds of billions into research, infrastructure, and talent.
3. India's approach to AI should capitalize on its strengths in data, computing power, and algorithms.

Addressing Data Colonization

1. Data colonization refers to the control and exploitation of data by foreign entities, raising issues related to data sovereignty and national security.
2. **India generates 20% of the world's data**, yet **80% of it is stored offshore**, processed into AI, and then imported back at a high cost.
3. To counter this, India should leverage its **Digital Public Infrastructure (DPI)** to create privacy-preserving datasets.
4. By building on the success of its DPI initiatives (such as Unified Payments Interface (UPI), Unique Identification Authority of India (UIDAI), and Open Network for Digital Commerce (ONDC)), India can develop the world's largest open-source AI grounded in Indian values.

Enhancing Compute Infrastructure

1. India currently has only **1GW of data center capacity**, compared to the global capacity of 50GW.
2. By 2030, the U.S. is projected to reach 70GW, China 30GW, and India only 5GW if it continues on its current trajectory.
3. To lead in AI, India needs **rapid AI adoption**, **data localization norms**, **incentives for global computing companies**, and **Production Linked Incentive (PLI) schemes for data centers**.
    a. Reaching **50GW by 2030** will require **USD 200 billion in capital**, which might seem ambitious but attainable.
4. Despite being the largest hub for silicon development and design talent, India does not have **Indian-designed chips**.
    a. There is a need for **industry-led chip design projects** and government incentives through **research-linked incentive schemes**.

Advancing R&D on Algorithms

1. With AI research becoming increasingly proprietary (owns, or holds exclusive right of something), India has a unique chance to become a global leader in open innovation for AI Research and Development (R&D).
2. India can attract top-tier talent and scientists, provide industrial-scale resources for research, and offer government incentives for AI R&D.
3. By creating a world-leading open innovation platform for AI, India can lead in AI advancements while ensuring its values and perspectives influence the future of this transformative technology.

Establishing New Energy Supply Chains

1. The global energy paradigm (pattern) is shifting from the mining and refining of fossil fuels to advanced material sciences, especially for critical minerals like lithium.
2. This transition is reshaping the global energy landscape, and India must take a leading role in this revolution.

The Three Pillars of the New Energy Ecosystem

The new energy ecosystem is supported by three key pillars:

1. **Renewable Energy (RE) Generation**
    a. India's **renewable energy capacity** has expanded from 72 GW in 2014 to over **175 GW by 2023**, with **solar capacity** increasing from 3.8 GW to more than **88 GW**.
    b. Despite this growth, India lags behind global leaders. In 2023, China installed 215 GW of solar capacity, while India added just 8 GW.

c. To reach its target of **500 GW by 2030**, India must significantly enhance its efforts in renewable energy deployment.

2. **Battery Storage**
   a. For renewable energy to be fully effective, India must pair it with a strong battery storage system.
   b. Currently, **India's battery storage capacity** is only **2 GWh**, in contrast to China's 1,700 GWh.
   c. To support its renewable energy grid and achieve **full adoption of electric vehicles (EVs)**, India should aim for a **battery storage capacity of 1,000 GWh**.
   d. This increase will not only strengthen RE goals but also reduce costs and improve energy access across the nation.
3. **Electric Vehicle (EV) Sector**
   a. India's current vehicle penetration is under **200 vehicles per 1,000 people**, with **2 million EVs sold annually**, compared to China's 30 million.
   b. **By 2030**, India should strive to become the **world's largest EV market**, with a potential production of 50 million EVs.
   c. This transition will lead to a **cleaner environment, lower transportation costs for consumers**, and **reduce overall logistics expenses** in the economy.
   d. At present, 90% of the new energy ecosystem—covering solar production, lithium cell manufacturing, midstream processing, and EV production—is concentrated in China.
   e. By developing its own technologies and supply chains, India can enhance energy efficiency and create millions of future-ready jobs.
   f. This shift will ensure energy independence and position India as a key player in the global fight against climate change. India's path to global leadership lies in mastering these future technologies.

India's Initiatives in Emerging Sectors

Building India's Own AI Stack	1. INDIAai 2. Global Partnership on Artificial Intelligence (GPAI) 3. US India Artificial Intelligence Initiative 4. Responsible Artificial Intelligence (AI) for Youth 5. Artificial Intelligence Research, Analytics and Knowledge Assimilation Platform 6. Artificial Intelligence Mission
Data Colonization	1. Digital Personal Data Protection Bill, 2023 2. National Data Governance Framework
Compute Infrastructure	1. National Supercomputing Mission (NSM) 2. Cloud Computing Initiatives like Digilocker
R&D on Algorithms	1. 5G Intelligent Village 2. Quantum Encryption Algorithm
New Energy	1. International Solar Alliance (ISA) 2. National Electric Mobility Mission Plan (NEMMP) 3. Production-Linked Incentives (PLI) 4. FAME India Scheme (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles)

Challenges and Solutions

Challenges	Solutions
Infrastructure Gap	• Significant investments are required to enhance compute infrastructure, especially in data centers. • Developing homegrown chip technology is essential for advancing AI hardware.
Talent Acquisition and Retention	• It's important to promote an environment that cultivates AI talent within the country and encourages skilled professionals to return from abroad. • Competing effectively with global tech giants to attract and retain talent is a key challenge.
Data Privacy and Security	• Establishing strong data governance frameworks is crucial to build trust among citizens and effectively utilize the vast amounts of data being generated.
Financial Constraints	• Mobilizing resources from both the public and private sectors is necessary for large-scale projects, such as building an AI stack and transitioning to a new energy economy.
Supply Chain Vulnerabilities	• Developing a resilient domestic supply chain for critical components, such as semiconductors and battery materials, is vital to reduce dependency on global supply chains and achieve self-reliance.
Policy and Regulatory Environment	• Creating a supportive policy and regulatory framework for AI and new energy sectors is important to balance innovation with safety, security, and ethical considerations.
Technological Complexity	• Ongoing investment in R&D is essential to keep pace with rapid technological advancements and to develop indigenous capabilities in AI and new energy sectors.

Conclusion

As India marks its political independence gained in 1947, the vision for 2047 should be to attain technological independence. India must create a distinct strategy for technological progress, addressing its unique challenges and leveraging its strengths. This approach should focus on using technology not only for economic development but also for societal transformation.

E. Science & Technology

1. India's Role in the Thirty Meter Telescope

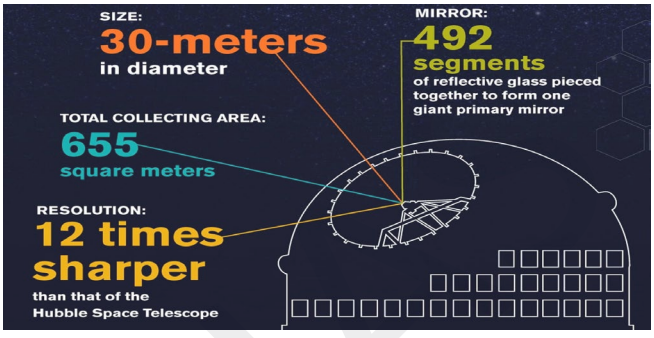
1. Recently, Indian researchers at the Indian Institute of Astrophysics (IIA) in Bengaluru have developed a **new online tool to create a comprehensive star catalogue** for the Adaptive Optics System (AOS) of the upcoming Thirty Meter Telescope (TMT).
2. The Thirty Meter Telescope (TMT) is an ambitious international project that aims to significantly advance our understanding of the universe.
3. It is a revolutionary class of extremely large telescopes that will enable us to explore deeper into space and observe cosmic objects with unparalleled sensitivity.
4. India, the United States, Canada, China, and Japan are collaborating on this groundbreaking endeavour, which is coming up at Mauna Kea in Hawaii. The site, Mauna Kea, was selected in July 2009 after a rigorous five-year campaign.

Key Points

1. The TMT is **a next-generation astronomical observatory** designed to provide unprecedented resolution and sensitivity.
2. Its massive 30-meter primary mirror, advanced adaptive optics system, and state-of-the-art instruments will revolutionize our ability to observe the cosmos.
3. The **TMT's primary goals** include studying the early universe, investigating the formation and evolution of galaxies, exploring the relationship between supermassive black holes and their host galaxies, understanding the formation of stars and planetary systems, and characterizing exoplanets and their atmospheres.

Mirror System and Adaptive Optics

1. **Primary Mirror:** 30 meters in diameter, composed of 492 hexagonal segments.
2. **Secondary Mirror**: Composed of 118 smaller hexagonal segments.
3. **Tertiary Mirror:** 3.5 meters by 2.5 meters, positioned centrally within the primary mirror.



4. **Adaptive Optics System (AOS):** The TMT's AOS uses deformable mirrors and laser guide stars to correct atmospheric turbulence, enhancing image resolution. Indian scientists have developed a crucial tool to generate a comprehensive all-sky catalogue of NIR stars for this system.

Scientific Instruments and Indian Contribution

1. **Scientific Instruments:** The TMT will feature cutting-edge instruments like the Infrared Imaging Spectrometer (IRIS) and the Wide-Field Optical Spectrograph (WFOS) for various observations.
2. **Indian Contribution**: India is a major contributor to the TMT project, providing hardware, instrumentation, software, and funding worth $200 million.
   - Indian researchers have recently developed a tool to mitigate atmospheric distortions by creating an all-sky NIR star catalogue, ensuring high-quality images from the TMT.
   - **Indian Institutes Involved**: The **Indian Institute of Astrophysics (IIA)**, Bengaluru, the **Inter-University Center for Astronomy and Astrophysics (IUCAA)**, Pune, and the **Aryabhatta Research Institute for Observational Sciences (ARIES)**, Nainital, are involved in the TMT project.
   - **Automated Code**: Researchers at the IIA in Bengaluru have developed an **automated code** to generate the **all-sky NIR star catalogue, essential for the NFIRAOS to function optimally.**

Significance and Benefits

1. **Advancing Our Understanding of the Universe:** The TMT will enable us to explore deeper into space and observe cosmic objects with unparalleled sensitivity, significantly advancing our understanding of the universe.
2. **Development of New Technologies:** The TMT project will drive the development of new technologies, including advanced adaptive optics systems and sophisticated instrumentation.
3. **Enhancing Scientific Capabilities:** The TMT will enhance scientific capabilities, enabling researchers to study the universe in unprecedented detail.
4. **International Cooperation:** The TMT project demonstrates the power of international cooperation in advancing scientific knowledge and understanding.

Other Major Telescopes

1. PRATUSH Telescope
2. James Webb Telescope
3. Square Kilometre Array Observatory (SKAO)
4. Kodaikanal Solar Observatory
5. Euclid Mission for Dark Matter and Dark Energy
6. Tokyo Atacama Observatory
7. 3-D Map of the Universe

Other Similar Projects India is Part of:

1. CERN (European Council for Nuclear Research): Project of the "God particle"
   a. CMS: CMS is one of the experiments that discovered the Higgs Boson, or 'God particle'
   b. ALICE: ALICE created conditions that existed at the time of big bang
2. **International Facility for Antiproton and Ion Research (FAIR): Studying the building blocks of matter and the evolution of the Universe.**
   a. NUSTAR (Nuclear Structure, Astrophysics and Reactions)
   b. CBM (Compressed Baryonic Matter)
   c. PANDA (Antiproton Annihilation at Darmstadt)

Conclusion

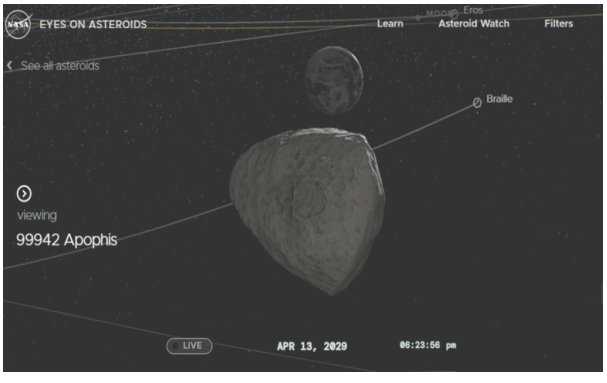
The Thirty Meter Telescope project represents a significant milestone in the advancement of our understanding of the universe. India's contribution to the project will enhance its reputation as a major player in international scientific collaborations and drive technological advancements. The project will enhance global understanding of the universe, enabling us to better understand the mysteries of the cosmos.

2. ISRO's Planetary Defense Plan

1. In July, 2024 Indian Space Research Organisation (ISRO) Chairman S Somanath said that **"we should be able to go and meet"** the **asteroid Apophis** when it passes by Earth at a distance of 32,000 km **in 2029.**
2. The ISRO is taking its first steps into planetary defense, an area it has not previously explored. This could be achieved through an independent ISRO mission or a collaboration with other space agencies. However, "it is yet to be decided in what way [ISRO] should participate".

Apophis: An alarming asteroid

1. When **Apophis was discovered in 2004, scientists thought there was a 2.7% chance of a collision with Earth**-the **highest probability of any large asteroid hitting Earth** in the recent past.
2. Initial observations showed that if not in 2029, Apophis could hit Earth in 2036 or 2068.
3. A collision with Earth could cause large-scale damage.
4. However, subsequent observations showed these initial fears to have been unfounded.
5. **This is close enough to be visible to the naked eye,** and at a distance at which some communication satellites operate.



Apophis Asteroid

1. Apophis is about **340 meters wide.**
2. **The orbit of Apophis crosses the orbit of Earth.** It completes an orbit around the Sun in a little less than one Earth year (about 0.9 years). **This places it in the group of Earth-crossing asteroids known as 'Atens,'** those with orbits smaller in width than the width of Earth's orbit.

3. **Apophis is classified as an S-type, or stony-type** asteroid made up of silicate (or rocky) materials and a mixture of metallic nickel and iron.
4. It is a remnant from the early formation of our solar system about 4.6 billion years ago.
5. It **originated in the main asteroid belt between Mars and Jupiter**.
6. Over millions of years, its orbit was changed primarily so that it now orbits the Sun closer to Earth. **As a result, Apophis is classified as a near-Earth asteroid, as opposed to a main-belt asteroid.**

Asteroid:

1. A minor planet, **neither a true planet nor an identified comet.**
2. They are rocky, metallic, or icy bodies without an atmosphere.
3. Of the roughly one million known asteroids, the greatest number are located between the orbits of **Mars and Jupiter, in a region known as the main asteroid belt.**
4. Asteroids are generally classified to be of three types: **C-type (carbonaceous), M-type, (metallic) and S-type (siliceous)**.
5. The first close-up observation of an asteroid was **made by the Galileo spacecraft**.

What are the possible incoming threats from space?

1. Thousands of Asteroids enter the Earth's atmosphere every day. Most are very small and burn up in the atmosphere due to friction and some of the larger ones burn and show up as fireballs in the sky.
2. In some cases, unburnt fragments make it to surface, although they are not large enough to cause much damage.
3. However, asteroids can sometimes cause damage.
   a. In 2013, a 20-metre-wide asteroid entered the atmosphere and exploded about 30 km above a Russian town, releasing energy.
   b. While most of this energy was absorbed by the atmosphere, shock waves travelled to the ground, flattened trees, damaged buildings, and injured 1,491 people.
   c. **Worryingly,** the asteroid was detected only after it entered the atmosphere.
   d. This was in **part because it came from the direction of the Sun, and was hidden by its glare.**
4. Planetary defense programme aim to track and mitigate such threats.

Planetary defense programme: From Sci-Fi to reality

1. NASA launched a spacecraft that crashed into an asteroid **named Dimorphos, and changed both its shape and its trajectory.**
   a. Dimorphos posed no threat to Earth, and was circling the Sun some 11 million km away from our planet.
   b. **The Double Asteroid Redirection Test spacecraft, or DART, was launched in 2021** and intentionally impacted Dimorphos in September 2022, successfully altering its orbit by crashing into it.
2. Asteroids are yet to be studied in detail, and very few missions have been dedicated to them.
3. This is why the approach of Apophis has generated huge interest among space agencies around the world.
   a. NASA has already redirected one of its Spacecraft, one that previously studied the asteroid Bennu, to track Apophis.
   b. After successfully completing its mission to gather a sample of asteroid Bennu in September 2023, **OSIRIS-REx (Origins, Spectral Interpretation, Resource Identification, and Security – Regolith Explorer) was renamed OSIRIS-APophis EXplorer (OSIRIS-APEX).**
   c. The spacecraft was sent to study Apophis during the asteroid's 2029 Earth flyby.

Asteroid Bennu:

1. It is a near-Earth asteroid that was discovered in 1999.
2. It is about 500 meters.
3. **Bennu is classified as a carbonaceous asteroid,** which means that it is rich in carbon and other organic molecules.
4. In **2016, NASA launched the OSIRIS-REx** spacecraft to study Bennu and collect a sample of its surface material.
5. The **OSIRIS-REx spacecraft arrived at Bennu in 2018** and spent two years studying the asteroid.

ISRO's intention to join such an endeavour displays its growing confidence in taking on newer challenges, and contributing proactively to global space objectives. It is also a reaffirmation of its continuing evolution into a well-rounded space agency, with capabilities that match the best in the world.

3. Blue Origin's New Shepard to Take Indians to Space

In July 2024**, Blue Origin**, the space company started by **Jeff Bezos**, collaborated with the **Space Exploration and Research Agency (SERA)** to offer ordinary Indian people a chance to go to space on its **New Shepard spacecraft**.

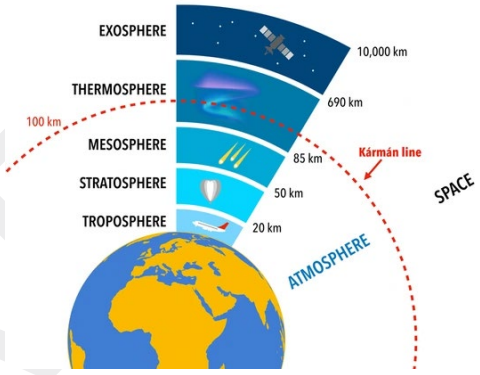
Key Points

1. **New Shepard Spacecraft**: **Blue Origin's New Shepard** is a space vehicle designed for short trips to space. It's made for both **scientific research** and **space tourism**.
2. **Features of New Shepard**: The spacecraft has two main parts: a **reusable rocket** and a **pressurized cabin**. The cabin can hold **six passengers**, each with a **window seat** to enjoy stunning views of Earth. It has the **largest windows** ever used in space, giving a unique view for astronauts.
3. **Journey to Space**: New Shepard's trip lasts **11 minutes** and takes passengers beyond the **Karman line**, the boundary between Earth and space. During the flight, passengers experience a few minutes of **weightlessness** before coming back to Earth with the help of **parachutes**.
4. **Safety Measures**: Safety is very important for Blue Origin. New Shepard was tested thoroughly, including **16 successful test flights** and **three escape tests** for the capsule, before being used for missions with people. The spacecraft operates on its own and doesn't need **pilots** onboard.
5. **Scientific Research**: Besides space tourism, New Shepard is used for **scientific research**. It has carried various items for different organizations, including **NASA**, schools, and universities.
6. **Crewed Flights**: Blue Origin has successfully completed several flights with people since its first mission in **July 2021**, which included founder **Jeff Bezos**. The most recent flight, **NS-25**, was on **May 19, 2024**, marking the seventh human spaceflight for the company.

About the New Shepard Spacecraft:

1. **Suborbital Space Travel**: New Shepard is designed for **suborbital space trips**, providing a special experience for both research and tourism.
2. **Alan Shepard's Legacy**: Named after **Alan Shepard**, the first American in space, New Shepard is a fully **reusable rocket system** meant for human spaceflights.

What is the Karman Line ?



1. **Boundary of Earth and Space**: The **Karman Line** is about **100 kilometers (62 miles)** above sea level and marks where Earth's atmosphere ends and space begins.
2. **Establishment and Recognition**: Established in the **1960s** by the **Fédération Aéronautique Internationale (FAI)**, a record-keeping group. Named after aerospace expert **Theodore von Kármán**. Accepted by most countries and space organizations.
3. **Significance and Controversy**: Not everyone agrees on this boundary (for example, **NASA** places it at **80 km**), but it is widely recognized. Any vehicle going above the Karman Line needs its own **propulsion system**, as it is no longer supported by Earth's atmosphere.

What are Suborbital Space Flights?

1. **Suborbital Space Flight**: A **suborbital spaceflight** reaches about **100 kilometers** above Earth's surface.
2. **Comparison with Orbital Flights**: It is lower than an **orbital flight**, which means entering Earth's orbit.

4. ESA's Gaia Spacecraft Hit by Micrometeoroid

In July 2024, the European Space Agency's (ESA) Gaia spacecraft faced and overcame significant challenges in its mission to map over a billion stars in the **Milky Way**, despite being hit by a **micrometeoroid** and experiencing a **sensor failure**.

Background:

1. **Gaia spacecraft**: Launched in December 2013, **Gaia** is a space observatory mission of the European Space Agency (**ESA**) that aims to create a highly accurate 3D map of the **Milky Way galaxy** by observing the positions, distances, and motions of over a billion stars.
2. **Location**: **Gaia** is located 1.5 million kilometers from Earth at the second **Sun-Earth Lagrange point (L2)**, a gravitationally stable location that allows the spacecraft to maintain a stable temperature and avoid the thermal and light interference from the Sun and Earth.

Challenges Faced by Gaia:

1. **Micrometeoroid impact**: In April 2024, **Gaia** was struck by a high-speed micrometeoroid, **smaller than a grain of sand,** which **damaged its protective cover and that gap occasionally allowed sunlight to penetrate, disrupting Gaia's sensitive sensors.**
2. **CCD failure**: In May 2024, **Gaia** experienced its first **charge-coupled device (CCD) failure** in over a decade of operation, affecting a **crucial sensor responsible for validating star** detections and leading to thousands of false readings.

Impact of the Incidents:

1. **Disruption of data processing**: The incidents significantly disrupted **Gaia's data processing** capabilities, causing a surge in false readings and overwhelming the onboard software filtering system.
2. **Solution**: Teams from **ESA's** various centers and **Airbus Defence and Space** collaborated intensively to analyse and resolve the problems, modifying the thresholds at which Gaia's software identifies stars to reduce false detections caused by both the stray light and **CCD issues**.

Outcome:

1. **Improved data quality**: Despite the setbacks, the **Gaia mission** has emerged stronger, with the spacecraft now producing some of its highest quality data to date.
2. **Refocusing of optics**: Engineers took advantage of the **unscheduled interruption to refocus the optics of Gaia's twin telescopes for the final time,** ensuring that the spacecraft continues to provide accurate and valuable data.

Significance:

1. **Advancements in astronomy**: The **Gaia mission** has significantly advanced our understanding of the **Milky Way galaxy** and its stars, providing valuable insights into the structure, evolution, and formation of our galaxy.
2. **Technological innovations**: The mission has also driven **technological innovations**, such as the development of advanced sensors and data processing algorithms, which will benefit future space missions and astronomical research.

5. ISRO Conducts Experimental Flight of Air-Breathing Propulsion System

In July 2024, the **Indian Space Research Organisation (ISRO)** successfully carried out the 2nd experimental flight for the demonstration of **Air Breathing Propulsion Technology**. The flight test was conducted from **Satish Dhawan Space Centre, Sriharikota**.

Experimental Flight Details:

1. The propulsion systems were symmetrically mounted on either side of a **RH-560 Sounding Rocket**.
   a. Propulsion systems are technologies used to provide thrust or movement to various types of vehicles or objects, ranging from aircraft and spacecraft to boats and automobiles. These systems convert energy into motion.
2. **RH-560** is a two-stage, solid motor based sub-orbital rocket that is designed to be utilised as a cost-effective flying test bed for the demonstration of advanced technologies.

3. The flight test achieved satisfactory performance of the Sounding Rocket along with successful ignition of the **Air Breathing Propulsion Systems**.
4. Nearly **110 parameters** were monitored during the flight to assess its performance.
5. The flight data from the mission will be useful for the next phase of development of Air Breathing Propulsion Systems.
6. **Prior Ground Tests:** Multiple ground tests were carried out at **Vikram Sarabhai Space Centre (VSSC)**, **Liquid Propulsion Systems Centre (LPSC)**, **ISRO Propulsion Complex (IPRC)**, and at the **CSIR -National Aerospace Laboratories (CSIR-NAL), Bengaluru**.

What is Air Breathing Propulsion System ?

1. In this system, the **rocket will carry its fuel, but will not carry an on-board oxidiser.**
2. Instead, this **system will utilise atmospheric oxygen as an oxidiser to burn the fuel.**
3. This **makes rockets significantly lighter** and more efficient.
4. However, such air-breathing technologies can be used only within the denser layers of the **Earth's atmosphere**, where there is an adequate supply of oxygen.

Types of Air-Breathing Propulsion:

1. **Ramjet**: It is an air breathing propulsion engine operating on the principle of supersonic combustion.
2. **Scramjet**: It is an upgraded version of the Ramjet and generates thrust through supersonic air flow and combustion.
3. **Dual-Mode Ramjet (DMRJ)**: It is a jet engine where a ramjet transforms into a scramjet over Mach 4-8 range and it can efficiently operate both in subsonic and supersonic combustor modes.

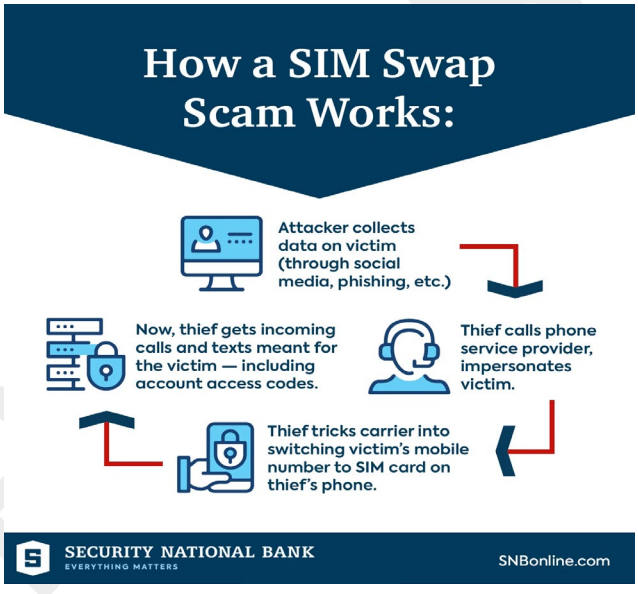
Importance of Air-Breathing Propulsion:

1. Air-breathing propulsion systems have the potential to significantly reduce the weight of rockets and increase their efficiency.
2. This technology can be used for a variety of applications, including **space exploration** and **satellite launches**.

ISRO's Achievements:

1. In 2023, **India** became the **fourth country to successfully demonstrate the flight testing of a Scramjet Engine.**
2. **ISRO** has been at the forefront of space research and development in India, with a number of notable achievements in recent years.

6. SIM Swapping - A Growing Form of Identity Theft



What is SIM Swapping?

1. **SIM Swapping** is a type of **identity theft** where criminals take control of your **phone number**.
2. This means they can receive **calls and texts** meant for you, and even get access to your **sensitive information** and **financial accounts**.

Rise of SIM Swapping

1. According to the **FBI**, complaints about **SIM Swapping** have increased by over **400%** from 2018 to 2021.
2. This has resulted in losses of more than **$68 million**.
3. Experts believe that these numbers are likely much higher, as many cases of **identity theft** go unreported.

How SIM Swapping Works ?

1. Criminals use **personal information** they get from **data breaches**, leaks, or **phishing scams** to pretend to be you.

2. They contact your **phone company** and claim that your phone or SIM card is damaged, lost, or stolen.
3. They then ask to transfer your **phone number** to a new **SIM card** in their possession.
4. Once they do this, they can receive your **calls and texts**, and even use your phone number to access your accounts.

Protection and Prevention

1. **Use strong and unique passwords:**
   a. Use passwords that are hard to guess and different for each account.
   b. Consider using a **password manager** to help you remember them.
2. **Add extra security:**
   a. Use **biometric authentication**, such as fingerprint or face recognition.
   b. Use apps that provide additional security to access your accounts.
3. **Set up a special code with your phone company:**
   a. Contact your phone company to set up a special code that prevents anyone from making big changes to your account without your permission.
4. **Be careful with emails and texts:**
   a. Be wary of emails and texts that ask for your **personal or financial information**.
   b. If you're unsure, don't respond or click on any links.
5. **Monitor your accounts:**
   a. Regularly check your **bank and credit card statements** for any suspicious activity.

What to Do If You're a Victim

1. If you think you've been a victim of **SIM Swapping**, contact your **phone company** right away.
   a. They can help you fix the issue and prevent further damage.
2. You can also report the incident to the **Federal Trade Commission** and your state's **attorney general**.
3. If your credit card information was stolen, inform your **bank or credit card company** and ask them to monitor your account for suspicious activity.

Reporting and Recovery

1. If you're a victim of **SIM Swapping**, report it to your **phone company** and follow their instructions to fix the issue.
2. You can also file a complaint with the **Federal Trade Commission**, the **Internet Crime Complaint Center**, or your state's **attorney general**.
3. If your **credit card information** was stolen, inform your **bank or credit card company** and ask them to monitor your account for suspicious activity.
4. You can also contact the three major **credit reporting agencies** (**Equifax**, **Experian**, and **TransUnion**) to place a **fraud alert** on your credit report.

Conclusion :

SIM Swapping is a growing threat, with a sharp rise in cases and significant financial losses reported. As this form of identity theft becomes more common, it's crucial to stay vigilant and protect your personal information. By using strong passwords, enabling additional security features, and setting up protective measures with your phone provider, you can safeguard against these attacks. Staying informed and proactive will help you stay ahead of evolving threats and protect your identity effectively.

7. Electroencephalography (EEG): Centenary year of first Human EEG

The year 2024 marks the centennial (100 years) of the discovery of the electroencephalogram (EEG) by German psychiatrist **Hans Berger in 1924.**

What is Electroencephalography (EEG):

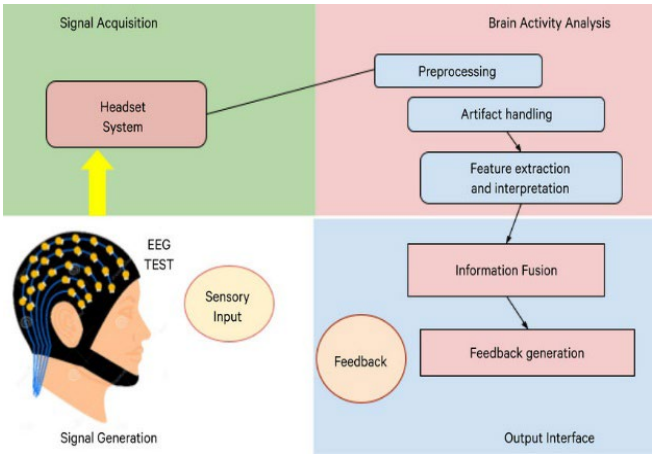
1. It **measures electrical activity in brain** by tracking the movement of electrically charged particles using electrodes placed on scalp.
2. It measures the voltage changes (in microvolts) and frequency of variations (in Hertz).

History of EEG development:

1. **1875:** British physician Richard Caton detected electrical activity in monkey and rabbit brains using galvanometer (instrument used to measure electrical current).
2. **1890:** Polish scientist Adolf Beck observed fluctuating brain activity in dogs and rabbits.
3. **1912:** Vladimir Pravdich-Neminsky recorded the first mammalian EEG in dog's brain.
4. **1924:** Hans Berger recorded first human EEG and demonstrated its clinical use.

Working of an EEG:

1. During an EEG, electrodes are placed onto scalp. Electrodes are small metal disks with thin wires.
2. Electrode detect tiny electrical charges that result from activity of brain cells. The charges are amplified and appear as graph on computer screen.



Applications of an EEG:

1. Help to **diagnose and monitor** a number of **conditions affecting brains.**
2. To **detect and investigate epilepsy,** a condition that causes repeated seizures.
3. **Research scientists use EEG for** neuroscience, cognitive psychology, neurolinguistics and neuromarketing studies
4. **For diagnosis and treatment of various disorders like**, Brain tumor, Brain damage from head injury, stroke, sleep disorders etc.

Advantages of an EEG:

1. **Non-Invasive and painless procedure:** Electrodes placed on scalp to record electrical activity in brain.
2. **Wide range of applications:** ECG used in diagnosis of various kinds of conditions **including epilepsy, sleep disorders, brain tumor etc.**
3. **Relatively simple and cost effective:** EEG instrument is relatively inexpensive and doesn't require lot of space.
4. **Measures rapid electrical activity:** EEG is effective in tracking electrical activity in brain happening in milliseconds.
5. **Portable:** EEG can be performed in various settings, not just in hospitals.

Volume conduction: It refers to the movement of electrical activity generated by neurons through various layers of head to reach electrodes placed on scalp.

Disadvantages of an EEG:

Difficulty in Interpreting Data: EEG readings can be affected by **volume conduction**, which is a movement of electrical activity with in brain.

1. **Limited ability to detect deep brain activity:** EEG is more sensitive to electrical signals generated by brain surface than those generated by deeper structures.
2. **Problem of thick hair and time consuming:** Thick hair can interfere with EEG signal. The test requires applying gel and precisely placing electrodes on the scalp, which is time consuming.

8. China Unveils World's 1st Dual-Tower Solar Thermal Plant

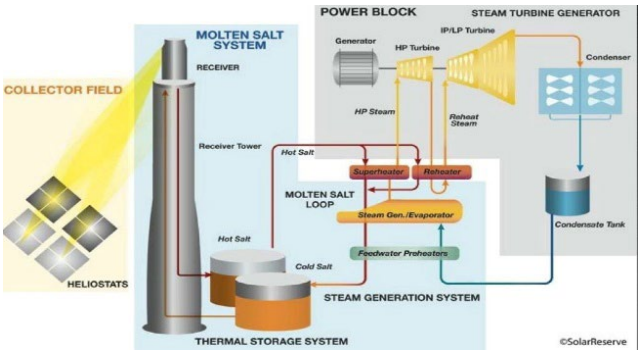
In July 2024, China has unveiled the **world's 1st dual-tower** solar thermal power plant located in **Gansu Province,** the plant utilizes an innovative design to significantly improve energy efficiency.

Features

The plant features two 200-meter-tall towers, each surrounded by nearly 30,000 mirrors that form overlapping circles to focus sunlight onto the towers. This dual-tower configuration is a key innovation that sets this plant apart from traditional solar thermal facilities.

How it Works?

1. When sunlight falls on mirrors it heats water inside the tower, generating steam that drives turbine to produce electricity.
   - Unlike conventional thermal power plants, this design incorporates molten salt storage, which acts as a thermal battery.
   - The molten salt retains extra heat collected during the day and releases it at night, allowing the plant to generate power continuously.
2. The mirrors used in the plant are made of specialized materials that can achieve a remarkable 94% reflection efficiency. Additionally, the mirrors are programmed to automatically track the sun's movement, concentrating the rays on the eastern tower in the morning and adjusting westward in the afternoon.



Feature	Dual-Tower Solar Thermal Plant	Conventional Thermal Power Plant
Primary Energy Source	Concentrated sunlight	Fossil fuels (coal, natural gas, oil)
Heat Collection	Two towers with mirrors focusing sunlight	Boiler heated by burning fossil fuels
Energy Storage	Molten salt thermal battery	Limited or no energy storage
Power Generatioan	Steam drives turbines to generate electricity	Steam drives turbines to generate electricity
Efficiency	Increased efficiency due to dual-tower design (24% improvement)	Generally lower efficiency
Environmental Impact	Clean energy, no carbon emissions	Significant carbon emissions and other pollutants
Scalability	Potential for further scaling with multiple towers	Limited scalability
Operational Time	Can operate continuously due to energy storage	Typically operates continuously

Bhadla Solar Plant located in the Thar Desert **Rajasthan** is **world largest solar power plant.** It spread over an area of 14000 acres and installed capacity 2245 MW.

9. Acute Encephalitis Syndrome due to Chandipura Virus

1. Since early June 2024, 148 **Acute Encephalitis Syndrome (AES)** cases have been reported, primarily affecting children under 15 years of age.
2. The majority of cases (140) are from Gujarat, with additional cases in Madhya Pradesh, Rajasthan, and Maharashtra. Sadly, 59 patients have died, and **Chandipura virus (CHPV)** has been confirmed in 51 cases.

What is CHPV infection and how is it transmitted?

1. CHPV is a virus **belonging to the Rhabdoviridae family**, the same family as the rabies virus.
2. It is primarily transmitted through the bites of sandflies (Phlebotomine sandflies and Phlebotomus papatasi) and some mosquito species, like Aedes aegypti.
3. The virus resides in the salivary glands of these insects and can be transmitted to humans and other vertebrates through bites.
4. The infection can reach the central nervous system, causing encephalitis (inflammation of the brain).

Symptoms of CHPV infection:

1. **Initial flu-like symptoms**: acute onset of fever, body ache, and headache.
   - Progression to altered sensorium, seizures, and encephalitis.
2. **Other reported symptoms**: respiratory distress, bleeding tendencies, or anemia.
3. Rapid disease progression after encephalitis, often leading to mortality within 24-48 hours of hospitalization.

Susceptibility and Management:

1. Susceptibility is **largely limited to children below 15 years** of age.
2. Management is currently limited to symptomatic treatment, as there is no specific antiviral therapy or vaccine available.
3. Managing brain inflammation is crucial to prevent mortality.

Disease Progression and Worst Affected Regions in India:

1. Disease progression can be extremely rapid, with patients experiencing severe complications within hours.
2. CHPV was first isolated in India in 1965.
3. Significant outbreaks occurred in 2003-04 in Maharashtra, northern Gujarat, and Andhra Pradesh, resulting in over 300 child deaths.
4. Gujarat and Andhra Pradesh **experienced high case fatality rates (CFR) during these outbreaks (78% and 55%, respectively).**
5. The infection remains largely endemic to central India, where the population of CHPV-spreading insects is higher.

Seasonal Aspect and Changes in Disease Pattern:

1. Outbreaks are often reported in rural, tribal, and peripheral areas, correlating with the prevalence of sandflies.
2. Seasonality plays a role, with outbreaks more frequent when sandfly populations increase.
3. Changes in disease patterns are being observed:
   a. Sandflies are found at higher heights than usual.
   b. Brain hemorrhages are a new presentation in some suspected deaths.
   c. New outbreak centers are being reported in Gujarat, including tribal areas like Pavagadh, Khedbrahma, and Godhra.

10. Asia's 1st Pre-Clinical Health Research Network

Union Minister Dr. Jitendra Singh opened **Asia's first "Pre-Clinical Network Facility"** for health research.

Did You Know ?

BSL3 Pathogens: Biosafety Level 3 pathogens are dangerous microbes that can cause serious or potentially fatal diseases through inhalation. Handling these requires specialized labs with strict safety measures to prevent exposure.

Ensure IAS

What is this facility ?

1. This facility, part of the Coalition for Epidemic Preparedness Innovations (CEPI), is located at the Regional Centre of Biotechnology in Faridabad and operates under the Translational Health Science & Technology Institute (THSTI).
2. **CEPI** has chosen BRIC-THSTI as a pre-clinical network lab because it can handle **BSL3 pathogens.**
3. This lab will be the 9th of its kind in the world and the first in Asia. The other labs are in the USA, Europe, and Australia.
4. The Experimental Animal Facility at BRIC-THSTI is one of the largest in the country, with space for about 75,000 mice, including those with weakened immune systems, as well as rats, rabbits, hamsters, and guinea pigs.

CEPI

CEPI, the Coalition for Epidemic Preparedness Innovations, is a global partnership working to accelerate the development of vaccines and other biologic countermeasures against epidemic and pandemic threats.

Ensure IAS

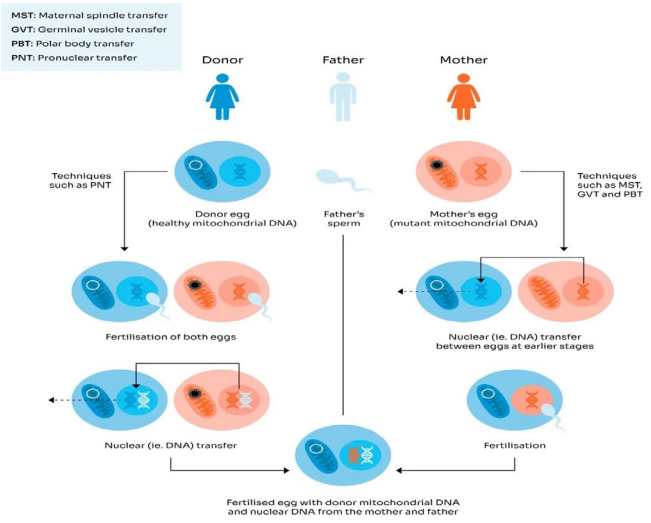
Significance of Pre-Clinical Network Facility

1. **Advanced Research**: Enhances India's ability to conduct high-level studies on infectious diseases, improving early detection and treatment strategies.
2. **Global Standing**: Positions India as a leader in global health research, with a state-of-the-art facility enhancing international collaboration.
3. **Economic Growth**: Stimulates growth in the biotech sector by attracting investment and fostering innovation through cutting-edge research infrastructure.

11. Mitochondrial Donation

1. **Mitochondrial disease**, also known as **Mito**, is a group of diseases that affect the mitochondria's capacity to produce energy for organs to function properly. While **Mito** cannot be cured, a new IVF procedure called **mitochondrial donation (currently under trial in Australia)** provides hope to families affected by certain forms of **Mito** to have children who are genetically related to them without the disease.

2. Mitochondria is the Powerhouse of the cells producing 90% of the energy needed to sustain life.



What is Mitochondrial Disease?

1. **Definition**
   a. **Mitochondrial diseases** are a group of conditions that impact the functioning of **mitochondria**, the energy-producing structures within cells.
2. **Function**
   a. **Mitochondria** convert food into energy, generating **adenosine triphosphate (ATP)**.
3. **Cause**
   a. **Mitochondrial diseases** occur when **defective mitochondria** fail to produce sufficient energy, leading to **cellular damage**.
   b. These diseases can affect various body parts, including the **brain, muscles, and organs**.
   c. **Genetic mutations** are the primary cause, although **mitochondrial dysfunction** can also result from other diseases or conditions.
4. **Types**
   a. There are two types of **Mito**: one caused by **faulty genes in the nuclear DNA** and the other caused by **faulty genes in the DNA of the mitochondria**.
5. **Inheritance**
   a. **Mito** caused by **faulty mitochondrial DNA** is passed down through the **mother**, but the risk of disease is erratic.

Symptoms of Mitochondrial Disease

1. **]['Prevalence**
   a. One in every **5,000 people** has **Mito**, making it the most common **inherited metabolic condition**.
2. **Organ Involvement**
   a. Any organ can be affected by **Mito**, but the **heart, brain, and muscles** are more frequently affected.
3. **Severity**
   a. While some individuals experience **severe symptoms** that progress rapidly, others have **mild symptoms** that progress slowly.

What is Mitochondrial Donation?

1. **Definition**
   a. **Mitochondrial donation** is a new **IVF-based method** that gives people with **faulty mitochondrial DNA** the chance to have children who are genetically related to them without passing on the faulty DNA.
2. **Procedure**
   a. It involves removing the **nuclear DNA** from an egg donated by a person carrying **faulty mitochondrial DNA** and inserting it into an egg donated by someone who does not carry faulty mitochondrial DNA.
3. **Result**
   a. The egg thus formed has the **nuclear DNA** of the intending parent and **functioning mitochondria** from the donor.

Technical Procedure of Mitochondrial Donation

1. **Requirements**
   a. **Specially trained scientists** and **sophisticated equipment** are required for this highly technical procedure.
2. **Hormone Injections**
   a. **Hormone injections** are required for both the egg donor and the person with **Mito** to stimulate the ovaries to produce multiple eggs.
3. **Egg Retrieval**
   a. An **ultrasound-guided surgical procedure** is used to retrieve the eggs.

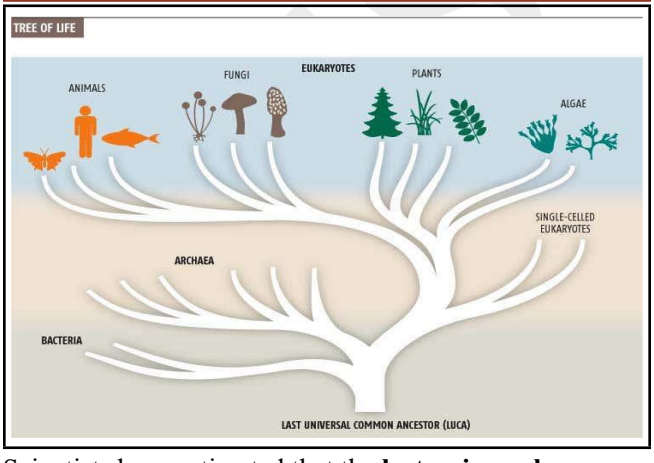
Need for Donor Eggs

1. **Challenge**
   a. Finding **eggs** is one of the difficulties associated with **mitochondrial donation**.
2. **Sources**
   a. **Frozen eggs** can be used for preclinical research and training, while **"fresh" eggs** will be needed for the clinical trial.
3. **Volunteer Donors**
   a. Individuals will be required to **volunteer** to have their ovaries stimulated and eggs retrieved for the **"fresh" eggs** required in the future clinical trial.

Recent Study on Stored Eggs

1. **Background**
   a. A recent study analyzed data on the outcomes of eggs stored at a **Melbourne clinic** from **2012 to 2021**.
2. **Findings**
   a. The study found that the most popular option for individuals who have stored eggs is to **donate the eggs to research**.
3. **Implications**
   a. The study gives hope that people who have eggs they don't plan to use might be willing to donate them to **mitochondrial donation preclinical research** if given the chance.

12. Unlocking the Secrets of LUCA, Earth's Earliest Life Form



Scientists have estimated that the **last universal common ancestor (LUCA)** could have formed just 300 million years after the earth formed, pushing the origin of life on earth back by almost a billion years.

Background

1. The **origin of life** on Earth remains one of the most captivating and enduring mysteries. While numerous theories compete for recognition, concrete evidence continues to elude us.
2. Early ideas, such as the Oparin-Haldane hypothesis, suggested life arose from a "primordial soup" of self-organizing molecules.
3. The famous Miller-Urey experiment in 1952 provided a crucial piece of the puzzle by demonstrating that inorganic compounds could generate the complex organic molecules essential to life.

LUCA and the Molecular Clock

1. **LUCA** is the hypothesized common ancestor from which all modern cellular life descends.
2. Scientists employ the **"molecular clock,"** a theoretical tool that estimates the rate of genetic change, to retrace evolutionary paths and approximate the time when LUCA existed.
3. Through careful analysis, researchers have now placed LUCA's emergence at approximately 4.2 billion years ago, a mere 300 million years after Earth's formation. This pushes back the estimated origin of life by almost a billion years!

Recent Study

1. A new study delved into the genetic codes of 350 bacterial and 350 archaeal genomes to reconstruct a phylogenetic tree - a visual representation of evolutionary relationships.
2. The research hints that LUCA might have possessed a relatively small genome, capable of encoding roughly 2,600 proteins. It also suggests the intriguing possibility that LUCA had genes linked to immunity.

Understanding LUCA

1. **Common ancestor**: **LUCA** represents the root of the tree of life before it splits into the groups recognized today: Bacteria, Archaea, and Eukarya.
2. **Modern life**: Modern life evolved from **LUCA**, sharing features such as the same amino acids used to build proteins, the shared energy currency (ATP), and the presence of cellular machinery like the ribosome.

3. **Genetic analysis**: Through **genetic analysis** and **evolutionary modeling**, researchers pinpointed LUCA's existence to about 4.2 billion years ago.

What Are Prokaryotes?

1. **Prokaryotes** are a **group of organisms** that constitute one of the two major domains of life, the other being eukaryotes.
2. **These** are **single-celled organisms** that lack a distinct nucleus and other membrane-bound organelles.
3. **Prokaryotes** include **bacteria** and **archaea**.

Significance of the Study

1. **Understanding life on earth**: The study of **LUCA** and the **molecular clock** helps us understand how life emerged and evolved on earth.
2. **Searching for life beyond earth**: The findings also have implications for searching for similar forms of life across the universe.
3. **Synthetic biology**: The insights into evolution provided by the study will also give a significant fillip to human ambitions to engineer synthetic organisms for various industrial, chemical, and biological processes on earth as well as to create or moderate ecosystems on other planets in future.

13. First Client Cryogenically Frozen by Australian Firm

In July 2024, Southern Cryonics, the first cryonics facility in the **Southern Hemisphere**, successfully cryogenically frozen its first client at its **Holbrook facility** in **Australia**.

What is Cryonics?

Cryonics is the practice of freezing a person who has been declared legally dead with the hope of reviving them in the future. The term **'cryonics' c**omes from the Greek word '**krýos**,' meaning '**icy cold**.'

1. **Objective**: The goal is to preserve life by maintaining the body at very low temperatures until future **medical technology** can restore it to health.
2. **Terminology**: People who undergo this procedure are called '**cryopreserved patients**,' as they are not considered truly dead by cryonics advocates.
3. **Process Initiation**: Preservation starts shortly after **legal death**. The body is initially packed in ice and transported to a cryonics facility.
4. **Blood Replacement**: At the facility, the body's blood is replaced with **antifreeze** and other compounds to prevent ice formation and damage.
5. **Preservation State**: The body is then stored in a chamber filled with **liquid nitrogen** at **-196°C** until potential revival.
6. **Current Status**: Currently, only a few hundred bodies have been cryogenically preserved.

Key Points:

1. **Client Details**: The client, known as '**Patient One**,' was an **80-year-old man** who passed away in **Sydney**. His body was cryogenically frozen at **minus 200 degrees Celsius**.
2. **Preservation Process**: The process began immediately after death and took around **10 hours**. It included cooling the body to **6 degrees Celsius**, infusing it with a special **anti-freeze** to protect the cells, and then cooling further to **minus 80 degrees Celsius** before transferring it to the Holbrook facility.
3. **Final Cooling**: At Holbrook, the body was further cooled to **minus 200 degrees Celsius** and placed in a special **vacuum storage tank**.
4. **Cost**: The entire process cost the client **$170,000**, with additional expenses for medical teams involved.
5. **Facility Capacity**: The Holbrook facility can currently store up to **40 bodies**, with plans for possible future expansion.

Implications

1. **Technological Milestone**: This event represents a significant advancement in **cryonics technology** in Australia and the Southern Hemisphere.
2. **Ethical and Scientific Questions**: It raises important questions about the future possibility of **human resurrection** and the ethics surrounding it.
3. **Cost and Accessibility**: The high cost of cryonics highlights concerns about its **financial implications** and **accessibility** for the general public.

Related Concept: Liquid Nitrogen

1. **Properties:** Liquid nitrogen is indeed **colorless, odorless, non-flammable, and extremely cold. These properties are well-established scientific facts.**
2. **Cryogenic Liquid:** Liquid nitrogen is a prime example of a cryogenic liquid. Its extremely **low boiling point of -320°F (-196°C)** makes it ideal for maintaining the low temperatures required in cryonics and other cryogenic applications.
3. **Cryonics:** The use of liquid nitrogen in cryonics **to preserve biological tissues** is a correct and widely accepted application.
4. **Applications:** Beyond cryonics, liquid nitrogen has a wide range of applications in various industries, including food processing, medicine, and electronics.
5. **Cryogenic Liquids:** Other common cryogenic liquids include **liquid helium and liquid argon**, each with its own specific properties and applications.

Implications

1. **Future Hope**: Cryonics provides hope for those with terminal illnesses, offering a potential future revival.
2. **Ethical Considerations**: It brings up ethical and scientific debates about death and resurrection.
3. **Financial Impact**: The high cost of cryonics underscores the financial challenges and limits its accessibility.
4. **Growing Interest**: The increasing number of cryopreserved patients indicates a rising interest in cryonics as a possible means of life extension.

14. Lithium Discovery in Karnataka

In July 2024, The **Atomic Minerals Directorate for Exploration and Research (AMD)** has discovered **1,600 tonnes** of **lithium resources** in the Marlagalla area of Mandya district, Karnataka.

a. This significant find was announced by Union Minister of State for Science and Technology in a written reply to an **unstarred question in the Rajya Sabha.**

b. **Lithium** is a crucial component in **rechargeable batteries** used in electric vehicles (EVs) and energy storage systems, making this discovery important for India's **renewable energy sector**.

What is Atomic Minerals Directorate for Exploration and Research (AMD) ?

The **Atomic Minerals Directorate for Exploration and Research (AMD) is a unit of the Department of Atomic Energy (DAE)** and the **Geological Survey of India** that explores and develops atomic mineral resources for India's nuclear power program:

Uranium, Thorium, Niobium, Tantalum, Zirconium, Beryllium, Lithium, and Rare Earth Elements (REE).

The AMD uses modern technology for its work, including:

1. Airborne geophysical surveys: Magnetometers, gamma-ray spectrometers, and Time Domain EM systems
2. Field operations: Geological, geophysical, and geo-chemical surveys
3. Drilling activities: Hydrostatic rigs

The AMD also has several groups, including:

1. **Beach Sand and Off-shore Investigations Group:** Searches for beach sand heavy mineral concentrates
2. **Rare Metal and Rare Earth Group**: Searches for rare metals and rare earths
3. **Human Resource Development Group**: Organizes training courses for employees
4. Safety Unit: Collects safety data and promotes safety culture

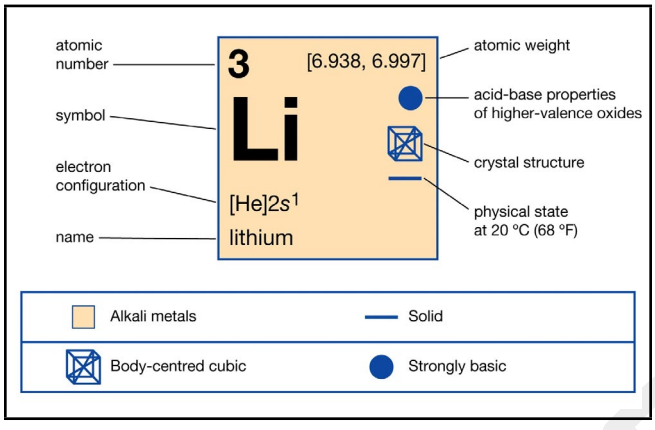
AMD's Exploration Activities

1. **Karnataka**: Apart from the discovery in Mandya, the **AMD has conducted preliminary surveys** and limited subsurface exploration in the Yadgiri district to estimate **lithium resources**.
2. **Other States**: The AMD is actively exploring potential geological domains in parts of Korba district, Chhattisgarh, and has **identified major mica belts in Rajasthan, Bihar, and Andhra Pradesh, along**

with pegmatite belts in Odisha, Chhattisgarh, and Karnataka, as prospective areas for lithium resources.

3. **Himachal Pradesh**: A preliminary survey by the **AMD has identified surface uranium occurrence in the Masanbal area of Hamirpur district.** However, the Atomic Energy Commission has not conducted any study to establish an atomic energy plant in Himachal Pradesh.

About Lithium:



Lithium is a chemical element with the **symbol Li and atomic number 3.** Classified as an alkali metal, it is a soft, white, lustrous solid at room temperature. **It is highly reactive and does not occur as the metal in nature but is found combined in small amounts in nearly all igneous rocks** and in the waters of many mineral springs. Major minerals containing **lithium** include spodumene, petalite, lepidolite, and amblygonite.

1. **Major Reserves**: **Lithium reserves** are concentrated in the lithium triangle in South America – Argentina, Bolivia, and Chile, with 50% of the deposits concentrated in these regions.
2. **Production**: In 2023, Australia was the world leader in terms of **lithium mine production**, with Chile and China ranked second and third.
3. **Uses**: **Lithium** has numerous applications, with the most important being in rechargeable batteries for mobile phones, laptops, digital cameras, and electric vehicles. It is also used in non-rechargeable batteries, alloys, special glasses, drugs, hydrogen storage, and air conditioning systems.

Alkali Metals: Alkali metals are the six different chemical elements found in the first column of the periodic table: **lithium (Li), sodium (Na), potassium (K), rubidium (Rb), cesium (Cs), and francium (Fr)**. They are soft metals that are highly reactive with water and oxygen, have a silver-like shine, and are great conductors of heat and light.

Implications of Lithium Discovery in Karnataka: The discovery of **lithium resources** in Karnataka has several implications for India:

1. **Energy Independence**: The discovery can help India reduce its dependence on imports for **lithium**, which is crucial for its electric vehicle and energy storage goals.
2. **Renewable Energy Transition**: It supports India's commitment to increasing the share of renewable energy in its total energy mix.
3. **Economic Benefits**: Domestic production of **lithium** can lead to cost savings and create job opportunities in the mining and processing sectors.
4. **Technological Advancements**: The discovery may encourage further research and development in **lithium extraction, processing, and battery technologies** in India.

15. Supreme Court's Split Verdict on GM Mustard

In July, The **Supreme Court's split verdict** on the approval of **genetically modified (GM) mustard** has reignited the debate on **GM crops** in India.

a. The court's decision highlights the need for a **comprehensive national policy** on GM crops, **addressing concerns and ensuring responsible innovation.**

Verdict Summary:

1. The **Supreme Court** delivered a **split verdict** on the Centre's **2022 decision** to approve the **environmental release** of **GM mustard**.
2. The court directed the Centre to formulate a **national policy** on GM crops, covering **research, cultivation, trade, and commerce**.
3. The policy should be developed in consultation with **experts, state governments, and farmers' representatives**.
4. A **national consultation** should be conducted, ideally within the next **four months**.

Background

1. The **Genetic Engineering Appraisal Committee (GEAC)** recommended the release of **GM mustard** on **October 18, 2022**.
2. The **environmental release** of **GM mustard hybrid DMH-11** was approved on **October 25, 2022**.
3. **GM mustard** is developed to increase yields and make the crop **herbicide-tolerant**.

Next Steps

- The case will be referred to a **three-judge Bench** to be constituted by the Chief Justice of India for further consideration.

GM Crops in India:

GM Crop	Introduced	Purpose	Gene Source	Key Points
Bt Cotton	Introduced in 2002	Combat the bollworm pest	**Bacillus thuringiensis (Bt)**	Reduces insecticide use and increases yields; Concerns about pest resistance and high seed costs
Bt Brinjal	Approved in 2009	Gives resistance against insects such as Shoot Borer (Leucinodes orbonalis).	Bacillus thuringiensis	Moratorium imposed in 2010 due to environmental and health safety concerns
Dhara Mustard Hybrid-11 (DMH-11)	Approved by GEAC in 2017	To help India to reduce its dependence on edible oil imports.	Two alien genes ('barnase' and 'barstar') isolated from a soil bacterium called **Bacillus amyloliquefaciens**	Concerns about impact on biodiversity, honey production, and farmers' livelihoods

The GEAC: A Key Player in GM Crops Regulation

1. The Genetic Engineering Appraisal Committee **(GEAC) functions in the Ministry of Environment, Forest and Climate Change (MoEF&CC).**
2. As per Rules, 1989, it is responsible for appraisal of activities **involving large scale use of hazardous microorganisms and recombinants in research** and industrial production from the environmental angle.
3. The committee is also **responsible for appraisal of proposals relating to release of genetically engineered (GE) organisms and products into the enviornment** including experimental field trials.

A National Policy on GM Crops:

1. The Supreme Court's directive for a **national policy** on GM crops is a step towards addressing concerns and streamlining regulation.
2. The policy should balance **innovation with caution**, ensuring that GM crops benefit **farmers, consumers, and the environment**.

Timeline of GM Crops in India:

1. **2002:** India starts growing Bt cotton, a GM crop.
2. **2006-2013:** There's a lot of debate and legal challenges about GM crops, especially Bt brinjal.
3. **2014:** Testing of new GM crops begins again.
4. **2016-2022:** More GM crops like mustard are tested, but there's still disagreement about their use.

Conclusion:

The Supreme Court's split verdict on GM mustard highlights the need for a clear, national policy on genetically modified crops in India. This policy should address concerns and guide responsible use of GM technology. By consulting experts, farmers, and state governments, the policy aims to balance innovation with safety, ensuring that GM crops benefit everyone while protecting the environment. As the case moves forward, creating this policy will be crucial for the future of farming in India.

F. GEOGRAPHY & ENVIRONMENT

1. State of the World's Forests 2024

1. The Food and Agriculture Organization (FAO) of the United Nations released the "State of the World's Forests" report on July 22, 2024.
2. Theme: "Accelerating Forest solutions through innovation"

Key Findings

The report presents a mixed outlook, highlighting both positive trends in deforestation reduction and growing concerns related to climate change, wildfires, and pests.

1. **Global Forest Cover:** In 2020, global forests covered 4.1 billion hectares (31% of land area), with 54% located in the Russian Federation, Brazil, Canada, the USA, and China.
2. **Deforestation Trends:**
   - **a.** Between 1990 and 2020, 420 million ha of forest were lost.
   - **b.** Deforestation rates have decreased from 15.8 million ha/year (1990-2002) to 10.2 million ha/year (2015-2020).
   - **c.** The net rate of forest area change was -4.7 million ha/year in 2010-2020.
3. **Regional Deforestation:** Africa had the highest deforestation rates (4.41 million ha), followed by South America (2.95 million ha) and Asia (2.24 million ha).
4. **Forest Gains:** Ten countries, including China, Australia, and India, recorded annual gains in forest area in 2020.
   - **a.** Indonesia reduced deforestation by 8.4% in 2021-2022 compared to 2020-2021.
   - **b.** Brazil saw a 50% decrease in deforestation in the Legal Amazon region in 2023 compared to 2022.
   - **c.** Africa also showed a decline in annual deforestation rates.

Mangroves:

1. **Global Mangrove Area:** 14.8 million ha, with 44% in South and Southeast Asia.
2. **Mangrove Loss and Gain:**
   - **a.** Gross global mangrove loss decreased by 23% between 2000-2010 and 2010-2020.
   - **b.** The rate of mangrove gain also slightly decreased.
   - **c.** Asia was the major contributor to both loss and gain.
3. **Climate Change Impact:** Extreme weather events and sea-level rise threaten mangroves and local communities.
4. **Net Change:** Although negative between 2000 and 2020, natural mangrove expansion surpassed the area lost to natural causes.

Wildfires:

1. **Global Impact:** 340-370 million ha of land are impacted by annual fires.
2. **Intensity and Frequency:** Increasing wildfire intensity and frequency have impacts at local, national, and global levels.
3. **2023 Data:**
   a. 383 million ha of land were affected by fire.
   b. 6,868 fires in Canada burned 14.6 million ha, emitting 6,687 megatons of carbon dioxide.

Pests and Diseases:

1. **Forest Threats:** Pests and diseases pose a significant threat to forests, causing losses exceeding 20% of the host tree basal area over 25 million ha in the USA through 2027.
2. **Monitoring Challenges:** Monitoring forest degradation and outbreaks remains a challenge globally.
3. **Economic Impact:** The economic cost of pest and disease outbreaks is substantial but challenging to quantify.

Conclusion:

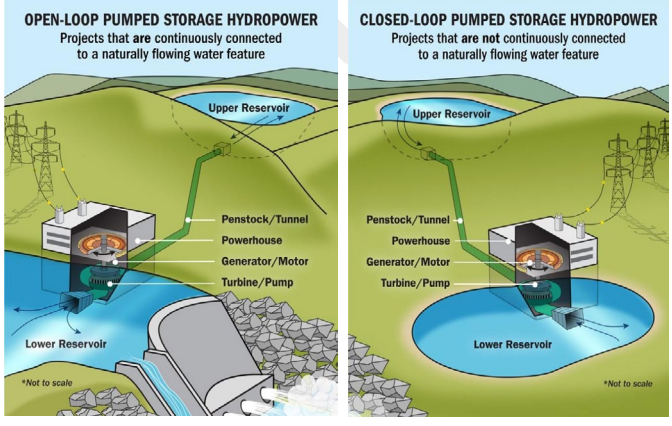
The 2024 report highlights the complex relationship between human efforts to combat deforestation and the growing threats posed by climate change, wildfires, and pests. While positive trends in deforestation reduction and forest gains are encouraging, continued global collaboration is crucial to protect and preserve these vital ecosystems.

2. Pumped Storage Hydropower as a Renewable Powerhouse

As India transitions towards renewable energy sources like solar and wind. There has been a greater focus on developing battery storage systems, which can store electricity. In this respect, there has been an increased focus on developing Pumped Storage Hydropower (PSH) projects, which are giant batteries.

Pumped Storage Hydropower Project

1. Pumped storage plants use the principle of gravity to generate electricity using water that has been previously pumped from a lower source to an upper reservoir.
2. Operation of pumped storage power plants requires 2 reservoirs: - **i)** upper and **ii)** lower reservoir.
   - Water in upper reservoir is used for generating power during peak demand hours. The water in the lower reservoir is pumped back to the upper reservoir during the off-peak hours and the cycle continues.
3. **Two Types of PSH plants**:
   I. **Open loop**: One or both reservoirs are connected to a natural water source (e.g., a river).
   II. **Closed loop (or off-river PSH):** No connection to a natural water source and the same water is cycled between the two reservoirs for pumping and generation.
4. Energy storage capacity of a pumped hydro facility depends on size of its two reservoirs and the head between reservoirs, while the amount of power generated is linked to the size of turbine.



Need for Pumped Storage Hydropower Project In India

The growing reliance on renewable energy sources in India, particularly solar and wind power, presents a unique challenge: their intermittent and variable nature.

The sun doesn't always shine, and the wind doesn't always blow, leading to fluctuations in energy generation that can strain the electrical grid. This is where Pumped Storage Hydropower (PSH) steps in as a critical solution.

1. **Ensuring Grid Stability and Reliability**: PSH acts as a massive, rechargeable battery for the grid. During periods of excess energy generation (like sunny or windy days), surplus electricity is used to pump water uphill to an upper reservoir. When energy demand peaks or renewable generation drops, this stored water is released downhill, flowing through turbines to generate electricity. This rapid response capability helps balance the grid, stabilize frequency, and prevent blackouts, ensuring a reliable power supply even when renewable sources fluctuate.
2. **A Proven, Cost-Effective, and Efficient Energy Storage Solution**: PSH has a long track record of success and is widely recognized as the most mature and cost-effective technology for large-scale energy storage. Unlike batteries, which are still evolving and have limitations in terms of scalability and cost, PSH offers a dependable and long-lasting solution that can store vast amounts of energy for extended periods.
3. **The Largest and Most Effective Energy Storage for Renewable Integration**: The sheer scale of energy storage that PSH provides is unmatched by any other technology. This makes it the ideal solution for integrating large amounts of renewable energy into the grid, ensuring that clean energy is available when it's needed most.
4. **It offers following benefits:**
   a. **Peak shaving**: PSH stores excess energy during off-peak hours and releases it during peak demand periods, reducing the need for expensive and often polluting peaking power plants.
   b. **Load balancing**: By smoothing out fluctuations in energy demand, PSH helps maintain a stable grid frequency, preventing voltage fluctuations and ensuring the reliable operation of electrical devices.

c. **Enhanced Grid Resilience**: With its rapid response capability and black start capability (the ability to restart the grid after a blackout), PSH enhances the overall resilience of the power system.

d. **Long Lifespan and High Efficiency**: PSH plants have long operational lifetimes and boast energy conversion rates exceeding 80%, making them a highly efficient and sustainable energy storage solution.

Status of Pumped Storage Hydropower:

1. Current potential of 'on-river pumped storage' in India is 103 GW. Out of 4.76 GW of installed capacity, 3.36 GW capacity is working in pumping mode. About 44.5 GW including 34 GW off-river pumped storage hydro plants are under various stages of development.
2. Currently operational PSH plants in India have a combined capacity of 3300 MW.

Pumped Storage Project	Location	States	Capacity
Nagarjunasagar	On Krishna River	Telangana	705 MW
Srisailam	On Krishna River on a deep gorge on Nallamala hills.	Telangana	900 MW
Kadamparai		Tamil Nadu	400 MW
Bhira	Near Mulshi Dam on Mula River.	Maharashtra	150 MW
Ghatghar	On Pravara River, a tributary of Godavari River in Ahmedanagar district	Maharashtra	250 MW
Purulia (Panchet)		West Bengal	900 MW
Total			**3300 MW**

Advantages of Pumped Storage Projects

1. **Environmentally Friendly:** All components of PSH projects would be connected, operated and maintained in an environmentally friendly manner with no residual environmental impacts.
2. **Atmanirbhar Bharat (Self-Reliant India):** PSH project uses indigenous technologies and domestically produced materials. Most electrical & mechanical parts of PSH are also made in India.
3. **Local development:** PSH projects contribute to local economies through job creation and infrastructure development.
4. **Longer and reliable duration of discharge:** PSH projects can provide long-duration energy storage (more than 6 hours). However, Battery Energy Storage Systems are designed for up to 4 hours of discharge generally.

Challenges in the development of Pumped Storage Projects

1. **Environmental clearances:** Obtaining environmental clearances for PSH projects can be a lengthy and complex process. However, environment impact of PSH constructed on existing reservoirs is generally less and does not lead to displacement of people.
2. **Free power:** PSPs are energy storage projects designed to cater to the need for grid stability during peak hours. PSPs do not produce any electricity and are net consumers of electricity.
3. **Cost of pumping power:** Cost of power from PSH project has three components - cost of storage, cost of conversion losses and cost of input power. For the commercial viability of a PSH project input power should be available at affordable tariff. However, availability of solar power at relatively cheaper rates allows affordable input power for PSP units.
4. **Value of peak power:** Importance of PSH project lies in its capability to offer peaking power. Other services offered by PSPs like spinning reserves, reactive support, black start ability etc. which are essential for grid stability are not adequately monetized.

Government Initiatives to Promote PSH

1. **Utilisation of financial & project execution capabilities of CPSUs:** The government has identified probable PSH sites with Central Public Sector Undertakings (CPSUs) to facilitate their development.
2. **Energy Storage Obligation:** Distribution companies are now required to have a certain amount of energy storage capacity.
3. **Budgetary support:** The government provides financial support for enabling infrastructure for PSH projects.
4. **Ease of doing business and simplification of process:** For ex. Central Electricity Authority has issued revised guidelines for the preparation and approval of DPRs for Pumped Storage Hydropower projects.

Guidelines for promotion of PSPs

Allotment of project sites: State Governments may allot project sites to developers in following manner.

1. **On-nomination basis to CPSUs and State PSUs:** Projects can be awarded directly to CPSUs/ State PSUs on a nomination basis.
2. **Allotment through competitive bidding:** PSH project may be awarded to private developers by following a two-stage competitive bidding process. PSUs can also participate in the bidding process.
3. **Allotment through Tariff Based Competitive Bidding (TBCB):** PSH projects may be awarded on a TBCB basis to developers based on competitive bidding based on:
   a. Composite tariff (including cost of input power) in case input power is arranged by developer.
   b. Tariff for storage on a per megawatt hour basis if input power is arranged by procurer of the storage capacity.
4. **Self-identified off-stream PSPs:** Developers can identify potential off-stream sites for PSH projects. This will help in harnessing off-stream potential in the country at a faster pace. Since, these sites are away from riverine system and do not utilise natural resources like river streams, allotment from State Governments would not be required for PSP projects on such sites. However, all statutory clearances need to be obtained from State & Central agencies before starting construction.

Incentives for Pump Storage Projects

1. **States shall not charge any upfront premium** for PSP project allocation.
2. **Exemption from free power obligation** as PSPs are energy storage schemes i.e., net consumers of energy and do not produce any energy.
3. **No requirement for creation of a Local Area Development Fund** as these projects have minimal environmental impact and have no R&R issues.
4. Utilisation of discarded mines including coal mines to develop PSPs.
5. Developers should start construction work within a period of 2 years from project allotment, otherwise the project allocation will be cancelled.
6. **Market reforms for PSH project by Appropriate Commission**
   a. shall ensure that services which help in supporting grid stability are suitable monetized.
   b. Notify Peak and Off-Peak tariffs for generation to provide appropriate pricing signal to Peak and Base Load Generating plants.
   c. 80% power generated when PSPs operate as conventional hydropower stations during monsoon period would be offered to Home State at the rate of secondary energy fixed by CERC.
7. **Green Finance:** Since PSPs will be utilised for avoiding greenhouse gas emissions. Hence, PSPs will be supported through concessional climate finance. Sovereign green bonds issued for mobilizing resources for green infrastructure as a part of Government's overall market borrowings for development of PSPs which utilise renewable energy for charging.

Conclusion

Pumped Storage Hydropower projects are a crucial component of India's transition towards a renewable energy future. By addressing the challenges and implementing the government's guidelines and incentives, India can unlock the full potential of PSH and ensure a reliable, sustainable, and affordable power supply for all.

3. Heat Domes and Record-High Temperatures in Western US

A severe **heatwave** has gripped the western United States, affecting nearly **75 million people** under heat alerts and breaking temperature records across multiple cities.

a. California is the worst affected state, with numerous cities experiencing all-time high temperatures.

b. The scorching conditions are primarily due to a **heat dome** centered over California.

What is a Heat Dome?

1. **Definition**: A **heat dome** is a weather phenomenon where a **high-pressure system** in the atmosphere traps warm air like a lid on a pot for an extended period.
2. **Mechanism**:
   a. The **warm air is unable to rise**, **resulting in clear skies and more sunlight reaching the earth.**
   b. This **leads to increased warming and drying of the soil**, reducing evaporation and the likelihood of rain cloud formation.
   c. The longer the heat dome stays, the **warmer the conditions become with each passing day.**
3. **Occurrence**: Heat domes can occur at any time of the year but are more common during the summer months.

Role of the Jet Stream:

1. **Formation**: A heat dome's formation is tied to the behavior of the **jet stream**, a fast-moving air current high in the atmosphere that usually helps move weather systems along the Earth's surface.
2. **Behavior**: When the jet stream's waves become larger and more elongated, they move slowly and sometimes become stationary. This can cause a high-pressure system to get stuck in place, leading to a heat dome.
3. **Influencing Factors**: The jet stream's behavior is influenced by various factors, including temperature differences between the equator and the poles, and the Earth's rotation.

Impact of Climate Change:

1. **Debate**: Scientists are still debating how climate change impacts blocking weather events that cause heat domes.
2. **Studies**:
   a. A 2021 study found that the extreme temperatures recorded during a heat dome in Canada would have been virtually impossible without human-caused climate change.
   b. A 2023 study indicated that the intensity of heat domes is outpacing the rate of global warming, suggesting that climate change is fueling their intensity.
3. **Jet Stream**: Climate change is also altering the jet stream's behavior, leading to more frequent and prolonged heat waves.

Consequences of Heat Domes:

Heat domes can have severe consequences, including:

1. Heat-related illnesses and deaths
2. Crop failures and livestock deaths
3. Increased risk of wildfires
4. Strain on power grids and infrastructure
5. Disruption of transportation and daily life

Key Points:

1. **Heatwaves and Heat Domes**: While heat domes can occur without heat waves, heatwaves are often caused by heat domes.
2. **Current Heatwave**: The western United States is experiencing one of the most severe heat waves in recent history, with record high temperatures in multiple cities.
3. **Global Phenomenon**: The heat dome phenomenon is not limited to the western United States and can occur in other parts of the world.
4. **Preparation and Response**: Governments and individuals must take proactive measures to prepare for and respond to heatwaves, including providing access to cooling centers, promoting heat safety awareness, and investing in climate-resilient infrastructure.

4. Paraguay: 100th country to join the ISA

Recently, Paraguay became the 100th country to join the International Solar Alliance (ISA).

The Global Energy Transition Landscape

1. Despite ongoing efforts, the world's trajectory towards sustainable development remains ***misaligned with the Paris Agreement's*** goal of limiting global warming to 1.5°C.

2. Projections indicate a modest 4% reduction in global emissions by 2050, resulting in an alarming 2.4°C increase in global warming.
3. To **meet the 1.5°C** target, a substantial 43% reduction in global emissions is imperative within this decade.
4. The International Energy Agency (IEA) estimates a requirement of $1.6 - $2 trillion in solar investment by 2030 to facilitate this transition.

Solar Energy: The Engine of Growth and Transition

1. Solar energy stands out as the **most accessible and versatile renewable** energy source.
2. **Compared to other** renewable sources like hydropower and bioenergy, solar energy offers a significantly **lower carbon footprint.**
3. Its high decentralization potential allows for off-grid systems, extending its reach to remote areas.
4. Solar technology has witnessed remarkable advancements, outpacing other renewable sources in terms of development.
5. The sector's growth rate, at a 21% CAGR (2015-2022), surpasses that of wind, bioenergy, and hydro energy.
6. Projections indicate solar energy's contribution to the total energy mix will reach 27% by 2030, necessitating a substantial capacity building of 3500 GW.
7. The penetration of solar energy in global renewable energy capacity is poised to surge from 28% in 2021 to 45% in 2030.

The Significance of ISA

1. **Energy equity and justice:** ISA's nuanced approach transcends a one-size-fits-all model, catering to the diverse needs of high-income countries, emerging economies, low-income countries, and Small Island Developing States (SIDS).
2. **Democratizing solar energy:** ISA is committed to ensuring democratic access to solar technology and resources, particularly for developing and low-income countries, thereby taking solar energy "from lab to streets."
3. **Creating a global solar energy market:** Through collaborative development and initiatives like PM KUSUM, which scales solar applications in agriculture, ISA fosters a global solar energy market, encouraging large-scale deployment at reduced costs.
4. **Facilitating standardized policies and procedures**: ISA instills confidence in investors by mitigating risks through standardized auction and Power Purchase Agreement (PPA) frameworks.
5. **Platform for collaborative research and development**: By pooling resources, ISA enhances research and development capabilities in developing countries that often lack the necessary financial means.
6. **Shift in India's foreign policy:** ISA serves as a testament to India's global leadership in sustainability, aligning with its strategic interests exemplified by initiatives like Mission LiFE.
   - India bridges the gap between the Global North and South in harnessing solar energy and pioneers new norms in global energy governance that address the concerns of the Global South.

Challenges and Solutions for the International Solar Alliance

Challenge	Solution
1. Countries struggling to work together	1. Improve communication and make rules clearer
2. China controls too much of the solar market	2. Find other suppliers and make more solar panels locally
3. Governments are in charge of energy, not businesses	3. Make it easier for businesses to invest in solar energy
4. Finding land for solar farms is hard	4. Make land acquisition easier and use rooftops or water for solar panels
5. Connecting solar energy to the power grid is tricky	5. Invest in better technology and smarter power grids

Conclusion

India's leadership in spearheading initiatives like ISA, the Green Hydrogen Innovation Centre, and the Global Bio-Fuel Alliance demonstrates its commitment to shaping the global renewable energy discourse. These initiatives are deeply rooted in the timeless Indian ethos of ***"Vasudhaiva Kutumbakam,"*** which envisions the world as one family.

Case Studies

1. **India's first floating solar plant:** Located at Kayamkulam, Kerala, showcases innovative solutions for solar energy deployment.
2. **Surya Nutan:** A hybrid kitchen-connected indoor solar cooking solution developed by the Indian Oil Corporation (IOCL).
3. **Canal-Top-Solar panels on Sardar Sarovar project:** Installed in Gujarat, this project addresses land acquisition concerns and enhances energy production efficiency.
4. **North Sea 1 (NS1):** The world's first Offshore Solar Sea Farm in the Netherlands, highlighting the potential of offshore solar energy.

Initiatives by ISA

1. **One Sun One World One Grid (OSOWOG):** Aims to connect various regional grids through a common grid for seamless transfer of renewable energy power.
2. **Solar Technology Application Resource Centre (STAR C):** Dedicated to capacity building and institutional strengthening in the solar energy sector.
3. **Global Solar Facility:** Catalyzes solar investments in underserved regions and segments across Africa.
4. **Development of Large-Scale Solar Power Projects:** Promotes large-scale solar power projects under the Solar Park concept in clusters/groups of ISA member countries.
5. **ISA Solar Fellowship for Mid-Career Professionals:** Provides skill development and training opportunities for qualified professionals in managing solar energy projects.
6. **International Solar Festival:** Creates a conducive environment for impactful global partnerships in the solar energy domain.

5. Dark Oxygen: Found 13000 feet under the sea

In July 2024, Scientists discovered **"dark oxygen."** A study published in ***Nature Geoscience*** **shows that oxygen is being made in complete darkness, about 4,000 meters (13,100 feet) below the ocean surface**.

a. This finding goes against the common belief that oxygen is only made through **photosynthesis**.

b. Photosynthesis is the process where plants, algae, and some bacteria use sunlight to turn water and carbon dioxide into oxygen and sugar.

What is Dark Oxygen?

1. **Dark oxygen** is oxygen created in the deep ocean, where there's no sunlight. This underwater region, called the abyssal zone, receives too little sunlight for photosynthesis.
2. Life here relies on oxygen carried by ocean currents. Without local production, oxygen levels should have dropped as small animals consumed it.
3. However, the scientists found the opposite - oxygen levels increased, sometimes tripling in just two days.

Why is this Discovery Important?

1. This discovery is important because it shows that oxygen can be **made in ways other than photosynthesis.**
2. It helps us understand more about how oxygen is produced in the ocean and could change how we view the Earth's **ecosystem**.

Polymetallic Nodules: The Source and Oxygen Generators

1. **The source of this dark oxygen lies in Polymetallic nodules** are small, round lumps found on the ocean floor. They contain a mix of metals like **manganese**, **iron**, **cobalt**, **nickel**, **copper**, and **lithium**.
2. These nodules are special because they can create oxygen through a process called **electrochemical activity**, even without sunlight.

How do Polymetallic Nodules Generate Oxygen?

1. Polymetallic nodules generate oxygen by breaking water molecules (H2O) into hydrogen and oxygen. This is different from photosynthesis, which uses sunlight to turn water and carbon dioxide into oxygen and sugar.

Where are Polymetallic Nodules Found?

1. Polymetallic nodules are **found in the deep ocean**, particularly in the **north-central Pacific Ocean**, **southeastern Pacific Ocean**, and **northern Indian Ocean**.

2. They form over millions of years with layers of metals building up around a central core.

Why are Polymetallic Nodules Important?

1. They are important because **they contain valuable metals** like **lithium**, **cobalt**, and **nickel**, used in technologies like **batteries**, **electric vehicles**, and **renewable energy systems**.
2. They could provide a new source of these critical materials.

Implications of the Discovery:

1. **Oxygen Production:** The discovery suggests that oxygen is being produced in another way on Earth, which could change our understanding of how life began here.
2. **Revisiting Theories:** Scientists now need to reconsider how and where **aerobic life** could have started, given that oxygen is produced in the deep sea without light.

Previous Observations

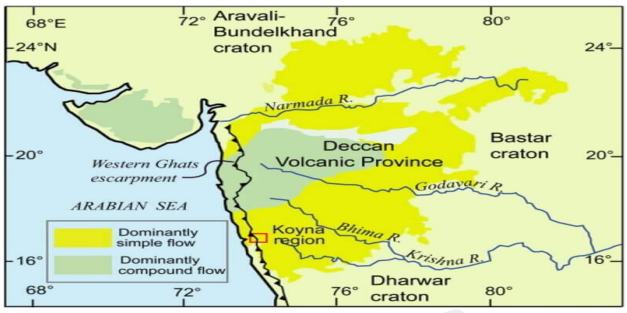
This isn't the first time such an observation has been made. A similar phenomenon was noted in 2013 during research on sea-floor ecosystems in the Clarion-Clipperton Zone, an area known for its abundance of metal-rich nodules.

Conclusion

The discovery of dark oxygen in the deep sea challenges what we thought we knew about how oxygen is produced and raises new questions about the origins of life on Earth. This important study points to the need for more research to fully understand this phenomenon and its impact on our view of Earth's ecosystem.

6. India's Deep Drill Mission

In July 2024, scientists embarked on an ambitious mission to **drill 6 km deep into the Earth's crust** in Koyna, Maharashtra. This project is spearheaded by the Borehole Geophysics Research Laboratory (BGRL). As of now, they have successfully drilled 3 km.



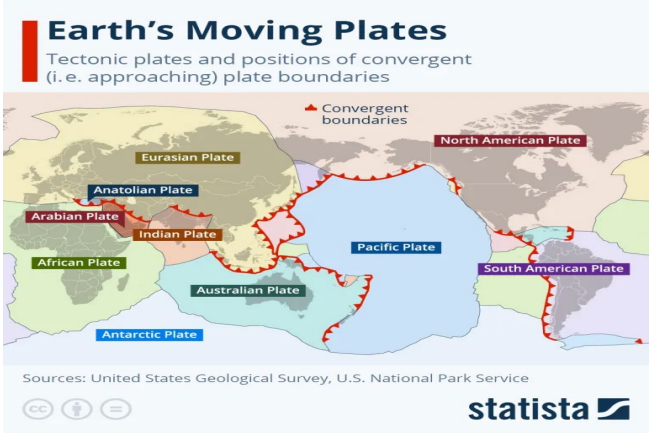
Why Koyna?

1. **Triggered Seismicity:** The Koyna region has experienced earthquakes, known as Reservoir-Induced Seismicity (RIS), after the Koyna Dam was built in 1962. This mission aims to directly study these earthquakes.
2. **Active Fault Zone:** Koyna-Warna is located on a fault line, making it prone to earthquakes.
3. **Isolated Activity:** The absence of major seismic activities nearby makes Koyna an ideal location for focused research.

Understanding Fault Lines

A fault line is a fracture or zone of fractures between two blocks of rock. When there is movement along this line, it can cause earthquakes.

1. **Earth's Crust:** The Earth's outer layer is divided into large pieces called tectonic plates.
2. **Movement:** These plates are constantly moving, albeit very slowly. Their interaction can cause stress to build up along fault lines.
3. **Earthquake:** When the stress becomes too much, the rocks on either side of the fault suddenly slip, releasing energy in the form of an earthquake.



Scientific Deep Drilling

Deep drilling is employed to study the Earth's composition, structure, and processes.

Techniques

1. **Rotary Drilling:** Uses a rotating drill bit to cut through rock, aided by drilling mud.
2. **Percussion Drilling (Air Hammering):** Employs high-pressure air to break rock quickly
3. **Hydraulic Fracturing (Fracking):** Creates fractures in rock to enhance fluid flow.
4. **Geophysical Surveys:** Utilizes seismic, magnetic, and gravitational methods to map subsurface structures.

Other Methods to Study Earth's Interior

1. **Seismic Waves:** Studying how waves from earthquakes travel through the Earth helps understand its layers.
2. **Gravitational and Magnetic Fields:** Measuring changes in these fields provides insights into density and composition.
3. **Heat Flow Measurements:** Tracking heat escaping from Earth reveals thermal properties
4. **Meteorites:** Analyzing meteorites offers clues about the Earth's formation

Global Deep Drilling Projects

1. **Project Mohole (US):** Attempted to drill to the Earth's mantle in the 1960s but was discontinued
2. **Kola Superdeep Borehole (Russia):** The deepest hole ever drilled, providing valuable geological data before being sealed
3. **China's Deep Hole Project:** Aims to drill 10,000 meters to explore continental strata
4. **Deep Sea Drilling Project (DSDP):** Drilled ocean floors, leading to new geological discoveries
5. **Integrated Ocean Drilling Project (IODP):** Uses ocean research platforms to study Earth's history and processes

Key Findings from Koyna Drilling

1. **Region's Stress:** Koyna is highly stressed, resulting in frequent small earthquakes
2. **Water Presence:** Water was found down to 3 km, suggesting deep circulation.
3. **Rock Information:** Drilling revealed details about rock properties, chemical composition, and stress regimes
4. **Fault Detection:** Identified and studied buried fault zones

Significance of the Mission

1. **Understanding Earthquakes:** Aids in better predicting and managing earthquake risks.
2. **Geological Models:** Validates or refutes existing geological theories.
3. **Technological Innovation:** Promotes advancements in drilling and seismology
4. **Global Contribution:** Adds to global knowledge of Earth's systems.

Challenges Faced

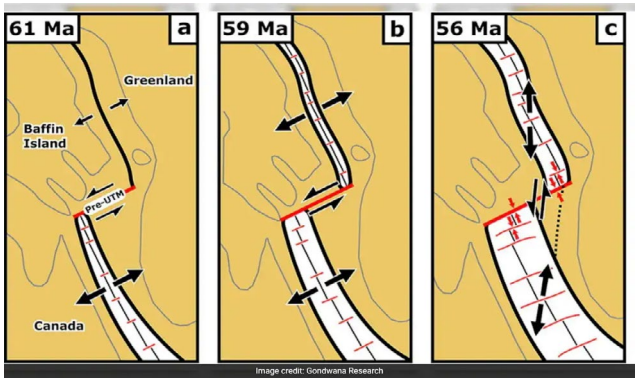
1. **Rig Capacity:** Deeper drilling necessitates powerful rigs
2. **Drilling Complexity:** Difficulties increase with depth, including equipment risks and core handling
3. **Borehole Stability:** Risk of encountering faults that affect borehole stability
4. **Human Resources:** Long, demanding operations require skilled personnel.

Conclusion

India's Deep Drill Mission in Koyna is a significant endeavor to unlock the secrets hidden deep within the Earth's crust. By studying earthquakes, fault lines, and the Earth's composition, this project aims to enhance our understanding of geological processes and contribute to better earthquake risk management. Despite the challenges, the mission's potential rewards are immense, promising to expand our knowledge of our planet's dynamic systems.

7. New Microcontinent between Greenland and Canada

1. A team of geologists from Sweden's Uppsala University and the University of Derby in the UK has discovered a new **microcontinent in the Davis Strait**, between Greenland and Canada.
   - The Davis Strait is a body of water located between Canada's **Baffin Island** and **Greenland**.



Background:

1. The Davis Strait has long been of interest to scientists due to its **complex geological features**.
2. The region has a unique combination of **tectonic processes**, including rifting, seafloor spreading, and plate motion.

The Discovery:

1. **Microcontinent Formation:** The team has identified an isolated block of thick continental crust in the Davis Strait, measuring **19-24 km thick**.
2. **Tectonic Processes:** This formation is likely the result of **east-west extension** along Greenland's margin, which led to the detachment of this continental block.
3. **Naming:** The microcontinent has been named the **Davis Strait proto-microcontinent**.

Significance:

1. **Tectonic History:** The discovery sheds light on the tectonic history of the **North Atlantic** and offers insights into the processes of continental formation.
2. **Global Implications:** The findings have broader implications for understanding the formation of other microcontinents globally.
3. **Practical Applications:** The research has the potential to improve our understanding of **plate tectonics** and mitigate plate tectonic hazards.
4. **Protected Area:** The Davis Strait is not a protected area, but its unique geological features and fragile ecosystem make it an important region for **conservation efforts**.
5. **Threats:** The region is vulnerable to **climate change**, which could impact the local ecosystem and geological processes.

About the Davis Strait:

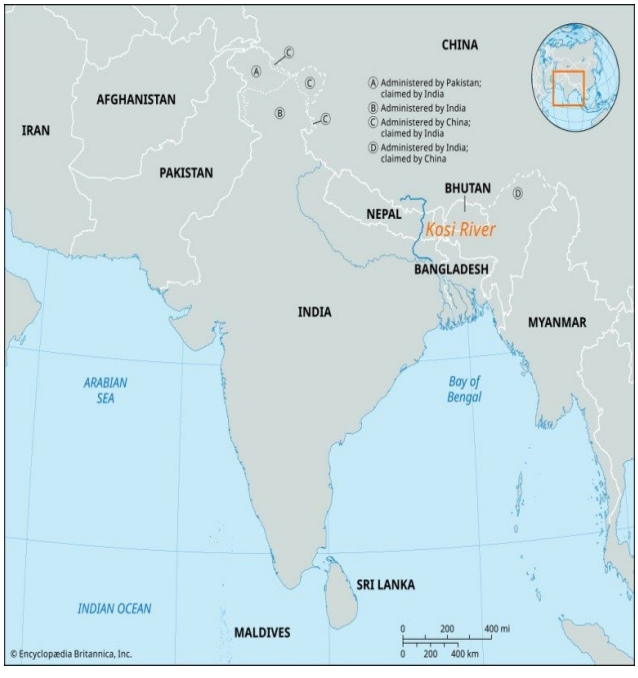
1. **Geography:** The Davis Strait is a large stretch of water located between Canada's **Baffin Island** and **Greenland**.
2. **Formation:** It was formed millions of years ago when the tectonic plates between the two islands shifted, reconfiguring the Earth's crust.
3. **Dimensions:** The strait is approximately **400 miles (650 km)** north to south and **200 to 400 miles** wide.
4. **Depth:** It has a water depth ranging from **1000 to 2000 metres**, and is comparatively shallower than the southern Labrador Sea.

Key Facts about the Microcontinent:

1. **Thickness:** The microcontinent is **19–24 km** thick thinned continental crust and is surrounded by two narrow bands of thin (**15–17 km**) continental crust.
2. **Age:** It was formed around **58 million years ago**, during a pivotal phase of east-west extension along Greenland's margin.

8. Kosi-Mechi River Linking

The long-awaited **Kosi-Mechi river interlinking project** in Bihar is closer to becoming a reality, with the Union Budget 2024-25 allocating a substantial **Rs 11,500 crore**.



The Project

1. This project is a **green project**.
2. Its environmental approval note states the project involves no displacement of population and there is no acquisition of any forest land.
3. This project will provide a diversion to the surplus water of **Kosi River** through existing Hanuman Nagar barrage to **Mechi River** of Mahananda basin by a 2 km long canal.
4. **Purpose of the project: Flood control** and **irrigation** for over 14 lakh hectares.
5. There are no national parks, wildlife sanctuaries, or eco-sensitive zones within 10 km radius of the project.

Project Benefits and Significance

1. The **Kosi-Mechi interlinking project** aims to address the recurring **flood issues** in Bihar by diverting excess water from the **Kosi River** to the **Mechi River**.
2. The project is expected to significantly enhance **irrigation** capabilities, benefiting **agricultural activities** in the region.
3. The environmental clearance for the project underscores its **sustainability**, ensuring minimal ecological impact.
4. The allocation of **Rs 11,500 crore** in the Union Budget highlights the government's commitment to addressing **flood management** and **agricultural development** in Bihar.

About Kosi River:

1. **Origin:** Confluence of three streams: The **Sun Kosi**, The **Arun Kosi**, and The **Tamur Kosi**.
2. **Also known as:** Saptakoshi for its seven upper tributaries.
3. **Flow:** Trans-boundary river which flows through China, Nepal, and India.
4. **Tributary of:** Left bank: Ganges, near Kursela in Katihar district.
5. **Length:** 729 km.
6. **River basin borders:** Tsangpo River basin in the north, Mahananda River basin in the east, Ganges Basin in the south, and the Gandaki River basin in the west.
7. **Drainage:** 74,500 sq.km, only 11,070 sq.km lie within Indian Territory.
8. **Tributaries: Sun Koshi**, **Tama Koshi** or **Tamba Koshi**, **Dudh Koshi**, **Indravati**, **Likhu**, **Arun**, and **Tamore** or **Tamar**.
9. **Peaks located in the basin: Mount Everest**, **Kangchenjunga**, **Lhotse**, **Makalu**, **Cho Oyu**, and **Shishapangma**.
10. **Projects: Kosi Barrage** or **Bhimnagar Barrage**, **Kosi-Mechi Interlink**, **Sapta Koshi High Dam Multipurpose Project**, **Sun Koshi Storage-cum-Diversion Scheme**.

About Mechi River:

1. **Origin:** Mahabharat Range in Nepal.
2. **Flow:** Trans-boundary river flowing through Nepal and India.
3. **Tributary of:** Right Bank: Mahananda River, join at Kishanganj district of Bihar.
4. **Part of:** Mahananda River basin.
5. **Drainage:** Part of Mahananda River drainage which is 11,530 square kilometers.

Kosi-Mechi Interlink:

1. **Vulnerability: Kosi** is known as the "sorrow of Bihar," as it has caused widespread human suffering in the past due to **flooding** and very frequent changes in course. (During the last 200 years, the river has shifted westwards for a distance of about 112 km).

Conclusion and Forward-Looking Approach:

1. The **Kosi-Mechi river interlinking project** represents a significant step forward in managing the recurring **flood issues** in Bihar and enhancing **agricultural productivity**.
2. With its environmentally friendly approach and substantial government investment, the project is poised to bring about transformative changes in the region.
3. Looking ahead, the successful implementation of this project could serve as a model for similar initiatives across the country, demonstrating the potential of innovative **water management** solutions to address complex environmental and agricultural challenges.
4. As the project progresses, continuous monitoring and evaluation will be crucial to ensure its long-term **sustainability** and effectiveness, paving the way for a more resilient and prosperous future for the people of Bihar.

9. Syntrichia caninervis: Shows Potential to Thriving on Mars

Scientists have discovered that a desert moss species, ***'Syntrichia caninervis'***, exhibits exceptional resilience to extreme conditions akin to those found on Mars.

Tolerance to Extreme Conditions

Remarkably, this moss can withstand temperatures as low as -196°C (-320.8°F), high levels of gamma radiation, and even simulated Martian environments. Interestingly, the moss's ability to endure these harsh conditions is enhanced when it is dehydrated beforehand.

Global Presence

'S. caninervis' is found in challenging desert environments across the globe, including Tibet, Antarctica, and various circumpolar regions.

Laboratory Confirmation

Rigorous laboratory tests have corroborated the moss's remarkable ability to regenerate even after being subjected to:

1. Extreme cold (-196°C/-320.8°F)
2. High levels of gamma radiation
3. Simulated Martian conditions

Implications

This groundbreaking discovery holds immense potential for various fields:

1. **Space Exploration:** It could revolutionize space exploration, particularly in the realm of establishing sustainable habitats on Mars.
2. **Terrestrial Applications:** The resilience of this moss could inspire advancements in agriculture and environmental conservation practices in arid and harsh regions on Earth.
3. **Further Research:** This finding opens up exciting new avenues for research into extremophile biology and its potential applications both in space and on Earth.

About Mosses

1. **Characteristics:** Mosses are flowerless, spore-producing plants found worldwide, except in saltwater habitats. They typically thrive in moist, shady areas.
2. **Ecological Significance**: They play crucial roles in nutrient release, soil erosion control, and overall ecosystem function.
3. **Economic Importance:** Some mosses, such as those in the genus Sphagnum, contribute to peat formation, a valuable resource with various applications.
   - Peat is a surface organic soil layer formed by partially decomposed organic matter, primarily plant material, under waterlogged, oxygen-deficient, acidic, and nutrient-deficient conditions.

Conclusion

The incredible hardiness of the desert moss 'Syntrichia caninervis' opens up exciting possibilities for future space exploration and terrestrial applications. This discovery highlights the potential of extremophile biology to contribute to our understanding of life's adaptability and resilience, both on Earth and beyond.

10. CITES Defines Guidelines on Trade of Rosewood Species

1. **In July,2024, CITES** (Convention on International Trade in Endangered Species of Wild Fauna and Flora) has **issued guidelines** to regulate the **sustainable harvest and trade of rosewood specimens**.
2. **Aim:** To prevent over-exploitation and ensure sustainable international trade of various rosewood species.

CITES Guidelines on Rosewood Trade:

1. CITES oversees the trade of rosewood species in the genera **Dalbergia, Afzelia, Khaya, and Pterocarpus**.
2. These species are listed in **Appendix II**, indicating they are not immediately threatened with extinction but could be at risk if trade is not regulated.

Threatened Rosewood Species:

1. **Pterocarpus erinaceus** (African rosewood), native to West Africa, is highly threatened due to over-exploitation and illegal trade.
2. CITES has recommended a **trade suspension** for Pterocarpus erinaceus to address sustainability and legality concerns.

Capacity-Building Efforts:

1. CITES secretariat is focusing on **capacity-building efforts** for rosewood species, targeting 13 high-priority and 14 medium-priority species.
2. Goal: To strengthen connections with the **Module on Non-Detriment Findings (NDF)** for tree species under the CITES-NDF Guidance.

Non-Detriment Findings (NDFs) for Sustainable Trade:

1. **NDFs** are essential for sustainable global trade in CITES-listed species.
2. NDFs support livelihoods in countries of origin and industries in production and destination countries.
3. **Paola Mosig Reidl**, TRAFFIC co-lead, emphasized the importance of NDFs for the sustainability of rosewood trade.

Report on CITES-Listed Rosewood Species:

1. CITES published a report on traded CITES-listed rosewood species, including locations of existing rosewood NDFs.
2. The report identifies the **country of origin**, **species vulnerability**, and **conservation priority**.
3. It outlines species' characteristics, ecological roles, regeneration rates, and global trade levels, both legal and illegal.

Upcoming Workshop on Rosewood Species:

1. CITES secretariat will hold an **in-person workshop** from September 2-6 in Douala (Cameroon) focused on rosewood species.
2. Aim: To provide a platform for range states to share experiences and best practices in implementing NDFs for rosewood species.

Significance:

1. The guidelines and capacity-building efforts will help ensure the sustainable trade of rosewood species and prevent their over-exploitation.
2. The report on CITES-listed rosewood species will provide valuable information for range states to develop effective conservation and management plans.
3. The upcoming workshop will facilitate knowledge sharing and collaboration among range states to address challenges in implementing NDFs for rosewood species.

About Rosewood Tree:

1. **Rosewood**: A commercial term encompassing a wide range of tropical hardwoods in the Fabaceae (Leguminosae) family.
2. **Distribution**: Native to South-East Asia, Papua New Guinea, the Solomon Islands, Sabah, Philippines, Indonesia, and Malaysia.

Indian Rosewood:

1. **Dalbergia sissoo** (North Indian rosewood): Fast-growing, hardy, deciduous tree native to the Himalayas' foothills.
   a. Distribution: From Afghanistan to Bihar, India.
   b. Habitat: Primarily along riverbanks above 200 m elevation, up to 1,400 m.
2. **Dalbergia latifolia** (East Indian Rosewood): Known as East Indian Rosewood, Black Rosewood, Bombay Blackwood, Indonesian Rosewood, Malabar rosewood.
   a. Habitat: Tropical dry and moist deciduous forests, also in plains.
   b. Distribution: India, Nepal, Andaman Islands, Malay Peninsula, Indonesia, Himalayas, China, Malaysia.
   c. Uses: Furniture, musical instruments, decorative items, and veneers.
   d. Conservation status: Listed in Appendix II of the CITES list.

Key Facts about CITES:

1. **CITES**: An international agreement ensuring that international trade in wild animals and plants does not threaten their survival.
2. Adopted in **1973** and entered into force in **1975**.
3. **Member countries**: 184 member parties, regulating trade in over 38,000 species.
4. CITES is legally binding on Parties but does not replace national laws.
5. **Secretariat**: Administered by the United Nations Environment Programme (UNEP), located in Geneva, Switzerland.

11. Denisovans: A New Discovery on the Tibetan Plateau

1. A recent study published in the journal Nature has revealed that **Denisovans**, an ancient human species closely related to modern humans, inhabited the Tibetan plateau for over 100,000 years.
2. The discovery highlights their remarkable resilience and adaptability, thriving in one of Earth's harshest environments.

The Discovery

1. **Location:** Baishiya Karst Cave, 3,280 meters above sea level in China's Gansu province.

2. **Methodology:** Analysis of thousands of animal bone fragments using Zooarchaeology by Mass Spectrometry (ZooMS).
3. **Findings:**
   - A rib bone fragment dating back between 48,000 and 32,000 years, making it the youngest known Denisovan fossil.
   - Evidence of Denisovans' ability to hunt and process a range of large and small animals, including woolly rhinos, blue sheep, wild yaks, marmots, and birds. Cut marks on the bones suggest they utilized the animals for their hides, meat, and bone marrow.

Who are Denisovans?

1. An extinct species of hominid closely related to modern humans.
2. First identified in 2010 from remains in a Siberian cave.
3. Lived in various environments: cold mountains of Siberia and Tibet, jungles of Southeast Asia.
4. **Time period:** 500,000 to 30,000 years ago (last Ice Age).
5. The discovery of Denisovan fossils in Laos and now on the Tibetan plateau suggests they may have lived across much of Asia.
6. Related to both Neanderthals and modern humans, possibly interbreeding with both.
7. Share a common ancestor with Neanderthals and modern humans: Homo heidelbergensis (likely lived in Africa).
8. May have had dark skin, dark hair, and dark eyes.
9. Low genetic diversity in the Denisovan genome suggests their population may never have been very large.

Implications of the Discovery

1. **Denisovan Resilience:** The discovery sheds new light on the Denisovans' ability to thrive in extreme environments and their flexibility in using available resources.
2. **Interaction with Modern Humans**: The finding raises questions about the possibility of interaction between Denisovans and modern humans, who were dispersing across the Eurasian continent at the same time.

Future Research

1. **DNA Recovery**: The team is trying to recover DNA from the new specimen, which could provide more detailed genetic information about the rib's owner and the wider Denisovan population.
2. **Regional Research**: Further research at the site and in the region could shed light on whether Denisovans and modern humans interacted on the Tibetan plateau.

12. Phlogacanthus Sudhansusekharii: New Plant Species Discovered in Arunachal Pradesh

Researchers from the Botanical Survey of India (BSI) have discovered a new plant species, **Phlogacanthus Sudhansusekharii**, in the Itanagar Wildlife Sanctuary in Arunachal Pradesh.

Naming and Classification

1. The species is named after Dr. Sudhansu Sekhar Dash, a scientist at the BSI, in recognition of his significant contribution to plant and ecological research in the Indian Himalayan region.
2. Phlogacanthus Sudhansusekharii belongs to the family Acanthaceae and the Phlogacanthus genus.
3. The Phlogacanthus genus consists of 13 species in India, primarily distributed across the northeastern and eastern Himalayan states.

Distinctive Characteristics

1. The newly described species shares similarities with Phlogacanthus Guttatus (Wall) Nees.
2. However, it exhibits distinct morphological differences, particularly in the shape and size of its calyx, staminodes, and a strikingly different corona color.

Research Publication

A comprehensive research paper detailing the new species has been published by Samrat Goswami and Rohan Maity in the Indian Journal of Forestry.

Location of Discovery

The species was discovered in the Itanagar Wildlife Sanctuary, situated in the Papum Pare district of Arunachal Pradesh.

About Itanagar Wildlife Sanctuary

1. **Location:** Naharlagun, near the capital city of Arunachal Pradesh

2. **Area:** 140.30 sq. km
3. **Borders:** Pam River (east), Pachin (south), Neorochi (north-east), Chingke stream (north)
4. **Flora:** A diverse mix of evergreen and semi-evergreen forest types, including pure bamboo patches and various orchid species
5. **Fauna:** Rich wildlife, including tigers, leopards, clouded leopards, elephants, barking deer, sambar, primates (hoolock gibbons, macaques), and birds (hornbills, eagles, pheasants)

About Botanical Survey of India (BSI)

1. **Establishment:** 13th February 1890, under the direction of Sir George King
2. **Mandate:** Biosystematics research, floristic studies, documentation, National Botanical collection database, digitization of herbarium specimens
3. **Headquarters:** Kolkata
4. **Objective**: Explore, collect, identify, and document India's plant diversity for sustainable use

Significance of the Discovery

1. **Biodiversity:** Underscores the rich biodiversity of Arunachal Pradesh and the need for its preservation
2. **Ecological Research**: Contributes to understanding plant and ecological research in the Indian Himalayan region
3. **Conservation:** Emphasizes the importance of conservation efforts to protect India's natural heritage
4. **Sustainable Development:** Potential for new medicines, food sources, and other sustainable resources

13. Megafauna: Discovery in Andhra Pradesh

1. Archaeologists unearthed the world's oldest known ostrich nest, dating back 41,000 years, in Andhra Pradesh, India.
2. This remarkable find could shed light on the extinction of megafauna in the Indian subcontinent.

Understanding Megafauna

1. **Definition:** Megafauna refers to animals exceeding a certain weight threshold, typically above 50 kg.
2. **Classification:**
   a. **Megaherbivores:** Plant-eaters
   b. **Megacarnivores:** Meat-eaters
   c. **Megaomnivores:** Consume both plants and meat
3. **Impact of Humans:**
   - Anthropogenic pressures since the Late Pleistocene have caused significant declines in megafauna populations, particularly among megacarnivores.

Examples of Extinct Megafauna

a. Woolly mammoths
b. Sabre-toothed tigers
c. Giant sloths

14. Discovery of the World's Rarest Whale in New Zealand

Location: Otago province, South Island, New Zealand
Event: A dead spade-toothed whale, considered the world's rarest whale, was found washed up on a beach in New Zealand.

Background

1. The spade-toothed whale was first described in 1874 after a lower jaw and two teeth were collected from New Zealand's Chatham Islands.
2. Only six specimens have been documented worldwide, with two recent findings of stranded whales off New Zealand's North Island in 2010 and 2017.
3. The species is thought to deep-dive for food and surface so rarely that its habitat and behaviour are unknown.

Significance

1. This is only the seventh recorded specimen of the species, and the first to be found in a relatively fresh state, allowing for further research and analysis.
2. The species has never been seen alive, and very little is known about its habits, habitat, and behaviour.
3. The discovery could provide crucial new information about the species, including its diet, habitat, and population size.

Conservation Status

1. The spade-toothed whale is **listed as *"Data Deficient" on the IUCN Red List***, indicating that there is not enough data to assess its conservation status.
2. The discovery highlights the need for further research and conservation efforts to protect this rare and poorly understood species.

Cultural Significance

1. Whales are considered a sacred treasure by New Zealand's Māori people.

2. Local Māori communities will be involved in deciding the fate of the whale's remains.

Research Opportunities

1. The discovery provides a unique opportunity for scientists to study the species up close and gather valuable data.
2. The whale's remains will be dissected, allowing researchers to learn more about its anatomy and physiology.

Implications

1. The discovery highlights the importance of continued research and conservation efforts to protect rare and endangered species.
2. It also underscores the need for greater understanding and protection of the world's oceans and their inhabitants.

15. Chinese Migratory Bird Sanctuaries Added to UNESCO World Heritage List

1. **China's Migratory Bird Sanctuaries along the Yellow Sea-Bohai Gulf** (Phase II) have been added to the UNESCO World Heritage List, marking a significant milestone in global biodiversity conservation efforts.
2. This **announcement was made during the 46th session** of UNESCO's World Heritage Committee held in New Delhi.

New Sites

The newly recognized sites are an important addition to the original area, which was added to the World Heritage List in 2019. These new sites include five key areas:

1. An **estuarine wetland in Chongming, Shanghai**
2. The **Yellow River estuary in Dongying, Shandong province**
3. A **wetland area in Cangzhou, Hebei province**
4. A **national-level nature reserve in Dalian, Liaoning province**
5. The **Yalu River estuary in Dandong, Liaoning**

About Bohai Gulf:

1. **Definition:** The **Bohai Gulf** is the innermost gulf of the **Yellow Sea** on the coast of Northeastern and North China.
2. **Alternative Names:** It is sometimes called the **Bohai Sea**, or **Bo Hai** for short; in earlier times, it was called the **Gulf of Chili** or the **Gulf of Pechili**.
3. **Area:** It is approximately **78,000 sq. km** in area, and its proximity to **Beijing**, the capital of China, makes it one of the busiest seaways in the world.
4. **Geography:** The Bohai Gulf is enclosed by the **Liaodong Peninsula** (northeast) and the **Shandong Peninsula** (south).
5. **Important Cities:** Among the most important cities on the Bohai Gulf are **Dalian** and **Tianjin**; its shores form three of the most famous bays in the country: **Liaodong Bay**, **Bohai Bay**, and **Laizhou Bay**.
6. **Yellow River:** The **Yellow River**, China's second longest river, discharges into the gulf.
7. **Resources:** There are both onshore and offshore **petroleum deposits**, and several **oil refineries** are located there, as well as other industries.

Key Facts about the Yellow Sea:

1. **Definition:** The **Yellow Sea** is a marginal sea of the **western Pacific Ocean**.
2. **Location:** It is situated between **mainland China** to the west and north, the **Korean Peninsula** to the east, and the **Shandong Peninsula** and **Liaodong Peninsula** to the south.
3. **Connection:** It connects with the **Bohai Sea** to the northwest.
4. **Size:** Also referred to in China as **Huang Hai** and in North and South Korea as the **West Sea**, the Yellow Sea is **870 kilometres long** and **556 kilometres wide**.
5. **Depth:** It is one of the largest shallow areas of continental shelf in the world, with an **average depth of 44 metres** and a **maximum depth of 152 metres**.
6. **Inflow:** Several major rivers, including the **Yellow River** and the **Yangtze River**, discharge into the Yellow Sea.
7. **Islands:** The Yellow Sea is dotted with numerous islands, the largest of which include **Jeju Island** (South Korea), the **Shandong Peninsula islands** (China), and **Ganghwa Island** (South Korea).
8. **Climate:** The climate is characterized by very **cold**, **dry winters** and **wet**, **warm summers**.
9. **Currents:** The warm current of the Yellow Sea is a part of the **Tsushima Current**, which diverges near the western part of the Japanese island of **Kyushu** and flows at less than **0.5 mile (0.8 km)** per hour northward into the middle of the sea. Along the continental coasts, **southward-flowing currents** prevail, which strengthen markedly in the **winter monsoon** period, when the water is **cold**, **turbid**, and of **low salinity**.

G. Society And Culture

1. WHO study on Adolescent Girls

Recently, a **World Health Organization** study published in the Lancet medical journal revealed that **adolescent girls aged between 15 and 19 who have been in relationships have experienced physical or sexual violence.**

- The survey was conducted with thousands of adolescent girls from 154 countries and regions.

What are the Key Highlights of the WHO Study on Adolescent Girls?

1. **Prevalence:**
   a. It reveals that nearly a quarter (24%) of **adolescent girls** who have been in a relationship have experienced physical and/or sexual intimate partner violence by age 20.
   b. Approximately 1 in 6 (16%) adolescent girls reported experiencing such violence in the past year.
   c. No country is currently on track to eliminate violence against women and girls by the 2030 **Sustainable Development Goal** (Goal 5) target date.
2. **Regional Variations:**
   a. The **highest prevalence rates are in Oceania (47%)** (e.g., 49% of girls reporting intimate partner violence in Papua New Guinea) and 40% in central sub-Saharan Africa (e.g., In the Democratic Republic of Congo 42% reporting intimate partner violence).
   b. The **lowest rates** are in **central Europe (10%) and central Asia (11%).**
3. **Factors Influencing Prevalence:**
   a. **Higher rates of violence are found in lower-income countries**, regions with fewer girls in secondary education, and areas where girls have weaker legal property ownership and inheritance rights.
   b. Child marriage significantly increases the risk of intimate partner violence due to power imbalances, economic dependency, and social isolation.
   c. **According to the UN,** 1 in 5 young women worldwide (19%) were married in childhood in 2022.
4. **Implications of Intimate Partner Violence:**
   a. Increased likelihood of injuries, depression, anxiety disorders, unplanned pregnancies, and **sexually transmitted infections.**
   b. Long-term physical and psychological impacts.
   c. Negative effects on educational achievement, future relationships, and lifelong prospects.

Steps Needed to Empower Adolescent Girls recommended by WHO:

1. Strengthening support services and early prevention measures tailored for adolescents.
2. School-based programs to educate both boys and girls on healthy relationships and violence prevention.
3. Legal protections and economic empowerment initiatives for women and girls.
4. Ensuring secondary education for all girls.
5. Securing gender-equal property rights.
6. Ending harmful practices such as **child marriage.**
7. Supporting countries to measure and address violence against women.

Major Initiatives for Adolescent Girls in India

1. Beti Bachao Beti Padhao (BBBP)
2. Mahila Shakti Kendra (MSK)
3. Sukanya Samriddhi Yojna (SSY)
4. Nirbhaya Fund Framework
5. Constitution (106th Amendment) Act, 2023
6. Pradhan Mantri Mudra Yojana (PMMY)
7. **Gender Budget** has been made a **part of the Union Budget of India** since 2005 and entails fund allocation towards programmes/schemes dedicated to women.

8. The **Vigyan Jyoti programme** aims to **encourage girls to pursue higher education and careers in STEM** (Science, Technology, Engineering and Mathematics), especially in the areas where women's participation is low in order to balance the gender ratio across the streams.

2. Strengthening the suicide prevention efforts in India

The recent Lancet article highlights the need for greater political will to address the public health issue of suicide prevention in India, where over 1 lakh lives are lost annually.

What is the National Suicide Prevention Strategy?

1. The **National Suicide Prevention Strategy (NSPS)** launched in 2022, aimed to tackle suicide rates in India.
   - The National Strategy for Suicide Prevention in India aims to reduce **suicide mortality by 10% by 2030** through multisectoral collaboration, inclusiveness, and innovation.
   - It provides an action framework for key stakeholders to implement, monitor, and take corrective actions towards achieving the strategy's goal.
2. **Vision:** Establish a society where individuals value their lives and receive the support they need during critical times.
3. **Objectives:**
   - It plans to set up psychiatric outpatient departments in all districts within five years through the **District Mental Health Programmes.**
   - It seeks to integrate a **mental well-being curriculum into all educational institutions within eight years.**
   - Calls for developing guidelines for responsible media reporting of suicides and restricting access to means for suicide.

What is the Suicide Scenario in India?

1. **Annual Deaths**: The **National Crime Records Bureau (NCRB) annual report for 2022** revealed that India reported a total of over 1.7 lakh suicides in 2022, with nearly one-third of the victims being daily wage earners, agricultural laborers, and farmers.
   - From 2019 to 2022, the suicide rate increased from 10.2 to 11.3 per 1,00,000.
   - **Maharashtra reported the highest number of suicides (22,746)**, followed by Tamil Nadu (19,834), Madhya Pradesh (15,386), Karnataka (13,606), Kerala (10,162), and Telangana (9,980).
2. **Causes of Suicides:** The most common causes were family problems, **unemployment, Farmers Distress, financial problems and illness,** accounting for almost half of all suicides.
3. **Other causes** included **drug abuse, alcohol addiction, and marriage-related issues**, with a significant number of women citing **dowry-related problems.**

What is the Need to Address the Suicide Prevention in India?

1. **Impact on Individuals and Society:** Each suicide death profoundly impacts close individuals, including family and friends, underscoring the widespread social and emotional ramifications.
2. **Mental Health Stigma:** Cultural and social stigma surrounding mental health issues **often prevent individuals from discussing their challenges openly or seeking help**.
   - Suicide is misinterpreted as an act of cowardice, a crime, or a sin, rather than a **manifestation of deep psychological distress,** deterring preventive measures.
3. **Societal Pressure:** Societal norms regarding academic and career achievements, gender roles, and marital expectations exert significant pressure, making it challenging for many to speak out or seek help against these norms.
4. **Economic Burden:** The economic cost of suicide includes healthcare expenses and loss of productivity, which affects the nation›s economy.

What are the Challenges and Potential Solutions for Suicide Prevention in India?

Challenge	Potential Solution
Lack of Resources: The healthcare system in India often lacks the resources to provide **adequate mental health support.**	1. Increase government investment in mental healthcare infrastructure and personnel. 2. Expand community-based mental health programs 3. Incentivize private sector involvement in mental healthcare provision.
Insufficient Data Collection: Inadequate reporting, lack of comprehensive studies, and **under-reporting of suicide attempts** hinder understanding the extent of the crisis and designing effective interventions.	1. Improve data collection and reporting systems for suicides and suicide attempts. 2. Conduct comprehensive studies on risk factors and prevalence of suicidal ideation. 3. Promote awareness and reduce stigma around seeking help for mental health issues.
Lack of Political Will: Both central and state governments show insufficient attitude towards suicide prevention.	1. Advocate for **stronger political commitment** to suicide prevention initiatives. 2. Develop and **implement a national suicide prevention strategy** with clear goals and timelines.
Inadequate Media Involvement: The media often lacks the **will to educate itself on responsible reporting of suicides**. Proper guidelines for media reporting of suicides need to be developed and followed.	1. Develop and enforce **guidelines for responsible media** reporting of suicides. 2. **Train media professionals** on sensitive reporting of mental health issues. 3. Collaborate with media outlets to **promote public awareness campaigns** on suicide prevention. 4. **Use media platforms to spread information** about available mental health resources.

What are the Initiatives Related to Suicide Prevention in India?

1. **National Mental Health Programme (NMHP): District Mental Health Programme (DMHP)** is Implemented in 738 districts, offering outpatient services, counselling, continuing care, and bedded inpatient facility at the district level.
2. **National Tele Mental Health Programme:** Launched in 2022 to improve access to quality **mental health counselling and care services across the country.** The **Ministry of Social Justice and Empowerment** has launched a **24/7 toll-free helpline «KIRAN» to provide mental health support.**
3. **Ayushman Arogya Mandirs:** More than 1.6 lakh Sub-Health Centres (SHCs), Primary Health Centres (PHCs), Urban Primary Health Centres (UPHCs), and Urban Health and Wellness Centres (UHWCs) have been upgraded to **Ayushman Arogya Mandirs.**
4. **Manodarpan Initiative:** Manodarpan is an initiative of the **Ministry of Education under Atmanirbhar Bharat Abhiyan** to provide psychosocial support for mental health and well-being during Covid-19.

Note:

1. **Section 309 of the Indian Penal Code, 1860** deals with the provision regarding attempt to **commit suicide, which is punishable** with simple imprisonment for up to one year or fine, or both.
   a. The legality and correctness of this provision have been subject to judicial debate, with some courts condemning it as unconstitutional, while the **Supreme Court** has upheld its validity.
2. The new **Bharatiya Nyaya Sanhita, 2023 (BNS) removes the section on attempting suicide but retains the provision for punishing** those who attempt suicide with the **intent to compel or restrain a public servant from discharging their official duty.**
   a. This amendment aligns the law with the **Mental Healthcare Act, 2017.**

3. The State of Food Security and Nutrition in the World 2024

1. The latest report on the State of Food Security and Nutrition in the World, published in 2024, offers a stark picture of the global food situation, highlighting the urgent need for increased and more effective financing to combat hunger, food insecurity, and malnutrition.
2. The report is jointly prepared by the **5 agencies**:
   - I. Food and Agriculture Organization of the United Nations (FAO),
   - II. the International Fund for Agricultural Development (IFAD),
   - III. the United Nations Children's Fund (UNICEF),
   - IV. the World Food Programme (WFP), and
   - V. the World Health Organization (WHO).
3. The **theme of the report** focuses on the financing to end hunger, food insecurity and malnutrition in all its forms.

Key Findings:

1. **Prevalence of Hunger**: An estimated 713 to 757 million people faced hunger in 2023, a slight increase from the previous year.
2. **Food Insecurity**: Roughly 2.33 billion people experienced moderate or severe food insecurity in 2023.
3. **Severe Food Insecurity:** More than 864 million people globally faced severe food insecurity, lacking consistent access to adequate food.
4. **Affordability of Healthy Diets**: The cost of a healthy diet remains unaffordable for more than 3 billion people worldwide.
5. **Financing Gap:** There's a significant financing gap to achieve the Sustainable Development Goals related to hunger and malnutrition.

Key Recommendations:

1. **Increased Financing:** Mobilizing additional resources, particularly in countries with the highest burden of hunger and malnutrition, is essential.
2. **Effective Use of Existing Financing**: All countries need to improve the efficiency and effectiveness of current financing mechanisms.
3. **Innovative Financing Options**: Exploring new financing options, including public-private partnerships and innovative financial instruments, can help bridge the gap.
4. **Addressing Underlying Drivers**: Tackling the root causes of food insecurity and malnutrition, such as conflict, climate change, and economic instability, is crucial.

SOFI 2024 paints a concerning picture of the global food situation, underscoring the urgent need for increased investment and more effective financing mechanisms to ensure food security and nutrition for all. It emphasizes the importance of addressing the underlying drivers of hunger and malnutrition and exploring innovative financing options to achieve the Sustainable Development Goals.

4. Indus Valley Civilization (IVC) / Harappan Civilization

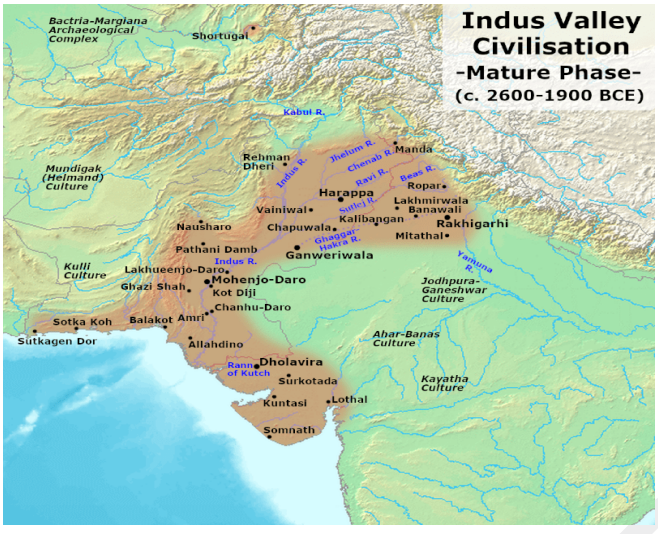
1. From referring to the ***Harappan civilisation as the 'Sindhu-Sarasvati' and 'Indus-Sarasvati'*** civilisation, to multiple mentions of the 'Sarasvati' river, including noting its desiccation as one of the **reasons for the decline of the Harappan society**, to a mention of India having had a "prime meridian of its own" called the 'Ujjayini meridian'.
2. The **new NCERT Class 6 Social Science textbook incorporates new perspectives**, including references to the 'Sarasvati' river and its desiccation as a contributing factor to the decline of the Harappan society.
3. The Indus Valley Civilization (IVC), also known as the Harappan Civilization, is one of the world's oldest urban cultures, dating back to around 3300 BCE to 1300 BCE. It was a Bronze Age civilization that flourished in the northwestern regions of South Asia, primarily in present-day Pakistan and northwest India.

Geographic Spread and Major Sites

The IVC extended over a vast area, encompassing parts of modern-day Pakistan and India. Key archaeological sites include:

1. **Harappa** (Punjab, Pakistan): One of the first sites to be excavated, giving its name to the civilization.

2. **Mohenjo-daro** (Sindh, Pakistan): Known for its advanced urban planning and the Great Bath.
3. **Dholavira** (Gujarat, India): Notable for its unique water conservation system.
4. **Lothal** (Gujarat, India): An important port city with a dockyard.
5. **Rakhigarhi** (Haryana, India): One of the largest Harappan sites.



Urban Planning and Architecture:

The urban planning of IVC cities is a testament to their advanced engineering skills. Key features include:

1. **Grid Layout**: Cities were laid out in a grid pattern with streets intersecting at right angles.
2. **Drainage System**: An elaborate drainage system with covered drains and soak pits.
3. **Granaries**: Large storage structures for surplus grain.
4. **Houses**: Built with standardized burnt bricks, featuring multiple rooms and wells.

Economy and Trade:

The Harappan economy was primarily agrarian, supplemented by trade and commerce. Key aspects include:

1. **Agriculture**: Wheat, barley, peas, and cotton were the main crops.
2. **Trade**: Extensive trade networks with Mesopotamia (present-day Iraq), Afghanistan, and other regions. Evidence of trade includes seals, beads, and pottery.
3. **Craftsmanship**: Skilled in metallurgy, bead-making, and pottery. The famous "Dancing Girl" bronze statue from Mohenjo-daro exemplifies their metallurgical prowess.

Script and Seals:

The Harappan script remains undeciphered, but numerous seals and inscriptions have been found:

1. **Seals**: Made of steatite, featuring animal motifs and inscriptions. The "Pashupati Seal" depicting a seated figure surrounded by animals is notable.
2. **Script**: Consists of pictographic signs, yet to be fully understood.

Social and Political Organization:

The social and political structure of the IVC is inferred from archaeological evidence:

1. **Society**: Likely egalitarian with no clear evidence of a ruling class or centralized monarchy.
2. **Religion**: Evidence of worship of mother goddess figures, animal worship, and possible proto-Shiva worship.

Decline of the Indus Valley Civilization:

The decline of the IVC around 1900 BCE is attributed to several factors:

1. **Climate Change**: Shifts in the monsoon pattern leading to reduced rainfall and droughts.
2. **River Changes**: Changes in the course of the Indus and Ghaggar-Hakra rivers affecting agriculture and settlement patterns.
3. **Invasion Theory**: Earlier theories of Aryan invasions have been largely debunked in favor of environmental causes.

5. After 46 Years Shree Jagannath Temple's Ratna Bhandar Reopens

1. In July 2024, The **sacred treasury** of Shree Jagannath Temple, Puri, known as Ratna Bhandar, was reopened after 46 years.
2. In another significant development, Magji Ladoo, a revered offering at the temple, has received the Geographical Indication (GI) Tag.

Ratna Bhandar Reopening:

1. The Odisha government formed a high-level committee headed by retired Justice Biswanath Rath to oversee the inventory of valuables, including jewelry, stored within the Ratna Bhandar.
2. The Ratna Bhandar **consists of 2 chambers**:
   I. The Bahar Bhandar (outer chamber) and

II. The Bhitar Bhandar (inner chamber).

3. It houses precious jewels belonging to the three sibling deities – Lord Balabhadra, Lord Jagannath, and Devi Subhadra.

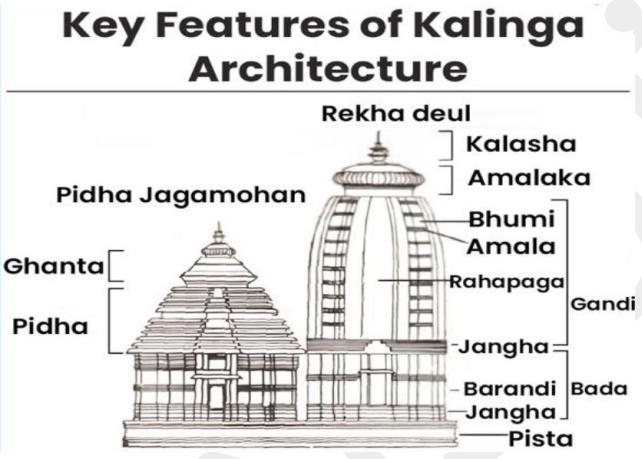
Magji Ladoo GI Tag:

1. Magji Ladoo, originating from Odisha's Dhenkanal district, is one of the 56 offerings (chappan bhog) at Shree Jagannath Temple.
2. It has now been granted the Geographical Indication (GI) Tag, recognizing its unique association with the region.

About Shree Jagannath Temple:

1. The temple is dedicated to Lord Jagannath (an incarnation of Lord Vishnu), along with his sister Devi Subhadra and elder brother Lord Balabhadra.
2. It was constructed in the first part of the 12th century A.D. during the reign of Anantavarman Chodaganga Deva, the founder of the Ganga dynasty.

Architectural Highlights:



1. The temple showcases Kalinga architecture, characterized by its 4 distinct components:
   a. Vimana or Deula (Garbhagriha) - the sanctum sanctorum built in the nagara style Rekha deula with a curvilinear tower (sikhar).
   b. Jagamohana - the assembly hall built in the Pidha deula style with tiers of diminishing platforms (pidhas).
   c. Natamandapa - the audience/dancing hall.
   d. Bhogamandapa - the hall for offerings.
2. The outer walls of the main temple feature carvings depicting 24 forms of Vishnu, including Keshava, Madhava, Damodara, and Narayana.

6. 51,200 Years Old: World's Oldest Cave Painting in Indonesia

Recently, Scientists have made a groundbreaking discovery in Indonesia, unveiling the world's oldest-known cave painting within Leang Karampuang cave in Sulawesi. The artwork is estimated to be at least 51,200 years old.

Key Points

1. **Previous Record Holder:** Prior to this discovery, the oldest recognized cave painting was also found in Sulawesi's Leang Tedongnge cave, dating back at least 45,500 years.
2. **Contention:** Some experts consider a painting in Spain's Maltravieso cave, attributed to Neanderthals, to be the oldest at around 64,000 years old.
3. **Karampuang Cave Painting:**
   a. **Age:** Its age was determined using uranium-based dating technology.
   b. **Depiction:** The painting features a standing pig and three smaller human-like figures rendered in dark red pigment.

The Sulawesi cave painting discovery pushes back the known origins of figurative art, showcasing the early creativity and storytelling capabilities of our ancestors.

7. Udayagiri-Khandagiri Caves

In July 2024, The President of India, Droupadi Murmu visited **Udayagiri caves, situated in Bhubaneswar, Odisha.**

About Udayagiri and Khandagiri Caves:

1. The caves are situated on two adjacent hills, **Udayagiri and Khandagiri mentioned as Kumari Parvata in the Hathigumpha inscription.**
2. They have a number of finely carved caves **built during the 1st century BCE.**
3. Most of these caves were carved out as **residential blocks for Jain ascetics during the reign of King Kharavela.**
   a. **Kharavela was a monarch of Kalinga in present-day Odisha,** who ruled during the second or first century BCE.
   b. The **kingdom of Kalinga was invaded by Ashoka in 262-261 BCE.**

c. The **Hathigumpha inscription implies** that Kalinga regained its independence from the Maurya Empire sometime after Ashoka's death.

d. **Kharavela was born in an independent Kalinga.**

4. The rock cutting activities continued **till the time of the Somavamsis of tenth-eleventh century A.D.**
5. Most of the caves consist of a row of cells with portions opening into the courtyard. The doorway of cells has pilasters on either side with crowning animal figures and arches, decorated with flowers, creepers and animal motifs.
6. **Udayagiri means 18 caves while Khandagiri has 15 caves.**
7. The caves of Udayagiri and Khandagiri **are called called lena or leṇa in the inscriptions.**
8. The most important **was Ranigumpha in Udayagiri which is a double storeyed monastery.**
9. **Other important caves** include ***Hathi Gumpha, Ananta Gumpha, Ganesha Gumpha, Jaya Vijaya Gumpha, Mancapuri Gumpha, Bagha/ Vyaghra Gumpha and Sarpa Gumpha.***
10. The Caves are also listed as one of the **Adarsh Smarak Monument by Archaeological Survey of India.**

a. Under the Adarsh Smarak initiative, the selected places are provided with additional facilities like wi-fi, cafeteria, interpretation centre, Braille signages and illumination among other things.

b. **The scheme was launched in 2014** for providing improved visitor amenities, especially for the physically challenged.

Some important Caves at Udayagiri:

I. Rani Gumpha 'Cave of the Queen':

1. Rani Gumpha is the **largest and most popular cave among the caves of Udayagiri and Khandagiri.**
2. This cave is double storeyed.
3. The upper portion of the central wing has relief images depicting the victory march of a king.
4. **Many of the cells have carved Dwara Pala images.**

II. Mancapuri and Swargapuri Gumpha:

1. Mancapuri and Swargapuri Gumpha are double storeyed.
2. Manchapuri cave depicts two male and two female figures worshipping the **Kalinga Jina that Kharavela brought back from Magadha.**
3. **Kalinga Jina had been taken away from Kalinga by Mahapadmananda** and its **restoration was considered to be a great achievement of Kharavela.**
4. **There are three inscriptions:** one inscription talks about the **chief queen of Kharavela,** and the *other two refer to Kudepasiri, the successor of Kharavela and Badukha, the son or brother of Kudepasiri.*

III. Ganesha Gumpha:

1. The cave is named for the **carved figure of Ganesha on the back of its right cell. It would have been carved in the later period.**
   - The carved figures of **Dwara Palas are found at the entrances.**

IV. Hathigumpha:

1. It is a **large natural cave** with an inscription carved **out in Brahmi Script by King Kharavela which is the main source of information about him.**
2. The cave is known as **Hathi Gumpha due to its exquisite carvings of elephants.**

8. Pilgrim Corridor Initiatives: Enhancing India's Sacred Sites

1. The **Union Budget 2024-25** has earmarked funds for corridor projects at the Vishnupad Temple in Gaya and the Mahabodhi Temple in Bodh Gaya, Bihar.
2. These revered sites, located approximately 10 km apart, are set to undergo significant development, drawing inspiration from the successful Kashi Vishwanath Temple Corridor in Varanasi.

The Kashi Vishwanath Model

The Kashi Vishwanath Corridor, inaugurated in 2019, serves as a blueprint for these new projects. It transformed the pilgrimage experience by creating an easily accessible

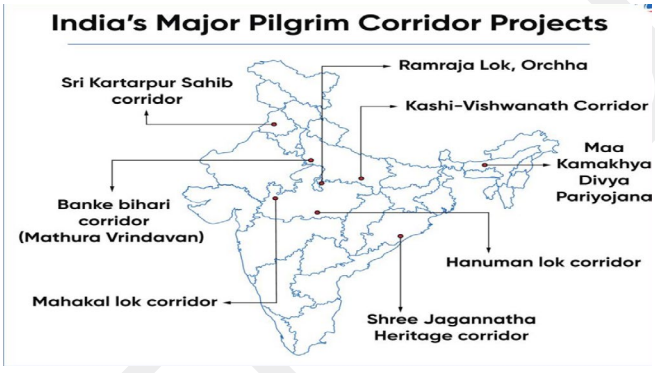
pathway connecting the Shri Kashi Vishwanath Temple to the banks of the sacred Ganga River.

Understanding Pilgrim Corridor Projects

Pilgrim Corridor Projects encompass large-scale infrastructure development aimed at revitalizing religious sites and improving connectivity between them. These initiatives seek to transform pilgrimage destinations into world-class attractions for both devotees and tourists.

Key Features of Pilgrim Corridor Projects

1. **Preservation and Restoration:** Existing structures and heritage sites are carefully preserved and restored, ensuring their longevity.
2. **Integration of Development and Heritage:** New infrastructure is designed to complement the existing heritage, creating a harmonious blend of old and new.
3. **Enhanced Visitor Experience:** Facilities like wider pathways, crowd management systems, and improved accessibility features create a more comfortable and enjoyable experience for visitors.
4. **Economic Growth:** These projects stimulate local economies through increased tourism, generating employment opportunities and supporting ancillary businesses.



Addressing Challenges

Pilgrim Corridor Projects can face certain challenges, including:

1. **Rehabilitation and Resettlement:** Land acquisition and the resettlement of affected communities require careful planning and sensitivity.
2. **Preservation of Existing Structures:** Balancing new development with the protection of existing structures, especially those of historical or cultural significance, is crucial.
3. **Environmental Sustainability:** Large-scale construction and increased tourism can impact the environment. Implementing sustainable practices is vital to mitigate these effects.

Initiatives for Cultural and Heritage Conservation

1. PRASHAD Scheme:

a. **Focus:** Development of pilgrimage sites across India.

b. **Contribution:** Enhances the religious tourism experience by improving infrastructure and facilities at pilgrimage destinations, thus promoting their preservation and upkeep.

2. HRIDAY Scheme:

a. **Focus: Integrated development of heritage cities.**

b. **Contribution: Brings together urban planning, economic growth, and heritage conservation, ensuring that historical cities develop sustainably while preserving their unique character and cultural heritage.**

3. Adopt a Heritage 2.0:

a. **Focus:** Corporate participation in monument preservation.

b. **Contribution:** Encourages private sector involvement in the maintenance and upkeep of historical monuments, easing the financial burden on the government and fostering a sense of shared responsibility for heritage conservation.

4. Parvatmala Pariyojana:

a. **Focus:** Enhancing connectivity to remote religious and tourist sites.

b. **Contribution:** Improves accessibility to pilgrimage sites located in hilly and mountainous regions, boosting tourism and promoting the preservation of cultural and natural heritage in these areas.

5. Swadesh Darshan Scheme:

a. **Focus:** Development of theme-based tourist circuits.

b. **Contribution:** Creates integrated tourist circuits based on specific themes, showcasing India's diverse cultural and natural heritage and promoting their preservation and development.

6. Kashi Tamil Sangamam:

a. **Focus:** Celebrating the historical connection between Tamil Nadu and Kashi.

b. **Contribution:** Strengthens cultural ties and fosters mutual understanding between two distinct regions, highlighting the shared heritage and traditions of India.

Way Forward

To ensure the success and sustainability of Pilgrim Corridor Projects, it is important to:

1. **Conduct Heritage Impact Assessments:** These assessments help identify and mitigate potential adverse impacts on heritage structures and cultural practices.
2. **Engage Local Communities:** Involving local communities in the planning and implementation process ensures their concerns are addressed and their support is garnered.
3. **Promote Sustainable Tourism:** Encouraging responsible tourism practices helps minimize the environmental impact of increased visitor numbers.

About Vishnupad Temple

1. **Location:** Gaya, Bihar, on the banks of the Falgu River.
2. **Dedicated to:** Lord Vishnu, marked by his footprint (Dharmasila) on a Basalt Rock.
   a. The footprint features four symbols: Conch-Shell (Shankha), Wheel (Chakra), Mace (Gada), and Lotus (Padma).
   b. According to Hindu mythology, this marks where Lord Vishnu subdued the demon Gayasur.
   c. This sacred site is mentioned in the Mahabharat and the Ramayana.
3. **Restoration:** The current structure was restored in 1787 by Devi Ahilya Bai Holkar, ruler of Indore.

Mahabodhi Temple Complex

1. **Location:** Bodh Gaya, Bihar
2. **Global recognition:** UNESCO World Heritage Site
3. **Historical Background:**
   a. The first temple was built by Emperor Asoka in the 3rd century B.C.
   b. The current temple, from the 5th or 6th century, is one of the oldest brick-built Buddhist temples.
4. **Main Temple:**
   a. Built in classical Indian style with a curvilinear shikhara (tower).
   b. The design is neither purely Dravida nor Nagara.
   c. Entrances from the east and north.
   d. Decorated basement with niches containing images of the Buddha.
5. **Vajrasana (Diamond Throne):**
   a. Polished sandstone platform marking where Buddha meditated.
   b. Originally installed by Emperor Asoka.
6. **Seven Sacred Sites:**
   a. Sacred Bodhi Tree: Believed to be a descendant of the tree under which Buddha attained Enlightenment.
   b. Other sites: Animeshlochan Chaitya, Ratnachakrama, Ratnaghar Chaitya, Ajapala Nigrodh Tree, Lotus Pond, and Rajyatana Tree.

9. Moidams Inscribed in the UNESCO World Heritage List

1. In July 2024, during the **46th session of the World Heritage Committee (WHC)** in New Delhi, the **700-year-old Moidams of Assam** were officially inscribed on the UNESCO World Heritage List.
   - The 46th session of the WHC, inaugurated by PM Narendra Modi, is **being held in India for the first time.**
2. This marks a significant achievement as it is the **43rd Indian property to receive this honor** and the **first cultural site** from the northeastern region to be included.

More in News

1. The Moidams are the **third World Heritage Property from Assam**, joining the prestigious ranks of Kaziranga National Park and Manas Wildlife Sanctuary, both recognized in 1985 under the Natural category.

2. This recognition underscores India's rich cultural heritage, with the **country having successfully inscribed 13 World Heritage Properties in the last decade**, now ranking **6th globally** for the most World Heritage Properties.

About Moidams: The Mound-Burial System of the Ahom Dynasty

1. **Introduction:** Moidams are royal mound burial sites **created by the Tai-Ahom** people in northeastern India. Situated in the foothills of the **Patkai Ranges in eastern Assam**, these burial mounds hold sacred significance for the Tai-Ahom and reflect their distinct funerary practices.
2. **The Tai-Ahom and Moidams:** The Tai-Ahom clan migrated from China and established their capital in various parts of the Brahmaputra River Valley between the 12th and 18th centuries CE. **Charaideo, their first city,** also became the site of the royal necropolis. For 600 years, from the 13th to the 19th century CE, the Tai-Ahom constructed moidams, or **"home-for-spirit,"** utilizing natural elements like hills, forests, and water to create a sacred geography.
3. **Construction and Features:**
   a. Moidams are vaulted chambers (chow-chali), often double stories entered through an arched passage. The hemispherical mud-mound is topped with layers of bricks and earth, and its base is reinforced.
   b. Each vaulted chamber has a centrally raised platform where the body was laid, along with objects used by the deceased during their life, such as royal insignia, objects made of wood, ivory, or iron, gold pendants, ceramic ware, and weapons.
   c. The crematory rituals of the Royal Ahoms were conducted with grandeur, reflecting their hierarchy.
   d. The Changrung Phukan (canonical text developed by the Ahoms) records the materials used to construct a Moidam, showcasing a variety in materials and systems of construction.
   e. From the 13th to the 17th century CE, wood was primarily used for construction. In the 18th century CE onwards, stone and burnt bricks of various sizes were used for the inner chambers.
   f. Boulders, broken stones, bricks, and broken brick were used to construct the superstructure, while large stone slabs were used for the sub-substructure.
4. **Significance:** The Mound-Burial System of the Ahom Dynasty is an outstanding example of a Tai-Ahom necropolis, tangibly representing the Tai-Ahom funerary traditions and associated cosmologies.

About the Tai-Ahom Kingdom:

1. The Ahom kingdom (1228–1826) was a late medieval kingdom in the Brahmaputra Valley (present-day Assam), established by Sukaphaa, a Tai prince from present-day Yunnan Province, China.
2. The Ahom dynasty created a new state by overpowering the older political system of the bhuiyans (landlords) and expanded their influence, building a large state **by the 16th century.**
3. The **Ahom empire followed a monarchical system** of governance.
4. The kingdom weakened with the rise of the Moamoria rebellion and subsequently fell to repeated Burmese invasions of Assam.
5. With the defeat of the Burmese after the First Anglo-Burmese War and the Treaty of Yandabo in 1826, control of the kingdom passed into East India Company hands.

The Mound-Burial System of the Ahom Dynasty is an outstanding example of a Tai-Ahom necropolis (an extensive and elaborate burial place) that represents tangibly the Tai-Ahom funerary traditions and associated cosmologies.

10. Thangka Art: Cultural identity for the Tibetans

1. **The Thangka painting** is a work of art and also a matter of cultural identity for the Tibetans residing in Majnu Ka Tila, Delhi.
2. The traditional Thangkas are usually small in size and many of the original ones came in sets or as a series of narrative mythological scenes.

About Thangka Art

Origin and history:

1. Tibetan Buddhist painting developed from widespread traditions of early Buddhist paintings which now only survive in a few sites such as the **Ajanta Caves in India and the Mogao Caves in China.**
2. **The thangka form developed alongside the tradition of Tibetan Buddhist wall paintings,** which are or were mostly in monasteries.
   a. The early history of the art form is more easily traced through these murals, which survive in greater numbers.

Features:

1. **It is a Tibetan Buddhist painting on cotton, silk applique,** usually depicting a Buddhist deity, scene, or ***mandala.***
2. Thangka means ***'thing that one unrolls',*** which means unframed painting rolled up after completion. These paintings are usually called unframed.
3. The most common is a **loosely woven cotton produced in widths from 40 to 58 cm (16 - 23 inches).** While some variations do exist, thangkas wider than 45 cm (17 or 18 inches) frequently have seams in the support.
4. The paint consists of **pigments in a water-soluble medium of animal glue.** Both mineral and organic pigments are used.
5. Commonly painted by **Holy lamas or Buddhist monks.**
   a. The intricate pieces depict the life story of Buddha or other Buddhist deities and influential Lamas and serve both as devotional objects and teaching tools.
   b. Most thangkas were intended for personal meditation or instruction of monastic students.
   c. A central deity is often surrounded by other identified figures in a symmetrical composition.
   d. **Narrative scenes are less common, but do appear.**
   e. One important subject is the ***Wheel of Life (Bhavachakra), which is a visual representation of the Abhidharma teachings***

(Art of Enlightenment).

6. **Two largest thangkas** are displayed at **Potala Palace in Tibet,** which also holds a collection of 10,000 Thangka paintings dating back to 300 years.

Thangka Painting in India:

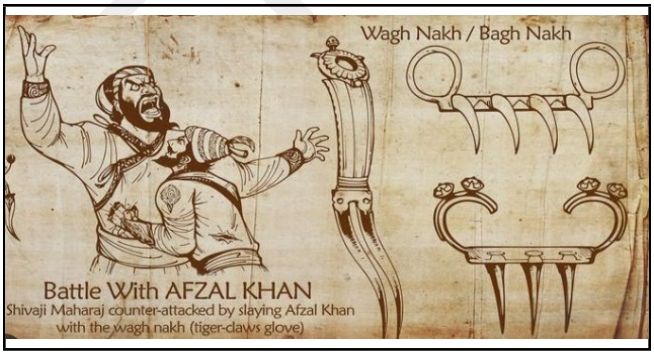
1. **Thangkas were painted in all the areas where Tibetan Buddhism flourished,** which included *Mongolia, Ladakh, Sikkim, and parts of Himalayan India in Arunachal Pradesh, Dharamshala, and Lahaul and Spiti district in Himachal Pradesh.*
2. Thangka paintings of **Himalayan North-East Zone** are a sacred form of art maintained and preserved by the local Buddhist.
3. Thangka paintings are a reliable source of information and pillar of Buddhism.
4. Tibetan Thangkas have depictions of Rinpoche and Dalai Lama whereas ***Sikkimese Thangkas have depictions of Chogyal or last King of Sikkim along with Rinpoche and Monks.***

Though Thangka art has also been influenced by industrialisation, commercialisation and mass production, it has not impacted the traditional production method unlike India's Madhubani art, which has seen a decline in quality due to adoption of non-traditional colour schemes.

11. After 350 Years, Chhatrapati Shivaji's "Wagh Nakh" Back In India

The iconic **Wagh Nakh or tiger claws** used by **Maratha king Chhatrapati Shivaji Maharaj** was **brought to India from London**. The weapon was **brought to Mumbai** from the Victoria and Albert Museum to commemorate the **350th anniversary of the famed Maratha ruler's ascension to the throne.**

About Wagh Nakh:



Literally 'tiger claws', the wagh nakh is a medieval claw-like dagger which was used across the Indian subcontinent.

1. It was a weapon used for personal defence or stealth attack.
2. **It is believed that the 'wagh nakh' was used by Shivaji to kill Bijapur Sultanate's general Afzal Khan in 1659**
   a. Afzal Khan was a general of **Bijapur's Adil Shahi Sultanate.**
   b. Shivaji used to be a **former vassal of the Adil Shahis but by the 1650s,** he had become increasingly assertive, taking forts across the Konkan, and bringing under control large areas of Adil Shahi territory.
   c. Given Afzal Khan's success in the south, he was sent by the Sultan, with a mighty army, to subdue the Maratha icon.
   d. **As per historical accounts, the Maratha ruler killed Afzal Khan at the foot of Pratapgarh Fort** in the present-day Satara district of Maharashtra.
   e. In the **Battle of Pratapgarh, the Marathas defeated the Adilshahi forces**. The killing was a turning point in history as it helped Shivaji to establish the Maratha Empire's rule.

How did Chhatrapati Shivaji Maharaj's *wagh nakh* reach London?

1. According to the Victoria and Albert Museum's website, the weapon was brought to Britain by East India Company officer **James Grant Duff (1789-1858).**
2. Duff was the Company Resident (political agent) of the Satara State from 1818-22. He was also an historian, writing the 'A History of the Mahrattas (1826)'.
3. The **last Peshwa (Prime Minister) of the Marathas, Baji Rao II,** surrendered to the British in June 1818 after defeat in the Third Anglo-Maratha War.
   a. He was banished to Bithoor in Kanpur.
   b. It is believed that he surrendered this weapon to Grant Duff.

Shivaji Maharaj

Birth: Born on 19th Februrary 1630, in **Pune,** son of **Shahaji Bhosle** (Maratha General)

Important Battles: Battle of Pratapgad (1659), Battle of Pavan Khind (1660), Battle of Purander (1665), Battle of Sinhagad (1670), Battle of Sangamner (1679).

Titles: He took title of Chhatrapati, Shakakarta, Kshatriya Kulavantas and Haindava Dharmodhhaarak.

H. Ethics

1. A Message on the Model Code of Conduct for Leaders

The motto **"Satyameva Jayate" ("Truth alone triumphs"), adopted from the Mundaka Upanishad, became India's national motto on January 26, 1950,** coinciding with the birth of the Election Commission of India (ECI). The ECI's mandate is to ensure fair democratic elections, preventing undue influence through money, muscle power, or falsehoods.

But what is truth, and how is it addressed in the realm of politics and the Model Code of Conduct (MCC)?

Philosophical Perspectives on Truth

1. **Francis Bacon's Query:**
   a. Bacon's essay begins with "What is truth?" reflecting the complexity and elusiveness of defining truth.
2. **Ashokan Pillar Symbolism:**
   a. The **Ashokan pillar's four lions represent different perspectives of truth: personal, others' views,** an observer's view, and an unfathomable dimension that no one fully grasps. This mirrors the saying, **"God only knows the truth."**

Philosophers have long debated the nature, knowability, and universality of truth, leading to various interpretations and perspectives on what constitutes truth.

Various Thinkers' Perspectives on Truth:

Theory	Thinkers	Concept	Example
Correspondence Theory	Aristotle, Bertrand Russell	Truth is a match between statements and the external world. A statement is true if it accurately reflects reality.	"The grass is green" is true if the grass is indeed green.
Coherence Theory	Immanuel Kant, Friedrich Hegel	Truth is based on the internal consistency of ideas. A statement is true if it fits within a coherent framework of knowledge.	A scientific theory is true if it consistently explains various phenomena.
Pragmatic Theory	William James, John Dewey	Truth is determined by practical usefulness and successful outcomes.	The theory of gravity is true because it predicts object movement effectively.

Mahatma Gandhi's Quest for Truth

1. **Divine Truth and Non-Violence:**
   a. Gandhi viewed truth as synonymous with God and an ultimate reality. It is realized through non-violence (ahimsa) and introspection.

b. Truth is seen as a journey of self-discovery rather than a fixed endpoint.

2. **Truth in Action:**
   a. Gandhi developed **Satyagraha** ("truth force"), using civil disobedience and moral resistance to challenge injustices and awaken the oppressor's conscience.

The Model Code of Conduct (MCC) and Its Challenges

1. **Purpose and Expectation:**
   a. The aim of the Model Code of Conduct is to instill self-restraint in candidates and political parties and to expect ideal conduct from them during elections.
   b. However, **it may be naive to expect a sudden change in behaviour at the time of elections,** if such behaviour does not match their normal conduct.
2. **MCC vs. Moral Code:**
   a. The MCC is termed a "model" rather than a "moral" code because morality is subjective and deeper, focusing on intent rather than just impact.
   b. **Immanuel Kant's differentiation between legal guilt and ethical guilt underpins this**, where law deals with violations of others' rights, while ethics concerns itself with the intent.
3. **Legal and Ethical Dimensions:**
   a. The MCC prohibits appeals to caste, communal feelings, and religious sentiments to secure votes, listing these as **"corrupt practices" and electoral** offenses under the Indian Penal Code and **Representation of the People Act.**
   b. However, proving such offenses requires direct connection to voting, **leaving room for manipulative language.**
4. **Challenges of Enforcement:**
   a. The MCC's implementation faces challenges due to loopholes that allow political figures to escape accountability through clever wordplay, making legal enforcement seem elusive.

Lessons from the Mahabharata:

1. **Yudhishthira's Dilemma:**
   a. In the Mahabharata, Yudhishthira's half-truth about Ashwathama's death highlights the ethical complexity of truth and deception.
   b. **Although technically not false, his statement led to unintended consequences,** revealing the limits of moral high ground when truth is manipulated.
2. **Implications for Modern Politics:**
   a. The Mahabharata story suggests the need for a reevaluation of the MCC and a deeper moral introspection among political leaders.
   b. **Elections should not compromise ethical standards or lead to loss of moral integrity,** as the damage can extend beyond mere political contests.

Conclusion

The principle of "Satyameva Jayate" should guide political conduct, ensuring that leaders and political parties adhere to ethical standards beyond the mere adherence to the MCC. Ensuring truth and integrity in elections requires continuous moral introspection and a robust commitment to ethical behavior from all stakeholders, reflecting on historical lessons and philosophical insights.

2. NHRC Notice to Odisha Govt Over Custodial Death

The National Human Rights Commission **(NHRC) has issued a notice to the Odisha government,** seeking **an explanation regarding the custodial death of an individual and considering recommending monetary compensation** to the deceased's next of kin.

What is Custodial Death?

Custodial death occurs when a person dies while in the custody of law enforcement or correctional facilities. Causes can include excessive force, neglect, or abuse by authorities.

a. **The Law Commission of India defines custodial violence as violence by public servants against those in their custody.**

Judicial Pronouncements on Custodial Death:

1. **Kishore Singh vs. State of Rajasthan (1981):** The Supreme Court ruled that third-degree methods by police violate Article 21 of the Indian Constitution.
2. **Nilabati Behera vs. State of Orissa (1993):** The state is liable for compensation in cases of custodial deaths due to police negligence or brutality.
3. **Joginder Kumar vs. State of Uttar Pradesh (1994):** The Court highlighted violations of human rights due to indiscriminate arrests.
4. **D.K. Basu vs. State of West Bengal (1997):** The Supreme Court set guidelines to prevent custodial torture, including requirements for arrest memos and access to medical examination.

Custodial Death Guidelines:

1. **Third-Degree Methods:** Police should avoid using third-degree methods.
2. **Environment and Training:** Regular checks and training for police on human values.
3. **Section 114-B:** A proposed law for presuming injury during police custody.

Ethical Concerns Associated with Custodial Deaths:

Issue	Description
Violates Human Rights and Dignity	Inflicts harm and strips individuals of dignity.
Undermines Rule of Law	Contradicts principles of justice and equality.
Presumption of Guilt	Violates the principle of "innocent until proven guilty."
Opposes Professionalism and Integrity	Breaches ethical standards of law enforcement.

Measures to Prevent Custodial Torture:

1. **Strengthening Legal Systems:** Enforce laws against torture and ensure accountability.
2. **Police Reforms and Sensitization:** Improve training, oversight, and promote a culture of accountability.
   - **Example:** Prakash Singh Case (2006) led to directives for police reforms.
3. **Empowering Civil Society and Human Rights Organisations:** Advocate for victims, provide legal aid, and collaborate with international bodies.

International Conventions on Human Rights and Custodial Torture:

India is a signatory to several conventions that address custodial torture and human rights:

1. United Nations Convention Against Torture (UNCAT)
2. Universal Declaration of Human Rights (UDHR)
3. International Covenant on Civil and Political Rights (ICCPR)
4. Convention on the Elimination of All Forms of Racial Discrimination
5. Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)
6. Convention on the Rights of the Child
7. Convention on the Rights of Persons with Disabilities
8. International Covenant on Economic, Social and Cultural Rights (ICESCR)

Conclusion:

The NHRC's notice to the Odisha government highlights serious concerns regarding custodial deaths and emphasizes the need for strict adherence to legal standards and human rights norms. Effective measures and reforms are crucial to prevent such incidents and uphold the rule of law and human dignity.

I. Essay

Gender Bias: Has the Global Mindset Really Changed?

"I measure the progress of a community with the degree of progress women have achieved."

— Dr. B.R. Ambedkar

Gender inequality, characterized by unfair and biased treatment based on gender, has its roots deeply embedded in socially constructed roles. Societal norms often dictate that specific professions or jobs are best suited for one gender over another. Traditionally, men are seen as more suited for roles in finance, engineering, medicine, and sports, while women are relegated to domestic responsibilities such as caring for the household and children. When women do step outside the home to work, they are frequently encouraged to pursue careers that require less education and innovation. Such gender-based preferences are detrimental not only to social order but also to the broader evolution of humanity.

The struggle for female emancipation is historically profound. In the 18th century, women lived under male dominance, often confined to roles as uneducated homemakers. It was not until the late 1700s that significant advocacy for equal rights began, a struggle mirrored in Samuel Johnson's 1755 dictionary, which contained several sexist definitions. The journey toward women's empowerment has been long and arduous, marked by various movements and revolutions driven by courage and determination. Gaining voting rights significantly lifted the position of women in society. Many suffrage movements campaigned daily in support of women's voting rights. In the US, individuals like Elizabeth Stanton and organisations like National American Woman Suffrage Association, National Woman's Party played a key role in securing the voting rights for women However there are several countries like Kuwait, Qatar and Bahrain granted women the right to vote after the second half of the 20th century.

In ancient India, where goddesses were revered and women were honored as sahadharmini—equal partners—the arrival of patriarchal norms from the Middle East and Britain gradually eroded their status and respect coupled with already exising social evils like Sati Pratha, female foeticide, child marriage and dowry system.

However, with changing times, Indian women have achieved remarkable milestones. Trailblazers such as Savitribai Phule, Kalpana Chawla, and Indira Gandhi have exemplified women's transformative power over centuries. It has been a long journey from the country witnessing its first female Prime Minister and President to not just seeing one again but one belonging to a tribal community. The country has been blessed with talented women scientists like A. Chatterjee or B Vijayalakshmi. Women in India have not just entered but excelled in the combat forces etching their names in history. Very recently Major Radhika Sen of the Indian army was the second Indian peacekeeper to receive the Military Gender Advocate of the Year Award by the UN. Before Ms Sen, Major Suman Gawani was recognised for her service with the UN Mission in South Sudan in 2019.

Today, figures like Indra Nooyi have shattered glass ceilings in business, while athletes such as PV Sindhu and Mary Kom have achieved international acclaim. Leaders like Nirmala Sitharaman and Kiran Mazumdar-Shaw have made significant strides in politics and biotechnology, demonstrating the diverse accomplishments of Indian women.

Despite these advances, significant challenges persist. Cultural issues such as gender-biased sex selection and son preference have led to skewed sex ratios in India and neighbouring countries. Although laws guarantee equal inheritance rights, only about 20% of women own land or

property in India. Economically, despite the 1995 UN World Conference on Women outlining key areas for economic participation, significant gender pay gaps remain. Women often face discrimination in hiring, promotions, and wages, with India ranking 129th on the Global Gender Gap Index 2024 and closing only 64.3% of the gender gap. Socially, high rates of violence against women, including domestic violence and sexual harassment, restrict their freedom and societal participation.

Today, more than ever, women are enjoying freedom. However, there is a long way to go. There is a bittersweet contrast prevalent in India and globally. 2019 saw the highest number of women MPs (78) entering the 17th Lok Sabha while Assam recently started offering 1,000-2,500 per month just to keep girls in school and out of wedlock. Half of the 10,500 olympians are women in the Paris Olympics 2024 but we still have examples of countries like Iraq which proposed a law to lower marriage age for girls from 18 to 9. We have women excelling in the field of politics world over at the moment and prime examples are Kamala Harris, MichelleObama, AngelaMerkel, Giorgia Meloni, Jacinda Ardern just to name a few. We can only hope that a wider representation in politics to women specially to women of colour paints a better picture for tomorrow.

Global efforts to advance women's rights have been substantial. Key conferences, such as the 1920 International Congress of Women and the UN's pivotal conferences from the 1980s and 1990s, have driven progress. Initiatives like the HeForShe Campaign and the Women's Economic Empowerment Global Initiative promote gender equality through entrepreneurship and financial literacy. The Global Fund for Women supports grassroots leadership, and the G7 Gender Equality Advisory Council develops strategies for advancing women's rights. In India, the National Policy for Women 2016 addresses safety, economic independence, and educational access, reflecting a commitment to gender equality.

The 2030 Agenda for Sustainable Development sets ambitious targets to eliminate barriers and ensure full societal and economic participation for women. Major challenges include low female representation in leadership, widespread poverty affecting millions of women, significant workplace discrimination, imbalanced unpaid care work, and inadequate access to education and healthcare. Food insecurity, pervasive violence, and insufficient funding for gender initiatives also complicate progress. Legal barriers and lack of clean energy access further hinder advancement. Coordinated and urgent action is needed to transform these challenges into opportunities for achieving true gender equality.

To truly empower women, transformative changes must occur on multiple levels. Legal reforms are essential to protect against violence and ensure equal pay, while expanding access to education and skill development, especially in leadership and STEM fields, is crucial. Economic empowerment requires support for female entrepreneurship, equitable job opportunities, and financial access. Enhanced healthcare, including reproductive services, and increased political representation through quotas and mentorship are also vital. Equally important are shifts in attitudes and psychological frameworks—challenging societal norms and stereotypes that perpetuate inequality. Building supportive systems such as affordable childcare and flexible work options is necessary, but fostering a culture of respect and equality will drive lasting impact. Global cooperation and the sharing of best practices will further amplify these efforts, creating a more just and equitable world where women can truly thrive and lead.

Gender equality, while fundamentally a human right, is also crucial for achieving peaceful societies, realizing full human potential, and promoting sustainable development. The progress of mankind relies on the collective strides of all its members, and discrimination—whether unjust or unfounded—marks a regression in our shared intellectual ascent.

J. SCHEME

1. Revamped Model Skill Loan Scheme

1. The government has launched a revamped **'model skill loan scheme'** aimed at enhancing accessibility to **skill development courses** with a significantly increased maximum loan limit.
2. The new scheme raises the maximum loan limit from Rs 1.5 lakh to Rs 7.5 lakh. Initially launched in 2015, the **old scheme saw low uptake due to insufficient loan limits.**
3. Announced in the **Union Budget 2024-2025**, the revised scheme aims to benefit 25,000 students annually. It now includes **non-banking financial companies (NBFCs), NBFC-MFIs (micro-finance institutions),** and **small finance banks** as eligible lending institutions.
4. **Broadened Course Access:** The revised scheme will now allow access to more skill courses, against only **national skill qualification framework (NSQF)-aligned courses** under the old scheme. Also, non-NSQF courses that are onboarded on the **Skill India Digital Hub platform** will come under the scheme.
5. **Previous Performance:** As of March 2024, loans amounting to Rs 115.75 crore were extended to 10,077 borrowers, highlighting **low fund utilisation due to high course fees.**

2. NITI Aayog launched 'Sampoornata Abhiyan'

NITI Aayog has launched *'Sampoornata Abhiyan'*, a **3-month campaign** from **4th July – 30th September 2024**. It is a **3-month campaign to** achieve saturation of 6 key indicators in Aspirational Districts and **6 key indicators** in Aspirational Blocks.

a. Districts and blocks are under the **Aspirational Districts Programme and Aspirational Blocks Programme** respectively.

b. **Key indicators across aspirational districts include** number of Soil Health Cards distributed, percentage of schools with functional electricity at the secondary level, percentage of children fully immunized, etc.

c. **Key indicators across aspirational blocks include** percentage of persons screened for Diabetes and hypertension, Percentage of SHGs that have received a Revolving Fund, etc.

About Aspirational Districts and Aspirational Blocks Programme

Aspirational Districts Programme	Aspirational Blocks Programme
Launched in **2018 under NITI Aayog.**	Launched in **2023 under NITI Aayog.**
Aims to **quickly and effectively transform 112 districts** across the country.	Aims for saturation of **essential government services in 500 Blocks** (329 Districts) across the country
Focuses on five themes: i. Health & Nutrition ii. Education iii. Agriculture & Water Resources iv. Financial Inclusion & Skill Development v. Infrastructure	**Focuses on five themes:** i. Health & Nutrition ii. Education iii. Agriculture and Allied Services iv. Basic Infrastructure v. Social Development
Progress is measured on **81 indicators of development.**	Progress is measured **on 40 indicators of development.**

3. Pradhan Mantri Janjatiya Unnat Gram Abhiyan (PM JUGA)

Union Minister for Finance Nirmala Sitharaman announced that the Government will launch the Pradhan Mantri Janjatiya Unnat Gram Abhiyan (PM JUGA), while presenting the Union Budget 2024-25 in Parliament.

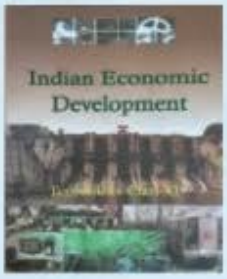
About Pradhan Mantri Janjatiya Unnat Gram Abhiyan

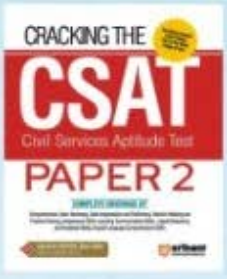
1. The scheme aims to provide comprehensive support to tribal families in tribal-majority villages and aspirational districts through a saturation approach.
2. The scheme plans to cover 63,000 villages and benefiting 5 crore tribal people.

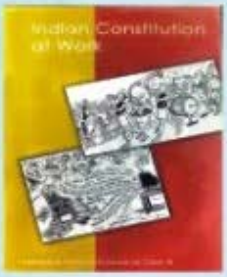
Other Important Tribal Welfare schemes of the Central Government

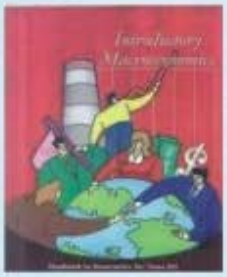
1. The **Eklavya Model Residential Schools (EMRS),** established to provide quality education to ST students in residential schools, were allocated Rs 6,399 crore, a rise of Rs 456 crore over last year's allocation.
2. The **PM Janjatiya Vikas Mission (PMJVM),** aimed at promoting livelihoods and entrepreneurship among ST communities, had its budget reduced by Rs 136.17 crore in this Budget.
3. The **PM DAKSH scheme**, focusing on skill development for SC and ST communities, saw its budget increase from Rs 92.47 crore to Rs 130 crore.

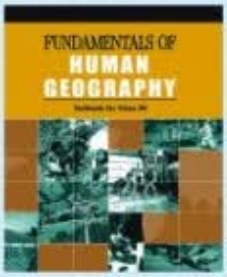
New List of Books to be provided to our classroom students since December 2023

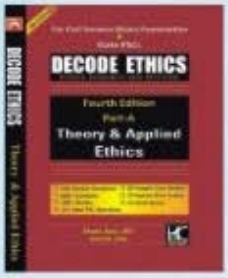


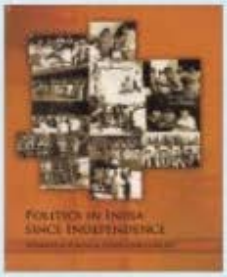


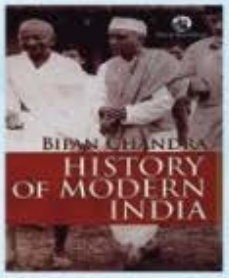


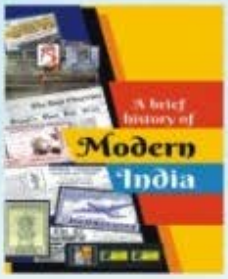


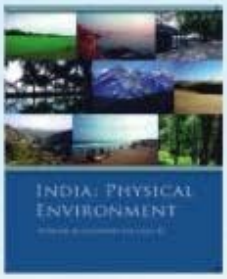


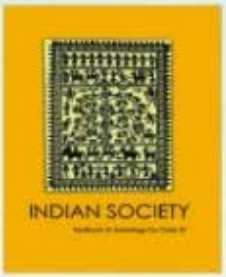


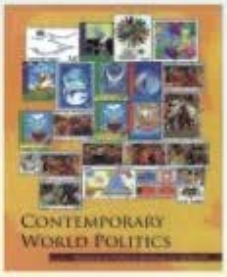


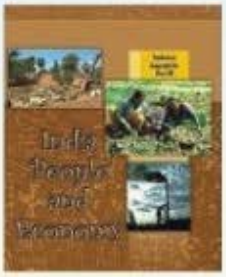


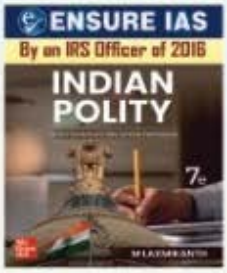












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