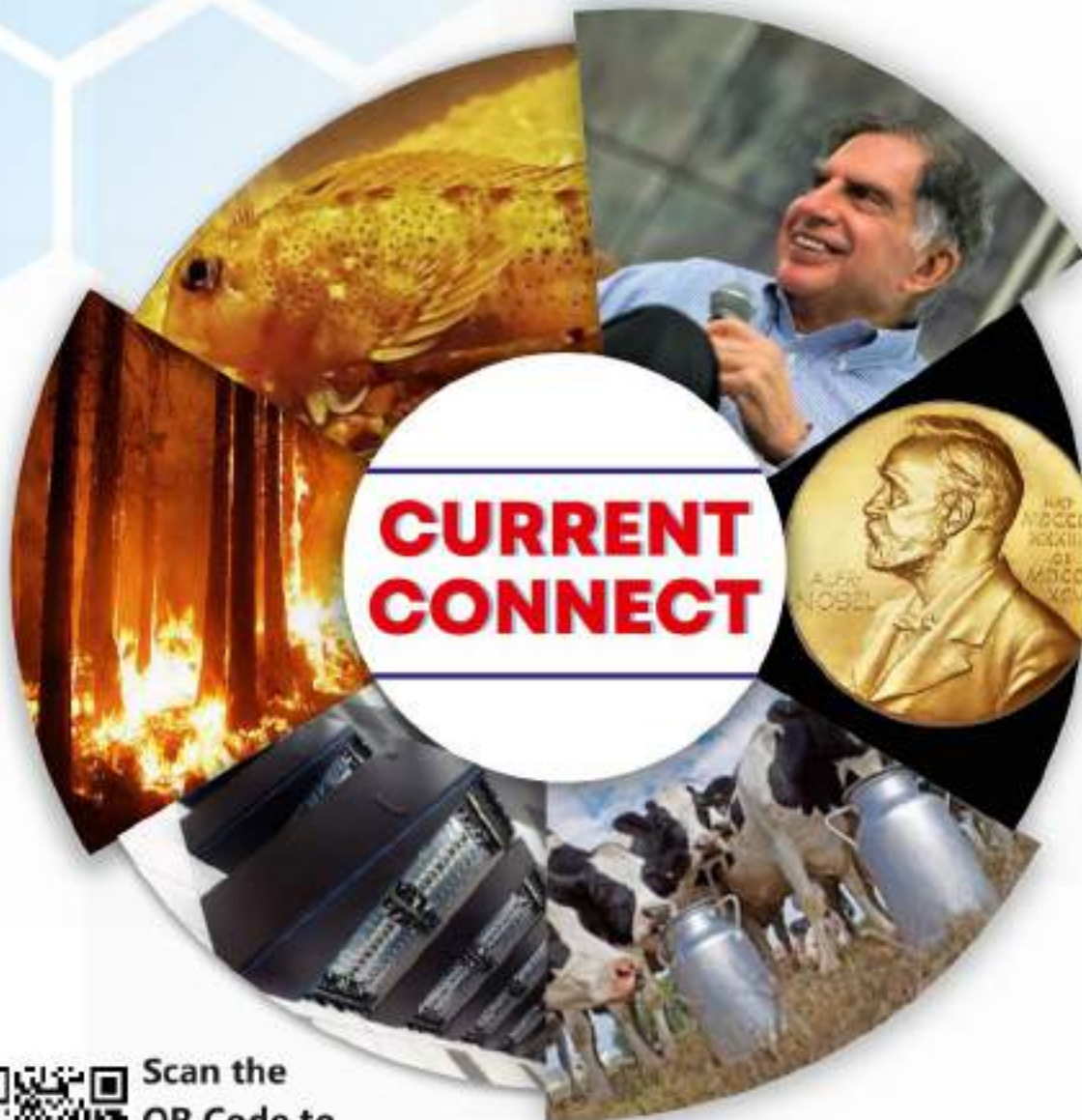


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MESSAGE FROM DR. KHAN

Dear Students,

Many students **feel burdened** by their **past academic performance**, fearing it may hinder their chances of success in significant exams. However, by embracing the concept of "**Tabula Rasa**," or a **clean slate**, individuals can refocus on the present and **propel themselves** toward their goals. If you have **self-belief**, you need nothing else to guide you forward.

For instance, consider the story of **Thomas Edison**. Despite failing **thousands of times** before inventing the electric light bulb, Edison viewed **each failure as a step toward success**, famously stating, "**I have not failed. I've just found 10,000 ways that won't work.**" This mindset exemplifies how past shortcomings do not dictate future outcomes. Each exam and challenge stand alone, serving its own purpose. Your attitude today shapes your position tomorrow.

While the past cannot be altered, individuals possess the **power to choose** their desired outcomes moving forward. It's crucial to **focus on the future rather than linger on past mistakes**. Take the case of **J.K. Rowling**, who faced multiple rejections before publishing the **Harry Potter** series. Her resilience and determination to focus on future possibilities rather than past rejections eventually led to her success. Realize your power of choice.

Every day offers a fresh start—a clean slate to write your future. By approaching each day with a renewed perspective, individuals can leave behind past failures and shortcomings.

Being mindful of one's progress and continuously evaluating performance is crucial. By staying conscious of the path forward, success remains attainable.

I have met two set of people. People can be categorized into those **who find excuses to fail** and those **who leverage failure** as a motivating force to succeed. You again have a choice. Despite similar levels of intelligence and time, it is the **choices made and the actions taken** that determine future outcomes. The **grit dominates** your future.

I would like to draw from the concept of a **wide aperture approach** in camera, where the lens is open wide to focus sharply on a specific object or goal. The object before & after appear blur for wide aperture. Never dictate; Train your mind.

By disregarding what lies behind or ahead and concentrating solely on the chosen goal, individuals can achieve significant progress.

By embracing **the philosophy of the Tabula Rasa**, and **power of choice** individuals can free themselves from the **burdens of the past and focus on shaping their desired future**. Rather than dwelling on humble beginnings, individuals can adopt a wide aperture approach, having **sharp focus on specific goals** and disregarding distractions. **Embrace the power of the Tabula Rasa & the power of choice to witness how each new day brings you closer to your aspirations.**

**My best wishes are always with you.
Stay Blessed!**

GS CONNECT

It gives us immense pleasure to present an innovative approach to mastering current affairs. Current is a passing wind and diverse issues happen at the same time. It is to an extent chaotic. Newspapers, magazines, and various other sources report the chaos per se. With our experience of current affairs, we have tried to give "the current" a medium to travel. It is the syllabus of the UPSC with its components that are the medium through which the "Current is Passed" to the readers. **Ever since the new syllabus of the UPSC came into existence, the current has been gaining significance both at prelims as well as mains examination.** This book is meant to cover current affairs and related questions arising from those events. We have not only covered the current events for their factual contents but also presented them in such a way that any question asked from that topic gets covered. Moreover, topics are also "**peppered**" with the relevant facts/key concepts that are related to the theme.

It is a collection covering myriad sources yet in a manageable size. To use this book, we recommend you to, master the components of the General Studies (GS) syllabus as broken into rows and columns (**provided on the subsequent page**). Each cell comprising the portion of GS becomes the connection for the current and every news subsequently covered guides the reader to the address of the syllabus. It is logical to expect that the same issue may be connected to more than one topic of the syllabus. Further, the news also has some additional vistas opened for the readers by adding a box with the title "**PEPPER IT WITH**" where we expect the students to build further around the theme. We are also trying to reach the remotest part of the country with our spirit and zeal of "**Mains Answer Writing**"; which has been admired by students, CSE rank holders, and other scholars. Continuing in line with the effort, we have started **programs like KTP Mains Test Series, Destinaire, Navigator, NEEV, AWSDP plus, KOL, DL& MP, Advance Foundation Course, Weekend Courses as well as Optional Courses (PSIR, Sociology, History, and Geography).**

Additionally, this month, we are introducing a new section called "**SNAPSHOTS**," offering themes **inspired by** four monthly magazines to provide comprehensive coverage of various topics. We are also providing a **complimentary full-length test** with 100 objective questions. **Scan the QR code** to revise the previous month's current affairs and test yourself.

When it comes to evaluation, we are all together at a different level. We are also reaching every nook and corner with this expertise for the aspirants of CSE. Now you can write a Mains Answer and get it evaluated by our Expert Team and can get Feedback. Drop a mail at **evaluation@ksgindia.com** to register yourself in our race to perfection. Don't wait, it's your golden chance to crack this exam and fulfill your passionate dream.

Team KSG

S. No.	GS -I	GS- II	GS- III	GS-IV	Mis
1	Indian Culture-Art Forms, Literature and Architecture from ancient to modern times.	Indian constitution- Amendments, acts and bills.	Various measures to boost Indian economy- planning, policies, management	Ethical issues related to family society, education, Corruption etc.	
2	Indian History significant events, personalities, issues and the Freedom Struggle.	Legislative, executive and judicial processes.	Government budgeting and issues related to budget.	Ethics in public and private administration	
3	Post independence issues, National boundary and disputes.	Constitutional, non-constitutional, judicial, quasi-judicial, administrative and other types of bodies.	Agriculture, animal husbandry and transport	Issues	
4	Indian society features, issues, globalization and diversity	Federal structure and local bodies. Their powers and functions.	Food security- measures to boost food security and food processing. Issues related to land- land reforms	Related laws and rules	
5	Women - issues and developments	Government policies and various governance issues like transparency, accountability and – governance	Industries and infrastructure- their growth and investment model	Governance/e- Governance	
6	Urbanization – problems and remedies	Committees and schemes.	Space and technology, IT space, robotics and computer	Ethics in international issues	
7	Distribution of industries and resources – India and world	Non-government issues, self-help groups and role of civil society	Disease, biotechnology and human welfare	Personalities and their teachings	
8	Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc	Vulnerable sections of our society and social sector issues like Poverty, Hunger, Education, and their initiatives.	Innovations, intellectual property, Awards, POI and other important aspects of S&T	Other important topics	
9		International Relation- India and other countries, various Indian and international agreements, effects of other countries on India and international institutions.	Environment; government initiatives, various judgment, pollution, degradation and conservation efforts		
10			Disaster & Disaster Management		
11			Challenges to internal security, Various Security forces and agencies and their mandate. Cybersecurity; money laundering and its prevention.		

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POLITY

What powers will the new Jammu and Kashmir Assembly have?

News Excerpt:

The new Legislative Assembly formed in J&K will **differ substantially** from earlier Assemblies as the **constitutional changes** of August 2019 removed Jammu and Kashmir's **statehood**—thus, the new Assembly is for a **Union Territory (UT)**, not a state.

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Constitutional and Administrative arrangements for J&K

- The Jammu and Kashmir Reorganisation Act 2019 created **two UTs** — the UT of **Ladakh without a legislature** and the UT of **Jammu and Kashmir with a legislature**.
- An **amendment** was made to the **First Schedule** of the Constitution, which lists all states and UTs, and to **Article 3** of the Constitution, which deals with the “Formation of new States and alteration of areas, boundaries or names of existing States”.
- **Section 13** of the **2019 Act** states that **Article 239A** of the Constitution (“Creation of local Legislatures or Council of Ministers or both for certain Union territories”), which provides for the administration of the UT of Puducherry, shall also apply to the UT of Jammu and Kashmir.
- **Article 239**, which deals with the administration of Union Territories, states that “every union territory shall be administered by the President, acting, to such extent as he thinks fit, though an administrator...”.

Powers of the Assembly

- **Instrument of Accession:** As per the **1947** Instrument of Accession, J&K acceded to India only regarding **defence, foreign affairs, and communications**. Under **Article 370**, as it stood before the abrogation, Parliament had limited legislative powers for J&K. Over the years, the Centre’s lawmaking power was extended to cover several other subjects in the Union List (List I of the Seventh Schedule of the Constitution).
- **Reorganisation Act of 2019:** The Reorganisation Act of 2019 created a vastly different structure in which the **LG has a bigger role** than the state Assembly. Two key provisions explain this.
 - **Section 32** of the Act, which deals with the **extent of legislative power** of the Assembly, states that “subject to the provisions of this Act, the **Legislative Assembly may make laws for the whole or any part of the Union territory of Jammu and Kashmir** with respect to any of the matters enumerated in the State List **except** the subjects mentioned at entries 1 and 2, namely “**Public Order**” and “**Police**” respectively or the Concurrent List in the Seventh Schedule to the Constitution of India in so far as any

such matter is applicable in relation to the Union territories.”

- States, on the other hand, **can legislate on subjects in the Concurrent List to the extent that such a law is not repugnant or contrary to the central law on the issue**.
- **Section 36** deals with special provisions for **financial bills**. It states that a Bill or amendment “shall not be introduced into, or moved in, the Legislative Assembly except on the **recommendation** of the **Lieutenant Governor**” if such Bill deals with, among other aspects, “the amendment of the law with respect to any financial obligations undertaken or to be undertaken by the Government of the Union territory”.

Powers of the J&K LG

- **Section 53** of the 2019 Act deals with the role of the **Council of Ministers**. It states: “The **Lieutenant Governor** shall, in the exercise of his functions, act in his **discretion** in a matter:
 - (i) which falls outside the purview of the powers conferred on the Legislative Assembly; or
 - (ii) in which he is required by or under any law to act in his discretion or to exercise any judicial functions; or
 - (iii) related to All India Services and Anti-Corruption Bureau.”
- This means that in addition to **public order** and **police**, the **bureaucracy** and the **anti-corruption bureau** will also be under the **LG’s control**.
- The provision also says that whenever “any question arises whether any matter is or is not a matter as respects which the Lieutenant Governor is by or under this Act required to act in his **discretion**, the decision of the **Lieutenant Governor** in his discretion shall be **final**, and the validity of anything done by the Lieutenant Governor shall **not be called in question** on the ground that he ought or ought not to have acted in his discretion”, and that “the question whether any, and if so what, advice was tendered by Ministers to the Lieutenant Governor shall not be inquired into in any court”.
- Additionally, in the run-up to the elections, a series of administrative changes have extended the **LG’s powers**, granting him the power to **appoint** the **Advocate General** and law officers and giving him a say in decisions regarding prosecutions and sanctions.

Case study - Delhi

- Delhi is dealt with separately in the Constitution — under **Article 239AA**. While the Supreme Court, in **judgments** delivered in **2018 and 2023**, has upheld the powers of the Delhi legislature, a constant, politically charged tussle between the Lieutenant Governor and the state government has been seen in recent years.
- In Delhi’s case, three subjects — **land, public order,**

and police — are reserved for the LG. However, control over **'services'**, or the bureaucracy, has been a **bone of contention** between the state and the Centre.

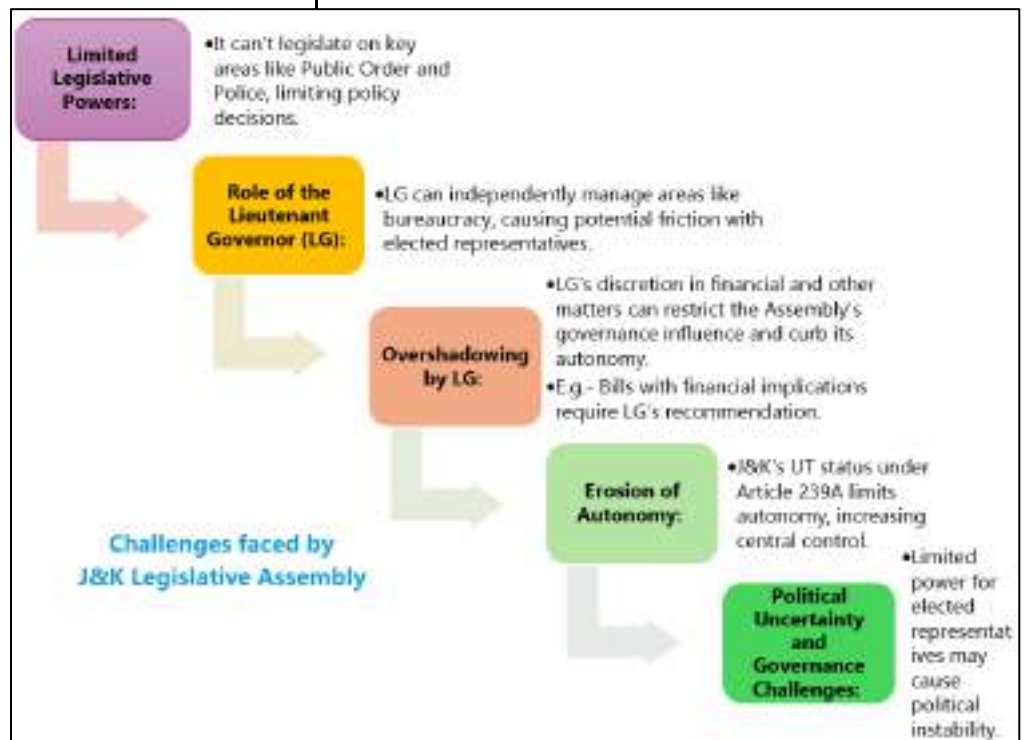
- After the **SC clarified** that the **LG cannot exercise independent discretion** on subjects other than the three reserved subjects, the Centre enacted legislation in 2023, bringing services under the LG's control. This, too, is now under challenge before the court.
- Delhi's anti-corruption bureau (**ACB**) has also been an issue between the state and the Centre.
- The **Union Ministry of Home Affairs** issued a notification in **2015**, saying Delhi will control ACB only to the extent that it deals with **Delhi's bureaucrats** and not government officers in the territory of Delhi.
- Even so, the **MHA's consent is required** to prosecute central government officers working in the Delhi government.

Timeline of Events

- Since June **2018**, J&K has been under **central rule**.
- On August 5, **2019**, Jammu and Kashmir **lost its special status** under **Article 370** and was reorganised into two Union Territories: **J&K and Ladakh**.
- The government said that **statehood** would be **restored** after assembly elections are held.
 - The **Constitution Bench** of the Supreme Court has ordered the Election Commission to conduct **elections to the J&K Assembly** before September 30, 2024.
- In July **2024**, the **Union Ministry of Home Affairs** (MHA) **widened** the **administrative role** of the **Lieutenant Governor** of Jammu and Kashmir by amending the Transaction of Business Rules under Section 55 of the Jammu and Kashmir Reorganisation Act, 2019.
 - The L-G now has enhanced authority in matters relating to **police, public order**, and the **All India Service (AIS)**.
 - Proposals requiring the **Finance Department's** prior concurrence must be **placed before the L-G** through the Chief Secretary.
 - The L-G must also approve decisions on **appointments** of **Advocate-General, Law Officers**, and **prosecution sanctions**

through the Chief Secretary.

- The **Department of Law, Justice, and Parliamentary Affairs** must seek approval from the L-G for appointments and legal matters.
- The L-G now decides on matters concerning **prisons**, the **Directorate of Prosecution**, and the **Forensic Science Laboratory**.
- Elections to the Jammu and Kashmir Legislative Assembly were held in **three phases** from **18 September to 1 October 2024** to elect its **90 members**. The results were announced on 8 October 2024.
 - The **National Conference** won 42 seats, the **BJP** secured 29 seats, and the **Congress** succeeded in six constituencies.
 - The **Election Commission of India** said an overall **63.88% voter turnout** was recorded in the Union Territory of Jammu and Kashmir Assembly elections.
- On **October 13, 2024**, the **president's rule** was **withdrawn** in Jammu and Kashmir, paving the way for the formation of a new government in the Union Territory.
- **Omar Abdullah** took oath as **Chief Minister**. He is the first to assume office after Article 370 was scrapped in



Jammu and Kashmir and the erstwhile state became a Union Territory in 2019.

Way Forward

- **Clarify Powers:** Clearly define the scope of powers between the Legislative Assembly and the Lieutenant Governor (LG) to reduce conflicts and ambiguity, similar to lessons from Delhi.
- **Strengthen the Assembly:** Amend the Reorganisation Act to grant the Assembly more legislative authority.
- **Institutionalise Consultation:** Establish regular dialogues between the LG, Council of Ministers, and the Assembly to resolve disagreements collaboratively.
- **Empower Local Governance:** Strengthen panchayats and municipalities to bring decision-making closer to the people.
- **Judicial Oversight:** Create a dispute resolution mechanism to mediate conflicts between the LG and the Assembly.
- **Public Engagement:** Enhance transparency and involve civil society in decision-making to build public trust. Prioritise economic development, job creation, and welfare policies to demonstrate the Assembly's impact.

PEPPER IT WITH:

Union Territory, Schedules of Constitution, Lieutenant Governor, Special provisions for States.

Implementation of Clause 6 of the Assam Accord

News Excerpt:

The **Assam government** announced its plan to **implement 52** of the 67 **recommendations** the Justice **Biplab Sarma Committee** made by April 2025.

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Assam Accord and its Clause 6

- The Assam Accord, signed in **1985** between the **Union Government** and the **leaders of the Assam Movement**, primarily the **All Assam Students' Union (AASU)**, sought to address the issue of illegal migration from Bangladesh into Assam. The Accord sets **March 24, 1971**, as the cutoff date for recognition as **citizens**.
- Clause 6 of the Assam Accord provides **constitutional, legislative, and administrative** safeguards to protect, preserve, and promote the **cultural, social, and linguistic identity** of the Assamese people.
- Over the years, the implementation of Clause 6 has been marred by **controversy**, primarily due to the challenge of defining who qualifies as an **"Assamese person"** and the associated rights and reservations.

Biplab Sarma Committee Report:

- In July 2019, the Union Home Ministry constituted a **14-member committee** chaired by retired **Assam High**

Court Justice Biplab Kumar Sarma and comprising judges, retired bureaucrats, writers, AASU leaders and journalists to suggest ways to implement clause 6.

- The committee submitted its report in February 2020, but the Union Home Ministry did not make it public. In August 2020, a few members of the panel—Arunachal Pradesh **Advocate General** Nilay Dutta and three members of the **All Assam Students' Union (AASU)**—released the report independently.

Key Recommendations

- **Definition of Assamese People:** Definition of "the Assamese people" eligible for the **"safeguards" under Clause 6:**
 - Assamese community residing in the Territory of Assam on or before January 1, 1951, or
 - Any Indigenous tribal community of Assam residing in the territory of Assam on or before January 1, 1951; or
 - Any other Indigenous community of Assam residing in the territory of Assam on or before January 1, 1951; or
 - All other citizens of India residing in the territory of Assam on or before January 1, 1951; and
 - Descendants of the above categories

1951 Cut-off Date

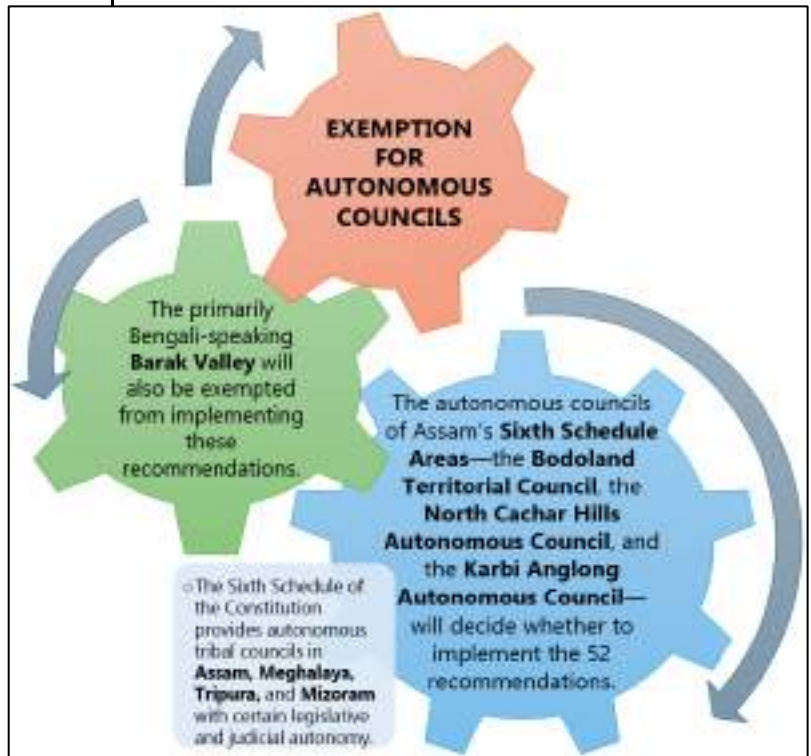
- One of the most significant recommendations was the proposal to recognise January 1, 1951, as the cut-off date for identifying Assamese people. This cut-off date differs from the Assam Accord's cut-off date for granting citizenship, which is March 24, 1971. The National Register of Citizens (NRC) was updated based on this cutoff.
- Clause 6 is meant to give the Assamese people certain safeguards, which would not be available to migrants between 1951 and 1971. If the recommendation is accepted, those who migrated between 1951 and 1971 would be Indian citizens under the Assam Accord and NRC, but they would not be eligible for safeguards meant for "Assamese people".
- **Land Rights:** Creating **Revenue Circles** where only **"Assamese people"** can **own and possess land** and transfer of such land in these areas are limited to them alone;
 - Launching a time-bound, **three-year programme** to **allot land titles** to "Assamese people" who have occupied a certain piece of land for decades but are without possession of land documents;
 - Carrying out a **special survey** of char areas (riverine regions along the Brahmaputra) and for newly created chars to be treated as government land, in which river erosion-affected people should get priority in the allotment.

- **Reservation of seats in Parliament, Assembly and local bodies:** 80 to 100% reservation in the parliamentary seats of Assam, Assembly seats and local body seats be reserved for the "Assamese people".
- **Reservation in Jobs:** 80 to 100% of Group C and D level posts (in Assam) in central government/semi-central government/central PSUs/private sector. 80 to 100% of jobs under the Government of Assam and state government undertakings, and 70 to 100% of vacancies arise in private partnerships.
- **Language Safeguards:**
 - Keeping Assamese as the official language throughout the state as per the 1960 Assam Official Language Act "with provisions for the use of local languages" in the Barak Valley, Hill districts, and the Bodoland Territorial Autonomous District;
 - Making it compulsory for all state government acts, rules, orders, etc., to be issued in Assamese along with English;
 - Constituting an Autonomous Language and Literature Academy/Council of Assam to preserve and promote all Indigenous languages of Assam;
 - Making Assamese a compulsory subject up to class VIII or class X in all English medium schools under the state board and CBSE.
- **Cultural Protection:**
 - Establishing an autonomous authority for the development of sattras (neo-Vaishnavite monasteries), which will, among other things, provide financial assistance to them and
 - Creating multipurpose cultural complexes in each district to "uplift" the cultural heritage of all ethnic groups.

Recent Developments

- **Implementation by the Assam Government:** The 52 recommendations in the first two categories will be implemented by April 2025. These 52 recommendations primarily deal with language, land, and cultural heritage safeguards.
- **Exclusive domain of the state government:** The Assam government has committed to implementing 40 recommendations, focusing on land, language, and cultural heritage.
 - Land Rights
 - Language Safeguards
 - Cultural Protection
- **Require the concurrence of the Centre:** 12 recommendations will require cooperation between the Assam government and the central government.

- **Exclusive domain of the Centre:** 15 recommendations, which require constitutional amendments, are beyond the scope of the state government and will need to be taken up by the central government at an appropriate time.



Recommendations left out by the Assam government

- The introduction of an Inner Line Permit for entry into Assam as is in place in Nagaland, Arunachal Pradesh, Manipur and Mizoram.
- Reservation of seats in Parliament, Assembly and local bodies
- Reservation in Jobs
- Creation of an Upper House (the Legislative Council of Assam) completely reserved for the "Assamese people".

Way Forward

- < **Joint Task Force:** Form a state and central government team to handle constitutional and legislative amendments for recommendations.
- < **Digital Land Record Management System:** Implement to ensure transparency in land allocation and ownership, benefiting eligible Assamese citizens.
- < **Promote Digital and Archival Initiatives:** Document and preserve Assamese cultural heritage, including sattras, for younger generations.
- < **Conduct Socio-economic Studies:** Assess political and economic representation to determine necessary job

PEPPER IT WITH:

Autonomous Councils, Ethnic diversity, Indigenous tribes, Linguistic Identity, Governance-Issues, Sattras, Sixth Schedule

and political reservations for marginalized Assamese groups.

- ◀ **Strengthen Monitoring Mechanisms:** Ensure fair implementation of land rights in riverine areas, especially for those displaced by erosion, and review progress on recommendations.

One Nation, One Election (ONOE)

News Excerpt:

The **Union Cabinet** has **cleared** the **proposal** of the High-Level Committee on One Nation, One Election, headed by former President **Ram Nath Kovind**, to hold simultaneous elections to the Lok Sabha, State Assemblies, and Local Government Bodies.

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One Nation, One Election:

- The One Nation, One Election or Simultaneous Election in India **aims** to synchronise elections for **the Lok Sabha, State Assemblies and Local Government Bodies**. The idea is to hold these elections simultaneously, on a single day or within a specific time frame.
- In India, simultaneous elections to the Lok Sabha (House of the People) and Vidhan Sabhas (State Legislative Assemblies) were held in **1951-52, 1957, 1962, and 1967**.
- After that, however, the schedule could not be maintained, and the elections to the Lok Sabha and the Vidhan Sabhas have still not been realigned.

Views on Simultaneous Election:

- **NITI Aayog:**
 - In **2017**, the NITI Aayog released a paper titled '**Election Time Table**', which **backed the idea** of simultaneous State and national polls to remove impediments to governance, policy-making, and developmental activities.
 - It noted that there has **not been a year without an election** to either a state assembly, Lok Sabha, or both in over 30 years. This **adversely** impacts both tangible and intangible aspects of governance.
- **Election Commission of India (ECI):**
 - In **1983** its **Annual Report**, the Election Commission of India recommended

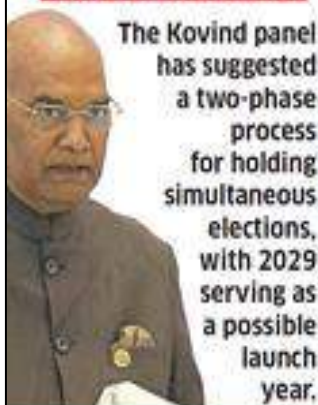
holding simultaneous elections for the Lok Sabha and State Legislative Assemblies.

- According to the **ECI's March 2023 assessment**, approximately **Rs 8,000 crore** would be required to **procure** the additional **Electronic Voting Machines (EVMs)** and **Voter Verifiable Paper Audit Trails (VVPATs)** necessary for holding simultaneous elections to the Lok Sabha and state Assemblies. This estimate does **not** include **local body elections**, which State Election Commissions handle.
- **Ram Nath Kovind Committee:**
 - The panel recommended simultaneous elections to the **Lok Sabha and State Assemblies** as the **first**

The Required Constitutional Changes

Now that simultaneous polls are back in the news, Anubhuti Vishnoi looks at the big question: the constitutional amendments that will necessitate political consensus.

ONLY TWO STEPS...



The Kovind panel has suggested a two-phase process for holding simultaneous elections, with 2029 serving as a possible launch year.

First, the Lok Sabha and assembly polls to be synchronised. According to the panel report, since this is a one-time shift, it can be implemented without a constitutional amendment or ratification by states.

Second, Synchronise local body elections within 100 days of the first step. It will need significant constitutional amendments that require ratification by half of the states.



BUT BIG AMENDMENTS...

The panel has suggested a Constitution Amendment to alter Articles 83 and 172, which mandate that the term of the House of People and State Assembly should be five years from the date of their first sitting.

The panel's second recommended constitutional amendment calls for a common voter list down to the panchayat level. The common list will demand amendments to Articles 325, which govern the ECI's remit, as well as Articles 243K and 243ZA, which empower State Election Commissions. As stated in Article 368(2), this amendment must be ratified by more than half of the states.

Statutes would also need to be altered in Union Territories, such as Delhi and Puducherry, with their own legislatures. The J&K Reorganisation Act would also require modifications. These, however, will not necessitate approval by half of the states.

The panel proposes constitutional amendments to incorporate the concepts of a "full term" and an "unexpired period"--in which the House or Assembly is dissolved before its "full term". When the House or Assembly is dissolved before the end of its "full term," it is designated a "midterm" election, whereas an election held after five years is considered a "general election".

Arguments in Favour of ONOE	Arguments Against ONOE
<ol style="list-style-type: none"> 1. Reduced Public Expenses: Simultaneous elections can cut down the massive costs of separate elections, pegged at Rs. 4500 crores by the Election Commission of India. 2. Improving Governance: Simultaneous elections prevent prolonged imposition of the Model Code of Conduct, avoiding governance disruption. 3. Preventing Disruptions of Normal Lives: Holding elections simultaneously confines disruption to normal life to a predetermined period. 4. Lesser Deployment of Manpower: Simultaneous elections reduce deployment needs for officials, teachers, and armed forces during elections. 5. To Prevent Populist Measures: Simultaneous elections discourage frequent populist, rather than nationalist, political measures. 6. Curbing Wastage of Resources: Simultaneous elections reduce resource wastage like fuel and printed materials, promoting sustainability. 7. Reduced Voter Fatigue: Less frequent elections due to simultaneity can decrease voter fatigue. 8. Reduced Parties' Expenses: Simultaneous elections can drastically cut political parties' fundraising and campaign expenses. 	<ol style="list-style-type: none"> 1. Syncing Terms: The challenge of aligning state legislative assemblies' terms with the Lok Sabha is a major obstacle for "One Nation One Election." 2. Midterm Poll/President Rule Uncertainty: There's no clarity on how to handle midterm polls and President's rule, potentially disrupting election synchronization. 3. Expenditure: Simultaneous elections necessitate a costly procurement of EVMs and VVPATs, increasing storage and warehousing expenses. 4. Regional Political Parties' Concerns: Regional parties fear losing prominence in simultaneous elections due to national parties overshadowing local issues. 5. Regional Issues Overshadowed: There's a concern that national issues might overshadow regional ones, affecting state electoral outcomes. 6. Anti-incumbency Factor: Anti-incumbency at the state level might be neutralized if a majoritarian government exists at the Centre during simultaneous elections. 7. State Autonomy and Special Provisions: Simultaneous elections could undermine state governments' autonomy, affecting the federal structure and special constitutional provisions. 8. Elections as Democratic Festivals: Elections are logistical challenges and democratic festivals, requiring careful planning, which is difficult with simultaneous scheduling.
<ul style="list-style-type: none"> ○ step, followed by synchronised local body polls within a 100-day phase. ○ To synchronise the elections, the Panel has suggested that the President set an 'Appointed Date', which ○ would mark the beginning of the new electoral cycle, through a notification issued at the first sitting of the Lok Sabha after the general elections. ○ State Assemblies formed after appointed date and before completion of the Lok Sabha's term would conclude before the subsequent general elections. ○ The Panel recommended that fresh elections could be held to constitute a new Lok Sabha in case of a hung House, a no-confidence motion, etc. <ul style="list-style-type: none"> § The House's tenure will be "only for the unexpired [remaining] term of the immediately preceding full term of the House." § When fresh elections are held for Legislative Assemblies, such new Assemblies—unless sooner dissolved—shall continue until the end of the full term of the Lok Sabha. ○ Simultaneous elections require 18 amendments to existing laws, including 15 amendments to the Constitution. <ul style="list-style-type: none"> § Amendments to Article 83 (duration of Houses of Parliament) and Article 172 (duration of State legislatures) of the Constitution. 	<ul style="list-style-type: none"> § Amendments to Article 324A to allow simultaneous elections in panchayats and municipalities and Article 325 to allow the ECI, in consultation with State election authorities, to prepare a common electoral roll and voter ID cards. <p>Way Forward</p> <ul style="list-style-type: none"> ● Comprehensive Legal Framework: The Election Commission of India (ECI) should collaborate with the Law Commission and relevant bodies to finalise the changes in laws and constitution. ● Federal Consultations: Engage in extensive consultations with state governments and regional parties to ensure that their concerns are addressed, and that ONOE respects the federal governance framework. ● Promote Decentralised Campaigning: Encourage parties to focus equally on regional issues and national strategies to maintain balance. ● Voter Education Campaigns: Implement nationwide voter education programs to ensure citizens are well-informed about the importance of making informed choices for local, state, and national leadership.

PEPPER IT WITH:
State Assemblies, Local Government Bodies, ECI, Article 368, President rule.

Emergency provisions impact Centre-State relations

News Excerpt:

The recent spate of renewed **violence in Manipur** has once again triggered the discussion around Centre-State relations and the use of **emergency provisions** by the Centre.

About the issue:

- Armed groups from the predominantly **Christian Kuki-Zo community** and the primarily **Hindu Meitei community** have engaged in deadly violence, reportedly killing at least 11 people.
- Students and others have protested the violence, and some have clashed with security forces and attacked government buildings.
- In response, the Manipur state government imposed a **curfew** in three districts and **suspended internet** access in five districts.

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- **Articles 355 and 356** deal primarily with the affairs of government in a State under this part.
- **B.R. Ambedkar** explained the purpose of Article 355, keeping in mind the federal character of our polity, that if the Centre is to interfere in the State's administration under Article 356, it must be by or under some obligation the Constitution imposes on the Centre. Hence, Article 355 was incorporated to check any arbitrary or unauthorised use of Article 356.
- Dr. Ambedkar wished that Articles 355 and 356 would **never be implemented** and remain a dead letter. However, it was a travesty of Constitutional principles and federalism that Article 356 was misused on several occasions to remove elected governments that enjoyed a majority in the States.
- **Reasons** varied from loss in Lok Sabha elections to deterioration of law and order in the States.

Concerns:

- In subsequent cases such as **Naga People's Movement of Human Rights Vs Union of India (1998)**, **Sarbananda Sonowal Vs Union of India (2005)**, and **H.S.Jain Vs Union of India (1997)**, the legal position with respect to Article 355 has shifted.

• The **scope of actions** under this article has been **widened** to permit all statutorily and constitutionally available actions by the Union to discharge its duties of protecting the State and ensuring that its governance is in accordance with the Constitution.

Way Forward:

- **Commission Recommendations:** The Sarkaria, National commission on working of the constitution, and Punchhi Commissions emphasize that Article 355 imposes a duty and grants the Union power, while Article 356 should be a last-resort measure.
- **Manipur Situation:** The grave situation in Manipur involves severe violence and

PEPPER IT WITH:

Centre-State Relations, Seventh Schedule, Part XVIII of Constitution, Cooperative-Federalism

weapon lootings, which exceed ordinary law and order breakdowns.

• **Constitutional Measures:** Despite hesitance to invoke Article 356, efforts under Article 355 should be maximized to restore normalcy swiftly.

Supreme Court Judgements

• S R Bommai case (1994):

- SC held that **Article 356** should be imposed only in case of a breakdown of constitutional machinery, distinguished from an ordinary breakdown of law and order.
- It also held that imposing the President's rule is subject to judicial review and should not be misused for political reasons.
- Various Supreme Court rulings have widened the scope of Article 355.
- In **State of Rajasthan Vs Union of India (1977)**, the court had a narrow interpretation of Article 355 as justifying the employment of Article 356.

Constitutional status of Center-state relations:

- India is a **federation** with governments at the Centre and the States.
- The **Seventh Schedule** to the Constitution distributes the power between the Union and the States.
- Under this scheme, it is the domain of the State governments to **maintain law and order** in their respective States.

Emergency provisions:

- The emergency provisions are provided in **Part XVIII** of the Constitution.

Article 355 imposes a duty on the Centre to protect every State from external aggression and internal disturbance.
-It also specifies that the **Centre should ensure** that every State government operates according to the Constitution.

Article 356 allows for the imposition of the President's rule if a State's government cannot function in accordance with constitutional provisions.
-While federal government functions in the U.S. and Australia also involve protecting States, their constitutions do not contain provisions for removing State governments.

Tirupati Laddu controversy: How India's temples are run

News Excerpt:

As the **Supreme Court** hears petitions seeking a **court-monitored probe** into the alleged **adulteration** of the ghee in Lord Venkateswara's **Laddu prasadam**, Hindu organisations have revived their demand to **free temples** from government control.

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Hindu Temples and Government Control

- **Constitutional Provision:** States derive the power to regulate temples primarily from **Article 25(2)** of the Constitution, which allows for laws regulating secular activities associated with religious practice.
 - Religious endowments and institutions are in **List III (Concurrent List)** of the **Seventh Schedule**, which means both Centre and states can legislate on the subject.
- **State Laws:** Several states have enacted laws allowing the government to administer temples and their incomes and expenditures.
 - **For example**, temples in Tamil Nadu are managed by the state's **Hindu Religious and Charitable Endowments (HR&CE)** department, while the Andhra Pradesh government controls and appoints the head of the **Tirumala Tirupati Devasthanams (TTD)**.
 - The erstwhile state of Jammu and Kashmir enacted The **Jammu and Kashmir Shri Mata Vaishno Devi Shrine Act, 1988**, to manage, specifically, the Vaishno Devi Mata Shrine in Katra, Jammu.
- **Extent of Control:** The government is estimated to control around **30 lakh** Hindu temples across India.
- **Financial Management:** States use a part of the income from large temples not only for their maintenance but also for **funding welfare activities** unrelated directly to the temple's religious functions — such as running **hospitals, orphanages, or schools/ colleges** that provide secular education.

Historical Context of Government Control

- The British enacted multiple laws from **1810** onwards to regulate **temple management**, which they argued was to prevent the misappropriation of temple wealth.
- In **1863**, the British enacted the **Religious Endowments Act**, which handed over control of temples to committees set up under the Act. However, the government retained considerable influence through judicial jurisdiction, the extension of the Civil Procedure Code and Official Trustees Act to temples, and the **Charitable and Religious Trusts Act 1920**.
- In **1925**, the **Madras Hindu Religious Endowments Act** empowered provincial governments to legislate on matters of endowments. Over the years, the act paved the way for the supervision of temples by the **HR&CE department** and provided for the appointment of an **Executive Officer**.

Arguments in Favour of Government Control of Temples:	Arguments Against Government Control of Temples:
<p>Prevents Mismanagement: Government control provides oversight and accountability, reducing financial mismanagement risks.</p> <p>Ensures Equal Access: Oversight facilitates inclusivity and uses temple income for societal welfare projects like hospitals and schools.</p> <p>Maintains Secular Governance: Article 25(2) allows regulation of secular activities in temples to ensure they serve public interests.</p> <p>Prevents Religious Monopoly: State control stops sects from monopolizing temple administration, as upheld by legal precedents.</p> <p>Avoids Wealth Concentration: Oversight prevents temples from becoming wealth centers, ensuring accountability to the public.</p>	<p>Discriminatory Treatment: Other religious groups manage their institutions independently, raising issues of discrimination against Hindu temples.</p> <p>Erodes Autonomy: Control limits Hindu communities' ability to manage worship, violating Article 26(d) and affecting religious life.</p> <p>Political Interference Risks: Opens doors to political interference, with officials possibly lacking commitment to temple traditions.</p> <p>Wealth Diverted: Temple revenues are used for non-religious purposes, diluting the sanctity of temple donations.</p> <p>Historical Independence: Temples historically operated independently as cultural centers; government control is a colonial legacy to be abolished.</p>

Management of Religious Places in India:

Muslim and Christian Management: These communities typically control their places of worship and related institutions through boards or trusts that community members run without state interference.

Hindu, Sikh, Jain, and Buddhist Management: Many places of worship for these religions are under considerable government control, particularly in cases of larger and historically significant temples.

Current Debates and Demands

- **Nationwide Campaigns:** The **RSS, VHP** and other organisations have been actively campaigning for the government to relinquish control of temples, citing discrimination and mismanagement.
- **Legislative Attempts:** Various leaders and political parties have proposed legislation to remove temples from state control. Notable efforts include **private member's bills** in **2017** and **2019**.
- **Recent Developments:** Some states, like **Uttarakhand** and **Madhya Pradesh**, have made moves to reduce state control, although these have met with varying degrees of success and resistance.
 - **Andhra Pradesh Deputy CM** has called for a **"Sanatana Dharma Rakshana Board"** to investigate all temple-related issues.

Supreme Court Rulings

01 SHIRUR MUTT CASE (1954):
Established that laws taking away the right to administer from a religious denomination violate Article 26(d) but also affirmed the state's right to regulate.

02 RATILAL PANACHAND GANDHI VS. THE STATE OF BOMBAY (1954):
In matters of religion, the right of management given to a religious body is a fundamental right that no law can take away; however, the state can regulate the administration of trust properties by means of valid laws.

03 PANNALAL BANSILAL PITTI VS STATE OF ANDHRA PRADESH (1996):
Upheld the validity of a law abolishing the hereditary right over the chairmanship of a trust administering a Hindu religious institution or endowment and also rejected the contention that the law must uniformly apply to all religions.

Way Forward

- **Community-Managed Boards:** Establish **independent temple boards** comprising religious community representatives, and legal experts to manage temples. The government can shift to **external oversight**, ensuring transparency and preventing financial mismanagement.
- **Uniform Regulation:** Introduce a **uniform regulatory framework** applicable to all religions, ensuring fair treatment across Hindu, Muslim, Christian, and other religious institutions.
- **Transparency in Fund Utilisation:** Temple donations should be used primarily for temple-related activities. Any funds diverted to public welfare should be disclosed and subject to **community approval**.
- **Training and Professional Administration:** Appoint trained temple administrators with expertise in religious, financial, and legal matters to ensure effective management while maintaining traditions.
- **Public Grievance Mechanisms and Judicial Safeguards:** Establish grievance redressal mechanisms where devotees can raise concerns. Ensure judicial oversight to prevent misuse of power by both the state and temple authorities.

PEPPER IT WITH:
Right to freedom of Religion, Concurrent List, Seventh Schedule, Secularism

SOCIAL ISSUE

The trap of global rankings

News Excerpt:

All global rankings are **not equivalent**. Global indexes are well thought out and carefully constructed but face challenges in getting **accurate country-level data**.

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About the news:

- Developing global indices and rankings has become a booming industry, with many indices, such as the **Global Competitiveness Index, Global Happiness Index, Global Hunger Index, Ease of Doing Business Index, and Corruption Perception Index**, emerging.
- Think tanks often create these indices, which benefit **funding and publicity**.

Criticism of Global Indices:

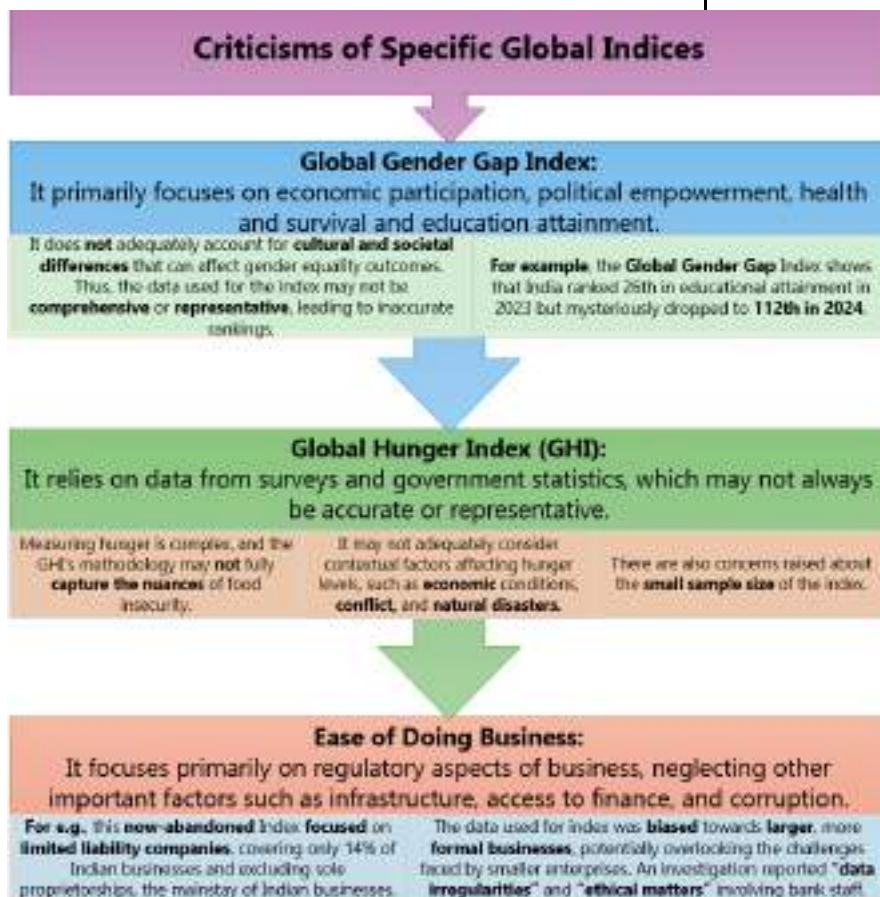
- **Methodological Flaws:** Many global indices rely on data that may be **incomplete, outdated, or biased**, leading to misleading results. The sampling methods used to collect data may be biased, resulting in **skewed** results that do not accurately represent the entire population.

- Some indices may have a **limited perspective**, focusing on specific aspects of development while neglecting others. **For example**, an index focused on economic growth may not adequately consider social and environmental factors.
- **Data Quality:** Some indices may rely on **unreliable data** sources, such as government statistics that may be manipulated or incomplete.
 - Data gaps and inconsistencies can make it difficult to accurately measure and **compare progress** across countries.
 - Certain indicators, such as subjective measures of happiness or well-being, may also be challenging to measure accurately.
- **Ranking Manipulation:** Governments may manipulate data or **prioritise** certain indicators to improve their rankings in global indices.
 - Also, governments may selectively report data or **downplay negative indicators** to present a more favourable image.
- **Limited Focus:** Some indices may **focus on narrow aspects** of development, such as economic growth or education while neglecting other important factors.
 - Some indices may not adequately reflect social and environmental factors, such as inequality, poverty, and climate change.
 - Also, Global indices may not consider the specific context and challenges different countries face.

Recommendations for Improving Global Indices:

- ◁ **Methodological Transparency:** Index creators should clearly document methodologies, ensuring public availability for scrutiny and replication. Experts should validate methodologies for validity and reliability, with findings made accessible.
- ◁ **Fact-Checking:** Independent entities should verify data accuracy and consistency, with regular audits to correct errors.
- ◁ **Encourage Public Scrutiny:** Public debate can highlight and rectify potential biases or flaws in indices.
- ◁ **Data Quality Investment:** Governments and organizations should enhance data collection capabilities and standardize methods for consistency.
- ◁ **Promote Data Sharing:** Collaboration and sharing improve data quality and accessibility.
- ◁ **Broader Perspective:** Indices should include diverse indicators on social, economic, environmental, and governance factors.
- ◁ **Incorporate Local Context:** Integrating local knowledge ensures indices' relevance to specific country contexts and challenges.
- ◁ **Focus on National Priorities:** Develop strategies based on specific national needs, creating local indices for goal tracking.

PEPPER IT WITH:
Think tank influence, Economic competitiveness, Global influence on policy, Evidence-based reforms.



Cadaver donation

News Excerpt:

The increase in medical colleges has led to a **higher demand for cadavers**, prompting these institutions to increasingly rely on **unclaimed bodies** for medical education due to a shortage of cadaver donations in India.

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About Cadaver donation:

- It involves **donating the entire body** to science after death, primarily to help train doctors in understanding human anatomy and practising surgery.

- Anyone **above 18 years** can legally consent to donate their body. If there is no prior consent, the next of kin can donate.
- Bodies of organ donors, those with **infectious diseases** and bodies involved in **medico-legal cases** may be rejected.
- Colleges use unclaimed bodies under the **State's Anatomy Act**, where relatives must claim the body **within 48 hours**. Unclaimed bodies often belong to marginalised or **poor individuals**, raising **ethical questions** about consent.
- Unlike organ donations, there is **no national organisation** to monitor cadaver donations. Hence, the responsibility falls directly to the anatomy departments of medical colleges.

What are cadavers used for?

- Cadavers are used to **train doctors** by helping them better understand human anatomy and **practice surgery**.
- Although dummies can be used for training, cadavers provide the most **realistic experience** of performing surgery on a human being.
- Cadavers can also be used for developing **new medical devices** and studying the **physiological impact** of various diseases.

Reasons for the shortage of donated cadavers

- **Religious and Cultural Beliefs:** Some religious and cultural practices in India emphasise the need for proper burial or cremation of the body, making families reluctant to donate cadavers.
- **Rising Demand for Cadavers:** With more medical colleges opening and more students enrolling in MBBS

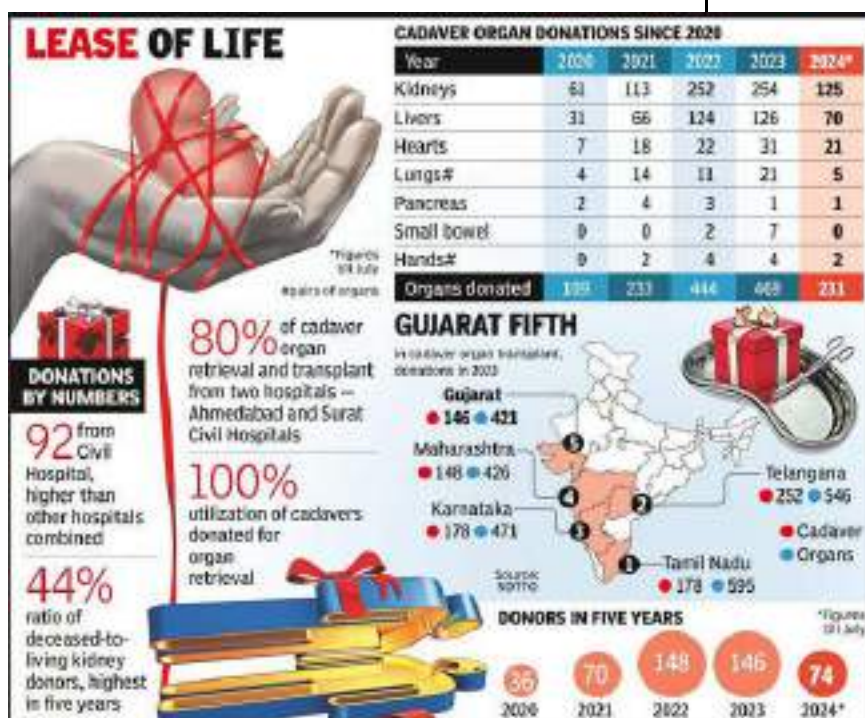
and allied courses, the demand for cadavers for anatomy training and surgical practice has surged.

- **Lack of Awareness:** Many people are unaware of body donation procedures. No national body tracks whole-body donations, making it harder for people to donate.
- **Eligibility and Acceptance Issues:** Bodies of individuals with infectious diseases like HIV or tuberculosis are not accepted. Additionally, medical colleges often refuse bodies from unnatural deaths, especially if they are part of a medico-legal case.
- **Competition Among Colleges for Cadavers:** Colleges in **densely populated regions** often compete for the limited number of donated cadavers, resulting in some institutions receiving **fewer bodies** than required for teaching.

Way Forward:

- **Establish a National Cadaver Donation Program:** Create a centralized organization to manage and coordinate cadaver donations, similar to the National Organ and Tissue Transplant Organization (NOTTO).
- **Launch Public Awareness Campaigns:** Promote awareness through national campaigns to dispel myths, religious concerns, and cultural taboos surrounding body donation.
- **Expand Eligibility Criteria and Improve Guidelines:** Revisit exclusion criteria to accept more bodies by implementing advanced screening methods for infectious diseases like HIV or tuberculosis.
- **Encourage Digital Consent and Pledging Systems:** Develop online platforms where individuals can pledge their bodies for donation, making the process accessible and transparent.

PEPPER IT WITH:
 Consent and Autonomy, Societal taboos, Medical curriculum standards, Augmented reality (AR) in medical education.



Framework for Action for Future Pandemic Preparedness and Emergency Response

News Excerpt:

Four years after the outbreak of COVID-19, an **expert group** constituted by **NITI Aayog** has recommended setting up a **comprehensive framework** to manage future public health emergencies or **pandemics** effectively.

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Key Highlights of the Framework



Objectives and Scope of the Report

• Terms of Reference:

- Assess national and international COVID-19 management.
- Identify key lessons from success stories and challenges.
- Address gaps and propose frameworks for future preparedness.

• Stakeholder Consultations:

The group consulted experts, policymakers, researchers, epidemiologists, and international agencies to gather insights.

• Key Finding:

Early response in the first **100 days** of an outbreak is critical to controlling the spread and mitigating impacts.

Key Recommendations: Four Pillars of Pandemic Preparedness and Emergency Response Framework (PPER)

• Governance, Legislation, Finance, and Management

- **Empowered Group of Secretaries (EGoS):** A high-level decision-making body chaired by the Cabinet Secretary will ensure swift action and coordination across ministries. The whole-of-government approach is emphasised to enable cross-sectoral coordination during emergencies.
- **Public Health Emergency Management Act (PHEMA):** A new legal framework to cover pandemics, epidemics, non-communicable diseases, bioterrorism, and other health disasters. It provides guidelines for prevention, control, disaster response, and coordination across national and state levels.
- **Pandemic Preparedness and Emergency Response Fund:** A dedicated financial pool to ensure immediate resources are available to fund research, infrastructure, and emergency response initiatives.

- **Monitoring Progress:** A well-structured **scorecard mechanism** to monitor key targets such as infrastructure development, vaccine readiness, and human resource training.

• Data Management, Surveillance and Early Predictive Warning, Forecasting and Modelling

- **Unified Data Portal:** A national-level system that connects epidemiological, genomic, hospital, and laboratory data. Integration with the **Integrated Disease Surveillance Programme (IDSP)** and **Integrated Health Information Platform (IHIP)** ensures seamless data flow for real-time monitoring.

○ Indigenous Forecasting Models:

Development of domestic prediction models to provide early warnings of outbreaks and public health risks.

- **Data Sharing and Communication Policy:** Clear policies will govern data access and sharing between health authorities, researchers, and decision-makers.

- **Assigned Decision-Makers:** Authorities at national and state levels will be designated for rapid decision-making based on real-time data analysis.

• Research and Innovation, Manufacturing, Infrastructure, Capacity building/Skilling

- **Centres of Excellence (CoEs):** Specialised CoEs will focus on researching priority pathogens and innovative countermeasures. They will support prototype development and advanced research on platform technologies, such as mRNA vaccines.

- **Institute of Innovation:** A new institute will focus on developing new vaccines, diagnostics, and therapeutic solutions.

- **Scaling Vaccine Production:** Building on the success of 'Mission COVID Suraksha,' India will continue to support indigenous vaccine development, including thermostable mRNA and nasal vaccines. Rapid scaling of vaccine manufacturing will ensure readiness to deploy vaccines within 100 days of an outbreak.

- **Strengthening CDSCO:** The **Central Drugs Standard Control Organization (CDSCO)** will receive more autonomy and technical competence to speed up approvals during emergencies.

- **Clinical Trial Networks:** India will create a global trial network to facilitate fast-track multi-country trials, improving access to cutting-edge medical innovations.

- **Partnership, Community engagement, including risk communication, Private sector partnerships, and international collaborations**

- **Institutional Coordination:** Strong collaboration between the central and state governments will ensure unified response efforts.
- **Building Trust:** Transparent communication strategies will be developed to ensure community trust and cooperation. Public education campaigns will prepare citizens to follow guidelines during public health crises.
- **Private Sector Participation:** Partnerships with private companies will help scale vaccine production, manufacture diagnostics, and develop innovative solutions.
- **International Partnerships:** Aligning India's pandemic preparedness framework with global health bodies (e.g., WHO) will ensure better cooperation and faster access to countermeasures.

Blueprint for a Resilient Future

The NITI Aayog Expert Group's framework offers a comprehensive roadmap to prepare India for future public health emergencies. This report aims to position India to respond within **100 days** of any new outbreak, ensuring better health outcomes and economic stability.

PEPPER IT WITH:
Crisis coordination frameworks, Vaccine readiness, Healthcare infrastructure, Global health partnerships.

Conclusion:

The NITI Aayog Expert Group's framework provides a strategic roadmap to enhance India's preparedness for future pandemics. Emphasizing swift response, comprehensive governance, and robust partnerships, this initiative aims to ensure timely interventions, safeguard health, and stabilize the economy during public health emergencies.

Global Hunger Index 2024

News Excerpt:

In the 2024 Global Hunger Index, **India** ranks **105th** out of the 127 countries with sufficient data to calculate 2024 GHI scores. With a score of **27.3**, India has a **serious** level of hunger.

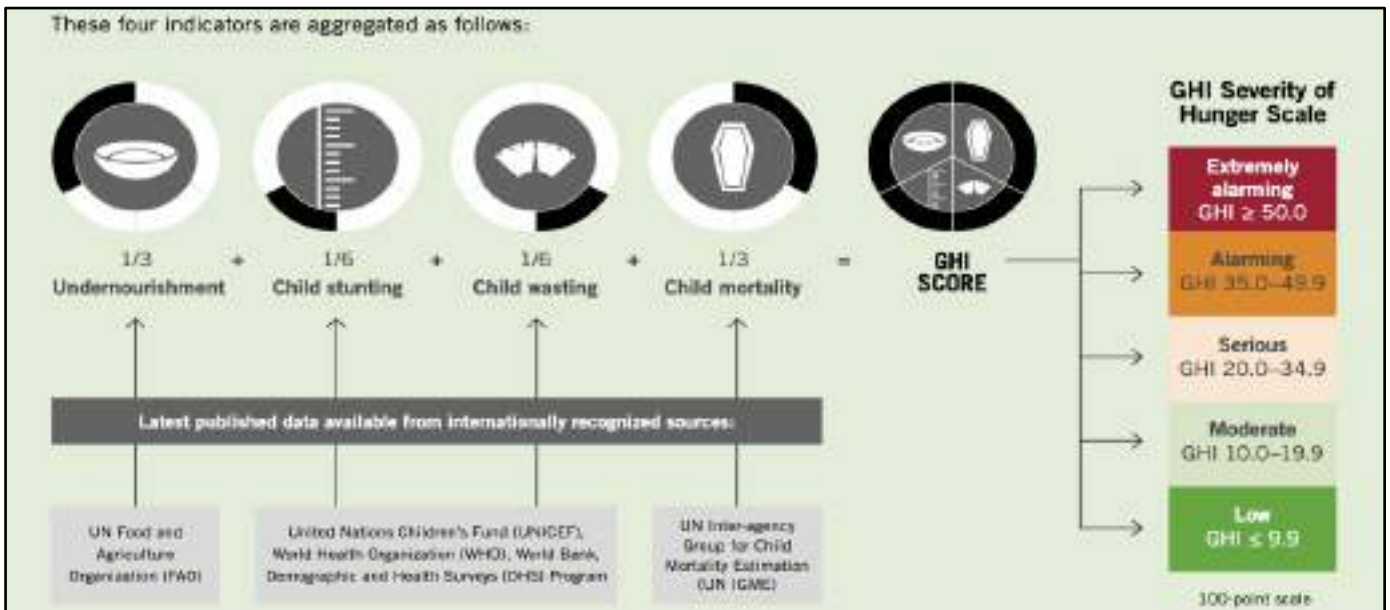
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About Global Hunger Index

- It is a peer-reviewed **annual** report jointly published by **Concern Worldwide** and **Welthungerhilfe**. The GHI **aims** to trigger action to reduce hunger around the world.
- It is designed to comprehensively **measure and track hunger** at the global, regional, and country levels.
- GHI scores are based on the values of **four** component indicators:
 - **Undernourishment:** The share of the population with insufficient caloric intake.
 - **Child stunting:** The share of children under five who have low height for their age, reflecting chronic undernutrition.
 - **Child wasting:** The share of children under age five who have low weight for their height reflecting acute undernutrition.
 - **Child mortality:** The share of children who die before their fifth birthday, partly reflecting the fatal mix of inadequate nutrition and unhealthy environments.
- The score is calculated on a 100-point scale:
 - **0 represents the best possible score** (no hunger)
 - **100 is the worst.**

Key highlights of the GHI 2024

- **Theme:** The 2024 Global Hunger Index (GHI) theme is "How gender justice can advance climate resilience and zero hunger".





- **Global Hunger Trends and Stagnation:** 733 million people face hunger globally, with 2.8 billion unable to afford a healthy diet. Progress against hunger has slowed significantly over the past decade. The world's hunger score is **18.3**, categorised as **moderate** but only a marginal improvement from 18.8 in 2016.
 - **Uneven Regional Progress:**
 - § Hunger remains severe in Africa, South of the Sahara and South Asia.
 - § Africa South of the Sahara experiences the highest undernourishment and child mortality rates globally.
 - § South Asia's hunger is driven by poor diet quality, rising undernourishment, economic instability, and natural disasters.
 - **Unattainable Goal of Zero Hunger by 2030:**
 - § At the current pace, low global hunger might not be achieved until 2160, pushing the Zero Hunger goal far out of reach.
- **Hunger Levels Remain Serious or Alarming in 42 Countries:**
 - **Alarming Hunger:** Six countries show alarming hunger levels - Burundi, Chad, Madagascar, Somalia, South Sudan, Yemen
 - **Serious Hunger:** In 36 countries, hunger remains serious despite efforts to improve conditions.
 - **Declining Progress:** 22 countries have seen increased hunger since 2016. In 20 countries, progress has stagnated, with less than a 5% decline in hunger since 2016.
 - **Success Stories Amid Crisis:** Countries like Bangladesh, Mozambique, Nepal, Somalia, and Togo have significantly improved their GHI scores, though hunger remains high.
- **Twenty-two countries**, including China, UAE and Kuwait, are **ranked first** in this index.
- **Challenges Complicating Hunger Reduction Efforts:**
 - **Overlapping Crises:**
 - § Armed conflicts (e.g., wars in Gaza and Sudan).
 - § Climate change with severe weather events and unpredictable patterns.
 - § High food prices, economic disruptions, and debt crises in many low- and middle-income countries.
 - **Forced Migration and Displacement:** Over 115 million people are displaced due to conflict, persecution, and climate-related disasters.

- **Rising Inequality:** Although extreme poverty has declined in middle-income countries, income inequality remains persistent, with the poorest regions suffering post-pandemic setbacks.
- **Disproportionate Impact on Women and Girls:** Women and girls bear the brunt of food insecurity, malnutrition, and climate disasters.

India Specific Findings in the GHI 2024:

- **India** (105th) is ranked alongside **Pakistan** (109th) and **Afghanistan** (116th) in the "serious" category, while **Bangladesh** (84th), **Nepal** (68th), and **Sri Lanka** (56th) are in the "moderate" category.

Policy Recommendations

- **Strengthen accountability to international law and the enforceability of the right to adequate food:** States must formalise the right to food in concrete laws and regulations, accompanied by transparent monitoring and robust accountability mechanisms.
- **Promote gender-transformative approaches to food systems, climate policies, and programs:** Policymakers must integrate gender considerations into legal frameworks and policy design, implementation, monitoring, and evaluation.

- **For example**, they should update their Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), and national food systems pathways to focus on equity, inclusivity, and rights-based approaches. Recommended measures include **gender budgeting and social and gender audits**.

- **Make investments that integrate and promote gender, climate, and food justice:** Governments must redistribute public resources to redress structural inequalities and enable gender-equitable access. **For example -**

PEPPER IT WITH:

Food insecurity, Micronutrient deficiency, Marginalized communities, Right to food, Climate-induced displacement, SDGs.

- Public investments in care, education, health, and rural development should address discriminatory norms and promote equitable distribution of labour within households and communities.
- The extension of the World Health Assembly targets and the upcoming Nutrition for Growth Summit.

Talking About Caste

News Excerpt:

A growing **debate** over the **role of caste discourse** in India has sparked diverse opinions on whether talking about caste helps or hinders progress toward equality.

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Arguments in Favour of Talking About Caste:	Arguments Against Talking About Caste:
<ul style="list-style-type: none"> ● Linked to Life Chances: Caste impacts opportunities and access to resources, deeply affecting mobility and self-worth. ● Silence Reinforces Privilege: Only those unaffected by caste-based discrimination can afford to ignore caste issues. ● Invisible Discrimination: Caste discrimination includes invisible barriers, limiting participation in opportunities. ● Interlinked Discrimination: Both formal and informal caste discrimination restrict life choices and social mobility. ● Unequal Capital Distribution: Caste perpetuates inequalities in cultural and economic capital, benefiting upper castes. 	<ul style="list-style-type: none"> ● Reinforces Divisions: Caste discourse compartmentalizes caste, freezing fluid relationships and emphasizing divisions. ● New Inequalities: Caste policies create hierarchies within lower castes, favouring the "creamy layer" and ignoring the marginalized. ● Political Constructions: Focus on rigid caste hierarchies detracts from addressing broader societal inequalities. ● Institutional Neglect: Emphasis on caste quotas overshadows the need to strengthen key public institutions. ● Identity Politics: Politicization of caste shifts focus from striving for a casteless society to identity-based quotas.

Introduction to Caste

- The caste system, one of the most distinctive features of traditional **Hindu society**, is a deeply ingrained form of **social stratification**. Its **origin** is a subject of much speculation, with **no consensus** among scholars.
- The term "**caste**" is derived from the **Latin word *castus***, meaning "**pure**," and was later adapted by the Portuguese as *casta*, referring to **race or lineage**.
- In the Indian context, caste refers to the **division of society** into hereditary groups that are often **endogamous**, follow specific **occupations**, and maintain a unique cultural identity.
- In India, caste is traditionally divided into four broad divisions known as **varnas**: Brahmins (**priests**), Kshatriyas (**warriors**), Vaishyas (**traders**), and Shudras (**labourers**).
 - These *varnas* are divided into countless **jatis**, or **sub-castes**, each with distinct **customs and rules**.
- The rigidity of the system has been maintained through **religious sanction** and **social norms**, making it a hierarchical structure that has influenced the social,

economic, and political fabric of Indian society for centuries.

- Though modern laws aim to eradicate caste-based discrimination, its **influence persists** in both formal and informal contexts, shaping access to resources, opportunities, and social mobility.

Way Forward:

- < **Strengthen Institutions:** Improve education and healthcare to offer equal opportunities beyond quotas.
- < **Economic Upliftment:** Enhance empowerment programs and enforce anti-atrocity laws to address caste-related disparities.
- < **Intersectional Approach:** Address caste alongside class and gender for holistic social equality.
- < **Increase Awareness:** Promote initiatives to dismantle caste stereotypes and informal discrimination.
- < **Reform Reservations:** Continuously reform reservation policies to benefit genuinely marginalized groups.
- < **Open Discourse:** Maintain caste discussions and bolster legal protections to curb discrimination in various arenas.

PEPPER IT WITH:
 Varna System, Untouchability, Creamy layer, Mandal Commission, Reservation System.

ECONOMY

Nobel Prize in Economics

News Excerpt:

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The Royal Swedish Academy of Sciences awarded the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel for 2024 to three US-based economists — **Daron Acemoglu, Simon Johnson, and James A Robinson** — "**for studies of how institutions are formed and affect prosperity**".



About Theory in details

They provided an explanation for why some countries are rich and others poor:

- < **Wealth Gap Between Rich and Poor Countries: The richest 20% of countries are about 30 times richer**

than the poorest 20%, with the gap persisting over time despite poorer countries becoming wealthier.

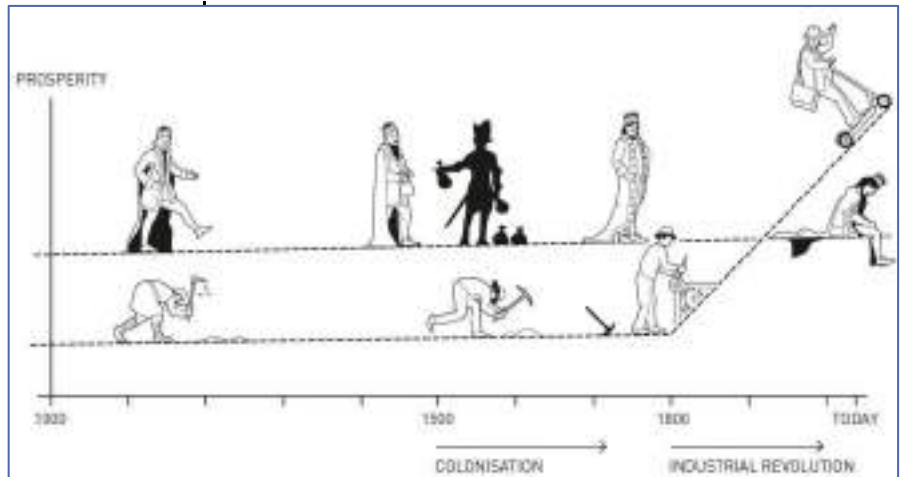
- < **Role of Institutions:** Differences in institutions explain why some countries remain poor. Strong institutions in rich countries contribute to their prosperity.
- < **Colonisation and Institutions:** European colonisation shaped institutions that led to a "reversal of fortune" – regions that were once wealthy before colonisation are now among the poorest. High settler mortality in colonies led to the **establishment of extractive institutions**, which have long-term negative effects on prosperity.
- < **Theoretical Framework:** Some societies are stuck with extractive institutions that limit development, making it difficult to escape poverty. However, institutional change towards **democracy and rule of law is possible and reduces poverty over time.**
- < **Modern-Day Example - Nogales Case Study:** The laureates use the **city of Nogales (split between the USA and Mexico)** to demonstrate how different institutions on either side of the border lead to different outcomes in prosperity.

A tale of two cities:

- < **Nogales: A Divided City:** Nogales is split by a fence into two halves – **Nogales, Arizona (USA) and Nogales, Sonora (Mexico)**, with similar geography, climate, and cultural backgrounds.
- < **Difference in Living Conditions**
 - o **North Side (USA):**
 - § Higher wealth and longer lifespans.
 - § Secure property rights and free elections.
 - § People can enjoy the benefits of their investments and have opportunities to remove unsatisfactory politicians.
 - o **South Side (Mexico):**
 - § Residents are considerably poorer.
 - § Risky business environment due to organized crime and corruption.
 - § Politicians are harder to remove despite recent democratization.
- < **Key Explanation Institutions:** The difference in living conditions is due to the **contrasting political and economic institutions on either side of the fence, not geography or culture.** This divided city exemplifies a broader trend rooted in colonial institutions, affecting prosperity even today.

Colonial institutions:

- < **Different Types of Colonies:** Colonisation led to significant changes in institutions, but not uniformly

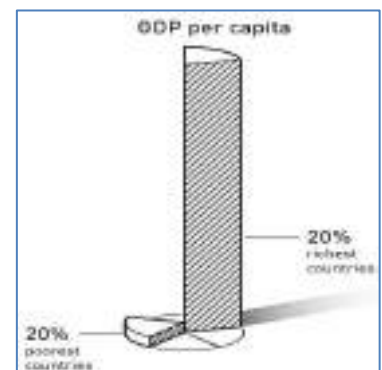


across regions. **Some colonies were created to exploit the indigenous population**, while others built inclusive systems for settlers.

- < **Population Density Impact:** Higher resistance but greater opportunities for cheap labour after conquest; **fewer European settlers arrived.** Less resistance and fewer indigenous labour opportunities, leading to more European settlers.
- < **Institutional Outcomes:** Extractive institutions were established, **benefiting a local elite, with limited political rights and no elections.** Inclusive economic institutions developed to incentivize settlers, **leading to demands for more political rights and greater economic participation.** Settler colonies had more extensive political rights compared to extractive colonies, shaping their political and economic systems over time.

Reversal of fortune:

- < **Colonial Institutions and Prosperity:** Initial colonial institutions explain the vast differences in prosperity today, as seen in the contrasting living conditions between **Nogales, USA, and Nogales, Mexico.**
- < **Reversal of Relative Prosperity:** The wealthiest regions **500 years ago are now relatively poor, while poorer, sparsely populated areas** that introduced inclusive institutions became more prosperous.
- < **Urbanisation as a Measure:** Pre-colonial Mexico, under the Aztecs, was more urbanised than **North America.** After colonisation, the reverse occurred due to the establishment of extractive institutions in wealthier areas.
- < **No Reversal in Non-colonised Areas:** This reversal of fortune is **unique to colonised regions**, not seen in non-colonised areas or in pre-colonial times.



< **Impact of the Industrial Revolution:** The reversal accelerated during the Industrial Revolution. **For example, India's industrial production was higher than the USAs in the mid-18th century**, but institutional differences led to a long-term shift in prosperity.

Settler mortality:

< **European Settlers and Economic Systems:** More European settlers led to economic systems that **promoted long-term growth**, contributing to modern prosperity.

< **Impact of Disease:** Deadly diseases in regions like **Africa and India** hindered European settlers, leading to the establishment of **extractive institutions**, which correlate with poverty, corruption, and weak rule of law today.

< **Geography and Climate:** Previous theories suggested countries in temperate zones were more productive due to climate. However, **the laureates argue that institutional differences, not just climate**, explain why hotter countries near the equator tend to be poorer.

< **Reversal of Fortune:** This reversal of wealth, where **once-rich regions became poorer, is tied to the types of colonial institutions** that were established based on settler survival rates and disease prevalence.

< **Revolutionary Threat and Democratization:** The masses, even without formal power, can mobilize and pose a threat to the ruling elite. **The threat of revolution (especially peaceful mobilization) can force elites to introduce democracy when promises of reform lack credibility.**

< **Model for Institutional Change:**

- o **Conflicts arise over resource allocation and power (elite vs. masses).**
- o **The masses can use mobilization to pressure the elite.**
- o **The commitment problem makes power-sharing the only credible option in some cases.**

< **Historical Applications:** The model explains the democratisation of Western Europe (e.g., Britain and Sweden) and why some nations alternate between democracy and non-democracy.

< **Long-Term Impact:** The research highlights the **difficulty of reforming extractive institutions but that supporting democracy and inclusive institutions is key to promoting economic development.**

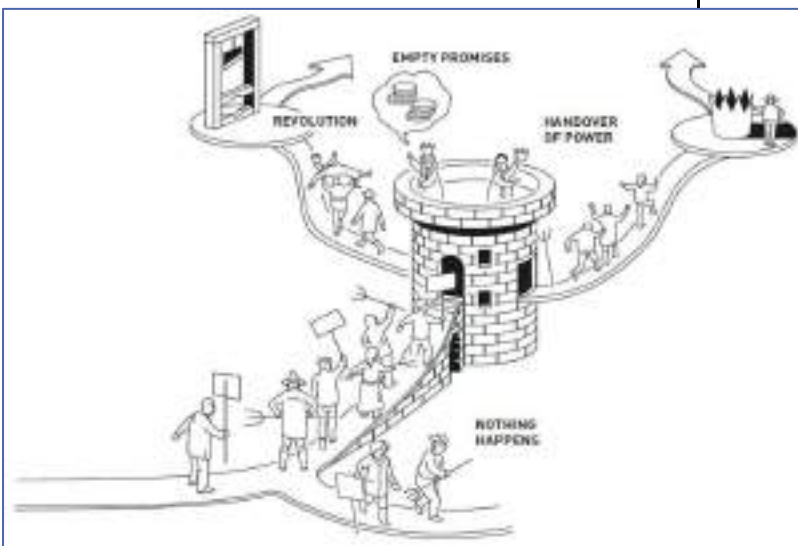
PEPPER IT WITH:

Industrial Revolution, Colonization, Economy reform policies, Industrialization.

< **Influence on Research:** Their work has shaped ongoing research in economics and political science, **emphasizing the importance of institutions in determining a country's prosperity.**

Conclusion:

The research conducted by Acemoglu, Johnson, and Robinson sheds light on the crucial role of institutions in shaping a nation's economic prosperity. Their findings challenge traditional explanations based on geography, culture, or climate, highlighting the enduring impact of colonial institutions on modern-day development.



Escaping the trap:

< **Institutions and Economic Growth:** **Extractive institutions** (designed to exploit) hinder long-term growth. **Inclusive institutions** (with economic freedoms and rule of law) promote long-term growth and prosperity.

< **Political Power and Commitment Problem:** The ruling elite benefits from extractive systems, leading to distrust from the masses when reform is promised. **To break this cycle, elites must give up power and enable democratic systems, but fear losing economic benefits prevents this change.**

Bad Economics of Freebies

News Excerpt:

Proliferation of the freebie culture has resulted in some states **witnessing an**

acute fiscal crisis in recent months.

About the news:

Himachal Pradesh and Punjab are facing a **significant surge in their outstanding debt burden**. **Freebies** may be smart politics, but they are turning into bad economics, forcing states to withdraw poll promises.

Debt and deficit in Himachal Pradesh:

< **Himachal Pradesh** is facing a significant **financial crunch**, which can be attributed to a **swelling wage and pension bill** and **rise in subsidy burden**, leading to an

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increased reliance on borrowings, alongside **limited sources of revenue generation.**

- o With the growing financial constraints, the state government has stepped in to enforce **fiscal discipline through measures**, such as **rationalization of existing subsidy schemes**, adjusting **the date of release of salaries** and revoking the pension of disqualified legislators.
- < The **state's outstanding debt** is projected to **rise to almost Rs 97,000 crore** in the current year from nearly **Rs 88,000 crore last year.**
- o As a percentage of **Gross State Domestic Product (GSDP)**, Himachal's debt has risen to **42.3 percent in 2023-24** and is estimated at 42.5 percent for the current year.
- < The **state's fiscal deficit**, at **3.5 percent of GSDP in 2019-20**, had jumped to **6.5 percent in 2022-23.**

Revenue-capital expenditure composition:

- < During the last three years, **more than 80 percent of the overall expenditure** is accounted for by **revenue expenditure**: required for **the day-to-day running of the state machinery.**
- < More than 60 percent of the expenditure is allocated towards **payment of salaries, pensions and interest payments**, which together constitute the committed expenditure.
- < **The payouts on account of poll promises** have led to **higher spending on pensions.** In the current year, the government has **increased the pension for women from Rs 1,150 per month to Rs 1,500 per month.**
- < Similarly, salaries are projected to constitute 32 percent of the total expenditure in the current year, up from 30 percent in the previous year.
- < Last year, the government **switched to the old pension scheme.**
- < The **actual borrowings have surpassed the budgeted estimate** by a significant margin. Consequently, **the interest burden is picking up.**

Revenue deficit and tapering grants:

- < **Recent Finance Commissions** have recommended grants to **correct significant imbalances** in the revenue account for some states that may remain after accounting for devolution of central taxes.
- < The **15th Finance Commission** recommended **revenue deficit grants worth Rs 2.95 lakh crore for 17 states.** Of this, **Himachal Pradesh will get Rs 37,000 crore** over the 15th FC's award period. In each successive year, however, the magnitude of grant will taper.
- < **With the tapering of revenue deficit grants**, the **state will have to make efforts** for augmentation of its own revenues to achieve compliance with the fiscal responsibility legislation. It also needs to **minimise committed expenditure** so that more funds are available for development expenditure.

Financial crisis in Punjab:

- < **Punjab** has been **reeling under an acute financial crisis as freebies, subsidies, and rising salary and pension bills**, have led to a **burgeoning debt burden.** In the current year, the outstanding debt as a percentage of GSDP is projected to be 44.1 percent, marginally higher than the revised estimates for 2023-24 at 43.9 percent.
- < **Doling out subsidies**, and **rise in salaries and pensions**, have led to **swelling of revenue expenditure**, which, in the current year, accounts for **94 percent of the total expenditure** (excluding debt repayments). Of the projected revenue expenditure of Rs 1.27 lakh crore, Rs 35,000 crore is expected to be **spent on salaries**, another Rs 20,000 crore on pensions and Rs 24,000 crore on interest payments.
- < **Another big component of revenue spending** is the **power subsidy for agriculture and domestic use**, which accounts for **nearly 80 percent of the overall subsidy spending.** In the last three years, the Punjab government has been spending Rs 20,000 crore on power subsidies.
- < **Due to a rise in the revenue expenditure**, the state has been observing a persistent revenue deficit since 2015-16. This is despite the state receiving a revenue deficit grant.
- < The **15th Finance Commission** recommended **grants worth Rs 25,968 crore** over five years. The bulk of the grant has already been provided till 2023-24.
 - o The grant will reduce to zero in 2025-26, **further deepening the financial woes of the state.**
- < The **state government** has **hiked the prices of petrol and diesel** and has partially withdrawn subsidies for domestic consumers.

PEPPER IT WITH:
Finance commission, fiscal deficit, FRBM, State finances, Grant in Aid.
- < **Rationalisation of revenue expenditure**, particularly **agriculture subsidies**, will help in improving the **fiscal health of the state.**



Demographic advantage, Indian economy's sweet spot

News Excerpt:

India's emergence as an economic giant — it is the world's fastest growing big economy and is currently the fifth largest.

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More details about the news:

- Demographics is a major factor in propelling this rise given that the **median age is around 28 years and 63%** of the population is of working age.
- However, the **labour force participation rate stood at 55.2% in 2022**, according to a recent report released by the **International Labour Organization (ILO)**, which goes on to state that falling labour intensity is likely due to **growth being led by the services sector rather than manufacturing**. Therefore, while we are certainly not experiencing "jobless growth", more steps are needed to harness the demographic dividend.

About Demographic Dividends and Demographic Transition India:



- As fertility declines**, the share of the young population falls and that of the older, dependent population rises. **If the fertility decline is rapid, the increase in the population of working ages is substantial yielding the 'demographic dividend'**. The smaller share of children in the population enables higher investment per child. Therefore, the future entrants in the labour force can have better productivity and thus boost income. With the passage of time, the share of the older population rises and that of the working age population begins to fall and hence the dividend is available for a period of time, 'the window of demographic opportunity'.
- Without proper policies, **the increase in the working-age population may lead to rising unemployment, fueling economic and social risks**. This calls for forward-looking policies incorporating population dynamics, education and skills, healthcare, gender sensitivity, and providing rights and choices to the younger generation.
- With **falling fertility (currently 2.0), rising median age (from 24 years in 2011, 29 years now and expected to**

be 36 years by 2036), a falling dependency ratio (expected to decrease from 65% to 54% in the coming decade taking 15-59 years as the working age population), India is in the middle of a demographic transition. This provides a window of opportunity towards faster economic growth

Significance of Demographic Dividend for India:

- Abundant Workforce:** A large and young population provides a significant **labour supply**, which can fuel economic growth by supporting industrial expansion and service sector development.
- Increased Consumer Base:** A larger consumer base can stimulate **domestic demand for goods and services**, driving economic growth and creating opportunities for businesses. A growing consumer market can attract foreign investors and businesses, leading to increased economic activity.
- Innovation and Entrepreneurship:** A young population is often associated with **greater innovation, creativity, and entrepreneurial spirit**, which can drive economic growth and job creation. A young and educated population is more likely to embrace new technologies and develop innovative solutions, contributing to economic progress.
- Reduced Dependency Ratio:** A lower dependency ratio means fewer **dependents per working-age person, reducing the burden on the workforce and freeing up resources for investment and economic development**. A lower dependency ratio can contribute to more sustainable economic growth and development.
- Global Competitiveness:** A skilled and productive workforce can enhance India's **global competitiveness, attracting foreign investment and exports**.

Continue with the reform's agenda:

- Reforms Agenda:** India needs to maintain and accelerate its **reform agenda to sustain economic growth and create opportunities**. While the Centre has taken steps, States need to play a more active role in implementing reforms, especially in the context of production.
- Economic Growth and Labour:** Technological advancements have led to a decline in the **capital-to-output ratio and an increase in the capital-to-labour ratio**. Economist and Chairman of the 16th Finance Commission emphasizes the importance of labour-led economic growth given India's abundant labour resources.
- Challenges for MSMEs and Large Businesses:** Outdated labour laws impose a heavy **compliance burden and costs on MSMEs and large businesses, hindering their growth and expansion**. Large businesses may be hesitant to enter labour-intensive sectors due to the challenges associated with managing a large workforce.

- **Importance of Manufacturing Sector:**
 - **Employment Generation:** The manufacturing sector is crucial for generating employment, **particularly for the 45% of the workforce** engaged in agriculture.
 - **Diversification:** Promoting manufacturing can help **diversify the economy and reduce** dependence on agriculture.
- **Focus on High-Growth Potential Sectors:**
 - **Job Creation:** Sectors like **toys, apparel, tourism, and logistics** offer high-growth potential and can create jobs, especially for the unorganized and non-agricultural sectors.

Skilling as a Continuous Process:

- **Importance of Skilling:** Skilling is crucial for making future generations productive members of society.
- **Skills Shortage:** The Economic Survey highlighted a significant skills shortage among the youth, with only 4.4% of the 15-29 age group formally skilled.
- **Public-Private Partnerships:** Addressing this gap requires collaboration between the government and industry to develop relevant curricula and provide on-the-job training.
- **Lifelong Learning:** Skilling is not a one-time event but a continuous process that requires flexibility in educational institutions and a focus on lifelong learning.

New Education Policy (NEP) 2020:

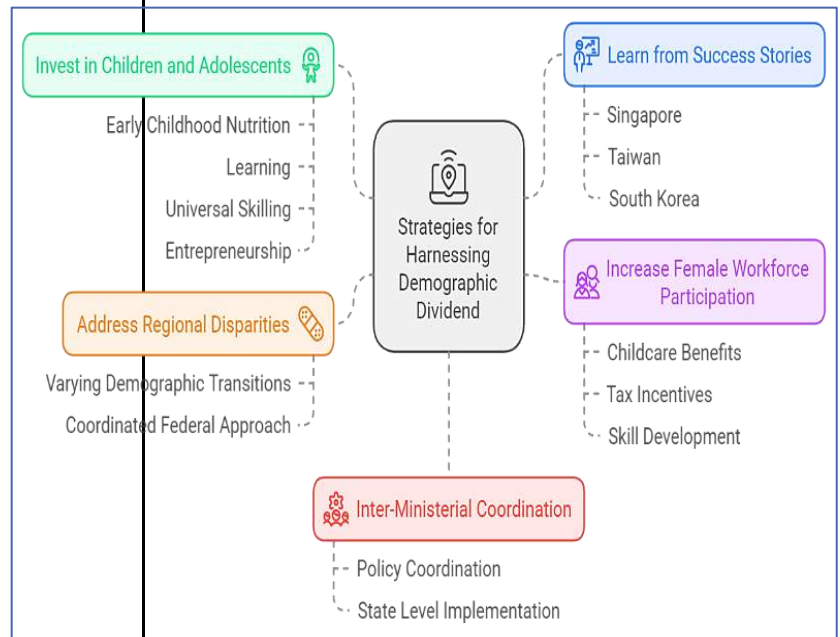
- **The NEP emphasizes the importance of foundational skills like reading, writing, and numeracy.** The policy also focuses on developing higher-order cognitive skills such as critical thinking, problem-solving, and creativity. Given the rapidly changing world, the NEP should be reviewed and updated periodically to remain relevant and effective.

Impact of AI/ML:

- **Automation of Tasks:** AI/ML can automate repetitive tasks with low skill requirements.
- **Human Oversight:** Despite automation, human intervention and oversight will remain essential.
- **Regulation and Governance:** Appropriate regulations are needed to govern the use of AI/ML while harnessing its benefits.
- **Market Growth:** The AI/ML market is projected to grow significantly, reaching \$826.73 billion by 2030.
- **Talent Gap:** India has a large talent pool in AI/ML but faces a significant gap between demand and supply.

PEPPER IT WITH:
Population policy, Labour force participation, Female Workforce.

Way Forward:



What India needs for a retail and e-commerce revolution

News Excerpt:

The retail and e-commerce boom stands on the backbone of logistics and supply chain infrastructure in the country. To target a **\$5-trillion economy by 2030, seamless and efficient movement of goods** is essential to meet demand and drive the growth of this sector.

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More details about the news:

- India stands at the threshold of a transformation. With a **burgeoning middle class, increasing disposable incomes, and a young population**, the country is poised for a retail revolution. Projections indicate a leap to an impressive **\$2 trillion by 2033, from \$820 billion in 2023.**
- E-commerce has a crucial role in this transformation. With **rapid digitalization and growing internet penetration**, the Indian e-commerce market is expected to reach \$325 billion by 2030.

Difference Between Retail and Ecommerce:

- The primary difference between retail and ecommerce lies in their respective locations.

<p>Retail generally refers to sales made within physical or brick-and-mortar stores. These stores are the more traditional option and can range from smaller mom-and-pop shops to larger retail chains like Walmart.</p>	<p>Ecommerce refers to sales made over the internet or through digital procurement. These sales typically derive from online marketplaces such as Amazon, eBay and Etsy, as well as various proprietary ecommerce platforms.</p>
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About Retail and E-commerce Current Status in India:

- The retail and e-commerce boom stands on the **backbone of logistics and supply chain infrastructure** in the country.
- As we target a **\$5 trillion economy by 2030**, the seamless and efficient movement of goods is essential to meet demand and drive the growth of this sector.
 - This growth, however, hinges on the ability to **manage and reduce logistics costs**, which currently account for a **hefty 11-14 per cent of the Gross Domestic Product (GDP)**.
 - In comparison, the global average is around 8 per cent, with **logistics costs amounting to 8-10 per cent of the GDP in the US and Europe, and 9 per cent in China** respectively.
- **To unlock the full potential of our retail sector, it is imperative to bring down logistics costs.** This reduction can lead to more competitive pricing, **better profit margins for retailers, and ultimately, more affordable products for consumers.**

Indian E-commerce Market (Fastest growing e-commerce market in the World):

- **The Indian e-commerce industry has been on an upward growth trajectory. In FY 2022-23, Government e-marketplace (GeM) registered its highest ever Gross Merchandise Value of \$2011 Bn.** GeM has achieved a cumulative GMV of more than INR 9.82 Lakh Cr (since inception) as on 30th July 2024.
 - Hence, considering the saving estimates as reported above, **GeM has facilitated savings worth more than INR 40,000 Cr since its inception.**
- **The e-commerce industry in India is growing on levers such as increased smartphone penetration, increased affluence and low data prices, providing impetus for e-retail growth.** With over 950 Mn users, India is the 2nd largest internet market in the world with 131.16 Lakh Cr UPI transactions in FY 2023-24.
- **Close to 100% of pin codes in India have seen e-commerce adoption.** More than 60% of transactions and orders in India come from tier two cities and smaller towns.

Indian Retail Market:

- **The Indian retail industry has emerged as one of the most dynamic and fast-paced industries due to the entry of several new players.** It accounts for over 10% of the country's gross domestic product (GDP) and around 8% of the employment. **India is the world's fifth-largest global destination** in the retail space and ranked 63 in the World Bank's Doing Business 2023.
- **As per Kearney Research, India's retail industry is projected to grow at 9% over 2019-2030, from US\$ 779 billion in 2019 to US\$ 1,407 billion by 2026 and more than US\$ 1.8 trillion by 2030.** India's direct selling industry is expected to be valued at US\$ 7.77

billion by the end of 2025. Despite unprecedented challenges, the India consumption story is still robust.

- **India has the third-highest number of e-retail shoppers (only behind China and the US).** The new-age logistics players are expected to deliver **2.5 billion Direct-to-Consumer (D2C) shipments by 2030.**

Government Initiatives Paving the Way for Logistics Growth:

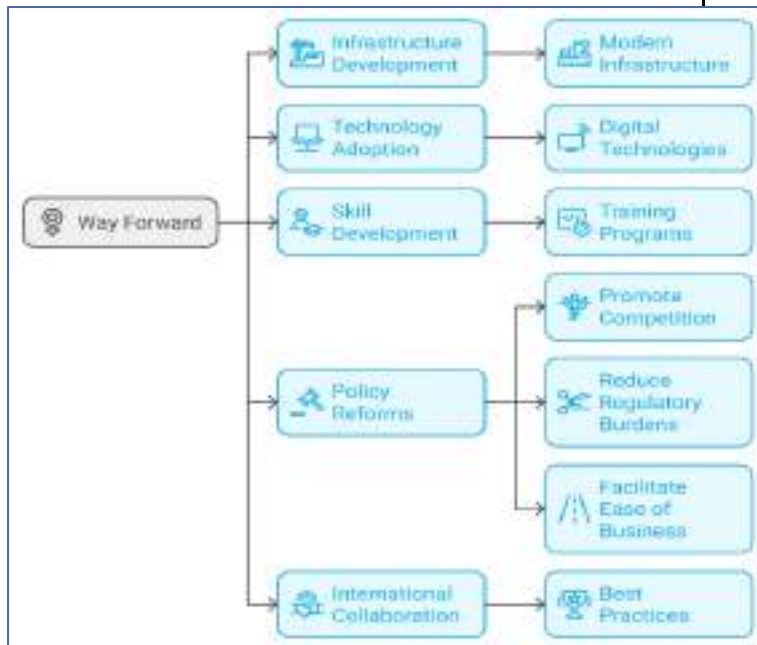
- **Increased Infrastructure Spending:** The government's commitment to increasing infrastructure spending will boost the logistics industry. **Trade Facilitation and Reduction initiatives aimed at reducing trade barriers and facilitating trade** will enhance the efficiency of logistics operations.
 - **Investments in affordable technology** will enable logistics companies to adopt digital solutions and improve their operations.
 - **E-commerce and omnichannel** retailing are driving demand for efficient and reliable logistics services.
- **National Logistics Policy (NLP):** NLP aims to improve India's logistics performance index, reducing costs and inefficiencies.
 - **Data-Driven Decision Making:** The policy promotes the use of **data-driven decision support mechanisms to optimize logistics** operations. The NLP encourages standardization and innovation in the logistics sector to enhance efficiency and competitiveness.
- **Digitization and Sustainability:** The NLP emphasizes the **use of digital platforms for real-time tracking**, e-documentation, and seamless information exchange.
 - **The Unified Logistics Interface Platform (ULIP)** will bring all stakeholders onto a single platform, facilitating better coordination and collaboration.
 - The policy focuses on promoting **sustainable practices in the logistics sector**, such as using electric vehicles and reducing environmental impact.

Global lessons towards driving efficiencies:

- **Learning from Germany:** Germany's logistics sector is renowned for its efficiency and reliability, supported by **advanced infrastructure, technology, and a skilled workforce.** The German model emphasizes the integration of various transportation modes, warehousing facilities, and inventory management systems. Germany has effectively utilized technologies **like IoT, AI, and data analytics** to enhance the predictability and reliability of logistics operations.
- **Investing in Technology and Infrastructure:** **Gati Shakti National Master Plan India's** focus on infrastructure development and skill development aligns with the German model.
- **Warehousing Modernization:** Improving warehousing standards and implementing **automation technologies** can streamline operations and reduce costs.

- **Skilled Workforce:** Investing in training and development programs for logistics professionals can create a **skilled workforce capable of managing complex systems and technologies**. Collaborating with educational institutions can facilitate skill development and ensure a steady supply of talent for the logistics sector.
- **Holistic Development:** A robust logistics sector is essential for enhancing the competitiveness of **Indian businesses and attracting foreign investment**. A well-developed logistics sector can create numerous job opportunities, contributing to **economic growth and improving the standard of living**.

PEPPER IT WITH:
Logistics sector, Ease of Doing Business, National Logistics Policy, E-Commerce.



India must put the lid on colossal food loss and waste

News Excerpt:

On the **International Day for Food Loss and Waste 2024** — it is observed on **September 29** — the **FAO** calls for increased financing to strengthen efforts to reduce food loss and waste to build sustainable food systems and reduce greenhouse gas emissions.

More details about news:

- According to the estimates of the **Food and Agriculture Organization of the United Nations (FAO)** and **United Nations Environment Programme (UNEP)**, 13% of food produced globally is lost before it reaches the retail stage, while an additional 19% is wasted at the retail, food service, and household levels.

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- This results in **32% of global food production being discarded**.
- **In a world where more than 700 million people suffer from hunger**, this scale of waste is unacceptable.

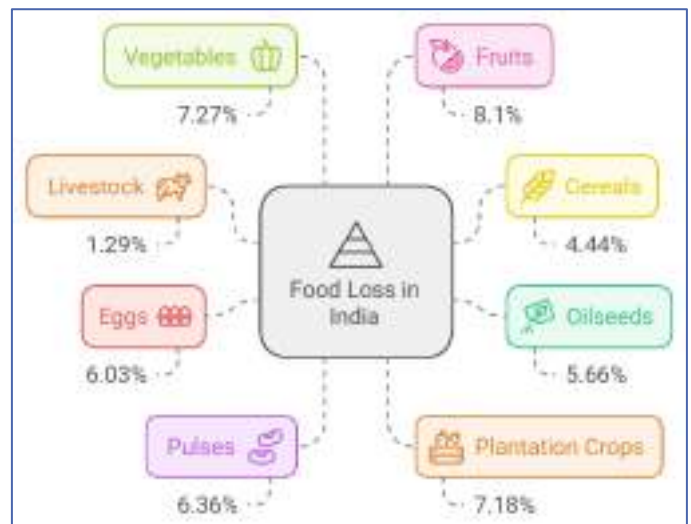
India's current situation:

- **In India, the situation is concerning. As per the 2022 study of NABARD Consultancy Services (NABCONS)**, there are significant production losses across all food categories.
- **Food loss in India** not only undermines national food security but also translates into substantial economic loss.
 - The total monetary value of food lost is close to **1.52 lakh crore (\$18.41 billion)**, which is about **3.7% of the gross value added to the agricultural sector in the country**.

○ These estimates are likely conservative since they do not account for the deterioration in food quality, and other studies suggest even higher proportions of food loss.

Wasted food equals wasted resources:

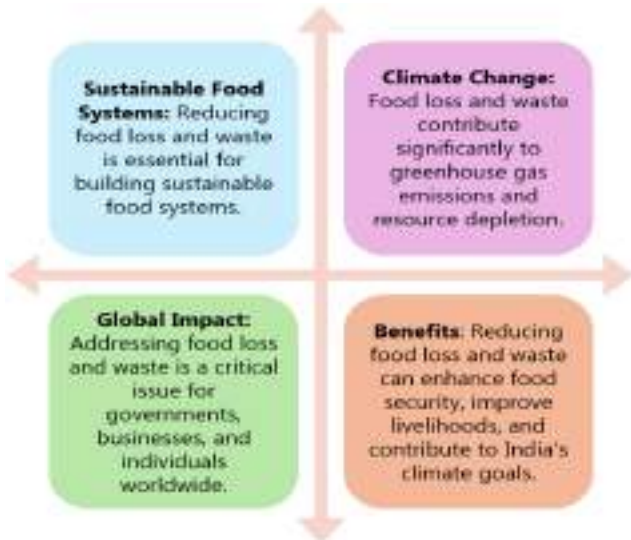
- **The consequences of food loss go beyond food itself.**
 - **Wasted food means wasted resources such as land, water, energy, and labour.** Agriculture consumes nearly **70% of the world's freshwater**, and when food is lost, so are critical water resources. Similarly, energy inputs are required at every stage of the food supply chain, from mechanized farming to transport, processing and storage, and every instance of food wastage squanders this energy.
- **Food systems contribute approximately 26% of global greenhouse gas (GHG) emissions.**
 - **Food loss alone accounts for 6% of global emissions.** When food waste decomposes in landfills, it produces methane, a **greenhouse gas far more potent than carbon dioxide**.



Reducing food loss to mitigate climate change:

- **Global Importance:** Climate change concerns make reducing food loss and waste a global priority. Achieving **UN SDG targets 12.3.1 (halving food loss) and 12.3.2 (halving food waste) is imperative for sustainability.**
- **Government of India's Efforts:** Through the **Pradhan Mantri Kisan Sampada Yojana (PMKSY):** Subsidies are provided for the transportation and storage of eligible crops. Financial incentives are given to stakeholders (private sector, SHGs, FPOs, local bodies, cooperatives) for building modern cold chains and warehouses. **The Integrated Cold Chain and Value Addition Infrastructure scheme** promotes uninterrupted cold chain facilities from farm gate to consumer.
 - **The Rural Godown Scheme** focuses on improving storage infrastructure in rural and remote areas to minimize storage losses.
- **Additional Efforts Needed:** Promote efficient storage, grading, and transport of agricultural produce. **Public-private partnerships, start-up support, and innovative financing solutions are essential** for scaling interventions and ensuring sustainable outcomes.
- **FAO and Green Climate Fund (GCF) Initiative:** The FAO is preparing a project with the Green Climate Fund (GCF) to **reduce food loss and retail waste in India**, in collaboration with the Small Industries Development Bank of India (SIDBI).
 - **The project aims to:** Identify key stages in the food supply chain where losses are most acute and quantify food losses and evaluate the GHG emissions caused by them.
- **Study by FAO and NIFTEM:** **The FAO and the National Institute of Food Technology, Entrepreneurship and Management (NIFTEM) are conducting a study to:** Enhance India's agri-food resilience by addressing the climate impact of food loss and retail waste in post-harvest operations, provide tailored solutions for different commodities and design targeted interventions under the GCF project to improve processing value chains and reduce GHG emissions.

Importance of Reducing Food Loss and Waste:



Way Forward:

- **Comprehensive Approach:** A comprehensive approach is needed to address food loss and waste, combining government policies, private sector involvement, and research-based solutions.
- **Policy Implementation:** Effective implementation of government initiatives and policies is essential to achieve tangible results.
- **Public Awareness:** Raising public awareness about the issue of food loss and waste can encourage individual actions to reduce waste.
- **Global Collaboration:** International cooperation and knowledge sharing can help countries learn from each other and develop effective strategies to address food loss and waste.

PEPPER IT WITH:

Food Management, Security, NABARD, SDG.	Waste Food FAO,
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China Shock 2.0

News Excerpt:

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A Steep hike in tariffs including a 100 percent duty on electric vehicles by the US on imports from China kicked in, as the world's top economy along with India and a dozen other countries grapple with a rapid influx of goods — dubbed China Shock 2.0 — into global markets.

More details on news:

- China produces 85 per cent of the **global supply of solar cells**, 88 percent of **solar-grade polysilicon**, and 97 per cent of the **silicon ingots and wafers** that form the core of solar cells.
- The China shock not only **disrupted Western markets but also adversely impacted Indian manufacturing and trade.**
- The US tariff hikes also include a **50 per cent duty on solar cells and 25 per cent on steel, aluminum, EV batteries and some minerals.**

Renewed Wave of Goods Exports by China and its Global Impact:

- **China's Renewed Export Wave:** China is moving up the export value chain into high-tech sectors like **solar equipment, electric vehicles, and semiconductors.** This export drive comes in response to a **domestic demand slump** and is intensifying international trade tensions.
- **India's Response - Anti-Dumping Measures:** India and other nations have imposed a **fresh wave of anti-subsidy** measures fearing a repeat of manufacturing job losses after China's entry into the WTO.
 - In 2024, India initiated over **30 anti-dumping investigations against China**, the highest for any country. Products under investigation include **plastic processing machines, vacuum-insulated flasks,**

welded stainless steel pipes and tubes, soft ferrite cores, and industrial laser machines.

- **Predatory Practices:** Indian businesses argue that China, by not being a **market economy, engages in predatory practices, harming local industries and eliminating competition.** Many Indian businesses are seeking extensions of anti-dumping duties.

Historical Context –

China's WTO Entry: In the 2000s, there was debate about whether China would become **the "next great capitalist tiger" or remain the "world's last great communist dragon."** Bill Clinton, then US President, supported China's WTO accession, arguing that economic integration would lead Beijing to political reform and greater economic freedom.

- **The 'China Shock':** After China joined the WTO, its **inexpensive goods flooded global markets, leading to the "China shock,"** causing manufacturing job losses worldwide. This disruption impacted Western markets and Indian manufacturing.
- **India's Growing Import Dependence:** India's imports from China surged from **\$10.87 billion in 2005-06 to \$61.71 billion in 2015-16.** Despite economic restrictions post-Galwan clash (June 2020), imports surpassed **\$100 billion in 2023-24,** indicating continued dependence on Chinese goods.

China's Renewed Export Push:

- **Economic Slowdown:** The surge in Chinese exports is partly driven by a slowdown in the Chinese domestic economy due to factors like the **property crisis, weak credit, and low consumer demand.**
- **Excess Capacity:** China is seeking to absorb excess capacity in its economy by increasing exports to other countries.
- **ADB Assessment:** The Asian Development Bank identified higher exports and continued policy support to manufacturing as key drivers of China's growth in the first half of 2024.

Concerns of "China Shock 2.0":

- **IMF Warning:** The IMF has warned that China's external surpluses, driven by export-oriented policies, could lead to **"China Shock 2.0," displacing workers** and hurting industrial activity in other countries.

Blocking India's access to solar equipment:

- **China Blocking India's Access to Solar Equipment:** The **Economic Survey 2023-24 warned that in response to India's anti-dumping probe against Chinese entities,** China has quietly been blocking India's access to solar equipment.

Dumping of steel from China into India:

- **Global Steel Industry Concerns:** The global steel industry is seeking government intervention to address the **influx of Chinese steel.**

European steelmakers have appealed to trade officials due to Chinese steel exports driving prices below the cost of production in Europe.

- **Indian Steel Industry's Response:** Indian steelmakers have also urged the government to **impose anti-dumping duties on Chinese steel,** as profits in the Indian steel industry are being eroded by the surge in Chinese imports.
- **Overall Steel Imports:** India's total finished steel imports hit a **six-year high of 3.7 million metric tons** between April and August 2024.

China's dominance in electronics

- **In FY24, India imported electronic components worth over \$12 billion from China and \$6 billion from Hong Kong.**

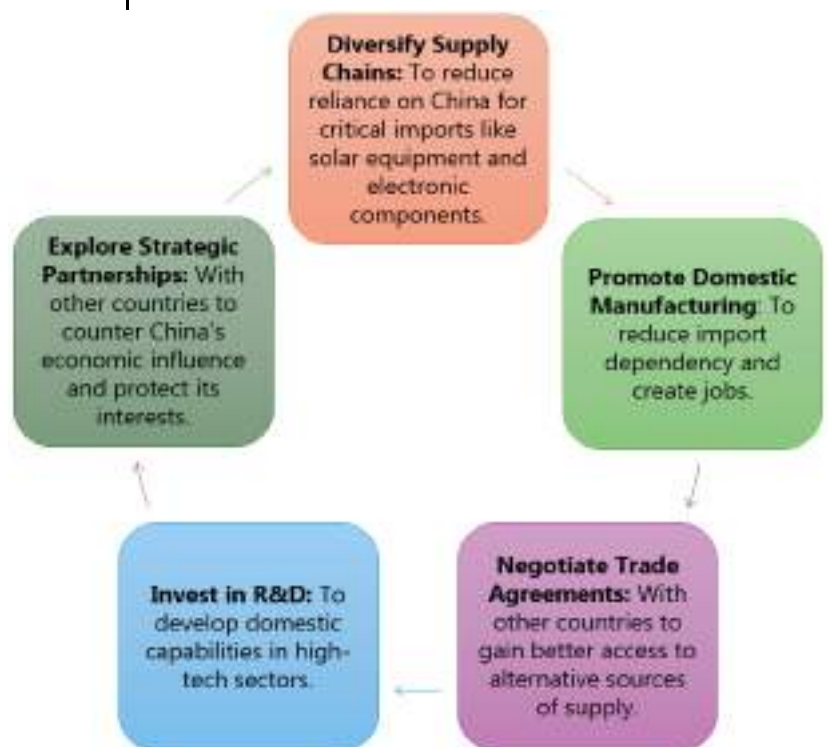
PEPPER IT WITH:
 Anti-dumping duty, Price wars, Import substitution, Innovation in Science & Technology

- **Share of Imports from China and Hong Kong:** China and Hong Kong

together accounted for more than half of **India's total electronic component imports.** This indicates that India's expanding electronics manufacturing has not yet significantly reduced reliance on Chinese imports.

- **Electronic Components as a Major Import:** Electronic component imports stood at \$34.4 billion in FY24, making them **the fifth-largest commodity imported into India.** This places electronic components behind imports like crude oil, gold, petroleum products, and coal.

Way forward:



AGRICULTURE

White Revolution 2.0

News Excerpt:

India is the world's top milk producer, with production having reached 230.58 million tonnes during 2022-23.

The idea of **White Revolution 2.0** revolves around cooperative societies, which were also the bedrock of **Operation Flood** five decades ago.

More detail about news:

- < **Operation Flood**, launched in **1970**, ushered in the White Revolution and transformed the dairy sector in India.
- < The Union Home and Cooperation Minister announced plans for "**White Revolution 2.0**".
- < White Revolution 2.0 will "**increase milk procurement of dairy cooperatives by 50% over the next five years** by providing market access to dairy farmers in uncovered areas and increasing the share of dairy cooperatives in the organised sector", according to the **Ministry of Cooperation**.

About White Revolution 2.0:

- < The idea of White Revolution 2.0 revolves around cooperative societies, which were also the bedrock of **Operation Flood** five decades ago.
- < Dairy cooperatives procured 660 lakh kg of milk per day in 2023-24; the government wants **to increase this to 1,007 lakh kg/ day by 2028-29**. For this, it has formulated a strategy of expanding coverage and deepening the reach of cooperatives.
- < This will also **generate employment** and contribute to the empowerment of women in the process, the ministry said.

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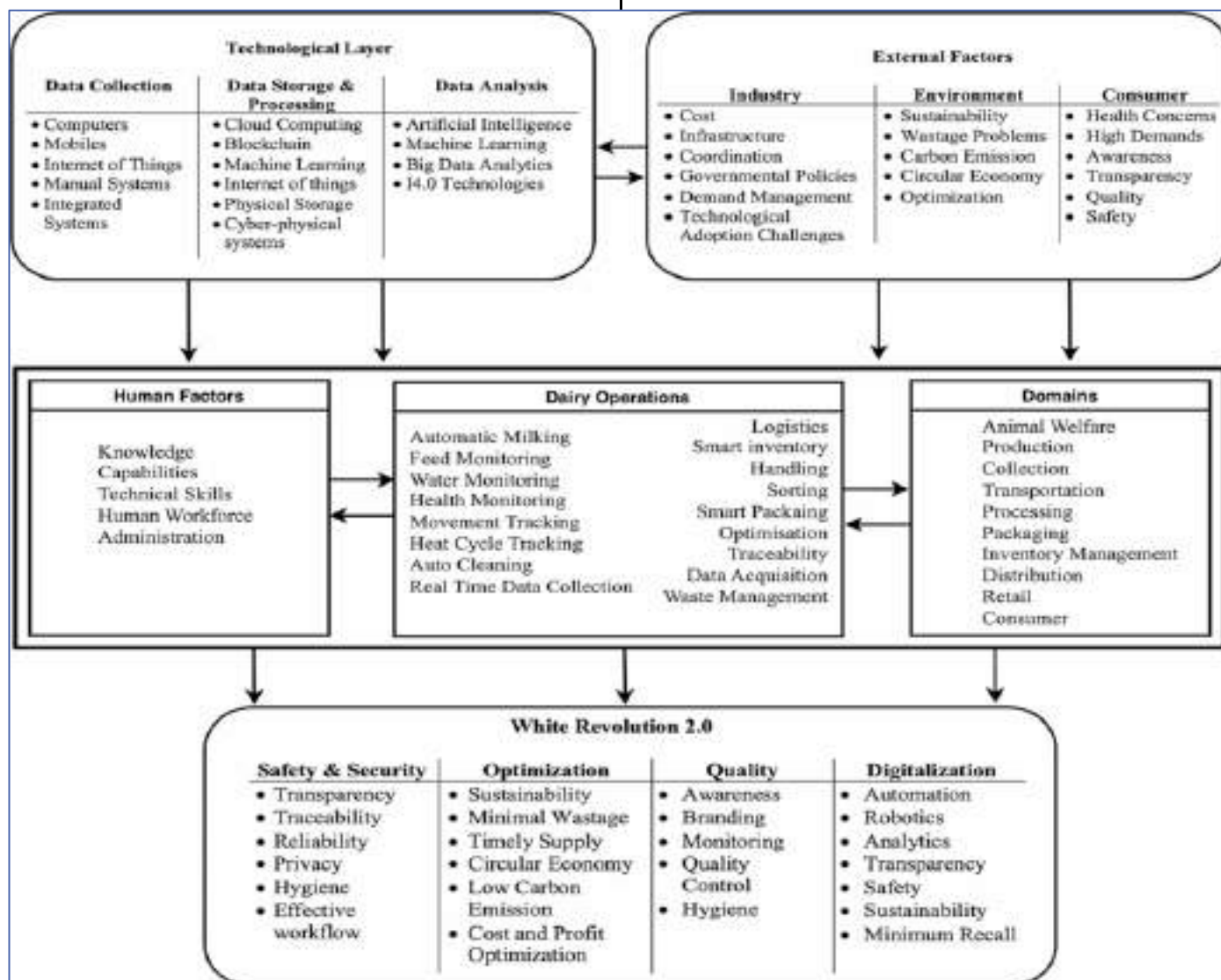
Scope for expansion:

- < **Focus on Expanding Cooperative Networks:** Since 2021, the **Ministry of Cooperation** has prioritized expanding cooperatives, especially dairy cooperatives.
- < **Current Coverage of Dairy Cooperatives:**
 - o Dairy cooperatives operate in about **70% of India's districts**.
 - o There are **1.7 lakh dairy** cooperative societies (DCSs), covering 2 lakh villages (30% of the total villages in India).
 - o Around **22% of producer** households are part of these cooperatives.
 - o Dairy cooperatives procure 10% of the **country's milk production** and 16% of the marketable surplus.
- < **States with High Coverage (Above 70% of Villages):** **Gujarat, Kerala, Sikkim**, and the Union Territory of Puducherry have more than 70% of villages covered by dairy cooperatives.
- < **States with Moderate Coverage (10-20% of Villages):** **Uttar Pradesh, Uttarakhand, Madhya Pradesh**, and the Union Territory of Jammu & Kashmir have 10-20% coverage.
- < **States with Low Coverage (Less than 10% of Villages):** **West Bengal, Assam, Odisha, Jharkhand, Chhattisgarh**, Himachal Pradesh, and smaller Northeastern states have coverage below 10%.

Coverage and funding:

- < **NDDB Action Plan (Next Five Years):** 56,000 new multipurpose dairy cooperative societies (DCSs) will be established. **46,000 existing village-level DCSs** will be strengthened with advanced milk procurement and testing infrastructure. Most of the new DCSs will be set up in **Uttar Pradesh, Odisha, Rajasthan, and Andhra Pradesh**.
- < **February 2023 Pilot Project:** NDDB launched a Rs 3.8 crore pilot project to create dairy cooperatives in uncovered **gram panchayats in Jind (Haryana), Indore (Madhya Pradesh), and Chikmagalur (Karnataka)**.
 - o **79 DCSs** were established, procuring **15,000 litres** of milk per day from 2,500 farmers.
- < **White Revolution 2.0 (National Programme for Dairy Development 2.0):** Funding for White Revolution 2.0 will come through the **National Programme for Dairy Development (NPDD) 2.0** under the **Department of Animal Husbandry and Dairying**. White Revolution 2.0 targets have been incorporated into the new proposed scheme.
- < **Financial Assistance Under the New Scheme:** Financial aid will be provided to set up **village-level milk procurement systems, chilling facilities, and for training and capacity-building**. **1,000 Multipurpose Primary Agricultural Credit Cooperative Societies (MPACs)** will receive assistance. Each MPACs will receive Rs 40,000 from NDDB resources.

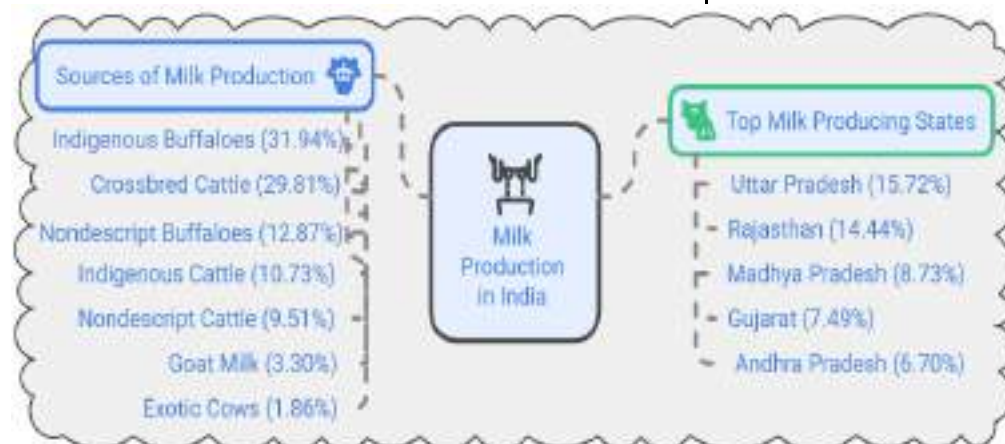




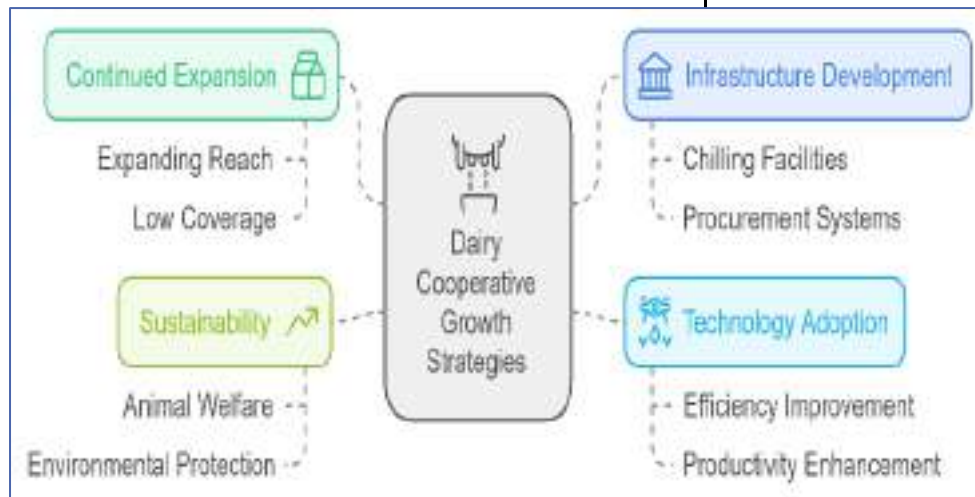
India's Position on Milk Production:

- < **Top Producer:** India is the **world's largest milk producer**, with production reaching 230.58 million tonnes in 2022-23, up from 17 million tonnes in 1951-52.
- < **Average Yield:** Average yield is **8.55 kg per animal per day for exotic/crossbred animals**. For indigenous/nondescript animals, the yield is **3.44 kg per animal per day**.

- < **Per Capita Availability:** The national per capita availability of milk is **459 grams per day**, higher than the global average of 323 grams per day.
- < **Production Growth:** Total milk production increased from **187.75 million tonnes in 2018-19 to 230.58 million tonnes in 2022-23**. However, the annual growth rate decreased from 6.47% to 3.83% during this period.
- < **Economic Contribution:** The milk group, which includes milk consumed or sold in liquid form, **ghee, butter, and lassi**, produced by producer households contributed nearly **40% (Rs 11.16 lakh crore) of the value of output from the agriculture, livestock, forestry, and fishing sector in 2022-23**, which is significantly higher than cereals. The dairy sector provides **livelihoods for more than 8.5 crore people**, directly or indirectly, with the majority being women.



Way Forward:



National Agriculture Code Cover:

- **Agriculture Machinery Standards:** NAC will cover standards for agricultural machinery used in various farming processes.
- **Agricultural Processes:** It will include standards for all agricultural processes such as:
 - **Crop selection,**
 - **Land preparation.**
 - **Sowing/transplanting.**
 - **Irrigation/drainage.**
 - **Soil health management.**
 - **Plant health**

National Agriculture Code

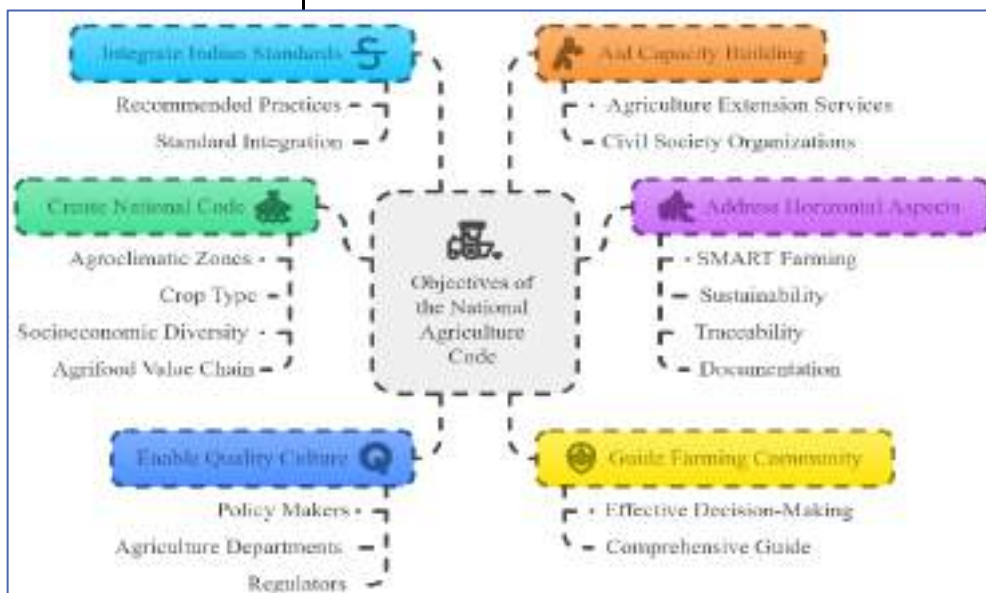
News Excerpt:

The Bureau of Indian Standards (BIS) has begun the process of formulating a National Agriculture Code (NAC), on the lines of the existing National Building Code and National Electrical Code.

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About the National Agriculture Code:

- The BIS is the **national body** which sets standards for different products across various economic sectors.
- In agriculture, it has already set standards for **machinery (tractors, harvesters, etc.) and various inputs (fertilisers, pesticides, etc.)**
- However, there are still many areas not covered by the BIS standards. **For example, there is no standard for agriculture practices like preparation of fields, micro irrigation and water use.** Thus, for a long time, policymakers have felt a need for a comprehensive standards framework, like the one now being formulated by the BIS.



- The NAC will cover the entire agriculture cycle and will also contain a guidance note for future standardisation.
- The code will have two parts. **The first will contain general principles for all crops, and the second will deal with crop-specific standards for the likes of paddy, wheat, oilseeds, and pulses.** The NAC will serve as a guide for farmers, agriculture universities, and officials involved in the field.

- **management.**
- **Harvesting/threshing.**
- **Post-Harvest Operations:**
 - **Standards for primary processing.**
 - **Post-harvest handling.**
 - **Ensuring sustainability in agricultural practices.**
 - **Record maintenance.**
- **Input Management:** Standards for chemical fertilisers, pesticides, and weedicides.
- **Storage and Traceability:** It will also include standards for crop storage and traceability.

- **New and Emerging Areas:** Natural farming and organic farming. Use of Internet-of-Things (IoT) in agriculture.

Proposed timeline for this project:

- **BIS has already formulated a strategy to standardise practices.** It has formed working panels for 12-14 specifically identified areas, which will include university professors and R&D organisations. These **panels will draft the code**, with a tentative deadline for the NAC set as **October 2025.**

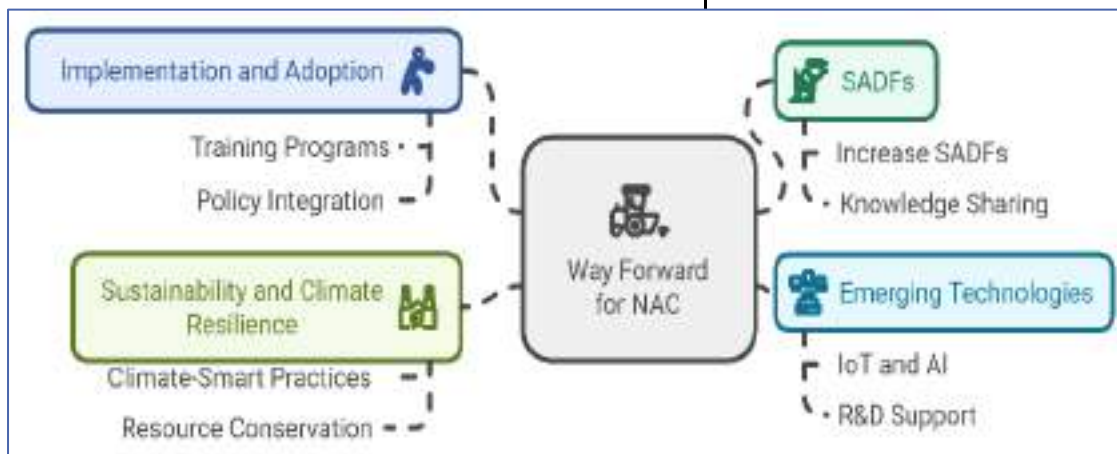
Standardized Agriculture Demonstration Farms (SADF):

- **Purpose of SADFs:** Experimental sites for testing and implementing various **agricultural practices and new technologies**. Practices and technologies will align with Indian Standards set by the **Bureau of Indian Standards (BIS)**.
- **BIS Initiative:** The initiative for **setting up SADFs** is being led by the Bureau of Indian Standards (BIS). These farms will be developed in collaboration with selected agricultural institutes across the country.
- **Memorandum of Understanding (MoUs):** BIS plans to sign MoUs with premier agricultural institutes for the development of SADFs. **10 prominent agricultural institutes** have been identified, and MoUs are being finalized. Two MoUs have already been signed, including **Govind Ballabh Pant University of Agriculture and Technology (GBPUAT) in Pantnagar**.
- **BIS Support:** BIS will provide financial assistance to agricultural institutes for setting up SADFs.
- **Learning Hubs:** These farms will serve as learning centers where: **Officials responsible for agricultural extension activities**, Farmers and Industry stakeholders can come to learn about new agricultural practices and technologies.

Importance of SADFs:

- **Implementation of Indian Standards:** Key in implementing Indian agricultural standards in **real-world settings**.
- **Technology Adoption:** Helps test and introduce **new technologies and practices** before broader adoption.
- **Capacity Building:** Aims to educate and train stakeholders in agriculture, including **farmers, industry professionals**, and extension officials.
- **Financially Supported:** Institutes receive financial support for developing the **farms**, promoting collaboration.
- **Promotes Research and Innovation:** Encourages research and development in **agricultural practices and innovation** in line with Indian Standards.

Way Forward:



Common Practice Standards must have India outlook

News Excerpt:

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Recent research suggests that if adequate policies, financial support, and incentives are implemented, the sector could contribute an **additional carbon sink of over 2.5 billion tons of CO2 equivalent by 2030**.

About the news:

- India's vast potential in the **agroforestry sector** is a unique opportunity to integrate with carbon finance projects through **Afforestation, Reforestation, and Revegetation (ARR) initiatives**.
- There is a possibility to expand the area under agroforestry from the **current 28.4 million hectares to 53 million hectares by 2050**.
- Agroforestry accounts for **8.65% of India's total land area and contributes 19.3% of the country's carbon stocks**. Thus, agroforestry plays a significant role in environmental sustainability and economic development.

About 'Common Practice' in Carbon Standards:

- **Additionality:** For projects to qualify for **carbon credits**, they must demonstrate that they go beyond "**common practice**" in each region.
- **Carbon Standards:** Carbon standards like **Verra's VCS and the Gold Standard** assess whether an activity is considered common practice.
- **Exclusion from Carbon Credits:** If an activity is deemed common practice, it may not qualify for **carbon credits**, as it is not seen as contributing additional environmental benefits.

Challenges for Indian Farmers:

- **Small and Fragmented Landholdings:** India has a large number of small and marginal farmers with limited landholdings.
- **Non-Systematic Agroforestry:** These farmers often engage in agroforestry in a scattered and non-systematic manner.

• **Exclusion from Carbon Markets:** Due to the common practice nature of their agroforestry activities, Indian farmers may not meet the **additionality criteria** for carbon credits.

Implications of Current Definition of Common Practice:

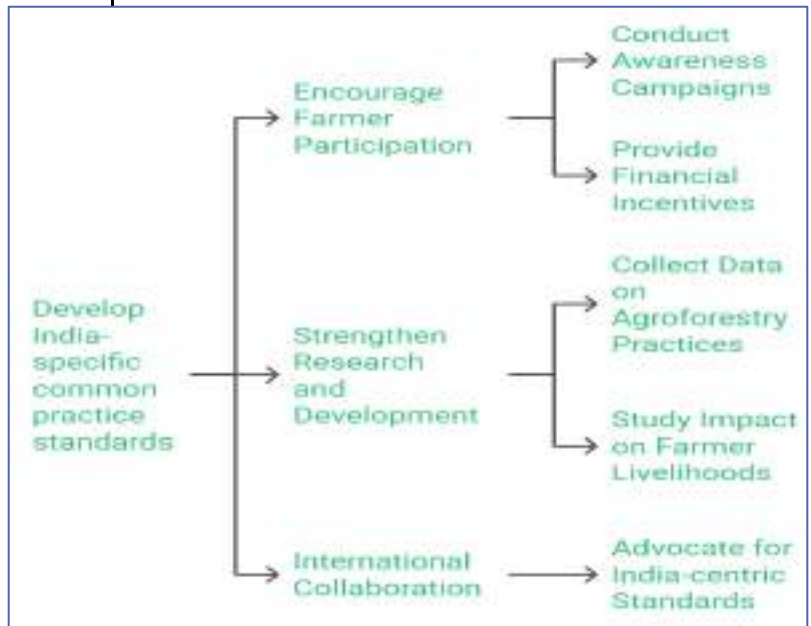
- Limited Participation:** The current definition of common practice, which reflects large-scale practices in other regions, excludes many **Indian farmers from participating in ARR carbon finance projects**. This exclusion denies Indian farmers the opportunity to earn additional income from carbon credits, despite their valuable contributions to carbon sequestration.
- Need for India-centric approaches:** Given India's unique agricultural landscape, **the common practice criterion needs to be redefined** to better reflect the specific challenges and opportunities in the Indian agroforestry sector. Even **small changes in land management practices can be transformative**, and an India-centric approach should recognize this.
- Unlocking Potential through Revised Common Practice Standards:** Revising common practice standards to accommodate India's fragmented landholdings would **enable a greater number of farmers to participate in ARR carbon finance projects**.
- Enhanced Environmental Sustainability:** By promoting systematic agroforestry, ARR projects can contribute to environmental sustainability by improving **soil fertility, water retention, and erosion control**.
- Benefits of Agroforestry and ARR Initiatives:** Agroforestry can help address issues such as **low productivity, dependence on monsoons, and environmental degradation**. ARR projects provide additional income streams for farmers, **helping them to cope with unpredictable weather patterns and fluctuating crop yields**. Agroforestry offers significant environmental benefits, including enhanced soil fertility, improved water retention, and mitigation of erosion.

Help small and marginal farmers:

- Role of Research Institutes:** Research institutes like **TERI have demonstrated the potential of ARR projects in India**, with successful initiatives benefiting thousands of farmers.
- India-Centric Standards:** Revising common practice guidelines to be more inclusive of Indian agroforestry practices can enable millions of small and marginal farmers to participate in ARR projects. This would **contribute to sustainable development**, provide additional income for rural households, and enhance India's economic and environmental resilience.

PEPPER IT WITH:
Carbon storage, Sustainable development, Green Energy, Agroforestry.

Way forward:



INTERNATIONAL RELATIONS

PM Modi's Visit to USA

News Excerpt

Prime Minister Narendra Modi's **three-day visit** to the United States from September 21 to 23 was marked by high-level meetings, strategic discussions, and significant announcements.

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Key Highlights of the Visit

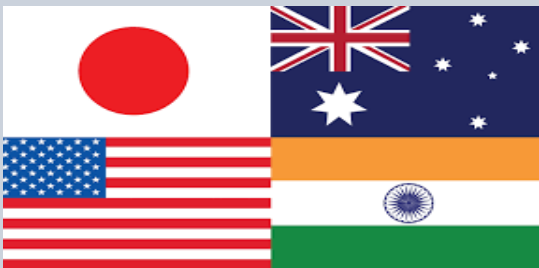
Quad Summit: PM Modi attended the **Quad Summit** in **Wilmington**, Delaware, hosted by U.S. President Joe Biden. The meeting included Australian Prime Minister Anthony Albanese and Japanese Prime Minister Fumio Kishida.



- Emphasis on Global Peace and Sovereignty:** PM Modi highlighted that Quad's collaboration was vital for humanity, emphasizing their commitment to a **rules-based international order**, sovereignty, and the peaceful resolution of disputes.
- Chinese Aggression in the South China Sea:** The **Quad's final declaration** featured stronger language regarding China's behaviour in the **South China Sea**, signifying a tougher stance than earlier summits.
- Russia's Invasion of Ukraine:** They upheld the UN charter's principles of sovereignty and territorial integrity, particularly regarding Russia's actions in Ukraine.
- Strategic Initiatives:** The summit also marked the announcement of several initiatives aimed at countering China's growing influence in the Indo-Pacific region:

- **Quad-at-Sea Ship Observer Mission (2025):** A mission to monitor regional maritime security.
- **Maritime Initiative for Training in the Indo-Pacific (MAITRI):** A program designed to enhance regional maritime security through training. India will host the inaugural MAITRI workshop in 2025 (during India's Quad Presidency)
- **Maritime Legal Dialogue:** An effort to support a rules-based international order.
- **Quad Cancer Moonshot Initiative:** A partnership to initially combat cervical cancer in the Indo-Pacific, with plans to address other forms of cancer later.

About Quad:



- Following the Indian Ocean tsunami of December 2004, **India, Japan, Australia,** and the **US** created an **informal alliance** to collaborate on **disaster relief efforts**.
- In **2007**, the then-PM of Japan, Shinzo Abe, **formalised** the alliance as the **Quadrilateral Security Dialogue** or the Quad.
- In **2017**, faced with the rising Chinese challenge, the four countries revived the Quad, and **broadened** its objectives.
- In **2021**, the **Quad leaders met virtually** and later released a joint statement titled '**The Spirit of the Quad,**' which outlined the group's approach and objectives.
- **Objectives of Quad:**
 - The group's primary objectives include **maritime security**, addressing the risks of **climate change**, creating an ecosystem for **investment** in the region, and boosting **technological innovation**.
 - Quad members have also indicated a willingness to expand the partnership through a so-called **Quad Plus** that would include **South Korea, New Zealand, and Vietnam**.
- Quad is **not structured** like a typical multilateral organisation and lacks a secretariat or permanent decision-making body (like the EU or UN).

Address at the UN Summit of the Future:

PM Modi delivered a keynote address at the **UN's Summit of the Future** in New York.

- **Collective Strength for Global Success:** He stressed that humanity's success depends on collective strength, **not conflict**, referencing ongoing global conflicts like the Israel-Gaza and Ukraine-Russia wars.

- **Call for Reforming Global Institutions:** PM Modi emphasized the need to reform global institutions to maintain their relevance, citing the inclusion of the **African Union** as a **permanent G20 member** during India's presidency as an example of necessary global changes.
- **Terrorism and New Areas of Conflict:** He also warned about the continued threat of terrorism and pointed out emerging conflicts in cyberspace, maritime zones, and outer space.

Bilateral Meetings with Global Leaders

- **Meeting with U.S. President Biden:**
 - **Semiconductor Fabrication Agreement:** To establish a semiconductor fabrication **plant in India**, supported by the **India Semiconductor Mission**. The deal involves cooperation between Bharat Semi, 3rdiTech, and the U.S. Space Force.
 - **Return of Indian Antiquities:** The U.S. handed over 297 smuggled antiquities to India.
 - **Agreement on Predator drones:** India is all set to acquire Predator drones from the USA.
- **Meeting with Japanese PM:** PM Modi's meeting with Kishida focused on key areas such as infrastructure development, semiconductors, defence cooperation, and green energy.
- **Meeting with Palestinian President Mahmoud Abbas:** PM Modi expressed deep concern about the humanitarian situation in Gaza, reaffirming India's support for peace and stability in the region.
- **Meeting with Ukrainian President Volodymyr Zelenskyy:** PM Modi reiterated India's commitment to an **early resolution** of the Russia-Ukraine conflict through diplomacy and dialogue.

Roundtable with American Tech CEOs

- PM Modi held a roundtable with leaders from the U.S. tech industry, including **Google CEO Sundar Pichai**, to explore collaborations in cutting-edge technologies such as artificial intelligence, quantum computing, biotechnology, IT, and semiconductor technologies.
- He urged tech leaders to **capitalise** on **India's growth story**, encouraging investment and innovation.

Indian Diaspora Outreach:

PM Modi addressed an event that involved over 13,000 Indian Americans.

- **Land of Opportunities:** He positioned India as a "land of opportunities," highlighting its recent economic growth and global standing. He pointed out that India has lifted **250 million people** from poverty in just a decade.
- **New Consulates in Boston and Los Angeles:** To better serve the growing Indian-American community, PM Modi announced the opening of two new consulates in Boston and Los Angeles.

- **Indian Americans—Brand Ambassadors:** He lauded the Indian diaspora for their contributions to strengthening U.S.-India ties, calling them India’s brand ambassadors abroad.
- **Foreign Policy of Equal Closeness:** He reiterated India’s foreign policy stance of fostering equal closeness with all nations rather than maintaining equal distance.

Significance of USA for India

- **Defence and Security:** India is one of the largest importers of U.S. defence equipment. Joint military exercises, intelligence sharing, and defence technology collaboration, such as through the **Defense Technology and Trade Initiative (DTTI)**, have strengthened India’s security architecture.
- **Trade and Investment:** In FY23, bilateral trade between India and the US stood at a record US\$128.78 billion, up from US\$119.48 billion in FY22. India had a **trade surplus of US\$28.30 billion** with the US.
 - The US is the **third largest investor** in India, with cumulative FDI inflows of US\$62.24 billion from April 2000 to September 2023.
- **Investment in Technology and Innovation:** U.S. companies, especially in the tech sector (such as Google, Amazon, and Microsoft), have a significant presence in India.
 - **Counterbalance to China:** The U.S. and India have increasingly aligned their strategic interests, particularly in the Indo-Pacific region, to counterbalance China’s growing influence.
 - This cooperation is evident in initiatives like the **Quadrilateral Security Dialogue (Quad)**, which also includes Japan and Australia.
- **Indian Diaspora in the U.S.:** Many Indian Americans hold prominent positions in business, technology, and politics, fostering greater cooperation between the two nations.
- **Climate Change and Global Health:** India and the U.S. **collaborate** on global challenges such as climate change, pandemic preparedness, and health security.
 - Initiatives like the **U.S.-India Climate and Clean Energy Agenda 2030 Partnership** are important in tackling these global issues.

Challenges in US-India relationship

- **Pannun Case:** The case involved civil litigation and summons for India’s National Security Advisor (NSA) Ajit Doval. This issue signals that bilateral relations could face hurdles despite strategic cooperation.
- **Russia-India Ties:** India’s longstanding defence and energy ties with Russia, especially amid the Ukraine conflict, have caused concerns in the U.S., which seeks to isolate Russia.
- **Approach to China:** While both nations share concerns over China’s rise, their approaches differ. India seeks to

manage its relationship with China while securing its borders, while the U.S. takes a more confrontational stance.

- **Tariffs and Market Access:** Disagreements over tariffs, market access for agricultural products, medical devices, and e-commerce regulations have caused friction.
- **Immigration and Visa Policies:** Changes in U.S. immigration and work visa policies, particularly concerning H-1B visas, affect India’s IT professionals and diaspora, creating occasional strains.
- **Human Rights Concerns:** The U.S. has occasionally raised concerns over religious freedom, press freedom, and civil liberties in India, which India perceives as interference in its internal affairs.

Way Forward

- ◀ **Strategic Autonomy:** Recognize India’s strategic autonomy needs while addressing regional security issues, particularly with China and Russia.
- ◀ **Trade Disputes:** Resolve tariff, market access, and intellectual property conflicts through negotiations towards a trade agreement.
- ◀ **Climate Action:** Strengthen U.S.-India climate cooperation by investing in renewable energy and sustainable development, considering India’s needs.
- ◀ **Diaspora and Immigration:** Simplify immigration and H-1B visa policies to benefit Indian professionals and enhance educational exchanges.
- ◀ **Technology Partnerships:** Enhance collaboration in AI, cybersecurity, and clean energy to support India’s digital and climate goals.
- ◀ **Multilateral Cooperation:** Collaborate in international forums to tackle shared challenges like climate change and global governance reforms.

PEPPER IT WITH:
 Indo-Pacific Security, Belt and Road Initiative, BRICS, Regional stability, H1B Visa, and Climate and Clean Energy Agenda 2030 Partnership

Why Italy matters to India

News Excerpt:

Italy and India, two nations with rich **cultural histories** and significant **global roles**, share **common interests** and face **joint challenges** in the Indo-Mediterranean region.

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Strategic Importance of the Indo-Mediterranean Region

- ◀ **Global Trade and Economic Connectivity**
 - The Indo-Mediterranean is a key area for **global trade**, with Italy ranking as the **sixth-largest exporter** in the world. Italy’s exports heavily rely on maritime routes, making this region vital for maintaining **free and open sea lanes**.

- Upcoming **Blue-Raman submarine data cables**, connecting Genoa to Mumbai, will enhance digital connectivity between **Europe and Asia**, further underscoring the region's strategic importance for both countries.

< Security Concerns

- **Piracy** in the Red Sea, **conflicts in Gaza and Lebanon**, and the effects of **Russia's aggression** against Ukraine have compounded security challenges in the Indo-Mediterranean.

Italy's Commitment to Security in the Indo-Mediterranean

- < **Security Initiatives:** In response to growing security concerns, Italy has intensified its commitment to defence in the Indian Ocean Region and West Asia:
 - Italy has joined the **Group of Friends** of the United Nations Convention on the Law of the Sea (**UNCLOS**) in 2021.
 - Italy has also been the **second-largest contributor** to the European Union Naval Force (**EU NAVFOR**) Atalanta, which combats piracy, and to the European Maritime Awareness in the Strait of Hormuz (**EMASoH**).
 - Since February 2024, Italy has spearheaded the EU military operation **EUNAVFOR ASPIDES**, aimed at safeguarding freedom of navigation in critical waterways such as the Red Sea, the Indian Ocean, and the Gulf.

Increased Naval Presence in India: Italy joined the Information Fusion Centre of the Indian Ocean Region in March 2023.

- < The Italian Carrier Strike Group, including the aircraft carrier **ITS Cavour** and frigate **ITS Alpino**, visited Goa.
- < The Italian Navy's training vessel, **ITS Amerigo Vespucci**, is scheduled to visit Mumbai from November 28 to December 2, 2024.
- < During its stay in Goa, the vessel is involved in **PASSEX exercises** to improve maritime interoperability between the Indian and Italian navies.
- < Additionally, it hosts a workshop on defence industry cooperation and is participating in humanitarian initiatives like **Operation Smile**, which provides surgeries for children with facial malformations through joint Italian and Indian medical teams.



Historical Relations

- India and Italy share ancient cultural connections,

with both civilizations having interacted and traded for over **2000 years**.

- Their classical languages, **Sanskrit and Latin**, belong to the **Indo-European language** family.
- Italian port cities were important hubs along the spice trade route, and notable historical figures like Venetian merchant **Marco Polo** travelled to India in the **13th century**.
- During **World War II**, Indian troops fought in Italy as part of the **British Indian Army**, contributing to campaigns against German and Italian forces. The **10th Indian Division** took part in the **East African Allied campaign** against the Italians in Somaliland and Abyssinia.

Economic and Trade Relations

- Bilateral trade between India and Italy reached **\$14.25 billion** in 2022-23. Italy is the **18th largest foreign investor** in India, with cumulative FDI inflows of **\$3.40 billion** from April 2000 to September 2023.
- Italy is India's **4th largest trading partner** in EU, after Germany, Belgium, and The Netherlands with the balance of trade in India's favour.
- India's exports to Italy in FY23 amounted to **\$8.69 billion**, while imports from Italy totaled **\$5.56 billion**.
- Major Indian **exports** include garments, leather, textiles, chemicals, and gems, while India **imports** machinery, metallurgical products, and engineering goods.

Defence Cooperation

- < **Bilateral Defence Ties:** The **Italy-India defense cooperation** agreement, signed in October 2023, has laid the foundation for further expansion of defense relations:
 - The agreement covers areas like research, industrial cooperation, maritime domain awareness, and sharing of information.
 - Regular dialogues, such as the **Italy-India Military Cooperation Group meeting** held in New Delhi in March 2024, serve to strengthen these ties.
- < **Italian Companies in India's Defense Sector**
 - Two companies, **Leonardo** and **Fincantieri**, are among the top 50 global arms-producing companies according to SIPRI (Stockholm International Peace Research Institute). Other companies include **Beretta**, **Elettronica**, and **KNDS**.
 - Fincantieri has collaborated with **Cochin Shipyard** since 2020, while Elettronica signed a Memorandum of Understanding with **Bharat Electronics Limited** in 2019.
- < **Alignment with India's 'Make in India' Program**
 - Italy's defence partnerships align with India's '**Make in India**' initiative, fostering joint ventures, co-

production, and joint development to meet the growing needs of the Indian armed forces.

- Italy is a reliable economic and defence partner, the **second largest manufacturing country** in Europe, and a robust **security provider** taking up responsibilities as a member of the EU and NATO.

Italy-India Partnership in the Indian Ocean Region

◁ **Italy and India's Role in Africa:** Italy views India as a valuable partner in the development of the Indian Ocean Region, from **East Africa to the Arabian Sea**:

- Both countries have advocated for Africa in international forums, successfully supporting the **inclusion** of the **African Union** in the G20.
- Italy's **Mattei Plan**, launched during the **Italy-Africa Summit** in January 2024, aims to foster sustainable development in Africa through projects funded by €5.5 billion in public investments.

◁ **Support for the India-Middle East-Europe Economic Corridor (IMEC)**

- Italy **backs** the India-Middle East-Europe Economic Corridor (IMEC), which aims to promote shared prosperity in the region.
- According to Italy, amidst growing conflicts in Gaza and escalating tensions in West Asia, IMEC's vision of enhanced connectivity through ports, railways, and logistics systems is crucial for **long-term peace and stability**.

People-to-People Ties

◁ **Indian Diaspora in Italy**

- Italy hosts the **second-largest Indian diaspora** in the European Union, further cementing people-to-people ties that drive economic, cultural, and defense cooperation between the two nations. These longstanding bonds between Italian and Indian civilizations continue to inspire cultural exchanges, business partnerships, and integration efforts.

◁ **Italy village**

- Italy is **planning to build** an 'Italy village' that will offer cultural, fashion, and culinary events, as well as conferences and exhibitions.

Challenges in India-Italy Relations

◁ **Geopolitical Shifts:** The evolving geopolitical landscape, including **tensions** in the Indo-Pacific, Mediterranean, and West Asia, can impact the relationship between India and Italy.

- Both countries are navigating **complex international dynamics**, including the rise of China, the Russia-Ukraine conflict, and regional instability in the Middle East.

◁ **Trade Barriers and Regulatory Issues:** The existence of trade barriers, regulatory differences, and tariff impositions hinder smooth trade. Both countries are working to resolve these issues through ongoing negotiations under the India-EU Free Trade Agreement.

◁ **Trust Deficit:**

- **Italian Marines' Case:** The incident led to a **legal standoff** between India and Italy over jurisdiction and the marines' claim to functional immunity. The dispute created tensions and affected bilateral ties for years.
- **AgustaWestland Helicopter Scandal:** In 2013, allegations of bribery and corruption emerged, leading to the cancellation of the deal by India and the subsequent banning of Italian company, Leonardo (formerly Finmeccanica) from participating in India's defence sector in 2015.

Way Forward

◁ **Economic Cooperation:** Enhance trade and investment by reducing barriers, focusing on initiatives like the India-EU Trade Agreement and digital partnerships in fintech and green energy.

◁ **Defence Ties:** Expand defence collaboration through joint ventures in aerospace, cybersecurity, and AI, emphasizing maritime security in Indo-Pacific and Mediterranean regions.

◁ **People-to-People**

Diplomacy: Strengthen ties through cultural and student exchanges, tourism, and promote language learning and academic collaboration.

PEPPER IT WITH:
Indo-Mediterranean cooperation, Blue-Raman submarine cables, Europe, Mattei Plan,

Navigating Tensions: The Impact of the West Asian Conflict on India

News Excerpt

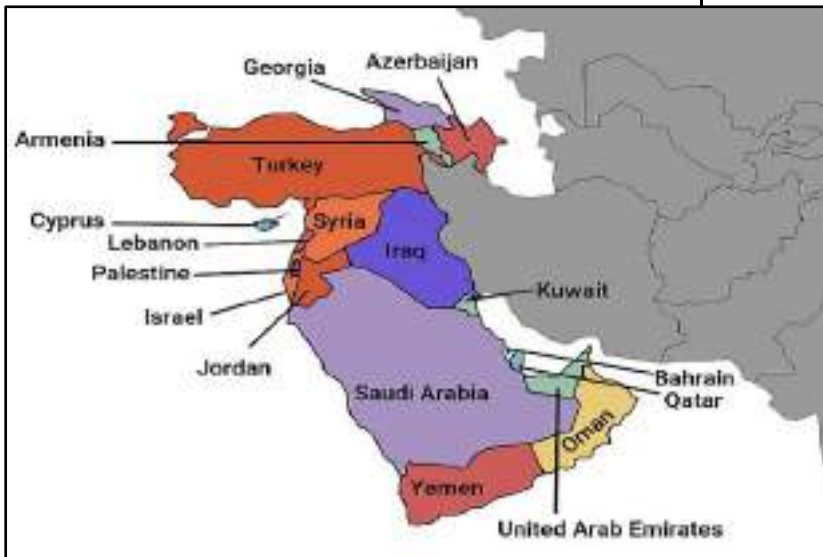
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The ongoing escalation in **West Asia** between **Israel and Iran** has major implications for global and regional players, including India. As the conflict widens, India faces challenges in balancing its strategic relationships, securing its economic interests, and protecting its citizens in the region.

Complex Web of Alliances

◁ **Iran-Israel Conflict:** The recent surge in hostilities between Israel and Iran includes **missile strikes** and heightened **military operations**. Iran's missile attacks on Israel and Israel's retaliatory operations in Lebanon against Hezbollah mark an alarming escalation in a long-standing conflict.

◁ **India's Diplomatic Tightrope:** India enjoys strong strategic ties with Israel and Iran, creating a diplomatic balancing act. **PM Modi** has maintained communication with **Palestinian President Mahmoud Abbas** and **Israeli Prime Minister Benjamin Netanyahu** but has not offered to mediate in the conflict.



< **India-Middle East-Europe Economic Corridor (IMEC):** It was conceptualized to reduce dependence on the Suez Canal and create a route that could be 40% faster. However, escalating violence threatens to derail this initiative, which is seen as a strategic alternative to China's Belt and Road Initiative.

- o IMEC, launched at the **2023 G20 meeting**, comprises an **Eastern Corridor** connecting India to the Gulf region and a **Northern Corridor** connecting the Gulf region to Europe. It will include a **railway and ship-rail transit network** and **road transport routes**.

< **Diplomatic Manoeuvring:** Countries such as **Qatar, Turkey, and Saudi Arabia**, each with unique alliances and interests, are working to navigate the conflict, pushing for peace while asserting their influence. Meanwhile, **China** and the **U.S.** are actively involved as geopolitical players, further complicating the conflict's resolution.

- o **Israel** is a crucial defence partner, providing military technology and cooperation on counterterrorism.
- o **Iran** supplies critical crude oil to India, and the Chabahar port is also a project of great strategic and economic importance to India.

Impact on India

- < **Red Sea and Suez Canal Shipping Route Crisis:** The conflict threatens the Red Sea and Suez Canal, crucial trade arteries for India's connections with Europe, the U.S., and Africa. According to **Crisil Ratings**, these regions accounted for over **\$400 billion in FY23**.
- o Iran-backed **Hezbollah's ties to Yemeni Houthi rebels**, who frequently attack vessels in these waterways, have caused significant disruptions. **Indian exports** fell by **9%** in August, primarily due to a sharp **38%** drop in petroleum exports.
- < **Increased Shipping Costs:** Shipping costs have risen by **15-20%** as vessels are forced to bypass the Red Sea and take longer routes around Africa's **Cape of Good Hope**. This has severely impacted industries like textiles, machinery, and garments, especially those reliant on low-value, high-volume exports.
- < **Energy Concerns:** India's dependence on West Asia for **80% of its oil supply** makes the region's stability crucial. Any escalation in the conflict could lead to higher energy prices, further straining India's domestic economy.
- < **Foreign Direct Investment (FDI):** The region's instability could stall investment plans from major Arab countries, which are integral to India's broader economic strategy.
- < **Decline in Exports:** Indian exports, especially in the petroleum products sector, declined by **38%** in August. Rising shipping costs and supply chain disruptions have also adversely affected sectors like machinery, steel, and textiles.



< **Diaspora:** There are about **18,000 Indians in Israel**, about **5,000-10,000 in Iran**, and some **90 lakh in the region**. A broader conflict will put this huge Indian community at risk.

Silver Linings in Gulf Trade

- A **Global Trade Research Initiative (GTRI)** report shows that India's trade with Gulf Cooperation Council (GCC) countries increased by **17.8%** in the first half of 2024 compared to the previous year's period.
 - o The countries - **Saudi Arabia, UAE, Kuwait, and Qatar** have maintained neutrality in the conflict, allowing for continued economic cooperation.
- India's exports to Iran also grew by **15.2%** during this period, offering some respite to the declining trade with Europe.

Way Forward

< **Strengthen Diplomatic Engagements:** Enhance diplomatic outreach to regional stakeholders for dialogue and de-escalation, leveraging India's neutrality for mediation.

- ◁ **Diversify Energy Sources:** Reduce dependence on West Asian oil by investing in renewable energy and securing ties with non-regional suppliers like the U.S., Russia, and Africa.
- ◁ **Strategic Oil Reserves:** Continue building and using strategic reserves to buffer against immediate energy crises from regional conflicts.
- ◁ **IMEC Development:** Expedite the India-Middle East-Europe Economic Corridor to lessen trade reliance on volatile regions like the Red Sea and Suez Canal.
- ◁ **Indian Shipping Line:** Consider establishing a global shipping line to control freight costs and support MSMEs facing rising foreign shipping fees.
- ◁ **Protect Citizens:** Develop contingency and evacuation plans to safeguard Indian nationals in West Asia amid conflicts.

PEPPER IT WITH:
Chabahar port, Suez Canal disruption, India-Middle East-Europe Economic Corridor (IMEC), Hezbollah and Houthi threats.

Power Vacuum in the Caucasus

News Excerpt

India has emerged as a **top defence supplier of Armenia**, displacing Russia's traditional role.

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Rising Defence Exports to Armenia

- India started making modest strides into Armenia's military ecosystem in **2020** when the **Second Nagorno-Karabakh War** opened the door for India to strengthen its defence exports to Armenia.
- In **2022**, the two sides signed a **\$250 million** array of defence deals, which included Indian **MLRS Pinaka anti-tank rockets, Swathi Radars**, and ammunition. Armenia was also the first foreign buyer of the **Akash missile system**, placing an order of \$720 million.
- In **2023**, Armenia appointed a defence attaché in India to oversee its burgeoning military cooperation with India. Armenia is keen to get state-of-the-art **Astra**, a **beyond-visual-range missile** from India.

Armenia's Disillusionment with CSTO

- Armenia, a member of the Russia-led **Collective Security Treaty Organization (CSTO)**, has grown increasingly frustrated with **Russia's lack of support** in its conflict with Azerbaijan over Nagorno-Karabakh.
- Despite CSTO's **Article 4**, which promises **mutual defense**, Russia has not backed Armenia's claims, instead positioning itself as a **neutral mediator** while **selling weapons to both** Armenia and Azerbaijan.
- In the **2020 Nagorno-Karabakh war**, Azerbaijan reclaimed significant territory with Turkish drones and

Russian arms. Russia brokered a **ceasefire** and deployed peacekeepers but did **not secure Armenia's interests**.

- Frustration grew as Armenia **skipped CSTO meetings** and drills, culminating in Armenia's **withdrawal from the CSTO** in May 2024 after Russia pulled its peacekeepers, leaving Azerbaijan unchecked in the region.

Background of the Armenia-Azerbaijan Conflict

- The **South Caucasian region** has been a site of historical tension between Armenia and Azerbaijan, particularly over the disputed territory of **Nagorno-Karabakh**.
- This conflict has flared into **two significant wars**: the first in **1988** and the second in **2020**, known as the **Second Nagorno-Karabakh War**. Despite ceasefires, the conflict remains unresolved.
- The geopolitical interests of **Russia, Turkey, and Western countries** have made the conflict more complex.
 - Russia, traditionally Armenia's ally, has maintained a **balancing act** by supplying arms to both Armenia and Azerbaijan.
 - Turkey's support for Azerbaijan and its **military involvement** further complicates the landscape.

Significance of India's Involvement in the Caucasus

- **Countering Turkish Influence:** Turkey, along with Azerbaijan, has pushed for the **Zangezur Corridor** (pan-Turkic corridor), which would link Turkey directly with Azerbaijan through Armenia.



- In collaboration with Iran, India's engagement with Armenia offers an alternative vision for regional connectivity that undermines Turkey's pan-Turkist aspirations.

- **Strengthening India's Role as a Global Defence Exporter:** India's growing defence cooperation with Armenia showcases its transformation from a net defence importer to a global defence exporter.
- **Boosting India's Connectivity and Trade Routes:** India's involvement in Armenia aligns with its broader connectivity strategy, primarily through projects like the **International North-South Transport Corridor (INSTC)** and the **Persian Gulf-Black Sea Transport Corridor**.
- **Countering China's Influence in Eurasia:** China's growing strategic partnerships with Azerbaijan and Turkey, mainly through the **Belt and Road Initiative (BRI)**, challenge India's regional interests.
- **Expanding India's Diplomatic Reach:** By engaging in the South Caucasus, India enhances its diplomatic reach, not only in Eurasia but also with Western powers such as **France** (the second largest defence exporter to Armenia), **Greece**, and the **U.S.**, who share concerns over Turkish expansionism.

Challenges for India

- **Navigating Complex Geopolitical Alliances:** India faces the challenge of balancing its expanding role in Armenia with its longstanding relationships with Russia and Iran.
 - **Russia's** support for the Zangezur Corridor, which Armenia opposes, complicates India's position, as does Russia's closer alignment with China and Turkey in regional affairs.
 - **Iran**, which opposes the Zangezur Corridor, adds another layer of complexity for India in maintaining regional stability.
- **Pakistan Factor:** The Azerbaijan-Pakistan-Turkey trilateral partnership poses another challenge for India. Pakistan's support for Azerbaijan and its **stance on Kashmir** introduce geopolitical tensions that India must navigate carefully.
- **Balancing Relations with Iran and the West:** India's expanding role in the South Caucasus places it at the intersection of Iran and Western powers.

PEPPER IT WITH:
 Defence exports, Collective Security Treaty Organization (CSTO), Zangezur Corridor, International North-South Transport Corridor.

Way Forward

- **Deepening Strategic Partnerships:** Strengthen defence and economic ties with Armenia and collaborate with nations like France, Greece, and Iran to counterbalance regional influences.
- **Joint Initiatives:** Solidify partnerships through joint military exercises, technology transfers, and infrastructure projects.
- **Diplomatic Balance:** Carefully manage relations with Russia and Iran to stabilize the South Caucasus while maintaining communication with both nations.

- **Strengthening Diplomatic Presence:** Enhance diplomatic engagement in the South Caucasus by bolstering missions and cultural exchanges to increase India's regional influence.
- **Promoting Soft Power:** Expand educational, cultural, and economic exchanges to boost India's soft power and deepen engagement with Caucasian nations beyond military cooperation.

Maldives President Muizzu in India

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News Excerpt:

The president of the Maldives, **Mohamed Muizzu**, arrived in India on a **State visit**. This is President Dr. Muizzu's first bilateral visit to India. He had visited India in June 2024 to attend **PM Modi's swearing-in ceremony**.

India – Maldives Bilateral Relation

Diplomatic Relations:

- < **Early Recognition:** India quickly recognized Maldives post-independence in 1965 and established diplomatic ties.
- < **Operation Cactus:** In 1988, India aided Maldives in neutralizing a coup attempt.
- < **Crisis Response:** India has been the 'First Responder' in crises like the 2004 tsunami, 2014 water crisis, and 2020 measles vaccine dispatch.

Economic and Trade Relations:

- < **Largest Trade Partner:** In 2023, India became the Maldives' largest trade partner, with bilateral trade nearing \$1 billion.
- < **Financial Assistance:** In late 2022, India provided \$100 million in financial aid and a \$200 million currency swap agreement with the Maldives Monetary Authority.

Defence Cooperation:

- < **Defence Action Plan:** A comprehensive Defence Action Plan was signed in April 2016 to bolster partnerships.
- < **Training Opportunities:** India meets around 70% of the Maldivian National Defence Force's training needs.
- < **Annual Defence Dialogue:** Initiated in July 2016, the dialogue occurs at the Defence Secretary level.

Infrastructure & Connectivity Projects:

- < **Key Developments:** India's development projects include hospitals, educational institutions, and police training facilities.
- < **Island Utilities:** Projects cover water and sanitation across 34 islands.
- < **Addu Development:** Includes roads and land reclamation.
- < **Gulhifalhu Port:** Part of infrastructure assistance.

- ◁ **Greater Male Connectivity:** \$400 million LoC and \$100 million grant for connecting islands via bridges and roads.

Tourism and Diaspora:

- ◁ **Tourism Leader:** In 2023, Indians were the largest tourist group to the Maldives.
- ◁ **Significant Diaspora:** Approximately 22,000 Indians live in the Maldives, comprising 25% of its doctors and teachers.

Strain in Relations

- Muizzu's assumption of power was marked by his **anti-India rhetoric**, including calls for the removal of Indian military personnel from the Maldives.
- Indian troops were originally present in the Maldives for training and humanitarian missions. Still, segments of the Maldivian population had grown wary of foreign military involvement, leading to the rise of the **"India Out" campaign**.
- This diplomatic strain was accentuated when Muizzu **visited Turkey and China** shortly after his election. Traditionally, Maldivian leaders made their first state visit to India, acknowledging the importance of Indo-Maldivian ties.

Shift in Muizzu's Approach

- Muizzu has toned down his anti-India stance, emphasising that the Maldives does not seek to replace Indian forces with Chinese troops. Instead, he now advocates for a **"Maldives First" policy**, focusing on maintaining balanced and peaceful relations with all nations.
- Muizzu's shift in diplomatic tone can be partly attributed to the pressing **economic challenges** facing the Maldives.
 - The country is grappling with a significant economic crisis, with **foreign exchange reserves** dropping to a critical low of **\$440 million**—barely enough to cover one and a half months of imports.
 - In addition, global **credit rating agency Moody's** downgraded the Maldives' credit rating, citing rising debt default risks.
 - With over **\$600 million in external debt** service due in 2025 and over **\$1 billion** in 2026, the Maldives faces a daunting financial situation.
- Also, the number of **Indian tourists** visiting the Maldives had **sharply declined**, leading to a **loss of around \$150 million**. Muizzu hoped that Indian tourist numbers would recover, further contributing to the Maldives' economic recovery.

Significance of Maldives for India

- **Geostrategic Location:** Situated along key international **shipping routes** in the Indian Ocean, the Maldives is vital in securing India's maritime interests. Its proximity to India's **Lakshadweep Islands** makes it crucial for India's

maritime security, ensuring safe passage for global trade and countering piracy.

- **Maritime and Security Interests:** India views the Maldives as essential to its **"Security and Growth for All in the Region"** (SAGAR) policy. Cooperation with the Maldives allows India to maintain stability in the Indian Ocean and protect against threats like terrorism, piracy, and trafficking.
- **Countering Chinese Influence:** India has been concerned about China's growing presence in the Maldives through its **Belt and Road Initiative** (BRI).
- **Economic and Cultural Ties:** India is a key economic partner for the Maldives, particularly in sectors like tourism, where Indian visitors play a significant role. India has **invested over \$1.5 billion** in development projects, fostering economic growth in the Maldives.
- **Diplomatic Importance:** The Maldives is crucial to India's **"Neighbourhood First"** policy, which promotes **regional stability**. India's support during the COVID-19 pandemic and participation in global forums alongside the Maldives highlight their strong diplomatic ties.

Key outcomes of the visit - A Vision for Comprehensive Economic and Maritime Security Partnership

Political Exchanges:

- ◁ **Institutional Cooperation:** Establish a Memorandum of Understanding for formalized cooperation between the parliaments.

Development Cooperation:

- ◁ **GMCP Support:** Ensure timely completion of the Greater Malé Connectivity Project.
- ◁ **Thilafushi Port Collaboration:** Develop a commercial port on Thilafushi Island.
- ◁ **Economic Gateway Exploration:** Explore transshipment and bunkering services for the Maldives Economic Gateway.
- ◁ **Airport Development:** Harness potential at **Hanimaadhoo and Gan airports**.
- ◁ **Agriculture and Tourism Zones:** Create an "Agriculture Economic Zone" and tourism investments in Haa Dhaalu atoll and fish processing in Haa Alifu with Indian aid.

Trade and Economic Cooperation:

- ◁ **FTA Discussions:** Initiate talks on a Bilateral Free Trade Agreement.
- ◁ **Currency Settlement:** Operate trade transactions between India and the Maldives in local currencies.
- ◁ **Economic Diversification Support:** Strengthen cooperation in agriculture, fisheries, and the blue economy for Maldives' diversification.

Digital and Financial Cooperation:

- ◁ **Digital Infrastructure:** Collaborate on launching UPI, digital identity systems, and other services in the Digital Public Infrastructure domain.
- ◁ **Energy Cooperation:**

- **Renewable Energy Projects:** Implement solar and other renewable energy projects in the Maldives.
- **Grid Participation Study:** Conduct a feasibility study for the One Sun One World One Grid initiative.

Health Cooperation:

- ◁ **Pharmacopoeia Recognition:** Work towards Maldives' recognition of Indian pharmacopoeia and establish Jan Aushadhi Kendras.
- ◁ **Health Research:** Collaborate on health research for common challenges, including cancer and infertility.

Defence & Security Cooperation:

- ◁ **Maritime Security:** Share expertise and undertake joint measures against piracy, IUU fishing, smuggling, and terrorism.
- ◁ **MNDF Harbour Project:** Support the completion of the 'Ekatha' harbour project to enhance MNDF capabilities.

Capacity Building and Training:

- ◁ **Women-Led Development:** Launch programmes to support Maldivian women entrepreneurs through skills training.
- ◁ **Startup Incubator:** Establish an incubator to promote youth innovation.

PEPPER IT WITH:

Neighbourhood First policy, SAGAR (Security and Growth for All in the Region), India Out campaign, Colombo Security Conclave (CSC).

People-to-People Linkages:

- ◁ **Consulate Establishment:** Work on setting up a Maldivian consulate in Bengaluru and an Indian consulate in Addu City.
- ◁ **ICCR Chair:** Establish an ICCR Chair at Maldives National University.

Cooperation at Regional and Multilateral Fora:

- ◁ **Security Conclave Commitment:** Strengthen collaboration in the Colombo Security Conclave for a secure Indian Ocean Region.
- ◁ **High-Level Group:** Form a core group to oversee progress on the vision document's implementation.

Way Forward

- ◁ **Balanced Diplomacy:** Help Maldives build diplomatic capacity to manage relations with China and maintain strategic autonomy.
- ◁ **Sustainable Fisheries:** Collaborate on fisheries management to boost Maldives' economy and advance blue economy initiatives.
- ◁ **Climate and Disaster Management:** Assist in climate adaptation and disaster preparedness through coastal management expertise and renewable energy.
- ◁ **Cultural Diplomacy:** Enhance mutual understanding via cultural exchanges in festivals, art, and sports to bolster India's soft power.
- ◁ **Defence Cooperation:** Increase joint defence exercises and intelligence sharing to enhance regional security against threats like piracy and terrorism.

ENVIRONMENT

Growing Threat of Sea Level Rise

News Excerpt:

During a visit to Tonga, UN Secretary-General Antonio Guterres warned that **"the ocean is overflowing,"**

highlighting the **severe and disproportionate** threat of **sea level rise** faced by Tonga and other South Pacific Island nations.

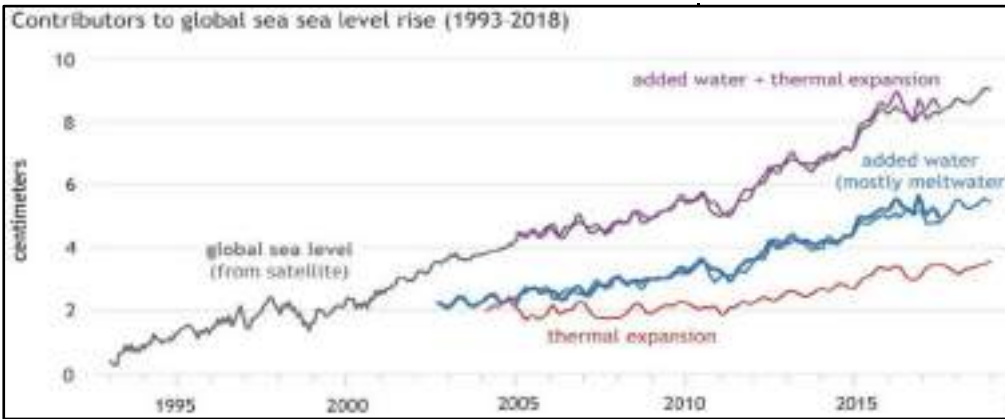
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Accelerating Pace of Sea Level Rise (SLR)

- Sea level rise (SLR) is one of the most pressing consequences of climate change, posing existential threats to **coastal cities, island nations**, and the millions of people who live in low-lying regions.
- According to a report by the **National Oceanic and Atmospheric Administration (NOAA)**, global sea levels have increased by about **8–9 inches** (21–24 cm) since **1880**, with the rate of rise accelerating significantly since 1993. The **current rate** is **0.17 inches** (0.42 cm) per year, more than double the rate observed in the early 1990s.
- According to the **World Meteorological Organization**, global mean sea levels hit a **record high in 2023**. Recent studies suggest that by **2050**, they could rise by an **additional 20 cm**, exacerbating the frequency and intensity of coastal flooding.

Role of Climate Change

- Global warming, caused by human activities such as **burning fossil fuels**, is the main driver behind rising sea levels. The oceans have **absorbed** an estimated **90% of atmospheric warming** over the past 50 years, making them hotter than ever before.
- As ocean temperatures rise, they expand—a process known as **thermal expansion**—contributing significantly to SLR. Moreover, increasing temperatures are accelerating the **melting of glaciers and polar ice sheets**.
 - The National Oceanic and Atmospheric Administration (NOAA) reports that glacier melting's contribution to SLR has nearly doubled since the early 2000s, further compounding the problem.
 - **For instance, Greenland's** glaciers are melting five times faster than 20 years ago. Greenland is estimated to lose 270 billion tons of ice annually, while **Antarctica** loses around 150 billion tons annually.
- Another critical factor is **land subsidence**, particularly in rapidly urbanizing regions. Excessive groundwater extraction, combined with the weight of heavy urban infrastructure, leads to land sinking.
 - **For instance, in China**, a quarter of the country's coastal land is expected to sink below sea level within the next century due to land subsidence combined with SLR.



- In Asia, countries like **Bangladesh, India, and China** are particularly susceptible to flooding, and by 2100, millions more people are expected to face increased risks from rising sea levels.

Economic and Social Costs

- A study published in **Scientific Reports** in 2020 predicts that by 2100, **176 to 287 million people** will be

Uneven Global Impacts:

- Although sea level rise (SLR) is a global issue, its effects are uneven due to **ocean dynamics** and **gravitational variations** across the Earth.
- **Low-lying island nations** like **Fiji, the Maldives, and Tuvalu** face existential threats, as even small increases in sea levels could submerge entire regions.
 - **For example**, every 2.5 cm rise in sea level results in a loss of 2.5 metres of beachfront, and each additional centimetre of rise exposes an estimated 6 million more people to coastal flooding.
- **Major coastal cities** around the world are also grappling with the consequences of SLR. Megacities like **Mumbai, Los Angeles, Jakarta, and Lagos** are particularly vulnerable due to their dense populations and critical infrastructure in low-elevation zones.
 - **Indonesia** has already taken the drastic step of **relocating its capital from Jakarta to East Kalimantan** due to persistent flooding risks.
- A 2022 analysis by global risk management firm RMSI highlighted that cities such as **Mumbai, Kochi, and Chennai** will face significant submersion risks by 2050.
- **River deltas**, where many major port cities are located, are especially at risk from SLR. These areas are prone to **saltwater intrusion**, which can **contaminate freshwater aquifers, disrupt agriculture, and threaten water supplies**.

exposed to episodic **coastal flooding**, with global assets worth **\$6,000-\$9,000 billion** (or 12-20% of global GDP) at risk.

- The study also suggests that if no preventive measures are taken, **coastal flooding incidents** occurring once every 100 years could become as frequent as **once every ten years** by the end of the century.
- In addition to causing land loss and population displacement, **SLR intensifies storm surges** and flooding, further damaging coastal areas.
 - Higher sea levels allow **hurricanes and storms** to push more water inland, causing widespread flooding.
- Coastal erosion, saltwater intrusion, and the destruction of infrastructure are becoming increasingly common, leading to significant **losses for local economies**.

PEPPER IT WITH:
Global Warming, Thermal Expansion, Land Subsidence, Island Nations Vulnerability, Climate Change Adaptation.

WAY FORWARD

Adaptation Strategies:

- While reducing global greenhouse gas emissions is the most effective long-term solution to SLR, some degree of rise is inevitable due to oceans' delayed response to atmospheric heating. Countries around the world are employing various adaptation measures.
- **Indonesia:** Coastal development project called a **Giant Sea Wall**, or "Giant Garuda," to protect the city from floods.
- **Northern Europe:** Construction of a **Northern European Enclosure Dam (NEED)**, a 537 km-long dam system to protect 25 million people from the impacts of SLR.
- **Nature-based solutions:** For instance, regenerating **mangrove forests in Cameroon** helps reduce coastal erosion, while constructing **wooden stakes on beaches in Senegal** helps slow down erosion processes.
- **Maldives:** Innovative **floating cities** are being developed to address the rising water levels, while **Fiji is relocating entire villages** to higher ground.

Regional Sea level rise (SLR):

- Because SLR is not uniform worldwide, regional SLR must be **differentiated from global rates**. The gravitational pull of the polar ice sheets has different effects on sea levels in different parts of the world, which means **regional SLR can be higher or lower than the global SLR**.
- SLR in places such as **Scotland, Iceland, and Alaska** could be significantly less than the regional SLR for the **eastern US**.

Greenhushing

News Excerpt

Greenhushing is becoming more common, as **58% of companies** deliberately reduce communication about their climate efforts, according to a **report by South Pole**.

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Greenhushing

- Greenhushing refers to the **deliberate underreporting** or **strategic withholding** of information by firms about their sustainability initiatives.
- While these companies may **actively work** toward reducing their environmental impact, they opt **not to publicise** their green credentials or future sustainability commitments.

Factors Leading to Greenhushing

- Legal and Regulatory Concerns:**
 - In the U.S., for instance, companies can face **lawsuits** if they are seen as **not prioritising** shareholder **profits**, which may cause them to stay silent about climate-related investments.
 - Furthermore, in conservative states experiencing a **backlash** against environmental, social, and governance (**ESG**) **efforts**, firms may downplay or stop discussing their green initiatives altogether to avoid regulatory scrutiny.
- Negative Consumer Perception:**
 - Research shows that customers often associate **"green" products** with **lower quality, higher costs**, or **less performance**, even when these assumptions are incorrect.
 - For companies, promoting sustainability can, therefore, risk **alienating potential buyers** who may perceive these products as inferior or less affordable.
- Avoiding Moral Discomfort:**
 - In the tourism industry, for example, research suggests that businesses under-communicate their

environmental efforts to avoid making **guests feel guilty** or **uncomfortable** during vacations. People often seek indulgence during holidays and prefer not to be reminded of issues like climate change.

- Scrutiny and Higher Standards:**

- Promoting climate goals can attract **public attention, raise expectations**, and **pressure** companies to deliver even more ambitious results. Many firms remain silent to avoid being held accountable for unmet promises.

Why Carbon Neutral Firms Greenhush

- Lack of Customer Demand:** Many consumers are unaware of carbon neutrality or do not actively seek carbon-neutral products. Without strong customer demand, companies are **less motivated** to spend resources on advertising their carbon-neutral status.
- Fear of Greenwashing Accusations:** Firms are increasingly cautious about being accused of greenwashing—misleading claims about their environmental actions. Greenwashing accusations can severely damage a **company's reputation**.

Why Firms Pursue Carbon Neutral Certification

- Competitive Advantage:** Firms that advertise their sustainable practices can attract customers who prioritize environmentally responsible brands. This can also help firms secure **financing at better terms** and attract environmentally conscious talent.
- Maintaining Social Licence:** Stakeholders increasingly expect businesses to act responsibly, and carbon neutrality **demonstrates a commitment** to the environment.
- Ethical Motivation:** Some companies pursue carbon neutrality because it aligns with their core values. These firms see environmental sustainability as a **moral imperative** and prioritise it regardless of external pressures.

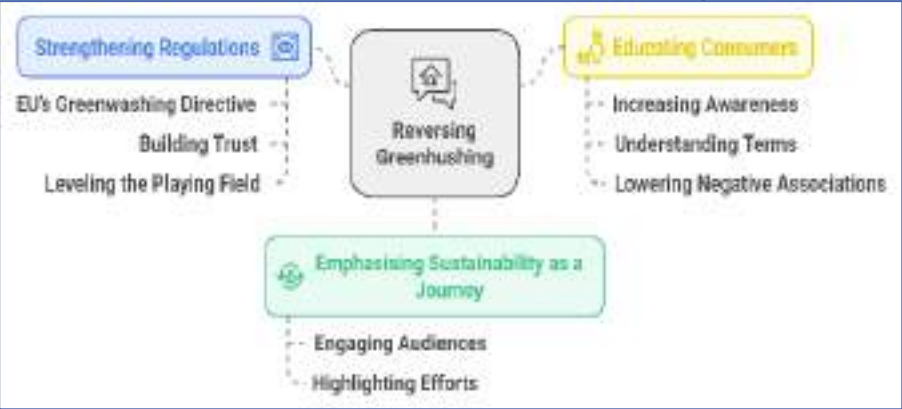
PEPPER IT WITH:
Environmental, Social, and Governance (ESG), Carbon Neutrality, Climate Goals, Greenwashing Directive (EU),

<p>GREENWASHING</p> <p>Companies make false claims about their environmental efforts.</p>	<p>GREENRISING</p> <p>Companies constantly change their environmental goals without achieving them.</p>	<p>GREENCROWDING</p> <p>Companies join eco-friendly initiatives but don't actually change anything to help the environment.</p>
<p>GREENLIGHTING</p> <p>Companies highlight one green aspect of their business to distract from other harmful practices.</p>	<p>GREENLABELLING</p> <p>Companies market products to look eco-friendly even if they're not.</p>	<p>GREENHUSHING</p> <p>Companies keep quiet about how sustainable their products really are.</p>
<p>GREENSHIFTING</p> <p>Companies blame consumers for environmental issues to avoid taking responsibility.</p>		

Concerns regarding Greenhushing

- Greenhushing poses several risks to the broader **sustainability movement**. When companies remain silent about their environmental achievements, they **reduce the visibility of sustainable solutions**.
- It **discourages** others from **adopting sustainable practices**. Transparency in sustainability initiatives can inspire other firms to take action, but greenhushing moves in the opposite direction.

Way Forward:



African Cheetahs in captivity:

- **Reasons for Cheetah Captivity:** India has not adhered to the timelines specified in the Cheetah Action Plan (CAP) for releasing cheetahs from their holding enclosures. The cheetahs underwent a longer-than-specified quarantine period in Kuno due to concerns about the survival of the cheetahs in the wild.
- **Negative Impact of Captivity:** Extended captivity can make cheetahs unfit for release into the wild. Namibia's policy restricts the captivity period for wild large carnivores to three months. Cheetahs

kept in captivity for longer than three months may need to be euthanized or held permanently in captivity.

- **Implications for Project Cheetah:** The 12 adult cheetahs and 12 cubs currently in Kuno may not be suitable for release into the wild due to prolonged captivity. The prolonged captivity could hinder the achievement of Project Cheetah's objectives of reintroducing cheetahs into India.

Why did so many cheetahs die after moving?

- < **General Observation on Deaths:** Deaths are part of life, requiring careful management in animal relocation for survival.
- < **Pre-existing Health Conditions:** Two cheetahs died in 2023 due to renal ailment and suspected hypokalaemia, highlighting health issues.
- < **Deaths Due to Aggression:** A female cheetah was mauled to death by a male coalition during mating efforts in May 2023.

African Cheetahs

News Excerpt

The **Cheetah Action Plan (CAP)** represents India's ambitious effort to introduce African cheetahs into its ecosystems, focusing on conserving the species and restoring the health of savanna habitats.

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About Project Cheetah:



- The CAP states that the **translocation** of a large carnivore, African cheetahs in this case, is a strategy to **conserve threatened species** and **restore ecosystem functions**.
 - It also states that India plans to assist the government of **Iran** and the **international conservation community** in conserving the Asiatic cheetah and increasing its distribution range to include protected landscapes in India.
- The CAP also says cheetahs will be a **flagship species** for the degraded **dry-open forest/savanna ecosystems** in India and increase the value of restoring and conserving them, as well as improve the fortunes of local communities through eco-tourism.
 - It has been estimated that the released population should reach the **carrying capacity** of **Kuno National Park** in about 15 years and that of the wider Kuno landscape in 30-40 years.
- According to the CAP, the introduction programme requires **long-term (at least 25 years)** financial, technical, and administrative commitments from the Ministry of Environment, Forests and Climate Change (MoEFCC), the **National Tiger Conservation Authority (NTCA)**, the Madhya Pradesh Forest Department, and the **Wildlife Institute of India**.



- < **Cub Deaths Due to Heat Stroke:** Three cubs succumbed to heat stroke in May 2023.
- < **Dermatitis-Related Deaths:** Three cheetahs died from dermatitis complications between July and August 2023.
- < **Septicaemia and Drowning:** One cheetah died of septicaemia in January 2024, and another drowned in August 2024.
- < **Cub Deaths Due to Injury:** Two cubs died in 2024, with one suffering a broken spine.

Why are the cheetahs located in Kuno?

- The CAP states that **ten sites** were surveyed in **five central Indian States** to determine their suitability for introducing African cheetahs. Of these, **Kuno National Park** in Madhya Pradesh was found to be the **most suitable** because of its habitat and adequate prey base.
- But even in Kuno, the cheetahs have largely been held captive. About 80 sq. km has been fenced off in **Gandhi Sagar Wildlife Sanctuary**, and cheetahs were initially supposed to be released there by December 2023 or January 2024. The plan seems to be to introduce the cats in **late 2024 or early 2025**.
- A **captive breeding facility** for the African cheetahs is being built in the **Banni grasslands** of Kachchh, Gujarat. Some cheetahs are likely to be housed here. **Nauradehi Wildlife Sanctuary** in Madhya Pradesh has also been mentioned as a potential site for introducing African cheetahs.

Does Project Cheetah have a sunset Clause?

- **Sunset Clause for Project Cheetah:**
 - **Long-Term Criteria:** The success of Project Cheetah should be measured by establishing a viable metapopulation of cheetahs in India.
 - **Timelines:** The project is expected to take at least 15 years, but more realistically 30 to 40 years.
- **Habitat Requirements:**
 - **Sufficient Habitat:** India needs 4,000 to 8,000 sq. km of suitable habitat to establish a viable population of free-ranging cheetahs.



- **Availability of Habitat:** The availability of such habitat in India remains a question.

Way Forward:

- < **Health Screening and Quarantine:** Implement robust health assessments and quarantine best practices before relocating cheetahs to prevent early deaths.
- < **Captivity and Release Timelines:** Minimize captivity duration to enhance post-release survival, similar to Namibia's three-month guideline.
- < **Habitat Management:** Expand protected areas and restore savannas to provide adequate territory and prey for cheetahs.
- < **Community Participation:** Enhance eco-tourism for community revenue and develop strategies to minimize cheetah-human conflict.
- < **Population Strategies:** Establish captive breeding programs and conduct genetic assessments to maintain healthy cheetah populations.

PEPPER IT WITH:
Project Cheetah, Cheetah Action Plan (CAP), Kuno National Park, Wildlife Translocation Challenges, Conflict Mitigation.

Why are NDCs important in global climate talks?

News Excerpt

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In the world's struggle to halt and reverse climate change, countries periodically report on their plans and progress in reducing national levels of planet-warming carbon emissions, called Nationally Determined Contributions (NDCs).

About Nationally Determined Contributions (NDC):

- A country's NDC describes its national policies or decisions toward reaching net-zero emissions. It was updated every five years until delegates at the 2021 **U.N. climate summit, COP26, in Glasgow**, called for more frequent updates every couple of years.
- Altogether, these reports help countries coordinate their climate policy actions with one another. They can immediately tell us if the world is on track with its climate goals.
- In a recent report, the Net-Zero Tracker group, which assesses global climate commitments, found that the world is on the road to net zero, with 93% of global GDP covered by targets. However, it urged action to turn pledges into credible plans.

Why would we be hearing about NDCs now?

- **Next Round of NDC Updates Due in 2025:** Countries must submit their next Nationally Determined Contributions (NDCs) by February 2025.

- **Potential Announcements at U.N. General Assembly:** Some countries might announce new NDC plans during the U.N. General Assembly in New York.
- **Announcements at COP29:** Others may unveil their updated plans during the U.N. climate summit COP29, which will be held in Azerbaijan.

Where did the Net-zero goal come from?

- **Paris Agreement of 2015:** Countries agreed to limit global warming to within 2°C above pre-industrial temperatures to avoid severe climate impacts.
- **Net-Zero by 2050:** To meet this target, the world needs to achieve net-zero emissions by 2050.
- **Emissions Reduction by 2030:** To stay on track, emissions must be reduced by half (from 2005 levels) within the next six years.
- **Rising Emissions Since Paris Agreement:** Despite the Paris Agreement, global emissions have continued to increase instead of decline.

Importance of NDCs:

- **National Contributions to Global Targets:** While the Paris Agreement establishes global emissions goals, individual countries set their pathways through Nationally Determined Contributions (NDCs).
- **Focus on Key Policy Areas:** Countries develop policies to address how energy is generated, food production, and city planning to meet their targets.
- **Global Participation:** Over 170 countries met the last NDC submission deadline ahead of COP26 in 2021, demonstrating widespread commitment despite varying ambition levels.
- **Focus on Ambitious Near-Term Goals:** For the next round of NDCs, countries are asked to prioritise more ambitious emissions targets for 2030 and 2035.

Key Elements to Look for in NDCs:

- **Ambition and Credibility:** A strong NDC is detailed, ambitious, and credible, setting clear emissions reduction targets for key polluting sectors like energy and transportation.
- **Reconciliation of Conflicting Policies:** NDCs should address national policies, such as fossil fuel subsidies, that may hinder progress towards clean energy transitions.
- **Monitoring Plans:** Countries should include strategies for monitoring and tracking progress toward their NDC pledges.
- **Adaptation Plans:** NDCs can outline plans for adapting to a warmer world, such as protecting against increased flooding, heat waves, and other climate extremes.
- **Project Launch and Job Creation:** Detailed NDCs may include specific projects to be launched or plans for creating jobs in clean technology sectors.
- **Public Health Measures:** NDCs could also outline public health initiatives to mitigate the impacts of rising temperatures.

- **Attracting Funding:** Comprehensive NDCs that include detailed projects, policies, and financing needs can help countries attract funding for climate initiatives.
- **Backsliding on Climate Policies:** NDCs can also reveal instances of backtracking on climate policies, such as Britain’s backtracking on the phase-out of new petrol cars and gas boilers, which weakened its climate efforts.

Consequences if a Country Falls Short on NDCs:

- **Voluntary Nature:** NDC pledges are voluntary, and countries face no legal penalty under the Paris Agreement if they fail to meet their targets.
- **Obligation to Report Failures:** As per the Paris Agreement, countries must monitor progress and report on any failures, even if they do not meet their goals.
- **Legally Binding at National Level:** Some countries, like Britain and Chile, have incorporated their NDCs into national law, making their climate commitments legally binding domestically.
- **Litigation for Falling Short:** Countries may face legal challenges for not meeting climate goals. **For example,** Europe’s top human rights court ruled in favour of a group of Swiss women, claiming their government violated human rights by not doing enough to combat climate change.

Way forward:

- **International Cooperation:** Enhanced international cooperation and knowledge sharing can help countries learn from each other and accelerate progress.
- **Financing and Technology Transfer:** Developed countries should provide financial support and technology transfer to developing countries to help them implement their NDCs.
- **Civil Society Engagement:** Engaging with civil society organisations and communities can help ensure NDCs are inclusive and responsive to local needs.

PEPPER IT WITH:
Paris Agreement 2015, Net-Zero Emissions, COP29 (2024), Global Climate Commitments, Fossil Fuel, Energy Transition, Adaptation Plans.

Smog Towers and Cloud Seeding won't save us from Air Pollution

News Excerpt

Delhi's air quality slipped into the 'poor' category (AQI 200-300) for the first time since mid-June 2024, signalling the imminent arrival of North India's bad air season.

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About the news:

- The Delhi government announced a 21-point Winter Action Plan, including using drones to monitor pollution hotspots, deploying anti-smog guns, and exploring the possibility of creating artificial rain.



- The Commission for Air Quality Management (CAQM), which issues orders to combat air pollution in NCR under the Graded Response Action Plan (GRAP), said it was watching the situation.

Nature of Problem:

- **Seasonal Worsening of Air Pollution:** As the southwest monsoon ends, India's air pollution worsens due to stagnant air and temperature inversion, which traps pollutants near the ground. This leads to extremely hazardous levels of fine particulate matter (PM 2.5) and other pollutants.
- **Weather Patterns Contributing to Pollution:** Temperature inversion, common post-monsoon, traps pollutants and prevents their dispersion, especially in winter, making smog more visible and severe. While winter is the peak season for visible pollution, air quality is a year-round concern across India.
- **Economic Inequality and Health Impacts:** Economic disparity aggravates the problem, as wealthier individuals can afford air purifiers or relocate to less polluted areas, leaving poorer communities more exposed to toxic air.
- **Multiple Sources of Pollution:** Persistent sources include biomass burning for cooking, vehicular emissions, industrial activity, and trash burning.
- Episodic events such as farm **stubble burning**, and festival firecrackers add to pollution spikes during certain periods.
- **Meteorological Effects:** Meteorological conditions, especially temperature inversion and low wind speeds in winter, trap pollutants near the ground, exacerbating air quality issues, particularly in the Indo-Gangetic plain.

- **Inadequate Long-Term Responses:** Despite the severity, responses to India's air pollution crisis often focus on short-term, optics-driven measures rather than comprehensive, long-term solutions.

Chasing shadows of ideas:

- **Superficial Solutions:** Common solutions like smog towers, water guns, and odd-even road sharing are often ineffective in tackling air pollution comprehensively. Cloud seeding has emerged as a new **"silver bullet"** solution to induce rainfall for temporary relief.
- **Cloud Seeding's Limitations:** Cloud seeding is more about creating a spectacle rather than addressing the root causes of air pollution. It provides only temporary relief and diverts attention from the systemic changes needed for long-term solutions.
- **Environmental and Ethical Concerns with Cloud Seeding:** The water vapor would have naturally precipitated elsewhere, potentially depriving other regions of much-needed rainfall. This artificial weather manipulation could lead to droughts in areas that would otherwise have received rainfall.



- **Risks in Water-Stressed India:** In a country with strained water resources like India, cloud seeding could worsen regional water disparities, posing a significant risk. The chemicals used, such as silver iodide, may have long-term effects on soil, water, agriculture, and ecosystems.
- **Flawed Approach of Smog Towers:** Smog towers are limited in their impact, cleaning only the immediate surroundings while leaving broader urban areas unaffected. The **energy required** to operate these towers may contribute to additional emissions, making them potentially counterproductive.

PEPPER IT WITH:
Air Pollution, (GRAP), (CAQM), Biomass, Stubble Burning, Equity and Justice in Access to Clean Air.

Concrete Steps That Matter/ Way Forward:

- < **Agency Coordination:** Address air pollution through coordinated multi-sectoral action across transport, industry, agriculture, and urban planning.
- < **Capacity Building:** Foster critical thinking and strengthen institutions with data-driven solutions for diverse regional contexts.

- ◁ **Air Quality Monitoring:** Implement a comprehensive monitoring system covering rural and industrial areas to inform targeted interventions.
- ◁ **Beyond Tech-Centric Solutions:** Address root causes of pollution, not just quick fixes, to mitigate impacts across all communities.
- ◁ **Political Challenge:** Tackle air pollution with long-term, multi-sectoral collaboration grounded in scientific thinking and equity.

- **Khur Population:** Approximately 6,000 Indian wild asses live in this region.
- **Vegetation and Terrain:** The terrain is harsh most of the year, with dry, xerophytic vegetation. The khur's digestive system is well adapted to processing arid

Surviving in India's salt desert: Khur

News Excerpt:

The Rann of Kutch evolved when waters of the Arabian Sea made incursions into this region 150-200 million years ago. Geological upheavals led to the rise of a landmass that cut off the Kutch basin from the sea.

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About Rann of Kutch:

● Evolution of the Rann of Kutch:

- **Origin:** The Rann of Kutch evolved 150-200 million years ago when waters from the Arabian Sea made incursions into the region. Geological upheavals led to the rise of a landmass that separated the Kutch basin from the sea.

● Geography of the Little Rann of Kutch:

- **Location:** The Little Rann of Kutch lies at the end of the Gulf of Kutch, covering an area of 5,000 sq. km, primarily in the Surendranagar district of Gujarat.



- **Landscape:** Most of the year consists of barren and white salt flats. During the monsoon, it transforms into a shallow wetland.
- **Islands:** Around 75 elevated pieces of land turn into islands, locally called bets by the Agariya and Maldhari communities.
- **Habitat and Wildlife:**
 - **Wild Ass Sanctuary:** The Little Rann of Kutch houses the wild ass sanctuary, the only remaining habitat of the Indian wild ass (**Equus hemionus khur**), locally called **khur**.



vegetation.

- **Predators:** The khur has outlasted predators like the cheetah and the lion, last seen in the region in the 1850s.
- **Khur Characteristics:**
 - **Size and Lifespan:** Khur are almost the size of a zebra and have a lifespan of 21 years.
 - **Social Structure:** Stable groups of khur consist of females and their young. Stallions are generally loners, especially during the breeding season.
 - **Speed:** On the flat terrain of the Rann, khur can reach speeds of up to 70 km per hour.
 - **Reproduction:** The gestation period is 11 to 12 months, and concurrent lactation and pregnancy are sometimes observed in mares.



Back from the brink:

● Khur Near Extinction:

- **Diseases:** The khur population was decimated by diseases like African Horse Sickness and Surra in the 1960s.
- **Genetic Bottleneck:** Disease outbreaks led to low genetic diversity among the surviving khurs.
- **Population Recovery:** The khur population has rebounded in recent decades due to conservation efforts.

Conflicts with Humans in the Little Rann of Kutch:

Way forward:

- **Habitat Protection:** Ensure the protection of the Rann of Kutch's unique ecosystem and prevent further habitat degradation.

PEPPER IT WITH:

Arabian Sea Incursions, Xerophytic Vegetation, Maldhari and Agariya Communities, Mitochondrial DNA Study.

- **Reduce Human Impact:** Implement measures to reduce human activities and their impact on wildlife, such as restricting salt farming and cattle grazing in sensitive areas.
- **Wildlife Conservation:** Strengthen conservation efforts to protect the region's khur population and other wildlife species.
- **Community Involvement:** Engage local communities in conservation efforts and provide alternative livelihood options to reduce their dependence on activities that harm the ecosystem.

Climate Change Impacting Flooding around the World

News Excerpt:

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Climate change influences complex atmospheric and weather patterns, impacting the frequency of heavy downpours during storms and sudden outbursts.

About the news:

- Severe flooding has forced tens of thousands to evacuate their homes as wide regions of **Austria, the Czech Republic, Poland, and Romania** have been hit by days of heavy rainfall.
- It is the latest of several extreme floods this year.
- In **Europe**, thousands were forced to evacuate southern Germany this summer. Elsewhere, the **United Arab Emirates** and Oman experienced the heaviest rainfall since records began.
- Deluges in **Kenya** claimed numerous lives and triggered landslides.
- In Brazil, floods damaged an area equivalent to the UK and displaced over half a million people.
- **Indian cities** today stand on the precipice of progress and vulnerability. While the monsoon relieves the scorching summer, neighbourhood inundation has become frequent, affecting millions of lives.
- An estimated **89% of people** exposed to high flood risk live in low- and middle-income countries. Most live in South and East Asia, with **395 million** exposed people in China and **390 million** in India.

Increasing frequency of extreme flooding:

- Despite a steady rise in the frequency of natural disasters over the last decade, flooding is the most common, accounting for **47%** of all weather events from **1995 to 2015**.
- In the last few years, **Delhi, Mumbai, Hyderabad, Bengaluru, Chennai**, and other cities have experienced frequent floods, which have caused staggering economic and human losses.

- Whereas **coastal flooding** is largely driven by winds and high tides, river, groundwater and flash flooding are all linked to heavy rainfall.
- Rising global temperatures caused by **burning fossil fuels** make rainfall more frequent and severe worldwide.
- **Science behind extreme flooding:**
 - Modelling precipitation patterns are complex, but it has one clear underlying physics principle: **hot air holds more moisture**.
 - **Greenhouse gases** released into the atmosphere act like a blanket on the earth, trapping heat and raising temperatures. This leads to more rapid water evaporation on land and at sea, meaning that when it rains, more water needs to be released. When a huge amount of rain is dumped onto Earth in a short space of time, this can lead to flooding.
 - Air's capacity to hold moisture rises by **7% with every rise of 1 degree Celsius**. Since the pre-industrial era, global air temperatures have increased by around **1.3 degrees Celsius**.
 - **Temperature rises** also cause more precipitation, such as rain instead of snow, making high-altitude regions vulnerable to flooding and landslides.
 - A 2022 study published in the science journal Nature found that **rainfall extremes** increased by an average of 15% per 1 degree Celsius of warming in snowy, high-elevation parts of the Northern Hemisphere.

The Intergovernmental Panel on Climate Change (IPCC):

- Created in **1988** by the **World Meteorological Organization (WMO)** and the **United Nations Environment Programme (UNEP)**.
- The **IPCC's objective is to provide governments at all levels with scientific information** to develop climate policies.
- IPCC reports are also a key input into international **climate change negotiations**. The IPCC is an organisation of governments that are members of the United Nations or WMO.

Impact of climate change on global rainfall:

- Climate change influences complex atmospheric and weather patterns, impacting the frequency of heavy downpours during **storms** and **sudden outbursts**.
- Globally, at a **1.5C** temperature rise, which the world is increasingly close to hitting, heavy precipitation that would have been a once-in-a-ten-year rainfall event will occur **1.5 times** every decade and be over 10% wetter, according to the **UN's International Panel on Climate Change (IPCC)**.
- Last year, Europe was around **7% rainier than normal**, with most of the continent experiencing wetter-

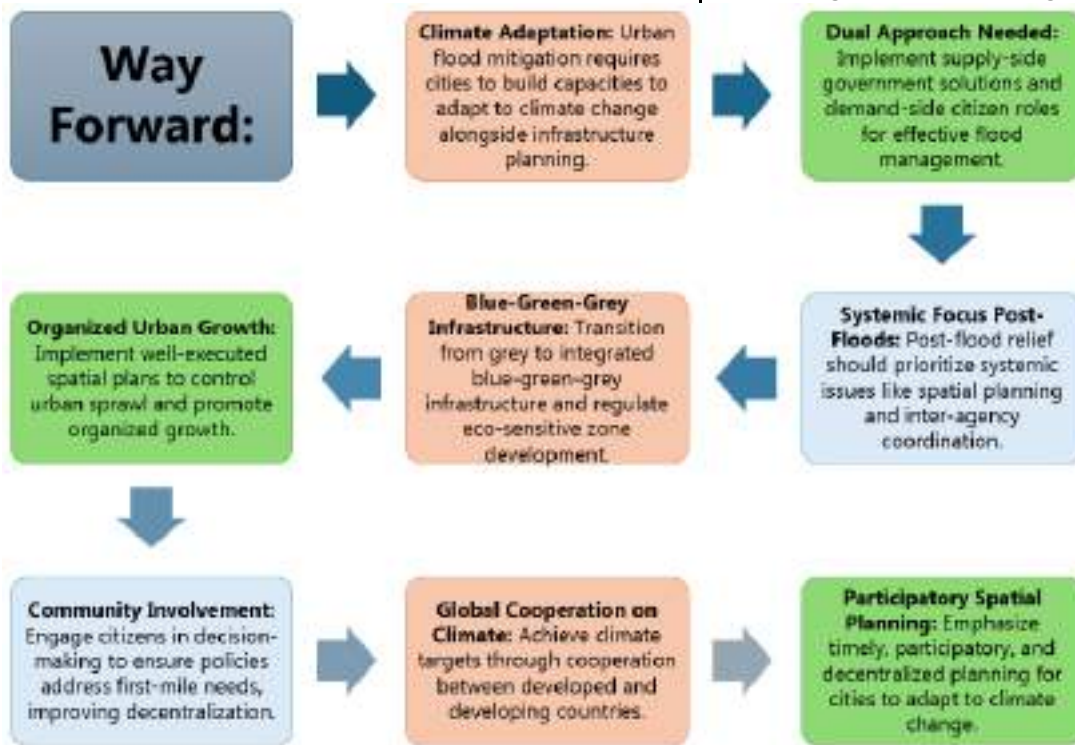
PEPPER IT WITH:

Global Warming, Extreme Weather Events, Precipitation Patterns, Urban Flooding, Urban Infrastructure Planning, Eco-Sensitive Zones,

than-average conditions. Heavy or record-breaking precipitation triggered floods in **Italy, Norway, Sweden and Slovenia.**

- Advances in attribution science allow experts to accurately pinpoint the causal relationship between climate change and extreme weather events. According to one estimate, on average, **1 in 4 record rainfall extremes** in the last decade can be attributed to climate change.
- According to the **IPCC**, at 2 degrees Celsius of warming above pre-industrial levels, what would have been a **once-every-10-year rainfall** event will occur **1.7 times per decade and be 14% wetter.** And if the world warms to **4 degrees Celsius**, heavy rains that used to hit once a decade could hit almost three times more often and release **30% more rain.**

- The organisations pointed out that PABS did **not** provide **sufficient provisions** for equitable **benefit-sharing** and expressed their concerns about the latest proposal submitted by the Bureau of INB.
- They said that while this document has incorporated the language proposed by the **European Union**, the proposals from the **Group of Equity** and the **Africa Group** have been disregarded.
- The text discussed by INB is inadequate as it advocates for **only minimal commitment** from manufacturers using the PABS system, which is limited to a **5% donation of vaccines, therapeutics and diagnostics (VTD)** during pandemics.
- The figure is far **below the 20%** originally proposed by the **Africa Group**, and the sharing is likely to occur only during a pandemic emergency, which is not frequent.



• The proposal has loopholes that would allow manufacturers to avoid the obligation to **reserve VTDs for WHO** or for vulnerable countries, which would be detrimental to equitable sharing during public health emergencies.

• This would **perpetuate the inequities** the pandemic instrument seeks to address, disregarding lessons learnt from COVID-19 and other recent global health crises.

• Also, the current text does **not ensure transparency and accountability** as it does not include terms for accessing pathogen materials and digital sequences or ensuring fair benefit-sharing. This **undermines** international commitments under frameworks such as the **Nagoya Protocol** and the **Convention on Biological Diversity.**

Sharing of Benefits arising from Use of Pathogens

News Excerpt:

Lack of clarity on sharing benefits arising from pathogens' use could impact the pandemic treaty.

More about Issue:

- Nearly 100 organisations worldwide have sent a **letter** to the **World Health Organization (WHO)** raising **concerns** about the proposals for **Pathogens Access and Benefit Sharing (PABS).**
- This is being discussed at the **11th Intergovernmental Negotiating Body (INB)** meeting for a **WHO** instrument on pandemic prevention, preparedness and response.

Concerns:

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Proposed Pathogens Access and Benefit Sharing (PABS) system:

- The proposed PABS System would directly seek to **reduce existing impediments** from the current international legal system.
- The Nagoya Protocol governs the **bilateral transfer of pathogen** samples to or from jurisdictions that have adopted implementing legislation.
- The **financial, resource, and time costs** of negotiating agreements for these bilateral transfers are **not**

- insignificant**, particularly during outbreak scenarios where rapid access to pathogen samples may be critical for research efforts, including further epidemiological understanding and countermeasure development.
- A multilateral PABS System would **address** these barriers by
 - **Instilling** an obligation to share, improving the comprehensiveness of sharing;
 - **Standardizing** the legal agreements governing the sharing of samples, data, and benefits, reducing transaction costs and delays, and
 - Standardizing benefits-sharing, improving trust in the system and incentivising more rapid and comprehensive sharing.
 - A PABS System is an opportunity to **promote research** by embedding an obligation to **share sequence data** along with obligations to share the benefits that arise from using that sequence data, building trust and more timely and comprehensive sequence sharing.

Way Forward:

- WHO should manage this system to ensure it is **independent, accountable, and free from conflicts of interest**. WHO already manages the Pandemic Influenza Preparedness Framework, established in 2011.
- The coalition of organisations called on WHO Member States to **revise the PABS proposal** to ensure that it upholds the principles of fairness, equity, and transparency in accordance with international law.
- Without these changes, the PABS system risks becoming another mechanism entailing global disparities in access to critical healthcare resources during pandemics.

PEPPER IT WITH:
Public Health Emergencies, Vaccine, Therapeutics, and Diagnostics (VTD), COVID-19, International Health Equity, Global Health Governance.

Nagoya Protocol and the Convention on Biological Diversity:

- Signed by 150 government leaders at the **1992 Rio Earth Summit**, the **Convention on Biological Diversity** is dedicated to promoting sustainable development. Conceived as a practical tool for translating the principles of Agenda 21 into reality.
- The **Convention on Biological Diversity (CBD)** entered into force on 29 December 1993. It has **three main objectives**:
 - The conservation of biological diversity
 - The sustainable use of the components of biological diversity
 - The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

The Nagoya Protocol:

- The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising

from their Utilization (ABS) is a **supplementary agreement** to the Convention on Biological Diversity.

- It provides a transparent legal framework for effectively implementing one of the CBD's three objectives: **the fair and equitable sharing of benefits from utilising genetic resources**.
- The **Nagoya Protocol on ABS** was adopted on 29 October 2010 in Nagoya, Japan and entered into force on 12 October 2014, 90 days after the deposit of the fiftieth instrument of ratification.
- Its objective is the fair and equitable sharing of the benefits of using genetic resources, contributing to **biodiversity conservation** and **sustainable use**.

SCIENCE & TECHNOLOGY

CERN

News Excerpt:

CERN's 70th anniversary celebrations in 2024 may be its biggest achievement since scientists there detected the "elusive" Higgs boson particle in 2012.

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More details about news:

- **Large Hadron Collider (LHC):** CERN scientists continue to conduct experiments at the LHC. The LHC's most significant discovery was the Higgs boson in 2012. Scientists aim to make new, major discoveries with a larger particle collider.
- **Future Circular Collider (FCC):** The FCC would be three times the size of the LHC, with a circumference of over 90 km. It would serve as a "Higgs factory," producing Higgs boson particles for research. The estimated cost of the FCC is CHF 15 billion (~€15.7 bn; ~\$17.5 bn).
- **Debate on the FCC:** The high cost of the FCC raises questions about its worth in a world of limited resources. The FCC offers the potential for significant scientific discoveries, including a deeper understanding of the Higgs boson and the fundamental nature of the universe.

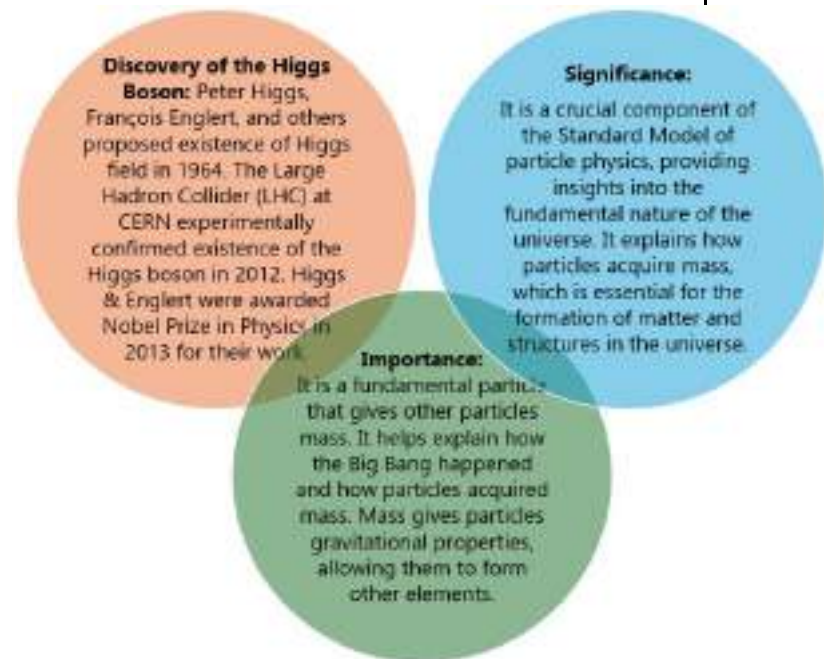
Criticism of CERN's expansion plans:

- **Fundamental vs. Applied Research:** CERN's research is focused on fundamental questions, which may not have immediate practical benefits.
- **Alternative Priorities:** Some argue that the \$17 billion proposed for the FCC could be better spent on more pressing issues like malaria research or climate change.
- **High-Risk, Low-Payoff Project:** Theoretical physicist Sabine Hossenfelder criticizes the FCC as a high-risk, low-payoff project.
- **Cost Overruns:** The actual cost of the FCC could significantly exceed the initial estimate.
- **Energy Consumption:** CERN faced public scrutiny for its energy consumption during the Russia-Ukraine war.

Supporting Arguments for the FCC:

- **Scientific Discovery:** Many scientists believe that building a larger particle collider can lead to significant scientific discoveries.
- **Understanding the Universe:** The FCC could help answer fundamental questions about the universe and the nature of matter.

Why is the Higgs boson such a big deal?



What questions can Higgs Boson still answer?

- **CERN and Higgs Boson Research:** CERN remains the only lab equipped to study the Higgs boson. It uses the largest machines to study the smallest particles.
- **Higgs Boson Discovery:** Despite being discovered 12 years ago, scientists are still conducting research to understand its full potential. The Higgs boson has been described as a key to further discoveries, but its full implications remain unknown.
- **Potential Discoveries:** Further research on the Higgs boson could provide insights into the universe's origins and dark matter, which are still not fully understood. The Higgs boson might also help explain why we observe more matter than anti-matter, as there may be missing elements in current scientific understanding.
- **Global Interest and Competition:** There is significant international interest in Higgs boson research. In 2018, China proposed building a 100 km collider to produce a million Higgs bosons over seven years. The American Particle Physics Project Prioritization Panel (P5) decided to support upgrades at CERN instead of building a separate Higgs factory. Japan paused its plans for a collider, the International Linear Collider (ILC), in 2019.

After LHC: the Future Circular Collider:

- **LHC Operations and Future Shutdown:** The Large Hadron Collider (LHC) will complete its operations and shut down in 2041.

- **Future Circular Collider (FCC) Proposal:** If the FCC project is approved, the new collider will have a tunnel at an average depth of 200 meters underground, with eight surface sites serving four experiments. The estimated cost for the FCC is \$17 billion, with one-third of that cost allocated to the tunnel construction. The construction process would generate 16.4 million tons of excavated materials over a period of five years.

- **Feasibility Report:** CERN is expected to file a feasibility report by 2025, which will explore the technical, financial, geological, and environmental impact of the FCC project.
- **Sustainability Efforts:** CERN is committed to sustainability, seeking ways to reuse waste energy from its scientific installations, including powering nearby villages. Some energy reuse initiatives are already in place.
- **CERN's Contributions to Technology:** At CERN's 70th anniversary event, it was highlighted that the World Wide Web was born at CERN, which has contributed to big data analytics, quantum computing, superconducting magnets, and carbon dioxide cooling of computers.

PEPPER IT WITH: LHC, FCC, Higgs Boson, Big Bang Theory

Way forward:

- **Continued Research:** CERN should continue its research on the Higgs boson and other fundamental particles.
- **FCC Feasibility:** CERN should carefully evaluate the feasibility of the FCC project, considering its scientific potential, cost, and technical challenges.
- **International Collaboration:** CERN should continue to collaborate with other research institutions worldwide to maximize the impact of its research.
- **Technological Innovation:** CERN should explore ways to leverage its expertise in technology to address other global challenges.
- **Public Engagement:** CERN should continue to engage with the public and communicate its research findings effectively.

Starship

News Excerpt:

Recently, two giant robotic arms successfully caught the over 70-meter-long first stage booster of SpaceX's Starship. This marks a significant step for Elon Musk's company towards creating a fully reusable rocket system.

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About Starship

SpaceX's Starship system is a fully reusable transportation system. It consists of both the Starship spacecraft and the Super Heavy rocket.

SpaceX's Starship rocket assembly



- ◁ It is designed for **missions that extend to Earth orbit, the Moon, Mars, and beyond.**
- ◁ This system is the **world's most powerful launch vehicle**, with the ability to carry up to 150 metric tonnes in a reusable configuration and up to 250 metric tonnes when expendable.
- ◁ The Starship system is **capable of transporting up to 100 people on long-duration interplanetary flights**, making it ideal for crewed missions across vast distances.
- ◁ It supports **Earth-to-Earth travel**, potentially completing most international trips in under 30 minutes.
- ◁ With a larger payload compartment than the current Falcon rockets, **Starship can deliver a diverse array of payloads, including multiple satellites, large space telescopes, and significant quantities of cargo, at a lower marginal cost per launch.** This makes it a **versatile choice for a wide range of missions.**
- ◁ **For Moon missions**, Starship is designed to transport large volumes of cargo to the lunar surface, which will be crucial for building a Moon base to support future space exploration.
- ◁ **In terms of Mars colonization**, Starship offers an affordable solution for transporting both crew and cargo, which is essential for establishing a human presence on Mars.
- ◁ **Operating at high altitudes**, it avoids atmospheric friction, turbulence, and weather-related delays, providing a smoother and faster travel experience.
- ◁ **On-orbit refilling** is a key feature of Starship, with specialized tanker versions of the spacecraft used to refuel the main Starship vehicle in low-Earth orbit. This allows it to transport large payloads over long distances efficiently, with the primary cost being the liquid oxygen and methane propellants, which are relatively inexpensive.

About Mechazilla

- ◁ Mechazilla is a **400-foot tall, colossal launch tower developed by SpaceX**,
- ◁ **It is equipped with two massive mechanical arms, known as "chopsticks,"**
- ◁ Its primary purpose is to catch rockets midair during landing, which aids in the rapid reusability of rockets.
- ◁ This innovation is central to Elon Musk's goal of enabling a quick turnaround for rocket launches. During testing, Mechazilla successfully caught the Starship booster, impressing onlookers and preventing it from crashing into the ocean.
- ◁ The **tower itself is outfitted with multiple tracks and cables that enable precise movement of the arms**, giving it the dexterity required to align and catch the descending booster.
- ◁ Mechazilla aims **to capture rockets in mid-flight, thereby reducing downtime between launches.**

Future Implications of Mechazilla

Mechazilla represents a major advancement in aerospace engineering, with the potential to revolutionize space travel. As SpaceX refines this technology, it could pave the way for more frequent and cost-effective missions. Ultimately, this innovation brings humanity closer to making space exploration accessible and sustainable on a larger scale.

How Does Mechazilla Work?

- **Launch and Ascent:**
The Starship rocket, mounted on its Super Heavy booster, launches from the ground.
- **Booster Separation:**
At a specific altitude, the booster detaches from the upper stage of the rocket.
- **Controlled Descent:**
Using precision thrusters, the booster carefully navigates its return to Earth, guiding itself toward the landing site.
- **Catching the Booster:**
As the booster approaches the ground, Mechazilla's arms position themselves for the catch. The booster hovers briefly, allowing the arms to securely catch it and complete the controlled landing.

Why is Mechazilla Important for SpaceX?

- **Reduced Wear and Tear:**
By catching the booster mid-air, Mechazilla minimizes the stress and impact damage usually associated with traditional landings.
- **Faster Turnaround:**
This method accelerates the process of refurbishing and preparing the booster for its next launch, significantly cutting down on downtime.
- **Cost Efficiency:**
Reusing boosters more quickly and easily lowers the overall costs of space missions, contributing to more sustainable operations.

Related News:

Elon Musk's Starlink satellites are impeding the work of astronomers, a study published in the journal *Astronomy & Astrophysics* found.

What Starlink does to space communications?

- **Starlink's Second-Generation Satellites and UEMR:**
The second-generation Starlink satellites emit Unintended Electromagnetic Radiation (UEMR) at levels 32 times brighter than the first-generation satellites. This is despite Starlink facing earlier issues

regarding the UEMR from its first-generation satellites.

- **Improvements to First-Generation Satellites:** Starlink made some adjustments to its first-generation satellites to reduce radio leaks, as noted by Benjamin Winkel, a scientist at the Max Planck Institute for Radio Astronomy. However, the second-generation satellites are now brighter again in terms of radio leakage.
- **Increasing Number of Satellites:** As launching satellites becomes more affordable, projections suggest that up to 100,000 satellites could be orbiting Earth by 2030. As of June 2023, the number of satellites was estimated at 11,330 by the United Nations Office for Outer Space Affairs (UNOOSA).
- **Need for Satellite Regulations:** Experts are calling for regulations to manage radio pollution from satellites, similar to the regulations for ground-based sources like cellphone towers. According to Winkel, the key question is how much leakage is acceptable, and regulations can help minimize the impact.
- **Current Reliance on Good Faith:** Currently, astronomers rely on good faith interactions with companies like Starlink to mitigate the effects of their satellites on space communications and observations.

Way forward:

- **Regulations and Standards:** Implementing regulations and standards to limit the amount of radio noise emitted by satellites can help mitigate the impact on astronomy.
- **International Cooperation:** Developing international agreements and guidelines to address the issue of satellite interference can ensure global cooperation.
- **Technological Solutions:** Investing in research and development to develop technologies that can reduce the interference from satellites or improve the sensitivity of radio telescopes.
- **Coordination with Satellite Operators:** Encouraging collaboration between satellite operators and astronomers to identify and address interference issues.
- **Public Awareness:** Raising public awareness about the importance of radio astronomy and the challenges posed by satellite constellations.

PEPPER IT WITH:
Starlink, UNOOSA, SpaceX, Radio Astronomy

PM Modi launches 3 PARAM Rudra supercomputers

News Excerpt:

Recently, the Prime Minister inaugurated three PARAM Rudra supercomputers worth Rs 130 crore.

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More detail about news:

- Developed indigenously under the **National Supercomputing Mission (NSM)**, the three new supercomputers are located in **Pune, Delhi, and Kolkata**, and make up a **High-Performance Computing (HPC)** system tailored for weather and climate research.



- Describing the “momentous” occasion, the Prime Minister said that the supercomputers will help provide “**state-of-the-art advanced facilities** to the scientific community” in India, and that it will help advance research in fields ranging from “physics and cosmology to earth sciences”.

About Supercomputer:

- A supercomputer is a large computing system specifically designed to solve complex, scientific and industrial challenges, which tend to be time-consuming and computation-intensive.
- They are used in **quantum mechanics, weapons research, weather forecasting and climate research, oil and gas exploration, molecular dynamics and physical simulations, data analytics and big data** — all of which require a high computing capacity which are unavailable with regular systems.
- Supercomputers are expensive systems that take up a large room worth of space in the form of multiple rows with racks holding computer nodes with many cores. A High Performance Computing (HPC) system is made up of several such supercomputers put together.

What is the National Supercomputing Mission?

- **Launched in 2015, the NSM aimed to build a grid of 70 powerful supercomputing systems** for use in research and development centres, and higher education institutions.
 - These supercomputers were later networked on the National Supercomputing Grid over the National Knowledge Network (NKN).
- **The seven-year mission, with an economic outlay of Rs 4,500 crores, is jointly spearheaded by the Department of Science and Technology (DST) and the Ministry of Electronics and Information Technology (MeitY).**
 - The Centre for Development of Advanced Computing (CDAC) and Indian Institute of Science (IISc), Bengaluru act as the nodal implementing agencies.

- Two phases of the NSM are complete, and the third phase is now underway.
- **Some of the broad applications of the NSM include** climate modelling, weather prediction, aerospace engineering, computational biology, molecular dynamics, atomic energy simulations, national security and defence applications, seismic analysis, disaster simulations and management, computational chemistry, computational material science and nanomaterials, astrophysics, large complex systems simulations, cyber-physical systems, big data analytics, finance, and information repositories.

National Supercomputing Mission Significant:

- **Technology Denial and Motivation for Indigenous Development:**
 - India faced technology denial from Western nations on two major occasions:
 - In the 1970s, delaying India's space exploration.
 - In the 1990s, halting India's progress in building supercomputers.
 - These experiences pushed India to focus on developing indigenous technologies.
- **Boost of the NSM:**
 - The NSM (National Supercomputing Mission) was initiated with the ambition to boost India's computational capacity.
 - Prime Minister Narendra Modi highlighted this advancement as a "soft power" tool.

- **Deployment of Supercomputing Systems:** Since the launch of the NSM, more than **20 supercomputing systems have been deployed across India.**

- **Areas Supported by NSM:** These supercomputers support research in multiple areas including: **Bioinformatics, Engineering, Disaster simulation and management, Material modelling, Quantumchemistry, Weather, ocean, and climate studies, Astronomy, Material science, Energy research, Medical research, Operations of the Micro, Small, and Medium Enterprises (MSME) sector.**

Key facts about the NSM:

- **High-Performance Computing (HPC) Capacity (2019-2023):** A total capacity of 24.83 petaFLOPS of HPC machines were commissioned during this period.
- **Training and Utilisation:** 1.75 lakh people were trained in high-performance computing (HPC) skills. 5,930 experts from over 100 institutes utilized the newly developed HPC facilities. A total of 73.25 lakh high-performance computational queries were executed.
- **System Installations (2019-2023):** 7 systems offering computing power of above 1 petaFLOPS were installed. 8 systems offering capacities between 500 teraFLOPS to 1 petaFLOPS were installed. 13 systems with capacities between 50 teraFLOPS to 500 teraFLOPS were also installed.

- **Research and Development Systems:** Systems such as SANGAM Testbed, PARAM Shrestha, PARAM Embryo, PARAM Neel, PARAM Spoorthi, PARAM Sampooran, Bioinformatics facility, and system software lab at CDAC centres are operational.
- **Training Centres and PARAM Vidya:** Dedicated HPC learning centres were established at IIT Kharagpur, IIT Palakkad, IIT Chennai, IIT Goa, and CDAC Pune. These centres have been operating PARAM Vidya systems (1 to 5 versions) to train personnel in high-performance computational skills.

PEPPER IT WITH: PARAM. CDAC, NSM (National Supercomputing Mission), National Knowledge Network (NKN)

Way forward:

- **Continued Expansion:** The NSM should continue to expand its network of supercomputers to meet the growing computational needs of Indian researchers.
- **Collaboration:** Foster collaboration between researchers, academic institutions, and industries to maximize the utilization of supercomputing resources.
- **Talent Development:** Invest in training and development of human resources in high-performance computing to ensure a skilled workforce.
- **Research Priorities:** Align supercomputing resources with national research priorities to address critical challenges and drive innovation.

Nobel Prize in Physiology or Medicine 2024

News Excerpt

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Victor Ambros and Gary Ruvkun were awarded the Nobel Prize in Physiology or Medicine 2024 for their groundbreaking work in discovering **microRNAs** and elucidating their role in **post-transcriptional gene regulation.**

Discovery of microRNAs

Background: Gene Regulation

- < At the heart of biology is how cells carry **identical genetic material** and develop into **distinct types** such as muscle cells, neurons, or immune cells.
 - The answer lies in **gene regulation**—the process by which certain genes are turned on or off, allowing cells to specialise.
- < Before discovering microRNAs, the prevailing understanding of gene regulation focused on **transcriptional control** (when mRNA is produced from DNA).

- < **Beginnings in C. elegans:** The Nobel-winning work began with research on the small **roundworm**

Caenorhabditis elegans (*C. elegans*), a commonly used model organism due to its simplicity and transparency.

- In the 1990s, Ambros and Ruvkun studied developmental timing mutants in *C. elegans*, which exhibited defects in the timing of specific developmental processes. They focused on two genes, **lin-4** and **lin-14**, linked to this process.
- ◁ **Victor Ambros:** In his lab, Ambros showed that the **lin-4** gene did **not produce a protein** but instead a tiny RNA molecule, later classified as **microRNA (miRNA)**.
 - This was a major surprise since RNA molecules were largely known as intermediaries for protein production.
- ◁ **Gary Ruvkun:** Ruvkun's lab complemented this discovery by revealing that **lin-4** microRNA regulated the **lin-14** gene not by preventing mRNA production but by

- In **translation**, transfer RNA (tRNA) delivers specific amino acids to the ribosome, which are linked together in the sequence dictated by the mRNA to form the protein.

Post-Transcriptional Control

- ◁ The discovery of **microRNAs** established that gene regulation could occur after transcription, during the translation phase of protein synthesis.
- ◁ The microRNAs exert their effect by binding to **complementary sequences** in the target mRNA, either silencing or inhibiting its translation into a protein.
- ◁ This **post-transcriptional regulation** is crucial because it allows for more fine-tuned and dynamic control of gene expression.
- ◁ A **single microRNA can regulate multiple genes**, and conversely, multiple microRNAs can regulate a single gene, creating a complex network of genetic control.

Significance of microRNAs

● **Conservation Across Species:** microRNAs regulate gene expression in all multicellular organisms.

● **Cancer:** MicroRNAs can act as

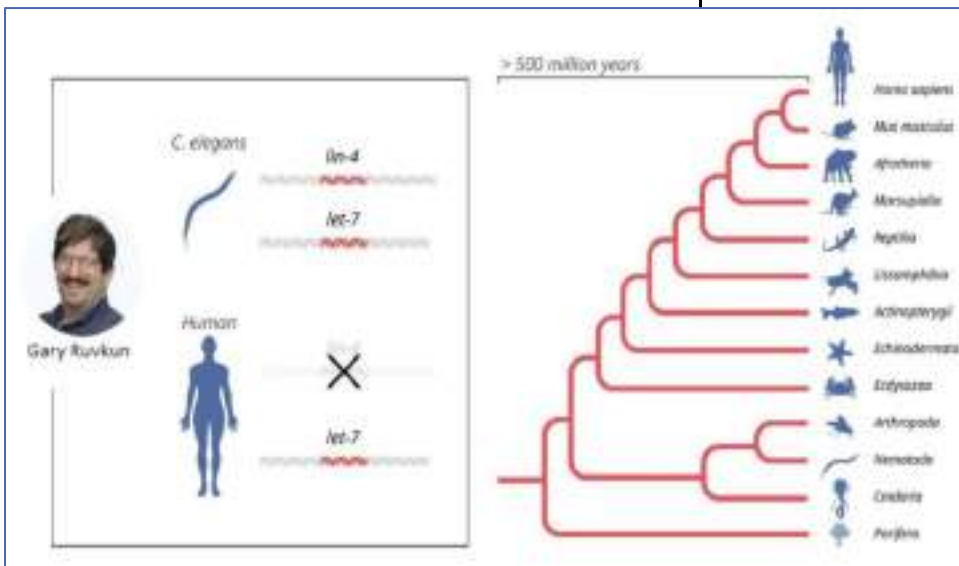
PEPPER IT WITH: Gene editing, CRISPR-Cas9, protein synthesis

oncogenes (promoting cancer) or ● tumour suppressors, depending on the context.

● **Heart Disease:** Research has shown that certain microRNAs regulate heart function and are now

being explored as therapeutic targets.

- **Stem Cell Biology:** MicroRNAs play a role in the differentiation of stem cells into specialised cell types, making them key players in regenerative medicine



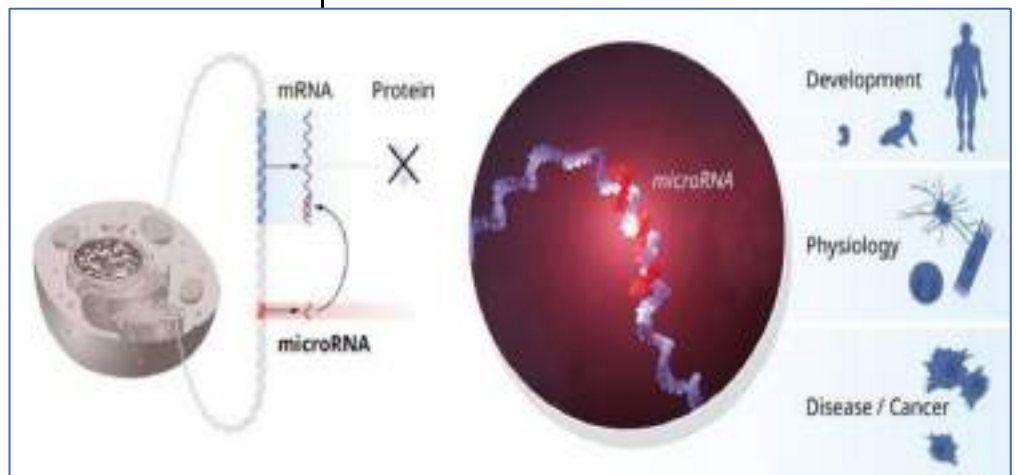
inhibiting the translation of **lin-14's mRNA into protein.**

- This was accomplished by base pairing the **lin-4** microRNA with complementary sequences in the **lin-14** mRNA, thus blocking protein synthesis.

About microRNAs

- ◁ The body synthesises proteins through a complex process involving two main steps - **transcription and translation.**

- In **transcription**, a Deoxyribonucleic acid (DNA) sequence in the cell nucleus is copied into messenger Ribonucleic Acid (mRNA). The mRNA exits the nucleus, moves through the cell fluid, and attaches to a ribosome.



Nobel Prize in Physics 2024

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News Excerpt

John J. Hopfield and **Geoffrey E. Hinton** were awarded the 2024 Nobel Prize in Physics for their groundbreaking contributions to the

development of **artificial neural networks**.

John J. Hopfield's Contribution: Associative Memory and the Hopfield Network

Hopfield Network

- ◁ In the early 1980s, **John J. Hopfield**, a Princeton University physicist, introduced the **Hopfield Network**, a recurrent neural network that uses **associative memory**.
- ◁ This network mimics how the brain stores and reconstructs information, such as recognising an incomplete image or pattern.
 - **Neurons as Nodes:** Hopfield's network models neurons as nodes in a system, where each node can store a **binary value** (0 or 1), much like pixels in a black-and-white image.
 - **Energy Minimization:** The network is trained by minimising a global "energy" function, analogous to the energy in physical systems like spin glasses. When the network presents partial or noisy data, it **iteratively updates node values** to reduce the system's overall energy, eventually reconstructing the stored pattern.
 - **Memory Recall:** This energy minimisation process allows the Hopfield network to reconstruct entire images or patterns based on partial inputs. This capability underpins **associative memory**—recalling information based on fragments.

Applications and Impact

- ◁ Hopfield's work on associative memory revolutionised the understanding of how **biological systems** store and process information.
- ◁ His model provided a framework that bridged **neuroscience** and **computational theory**, and it has been applied in areas such as **pattern recognition** and **error correction** in AI and machine learning.

Geoffrey E. Hinton's Contribution: The Boltzmann Machine and Deep Learning Boltzmann Machine

- ◁ **Geoffrey E. Hinton**, working at Carnegie Mellon University and later at the University of Toronto, extended Hopfield's work by developing the **Boltzmann machine** in 1985.
- ◁ This model is a type of **stochastic neural network** that can learn to recognise patterns in data through a process akin to **statistical mechanics**.
 - **Hidden and Visible Nodes:** The Boltzmann machine uses two types of nodes—**visible nodes**, which receive input, and **hidden nodes**, which help the

network identify latent patterns. The machine learns to classify data and generate new patterns by adjusting the connections between these nodes.

- **Learning from Data:** The Boltzmann machine is trained by exposing it to many examples of a particular data type (e.g., images of cats). The **network learns to assign probabilities** to different patterns based on their energy levels, gradually improving its ability to classify and generate new examples of the same type.

Impact on Modern AI

- ◁ Hinton's development of the Boltzmann machine and his later work on **deep learning** and **backpropagation** have become foundational to modern AI.
- ◁ The Boltzmann machine introduced a way for neural networks to learn autonomously from data without explicit programming. This laid the groundwork for **deep neural networks**—a critical component of AI systems that power technologies such as **speech recognition**, **autonomous vehicles**, and **recommendation systems**.

Machine Learning (ML) vis-a-vis Artificial Neural Networks (ANNs)

Machine Learning

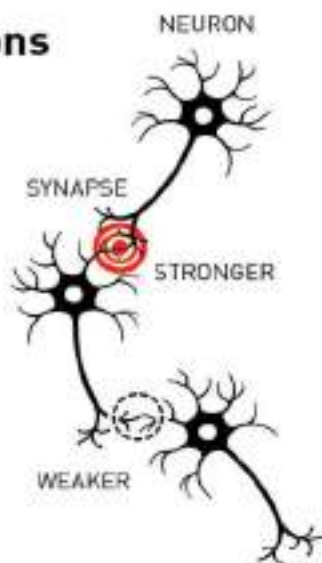
- ◁ Machine learning is a subfield of AI that involves creating systems that can **learn from data**.
- ◁ Rather than being explicitly programmed to perform specific tasks, machine learning models are **trained using datasets** to recognise patterns and make decisions based on input data.
- ◁ The main categories of machine learning include:
 - **Supervised Learning:** Learning from labelled data to make predictions (e.g., classification, regression).
 - **Unsupervised Learning:** Learning from unlabelled data to discover underlying patterns (e.g., clustering).
 - **Reinforcement Learning:** Learning through trial and error, receiving feedback from actions to maximise reward.
- ◁ Machine learning algorithms can range from simpler models like **linear regression** and **decision trees** to more complex structures like neural networks.

Artificial Neural Networks

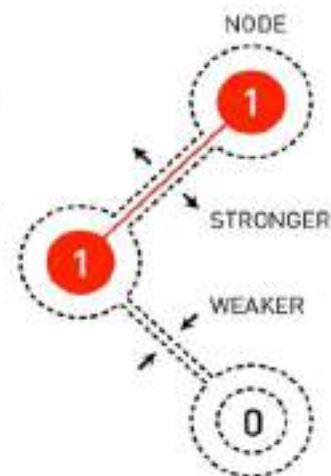
- ◁ Artificial Neural Networks are a **machine learning model** inspired by the structure and function of the **human brain**.
- ◁ ANNs consist of layers of interconnected nodes (or "neurons") that process information. They are particularly effective in **deep learning**, a subset of machine learning involving large neural networks with multiple layers (hence "deep").
 - **Input Layer:** Where data is fed into the network.
 - **Hidden Layers:** Where computations occur and features are learned. More layers allow the network to capture more complex patterns.

Natural and artificial neurons

The brain's neural network is built from living cells, neurons, with advanced internal machinery. They can send signals to each other through the synapses. When we learn things, the connections between some neurons gets stronger, while others get weaker.



Artificial neural networks are built from nodes that are coded with a value. The nodes are connected to each other and, when the network is trained, the connections between nodes that are active at the same time get stronger, otherwise they get weaker.



©Johan Jarnestad/The Royal Swedish Academy of Sciences

- **Output Layer:** Where the final prediction or decision is made.
- ◁ **ANNs** are designed to "learn" by adjusting the weights of the connections between nodes based on the errors made during predictions. This process, called **backpropagation**, allows the network to minimise its prediction error over time.

Role of Neural Networks in Machine Learning

- ◁ **Image and Speech Recognition:** Neural networks are highly effective in identifying objects in images or understanding spoken language, making them integral to applications like facial recognition or virtual assistants (e.g., Siri, Alexa).
- ◁ **Natural Language Processing (NLP):** ANNs enable machines to understand and generate human language, a cornerstone of technologies like chatbots and language translation tools.
- ◁ **Autonomous Systems:** Neural networks are critical for decision-making in self-driving cars, which need to process sensor data and make quick, accurate decisions.

Deep Learning: A Subset of Machine Learning Powered by ANNs

- ◁ **Deep learning** uses neural networks with multiple layers (deep networks) to model complex patterns in large datasets.
- ◁ It is considered a part of machine learning but involves significantly more computational complexity.
- ◁ Deep neural networks' ability to **automatically extract features** from raw data (such as identifying edges in images or sounds in speech) has made them a **powerful tool** in AI.

PEPPER IT WITH:
ANN, Machine learning, AI, large language models (LLMs), convolutional neural networks (CNNs)

Nobel Prize in Chemistry 2024

News Excerpt

David Baker, Demis Hassabis, and John M. Jumper were awarded the 2024 Nobel Prize in Chemistry for their breakthroughs in **computational protein design** and **protein structure prediction**.

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David Baker's Contribution: Computational Protein Design

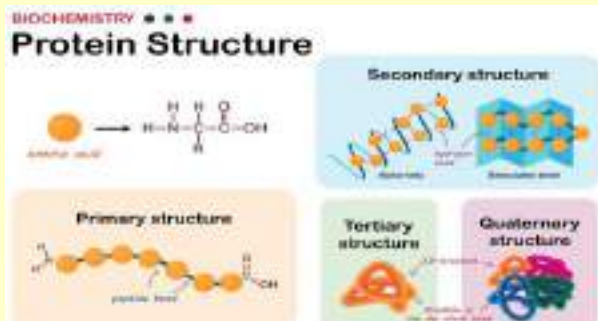
- ◁ **David Baker**, from the University of Washington, received half the prize for his pioneering work in **computational protein design**.
- ◁ **Role of Proteins in Life:** Traditionally, understanding proteins involved studying their natural forms. However, Baker's research introduced a groundbreaking approach: designing **novel proteins** from scratch using computational methods.
- ◁ **Rosetta Software and Protein Design:** In 2003, Baker's group developed the Rosetta software, which can **design proteins** by predicting how sequences of amino acids fold into specific 3D shapes.
 - Proteins' functions are intimately tied to their structures, so being able to design proteins with predetermined shapes opens the door to **creating proteins for specific tasks**, such as targeting disease-causing pathogens or catalysing chemical reactions.

Applications of Protein Design

- ◁ **Pharmaceuticals:** Novel proteins designed to inhibit disease pathways or as therapeutic agents, such as COVID-19 treatments.
- ◁ **Nanomaterials:** Creating tiny structures at the molecular level for various industrial applications.
- ◁ **Biological Sensors:** Proteins that detect environmental pollutants or specific molecules in biological systems.

About Protein

- < **Proteins** are large, complex **molecules** that play crucial roles in almost every biological process in living organisms. Because of their diverse functions, they are often called the "workhorses" of cells.
- < It comprises **long chains of amino acids** arranged in specific sequences. These chains fold into unique **three-**



dimensional shapes that determine their function.

- < Proteins are built from **20 different amino acids**. The sequence of amino acids in a protein, known as its **primary structure**, determines how it folds and interacts with other molecules.
 - o **Primary Structure:** The linear sequence of amino acids in a polypeptide chain.
 - o **Secondary Structure:** Hydrogen bonds such as alpha helices and beta sheets stabilise local folding patterns.
 - o **Tertiary Structure:** The overall 3D shape of a protein, formed when secondary structures fold further.
 - o **Quaternary Structure:** When two or more protein subunits join to form a larger complex (e.g., haemoglobin).
 - o In **1972, Christian Anfinsen** was awarded the **Nobel Prize in Chemistry** for his work on **ribonuclease**, especially his discovery of the connection between the amino acid sequence.

Demis Hassabis and John M. Jumper's Contribution: Protein Structure Prediction

- < **Demis Hassabis** and **John M. Jumper** from Google DeepMind shared the other half of the prize for developing **AlphaFold2**, an **AI-based tool** for predicting protein structures.
- < **Protein Folding Problem:** Predicting the 3D structure of a protein from its sequence of amino acids, known as the **protein folding problem**, has been a major challenge for scientists for over five decades.
- < **AlphaFold2:** In 2020, Hassabis and Jumper's team at DeepMind introduced AlphaFold2, a **machine-learning model** capable of **predicting the 3D structure of proteins** with around **90% accuracy**.
 - o The program analyses large datasets of protein structures and sequences, refining predictions through iterations based on statistical patterns.

Applications of AlphaFold2

- < **Drug Discovery:** By predicting how proteins fold, AlphaFold2 helps scientists understand how proteins interact with drugs and other molecules, accelerating the development of new therapeutics.

PEPPER IT WITH: DNA, RNA, Drug discovery, x-ray crystallography, essential molecules
- < **Biodegradable Plastics:** AlphaFold2 designs enzymes capable of breaking down plastics, addressing major environmental concerns.
- < **Antibiotic Resistance:** Researchers use AlphaFold2 to understand better bacterial resistance mechanisms, which is crucial for developing new antibiotics.

INTERNAL SECURITY**Tax crackdown draws links between NGOs — in 'cause' and funding pattern****News Excerpt:**

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The I-T probe was triggered by searches, at the premises of Oxfam, CPR, Environics Trust (ET), Legal Initiative for Forest and Environment (LIFE) and Care India Solution for Sustainable Development (CISSD).

More details about the news:

- Two NGOs pursued litigation "**stalling economic and development**" projects of the country, including those of Adani Group and JSW.
- More than **75% funding of four NGOs during a five-year period came from abroad**, which is shaping their activities in India.
- The president of one NGO is a **shareholder** of another.

Key Highlight Issues:

- **Key Allegations:** The Income Tax Department has made several allegations linking processes and personnel associated with five major NGOs, including the Centre for Policy Research (CPR) and Oxfam.
 - o **Oxfam**
 - o **Centre for Policy Research (CPR)**
 - o **Environics Trust (ET)**
 - o **Legal Initiative for Forest and Environment (LIFE)**
 - o **Care India Solution for Sustainable Development (CISSD)**
- **Alleged Violations:** The NGOs are accused of violating provisions of the **2010 Foreign Contribution Regulation Act (FCRA)**, specifically: **Mismatch in annual returns and statements of foreign currency bank accounts**. Misutilisation of funds received in foreign currency.
- **Cancellation of FCRA Licenses:** As a result of the allegations, the **FCRA licenses of these NGOs were cancelled**, prompting them to file legal challenges currently under review by the Delhi High Court.

- **Investigation Details:** The I-T department issued "intimation letters" to the NGOs which included:
 - Copies of various agreements.
 - Financial statements.
 - Emails.
 - Minutes and draft notes of board meetings.
- **Influence of Foreign Funding:** The letters allege that foreign funding is influencing the operations of these NGOs, leading them to engage in activities contrary to their original objectives. **For example:** From 2015-2021:
 - Care India received 92% of its funding from abroad.
 - Environics Trust received 95%.
 - LIFE received 86%.
 - Oxfam received 78%.
 - Environics Trust reportedly received 100% of its funding from abroad for three of those six years.
- **Interconnectedness of NGOs:** The five NGOs are described as being "interconnected," with main personnel interlinked.

The charges listed separately against the NGOs include:

Oxfam:

- **Allegations of Activities Against Objectives:** The I-T letter claims Oxfam India supports Oxfam Australia's efforts to stop mining by the Adani Group. Cites emails and evidence indicating Oxfam India's interest in delisting Adani Ports, describing it as a "sinister plan" to target an Indian business in Australia.
- **Financial Transactions:** Points to expenses for the **Van Swaraj Andolan in Raipur** in 2019 and sub-grants to organizations like **Josh (for social health) and Aman Biradari Trust**.
- **Redirection of Funds:** Allegations that Oxfam attempted to locate "puppet NGOs" to redirect funds for causes after its FCRA license was cancelled.
- **Political Agenda:** Claims Oxfam India has a "political agenda" and should work for the benefit of the public as a whole, rather than for specific religious communities.

Centre for Policy Research (CPR):

- **Discrepancies in Fund Management:** The I-T letter alleges discrepancies in the collection and management of foreign donations.
- **Involvement in Hasdeo Movement:** Claims CPR was involved in the Hasdeo movement against coal mining in Chhattisgarh through **Jana Abhivyaakti Samajik Vikas Sanstha (JASVS)**, which allegedly received 83% of its funds from CPR between 2019-2023.
- **Foreign Funds for Litigation:** CPR reportedly received Rs 10.19 crore since 2016 for its **Namati-Environmental Justice Programme**, aimed at filing litigation and complaints rather than conducting research or educational activities.

PEPPER	IT	WITH:
Mission	LIFE,	CPR,
CISSD,	FCRA,	NGO
Funding		

- **Association with US-Based Namati Inc:** The letter states that CPR is the only associate of **US-based Namati Inc in India**, with objectives aligned toward legal actions rather than educational endeavors.

Environics Trust (ET):

- **Funding for Protests:** The I-T letter alleges that ET funded protests against **JSW Utkal Steel Plant** in Odisha and transferred Rs 1,250 to 711 local residents in 2020.
- **Conspiracy Against Adani:** Claims ET and London-based Survival International conspired against **Adani's Godda Plant in Jharkhand**, supporting the anti-Adani movement.
- **Protests Against LG's Chemical Plant:** Accusations of ET being involved in protests against LG's polymer chemical plant in **Visakhapatnam** after a gas leak.
- **Collaboration with European Climate Foundation:** The I-T Department asserts that ET, in collaboration with the **European Climate Foundation (ECF)**, is targeting coal and thermal power plants in India, engaging in mobilization and protests against major **corporations and government entities**.

Legal Initiative for Forest and Environment (LIFE):

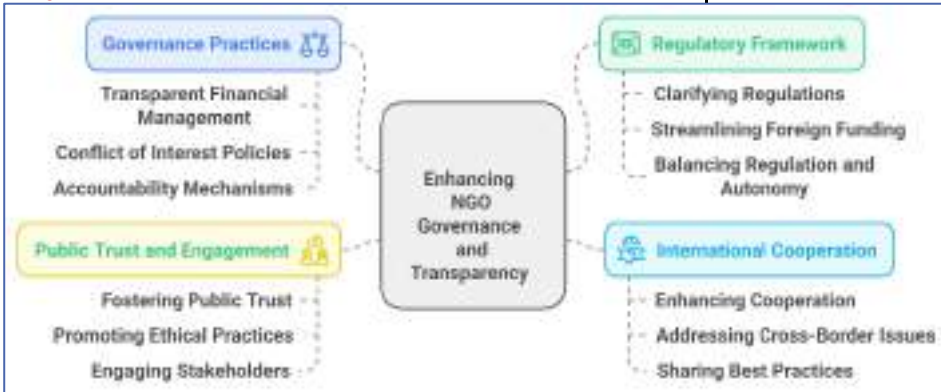
- **Instrument for US-Based NGO:** The I-T letter alleges that LIFE is being used by the **US-based NGO Earth Justice** to halt coal mines and thermal power projects.
- **Email Exchanges:** Cites an email exchange between LIFE founder Ritwick Dutta and an Earth Justice official, indicating awareness of **illegal activities and concerns** about being caught.
- **Past Financial Transactions:** Claims Dutta previously ran a proprietorship that received approximately **Rs 22 crore** from Earth Justice over five years.

Allegations of Coordination Among NGOs:

- **Linkages Between CPR and Care:** Former president of the Centre for Policy Research (CPR), was heading it during the I-T searches. Allegedly a shareholder of Care India. Oxfam India reportedly offered a **Rs 12-lakh project for short-term training of key CPR employees**. An email cited claims that Rs 5 lakh of this payment was intended for CPR's use for any purpose.
- **Connection Between Environics Trust and LIFE:** Environics Trust (ET) allegedly has close ties with Ritwick Dutta's Legal Initiative for Forest and Environment (LIFE). The I-T department claims that litigation has stalled **economic and development** activities in India. Both NGOs are alleged to be involved in targeting and halting coal projects in India using foreign funds.
- **Oxfam India as a Key Donor:** Oxfam India is described as a key donor that funded ET to mobilize communities **against coal industries**, including the Dinkia protests. The I-T department states that Oxfam India has made various payments to ET for different reasons, as evidenced by purported **banking transactions**.

- **Foreign Funding and Vested Interests:** Activities of these NGOs appear to be aligned with the **interests of their foreign donors**, according to the I-T department. The probe cites evidence of robust exchanges of ideas and activities among **LIFE, Earth Justice, Greenpeace, ET, and Oxfam.**

Way forward:



Pager attack in Lebanon

News Excerpt:

Recently, thousands of pagers belonging to the militant organisation Hezbollah detonated across Lebanon, killing nine people and wounding nearly 3,000 others, including the group’s fighters and Iran’s envoy to Beirut.

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More details about news:

The following day another **round of attacks happened**, this time on handheld radio sets as well as **cellphones and laptops** which left **20 people dead** and more than **450 people injured**.

How do pagers work?

< **Pagers operate on a radio frequency network**, and every device in the network has a unique code.



< **Each pager within range of the network’s transmitters** continuously listens to the signal on the network, waiting to read their code.

The Hezbollah attack and its implications:

- **Use of Low-Tech Communication by Hezbollah:** Hezbollah is using pagers as a **low-tech communication system** to evade **Israeli location detection**. Recently, around **5,000 new pagers** from Taiwanese company **Gold Apollo** were deployed, with a **Hungarian** supplier involved.
- **Explosives in Pagers:** The pagers reportedly had **three grams of explosives** placed near the battery. These explosives were connected to the **remote command**

slot, leading to suspicion that the explosions were triggered remotely.

- **Radio Sets:** Hezbollah also procured **hand-held radio sets from Icom**, a Japanese manufacturer, which are also under suspicion of being compromised.

- **Parallel to Stuxnet Virus Attack (2010):** The incident is reminiscent of the **Stuxnet virus attack in 2010**, where Israel used a cyberattack to target Iran’s nuclear program centrifuges, indicating a **potential cyber-physical attack strategy.**

- **Combination of Physical and Cyber Attacks:** In the current case, explosives in devices indicate a **physical attack**, while the remote trigger suggests a **cyber component.**

- **Supply Chain Compromise:** The case highlights concern about compromising the **supply chain of digital assets**, a tactic that can be used by both **nation-states and criminal syndicates.**

- **Global Concerns about Cyber-Physical Attacks:** The incident points to a new dimension of cyber-physical threats, with risks to interconnected devices, which are **increasingly vulnerable to cyber and physical sabotage.**
- **Risks to Critical Infrastructure:** As more interconnected devices come online, the risks to **critical infrastructure rise**, increasing vulnerability to coordinated attacks.
- **Cascading Effects of Attacks:** Compromising multiple devices can have cascading effects, potentially:
 - **Disrupting emergency services.**



- **Shutting down critical infrastructure.**
- Creating widespread chaos that may result in loss of life.

Three aspects to this massive attack:

- **First, the usage of digital technology to levels that force multiple physical attacks and as a combination, leads to concerns over creating larger havoc.** With artificial intelligence becoming a major factor in enhancing kinetic weapons capabilities, the horizon is more complex.
- **Second, is the use of such techniques a harbinger for more deadly forms of cyber-attacks.** Can nations be allowed to go to such an extent of causing violence and death using digital techniques?
- **Third, how will the supply chain ecosystem deal with such attacks.** Modern technology supply chains are incredibly complex, with components and software often sourced from multiple countries and suppliers. This complexity **creates ample opportunities for malicious actors** to introduce compromised **hardware or software at various points** in the supply chain. These compromises can be extremely difficult to detect and may lie dormant until activated for an attack.

UN regulation on Cybercrime:

- **UN Convention Against Cybercrime:** After years of negotiations, an UN-backed group presented a final draft of the **UN Convention against Cybercrime in August 2023.** The draft will be deliberated upon and approved by the **UN General Assembly** in the coming weeks.
- **Key Elements of the Convention:** Nations are expected to avoid launching cyber-attacks on others. The Convention emphasizes that countries must prevent their territory **from being used for launching cyber-attacks.**
- **Violation of International Intent:** The recent **cyber-physical attacks** (like the Hezbollah case) violate the intent of this convention. These acts serve as a **motivation to expedite** the implementation of the convention. Further efforts are required to **define cyber warfare and its various connotations.** There needs to be a broader conversation among nations about the evolving nature of cyber-attacks.
- **UN Norms of Responsible Behaviour in Cyberspace:** The conversation should build on the UN Norms of Responsible Behaviour in Cyberspace, as outlined by the **Group of Governmental Experts in their June 2021** report.
- **Risks of Cyber-Physical Attacks:** The aim is to prevent cyber-attacks from becoming a **concomitant (parallel) element of physical attacks,** which could mutate into larger threats.
 - **Examples of Cyber Skirmishes in Current Conflicts:** Conflicts such as the Russian-Ukraine war and the **Middle East conflict** have seen cyber skirmishes,

though not on the scale of the pager and radio set attacks.

- **Concerns of Attribution in Cyber Attacks:** Attribution (determining the source) of cyber-attacks remains a major challenge. Without proper attribution, the propensity to target digital or physical assets via cyber-attacks could escalate, leading to a **belligerent digital ecosystem.**
 - **Potential Rat Race of Cyber Attacks:** The fear is that cyber-attacks may trigger a rat race, further intensifying the **cyber warfare landscape and leading** to greater digital and physical threats.

Way forward:

- **International Cooperation:** Expedite the adoption and implementation of the UN Convention to establish international norms and standards for cybercrime. **Develop a clear definition of cyber warfare to facilitate** international cooperation and address legal and ethical concerns.
- **Technological Advancements:** Invest in research and development to develop advanced security technologies and protocols to protect against cyber-physical attacks. **Implement robust security measures to protect the supply chain of digital devices and components,** preventing the introduction of malicious hardware or software.
- **Policy and Regulatory Framework:** Establish comprehensive cybersecurity laws and regulations to address the evolving nature of cyber threats. **Foster international cooperation to address global cybersecurity** challenges and prevent the use of cyberattacks for malicious purposes.
- **Public Awareness:** Educate the public about the **risks of cyber-physical attacks and the importance of cybersecurity best practices.** Encourage individuals and organizations to adopt strong security measures to protect their digital assets.

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PEPPER IT WITH: Cyber Swachhta Kendra, Cyber Surakshit Bharat, I4C

GEOGRAPHY

Bihar under water: Why the state sees floods every year

News Excerpt:

Bihar is flooded yet again, with 11.84 lakh people hit — driven out of their homes, surviving on air-dropped food packets, huddling in shelters, vulnerable to water-borne diseases.

More detail about news:

< **North Bihar sees floods every year.** Lakhs of people see their crops and livestock destroyed. They pick up the pieces and start again, only for the story to be repeated the next year.

Bihar's Geography:

- **Flood-Prone State:** Bihar is India's most flood-prone state, with **76% of the population in north Bihar living under the recurring threat of flood devastation**, as per the state government's Flood Management Improvement Support Centre (FMISC).
- **Rivers in Bihar:** The state is crisscrossed by **snow-fed and rain-fed rivers**, making it vulnerable to different types of floods.

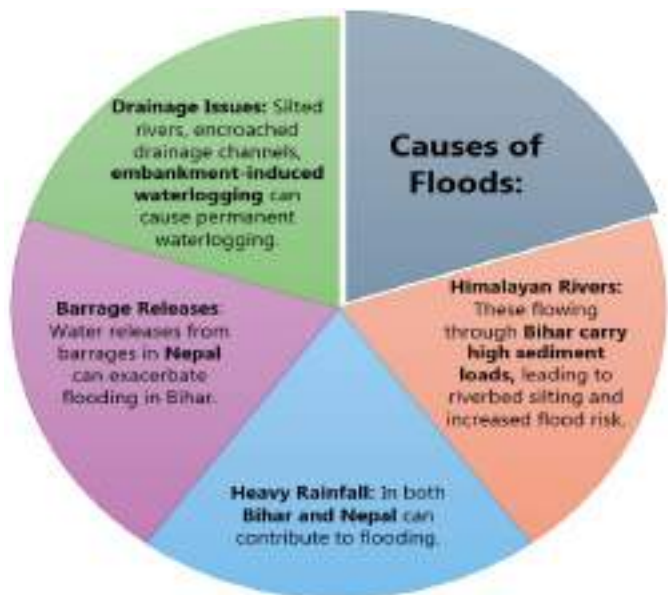
Flood Classifications by Disaster Management Authority:

- ◁ **Class I: Flash Floods** – Occur due to **rainfall in Nepal**, have a short lead time (8 hours), and floodwaters recede quickly.
- ◁ **Class II: River Floods** – Lead time is **24 hours**, with floodwaters taking one week or more to recede.
- ◁ **Class III: Drainage Congestion** – Occurs in river confluence areas, has a lead time of over 24 hours, with water receding only after **the full monsoon season** (taking up to 3 months).
- ◁ **Class IV: Permanent Waterlogged Areas** – Areas that remain submerged due to various reasons.

Geographical Factors of Flooding:

Bihar lies downstream of Nepal, and rivers like **Kosi, Gandak, Burhi Gandak, Bagmati, Kamla Balan, Mahananda**, and Adhwara carry sediments from the Himalayas, making them prone to overflowing during rains.

- **Permanent Waterlogging Factors:** Causes include **spilling of silted rivers, encroachment of drainage channels**, embankment-induced waterlogging, and the presence of Chauras (saucer-shaped depressions formed by rivers changing course and sediment deposition).
- **Affected Districts in 2024:** Major districts impacted by the flood include **Supaul, Darbhanga, Madhubani, Sitamarhi, West and East Champaran, Muzaffarpur, Siwan, Madhepura, Purnea, Araria, Gopalganj, Kishanganj, Sheohar, Saharsa, and Saran**.



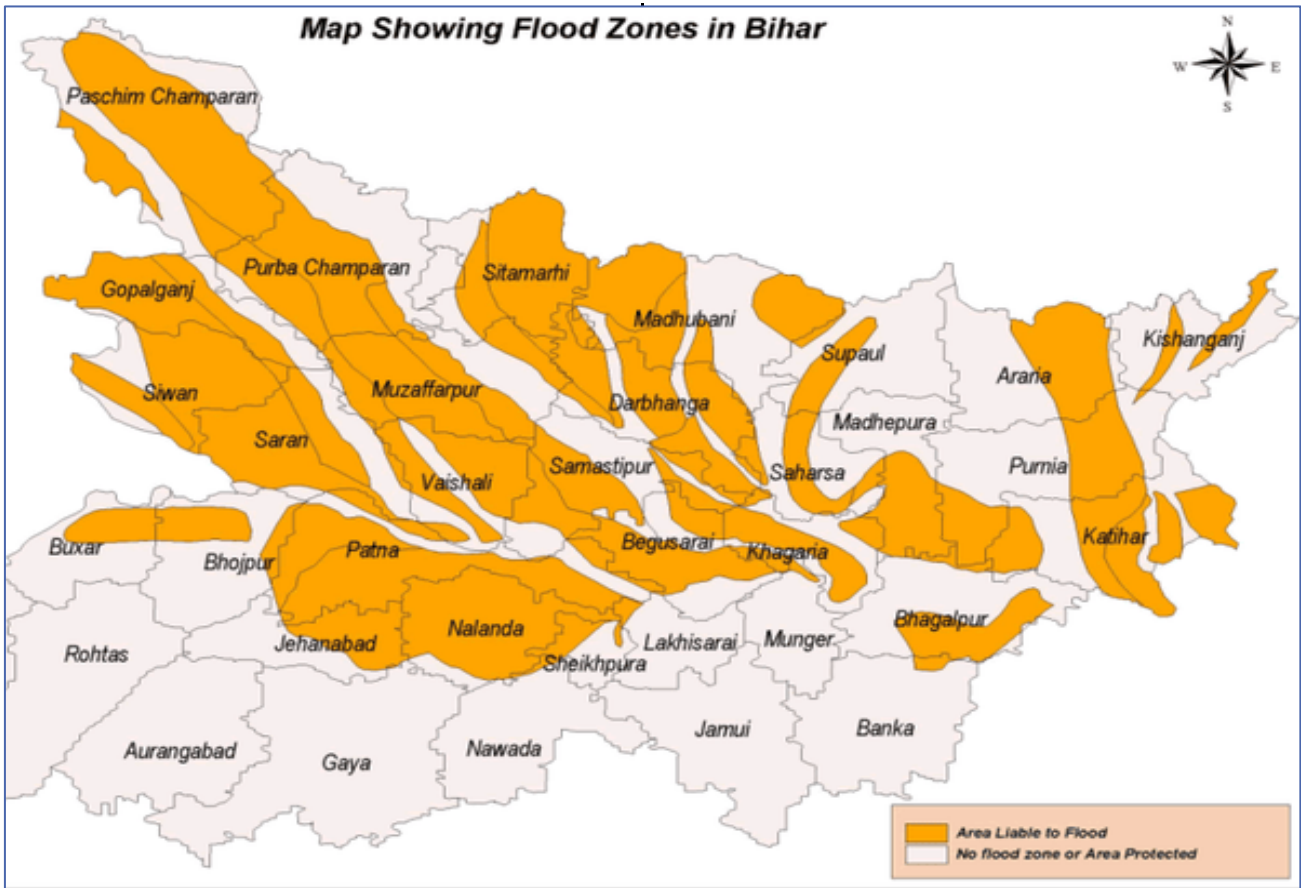
Embankments and the Kosi Question:

- **Flooding Challenge in Bihar:** Bihar's geography makes it highly prone to flooding, with the Kosi River being among the most destructive rivers, often referred to as the '**Sorrow of Bihar**'.
- **Embankments Built in the 1950s:** In the 1950s, embankments were built along the **Kosi River** to control its flow and were considered a lasting solution to flooding.
- **Breaching of Embankments:** Despite the embankments, the river has breached them multiple times over the years, failing to fully contain the **flooding** problem.
- **Problem of Sediment Deposition:** Embankments narrowed the river's course, restricting the **Kosi's ability to distribute sediments**. With nowhere to deposit these sediments, the river's bed has been rising by about **5 inches per year**, making it more prone to overflow.
- **Sediment Buildup and Shallow River:** The straitjacket effect of the embankments has made the **Kosi River shallower**, increasing the risk of floods as the water has less space to flow.
- **Design Capacity vs. Actual Water Flow:** The embankments were built to withstand **9.5 lakh cusec of water**, but they are being breached even at lower discharge levels because the riverbed has risen due to sediment buildup.
- **Villages Inside the Embankments:** Around 380 villages lie within the embankments, home to **at least 15 lakh people** who face annual floods with no escape.
- **Government Rehabilitation Efforts:** The government provided land for rehabilitation, but of the **1200 hectares of land designated, 570 hectares were waterlogged**, leaving affected villagers without sufficient safe relocation areas.

Effect of the Bihar floods:

- **Economic Impact of Bihar Floods:** While Bihar floods may not cause a significant loss of lives every year, their economic impact is substantial.
- **Damage to Agriculture and Livestock:** The floods cause significant **damage to crops, livestock**, and other agricultural activities, leading to major financial losses for farmers and the state's economy.
- **Destruction of Infrastructure:** Flooding damages critical infrastructure such as **roads, bridges, schools, and healthcare facilities**, contributing to increased repair and rebuilding costs.
- **Distress Migration:** The recurring floods often result in distress migration as people are **forced to**

PEPPER IT WITH:
Floods, Drainage basin, NDMA, Glacial lake Outburst, Interlinking Programme



leave their homes and migrate to other states in search of livelihoods.

- **Flood Management Costs:** The Bihar state government spends approximately **Rs 1,000 crore annually on flood management** and relief efforts, which includes resources for rescue, rehabilitation, and infrastructure repair.

Possible solutions/Way forward:

- **Dam Proposal on Kosi:** For decades, there has been a proposal to build a **dam on the Kosi River**, but it has not progressed due to the requirement for Nepal's cooperation.
- **The state government is considering the construction of barrages at:**
 - **Dagmara (Supaul) over the Kosi,**
 - **Areraj barrage over the Gandak, and**
 - **Another barrage over the Bagmati.**
- **Limitations of Embankments:** Embankments have proven to be insufficient as **engineering solutions** to control the Kosi's floods. They have narrowed the river's course, causing **sediment buildup** and increasing the risk of overflowing.
- **Need for Non-Structural Solutions:** Former vice-chairman of the **Bihar State Disaster Management Authority**, emphasized the importance of non-structural solutions such as: **Laws, policies, and risk reduction strategies.** Mitigation measures like **early warnings, quick response systems, awareness,** and training in flood management.

- **Emphasis on Minimizing Risk:** The **Flood Atlas of Bihar highlights the need for a shift in flood management strategies**, suggesting that minimizing risk and damage may be more effective than focusing on structural measures (dams, embankments) along dynamic rivers like the Kosi.

Typhoon Yagi

News Excerpt:

Millions of people in Southeast Asia continue to struggle with torrential rains, floods, and landslides triggered by Typhoon Yagi — the strongest tropical cyclone Asia has seen this year and the second most powerful storm in the world so far this year after Hurricane Beryl.

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More detail about news:

- While Typhoon Yagi has severely impacted multiple countries, including the **Philippines, China, Laos, Myanmar, and Thailand**, it has hit **Vietnam** the hardest, where the death toll stands at around 233.
- The overall toll across these countries has crossed 300 as of last week. As many people are still missing, it is expected to rise further.

How are tropical cyclones formed?

- **Formation Conditions:** Tropical cyclones form over warm ocean waters near the equator.

- **Air Rising and Pressure Difference:** Warm, moist air from the ocean surface rises, creating an **area of low pressure below**. Air from surrounding areas with higher pressure rushes into this low-pressure area.
- **Cloud and Storm Formation:** As the warm, moist air rises, it cools down, forming clouds and thunderstorms. This system of **clouds and winds strengthens** using the ocean's heat and evaporating water.
- **Tropical Cyclone Stages:** The weakest tropical cyclones are called tropical depressions.
 - If the wind speeds reach **39 mph (63 kmph)**, it becomes a tropical storm.
 - Storm systems with **wind speeds of 119 kmph** and above are classified as hurricanes, typhoons, or tropical cyclones.
- **Saffir-Simpson Hurricane Wind Scale:** The strength of tropical cyclones is categorized by sustained **wind speeds**:
 - **Category 1: Winds of 119–153 kmph.**
 - **Category 5: Winds of 252 kmph or higher.**
- **Major Cyclones:** Category 3 and above cyclones are considered major due to their potential for significant damage.

How did Typhoon Yagi become the strongest storm in Asia?

- **Formation:** Typhoon Yagi began as a tropical storm in the **western Philippine Sea on September 1.**



- **Initial Landfall in the Philippines:** It made **landfall in the Philippines on September 2**, weakening initially.
- **Re-intensification:** Due to unusually warm waters in the **South China Sea, Yagi** intensified again after weakening.
- **Historical Significance:** Typhoon Yagi is one of four Category 5 storms recorded in the South China Sea, following:
 - **Pamela (1954)**
 - **Rammasun (2014)**
 - **Rai (2021)**

- **Landfall in China:** On September 6, Yagi made landfall in China's Hainan province with winds of **223 kmph**.
- **Landfall in Vietnam:** On September 7, Yagi hit near **Haiphong, Quang Ninh province in northern Vietnam**, becoming one of the strongest storms to hit the country in over a decade.
- **Downgrade and Aftereffects:** After landfall, the storm was downgraded to a tropical depression but **caused heavy rains in countries like Myanmar**, triggering severe floods in Naypyidaw.

Is climate change making tropical cyclones worse?

- **Scientific Agreement:** Scientists have not reached a complete agreement on how exactly climate change is affecting tropical cyclones due to multiple factors influencing **storm formation, development, strength, and duration**.
- **Rising Global Temperatures and Storm Intensity:** There is consensus that **rising global temperatures** are making tropical cyclones more intense.
- **Study Findings (July 2023):** A study published in the journal Climate and Atmospheric Science in July 2023 revealed that tropical cyclones in Southeast Asia are:
 - **Forming closer to coastlines.**
 - **Intensifying more rapidly.**
 - **Lingering longer over land.**
- **Role of Warmer Ocean Temperatures:** Global mean **sea surface temperature** has increased by 0.9°C since 1850 and by 0.6°C over the last four decades.
 - **Warmer sea surface temperatures** contribute to the increased intensity of storms.
 - **Marine Heat Waves:** Warmer ocean temperatures can cause marine heat waves, extreme weather events that can make **tropical cyclones and hurricanes** more intense.
 - **Impact of Warmer Oceans on Storms:** Warmer temperatures increase the evaporation rate and the transfer of heat from the ocean to the air. As storms move across hot oceans, they accumulate more water vapour and heat, leading to:
 - **Stronger winds.**
 - **Heavier rainfall.**
 - **More flooding when these storms reach land.**

Specific recommendations for Southeast Asia:

- **Regional Cooperation:** Strengthen regional cooperation among countries in **Southeast Asia to enhance disaster response** and preparedness.
- **Climate Change Adaptation Plans:** Develop and implement comprehensive climate change adaptation **plans at national and local levels.**

PEPPER IT WITH:
Tropical cyclone, anti-cyclone, WMO, Polar Front Theory

- **Investment in Infrastructure:** Invest in resilient infrastructure, including **flood control systems, early warning systems,** and disaster-resistant buildings.
- **Community-Based Disaster Preparedness:** Promote community-based disaster **preparedness initiatives to empower local communities** to respond to emergencies.
- **Climate Education and Awareness:** Raise awareness about **climate change** and its impacts, focusing on education and public outreach.

Way Forward:



- < **Definition of Mini-Moon:** A mini-moon is a **“temporarily captured orbiter”** if it completes at least one full orbit around the Earth before returning to its usual orbit around the Sun.
- < **Flyby Classification:** If a mini-moon is captured by Earth’s gravity but doesn’t complete a full orbit, it is classified as a **“temporarily captured flyby.”**
- < **Classification of Mini-Moons:** Out of the known mini-moons, two are classified as **“temporarily captured orbiters.”** The remaining three mini-moons, including 2024 PT₅, are classified as **“temporarily captured flybys.”**

Where do mini-moons come from?

< **Source of Mini-Moons:** Mini-moons are asteroids that come from the large population of **near-Earth objects (NEOs)** that are temporarily captured from their orbit around the Sun.

< **Definition of Near-Earth Objects:** Near-Earth objects are defined as natural physical objects, including **asteroids (space rocks) and comets (dirty space snowballs**

made of rock and ice), that orbit the Sun and approach within 1.3 times Earth’s distance from the Sun at some point in their orbit.

- < **Capture Mechanism:** Because these objects are around the same distance from **the Sun as Earth,** they can occasionally be captured by Earth’s gravity.
- < **Examples of Mini-Moons:** 2024 PT₅ and a previous **mini-moon called 2022 NX₁** were both captured from a group of asteroids orbiting the Sun at a similar distance from Earth, known as the **Arjunas.**
- < **Cultural Reference:** The name **Arjuna** references one of the main characters in the **Hindu epic, Mahābhārata.**

First mini-moon:

- < **First Known Mini-Moon:**
 - The first known mini-moon was called **1991 VG.**
 - It arrived in late 1991 and left in early 1992.
 - **Like 2024 PT₅,** it was approximately 10 meters in diameter.

Will we find more mini-moons?

- < **Presence of Mini-Moons:** Modelling suggests that Earth has at least one captured



mini-moon less than 1 meter in diameter at any given time.

Earth is getting a new mini-moon

News Excerpt:

Earth is going to have its very own mini-moon from September 29 until November 25. The regular Moon’s new, temporary friend is 2024 PT₅, an asteroid captured from the Arjuna asteroid group (called the “Arjunas”).

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More detail about news:

- < Our new mini-moon is approximately **10 metres in diameter** and will be captured by Earth’s gravity for 57 days.
- < It’s small and faint, so it won’t be visible by the eye or with small telescopes but will be **visible to larger telescopes.**

What is a mini-moon?

- < NASA defines “moons” as “naturally formed bodies that orbit planets”. Intuitively, we think of moons as big rocks that stick around for a while, like our very own Moon.
- < Astronomers have defined mini-moons as asteroids or comets that are gravitationally captured by a planet for a temporary amount of time. **Small mini-moons are very common, but ones big enough to spot are more rare.**
- < **2024 PT₅** is only the fifth ever detected mini-moon captured by Earth.

Orbiting or just flying by?

- < **Detection Challenges:** Mini-moons are difficult to detect because they are small and faint. They are typically found by projects specifically searching for near-Earth asteroids.
- < **Recent Discoveries:** 2024 PT₅ was discovered using the **Asteroid Terrestrial-impact Last Alert System (ATLAS)**, a project designed for asteroid searches. 2006 RH₁₂₀ and 2020 CD₃ were discovered through the Catalina Sky Survey (CSS), focused on near-Earth asteroids. 1991 VG was discovered by the SPACEWATCH group using the Spacewatch Telescope.
- < **Future Observations:** The upcoming **Vera C. Rubin Observatory's Legacy Survey of Space and Time (LSST)** is expected to enhance discovery capabilities. This project will capture images of the entire sky every few days for a duration of ten years.

Way Forward:

- < **Continued Research:** Astronomers should continue to monitor and study mini-moons to learn more about their **origins, properties**, and dynamics and explore potential applications of mini-moons, such as studying their composition or using them as platforms for **scientific experiments**.

PEPPER IT WITH:
NEO, ATLAS, Asteroids, Space Debris

Extinct volcanoes could help sate humanity's hunger for rare earth elements

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News Excerpt:

Recently new research, published in the journal *Geochemical Perspectives Letters*, shows certain extinct volcanoes are a great place to look.

More detail about news:

- New research found that some rare magma types are surprisingly efficient at **concentrating rare earth elements**. This is a group of metals with crucial applications in several high-tech industries, such as **magnets for electric vehicles and wind turbines**.
- Demand for rare earths is soaring as society moves away from **fossil fuels and electrifies energy production and transport**. Despite the name, **rare earths aren't particularly rare**. The biggest challenge is finding rocks in which these metals are concentrated enough to be economically viable to extract.

Iron-rich magma in extinct volcanoes:

- **Unusual Iron-Rich Magma:** There exists a rare type of magma containing unusually high amounts of **iron**. No eruptions with this type of magma have been observed in recorded history. This **magma is only found in extinct volcanoes** that were active millions of years ago.

- **Famous Examples:**
 - The most famous example of such a **volcano is El Laco in Chile**.
 - Another notable example is **Kiruna in Sweden**, which has been mined for iron ore for decades.
 - Kiruna was announced by **LKAB last year as the largest**, rare earth resource in Europe.
- **Connection Between Iron-Rich Magma and Rare Earths:** The discovery of rare earths at Kiruna led to speculation about the connection between **iron-rich magma and rare earth deposits**. While many rock types contain rare earths, Kiruna's iron-rich rocks are unique.
- **Geological Serendipity or Inherent Connection:** It remains unclear whether the presence of rare earths at **Kiruna is a matter of geological coincidence** or if there is something about iron-rich magma that makes it inherently rich in rare earths. Other iron-rich extinct volcanoes exist, but no one has yet investigated their potential for rare earth resources.
- **Magnetic Signal of Iron-Rich Rocks:** Iron-rich rocks have a strong magnetic signal, making them **easier to locate despite their rarity**. There is a growing consideration that these rocks should be added to the target list for rare earth explorers.

Why do we need more rare earth deposits?

- **Concentrated Production:** Rare earth element production is concentrated in a few countries, primarily **China**, with smaller contributions from the United States, Myanmar, and Australia.
- **Critical Minerals:** Rare earths are classified as "critical minerals" due to their important uses and the **supply chain risks** posed by geopolitical factors.



- **Rising Demand:** The increased demand for rare earths has led to significant investment in research and exploration to identify more deposits.
- **Supply Chain Diversification:** Discovering more rare earth deposits allows industries to choose deposits that yield the elements with the **lowest financial, environmental, and societal costs.**
- **Iron-Rich Volcanoes as a Source:** Extinct iron-rich volcanoes, which are often mined for iron ore, have the potential to be modified for **rare earth extraction**, as suggested by new findings.
- **Added Value to Existing Mines:** Modifying existing iron ore mines to extract rare earth elements could add additional value to **current mining operations.**
- **Reprocessing Mine Waste:** In some cases, mine waste can be reprocessed to **extract rare earth elements**, reducing the need for new mines and minimizing the disruption of natural environments.

Way Forward:

The strategic initiative to explore extinct volcanoes for rare earth elements emphasizes a

PEPPER IT WITH:
Pacific Ring of Fire, Circum-Pacific Belt, Subduction Zones, Rare Earth Elements (REE)

comprehensive approach involving systematic resource assessment, technological innovation, and sustainable mining practices. By diversifying supply chains, this plan aims to ensure resource security, economic viability, and environmental stewardship, reducing reliance on dominant global producers.

DISASTER MANAGEMENT

Researchers sound alarm on 'irreversible climate disaster', Earth's 25 vital signs hit extremes

News Excerpt:

The '2024 State of the Climate Report: Perilous times on planet Earth', published in Bioscience, warns of "perilous" times ahead, with current policies leaving the globe on track to see 2.7-degree peak warming by 2100, obliterating the international target made at the Paris Agreement to limit the global temperature increase to 1.5 degrees.

More detail about news:

- **Recently, Global Nature Positive Summit** held in Sydney, coinciding with preparations for the **UN Climate Change Conference (COP 29) in Baku, Azerbaijan (11-22 November).**

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Key finding:

- The Earth's average surface temperature is at an all-time high, **with July 2024 seeing three hottest days ever recorded.**
- Populations of humans and ruminant livestock (**cattle, sheep and goats**) are at record levels, with the human population increasing by 200,000 people per day.
 - Of the **35 planetary vital signs tracked annually, 25 are at record levels.**
- **Thomas Newsome's Statement:** Associate Professor from the Global Ecology Lab, University of Sydney. **Urged governments to take the climate crisis seriously.** Noted that poorer communities are disproportionately affected by climate impacts despite contributing the least to climate change.
- **Carbon Emissions and Fossil Fuels:** Human-caused **CO2 emissions and greenhouse gases** remain the main drivers of climate change. **Fossil fuel consumption increased by 1.5% in 2023.**
- **Renewable Energy:** Solar and wind energy use **increased by 15% in 2023** but still account for only one-fourteenth of fossil fuel consumption. The increase in renewables is **primarily due to rising demand for power**, rather than replacing fossil fuels.
- **Deforestation and Livestock:** Global tree cover loss rose from **22.8 million hectares in 2022 to 28.3 million hectares in 2023.** Deforestation is driven by the expansion of agriculture, **primarily for livestock grazing.** The population of ruminant livestock (cattle, sheep, goats) is at an all-time high, increasing by 170,000 daily.
- **William Ripple's Statement:** Co-lead author, Oregon State University College of Forestry. Warned of **ongoing climate upheaval threatening life** on Earth due to ecological overshoot.

PEPPER IT WITH:
COP 29, Carbon market, emissions trading system, Carbon Sequestration

Way forward/Recommendation:

- Governments urged to:
 - Shift from fossil fuels to low-carbon renewables.
 - Restore biodiverse ecosystems that aid in carbon cycling and storage.
 - Promote sustainable ecological economics.
 - Reduce waste and overconsumption by wealthier communities.

India's Public Infrastructure Unprepared for Disasters

News Excerpt:

Experts at the CBRE-CII Conference called for urgent action to adopt smart, resilient infrastructure solutions as India's vulnerability to natural and man-made disasters is growing.

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More detail about news:

- The survey findings were released at a joint 'Infrastructure Management Conference 2024' organised by Coldwell Banker Richard Ellis (CBRE) and Confederation of Indian Industry (CII).
- CBRE said as per its survey on select large infrastructure assets on risk management parameters, "nearly 50 per cent of the public infrastructure in India is unprepared for disaster planning and management and needs greater attention".
- India is grappling with a significant increase in both natural and man-made disasters, posing a threat to the economy, population and long-term sustainable development.

Key Findings from the CBRE Survey on Risk Management in Infrastructure Projects

- Inadequate Disaster Preparedness:** Nearly half of India's public infrastructure is ill-equipped for disaster planning and management.
- Growing Risks:** India faces a significant rise in both natural and man-made disasters, posing a threat to its economy, population, and sustainable development.
- Contributing Factors:** Shifting demographics, unplanned urbanization, development in high-risk

zones, environmental degradation, climate change, and geological hazards exacerbate vulnerability.

- Need for Smart Solutions:** The conference aimed to explore smart, sustainable infrastructure solutions to address these challenges.
- Increased Frequency and Intensity of Disasters:** Floods, extreme temperatures, cyclones, industrial accidents, cyberattacks, and public health crises are on the rise.
- Importance of Smart Facilities Management:** Advanced technologies like IoT, AI, and machine learning can help prevent equipment failures, reduce downtime, and optimize resource allocation.
- Regular Maintenance:** Regular inspections, maintenance, and upgrades are crucial for reducing the likelihood of damage and ensuring the continued functionality of public infrastructure.
- Tailored Solutions:** CBRE is providing innovative solutions to meet India's unique infrastructure management needs.
- Building a Resilient Future:** Strategic infrastructure management is essential for creating a sustainable and resilient built environment in India.

PEPPER IT WITH:
CII, Disaster Preparedness, IoT, AI, Hazard Zonation

Conclusion:

The CBRE-CII Conference highlights the urgent need for India to adopt smart, resilient infrastructure solutions. Emphasizing advanced technologies and regular maintenance, this approach aims to bolster disaster preparedness and ensure sustainable development amidst increasing risks.

PRE-SHOTS POLITY

Women-led development in the Rajya Sabha

News Excerpt:

The **Vice President** and the **Chairman of the Rajya Sabha**, Jagdeep Dhankar, has introduced a slew of **progressive measures** in the **House** and the **Secretariat** proceedings, setting a strong example of how **women-led development** can be integrated into the highest levels of governance.

Initiatives in the House

- **All women panel:** During the passage of the **Women's Reservation Act 2023**, Vice President Dhankar reconstituted the panel of **vice-chairpersons** to include **only women**.
 - This move was seen as a powerful message, positioning women in a **"commanding position"** during the historic period of change.
- **Women in Leadership:** The Vice-President began nominating **four women** members, representing **50% of the panel** of vice-chairpersons. As a result **-S. Phangnon Konyak** became the first woman Rajya Sabha member from **Nagaland** to preside over the House. **P.T. Usha**, a celebrated athlete, became the first nominated MP to serve as **Vice Chairperson** of the Rajya Sabha.

Initiatives in the Secretariat

- **Gender Balance in the Secretariat:**
 - To achieve gender balance at the Rajya Sabha Secretariat, all the **gazetted women officers** were trained to perform **House-related duties**. Accordingly, a duty roster is prepared, and women officers are deputed to chamber duty.
 - The sections related to House duty were **conventionally** considered a **male domain** because they involved late sittings.
 - As a result, the **Table of the House** is largely being **'womanned'** by female officers.
 - Some women Secretariat officials have been appointed **chamber attendants** through a selection process. Responsibilities such as **human resources**, the **legislative section**, and the **capacity-building division** have been entrusted to women Secretariat officers.
 - Women at various levels are doing **high-skill-based work**, such as officiating in Parliamentary Standing Committees of the Rajya Sabha. Women officers occupy some senior positions in the **security service**.
 - A woman officer of the Secretariat has been appointed as a master trainer for **iGOT-Karmayogi Bharat**.
- **Support Systems for Women Officers:**
 - An application-based system called **'Vahan'** was

introduced to address the problem of **commutation** during late sitting hours. This app allows women officers to use commutation facilities **during odd hours**.

- The noteworthy aspect of introducing women-centric measures in the Secretariat is the **spirit of congeniality**. Gender sensitisation **workshops and talks** have been organised to create a healthy culture of gender parity.
- There are also efforts to synergise work with creativity and recreation. Celebrating **Women's Day** in the Secretariat is a case in point. Women officers or employees **conceptualise, organise, and execute** Women's Day programmes.
- **Internship Programs:** To facilitate regular **interactions** between the legislature and academia, the Vice-President invited **five interns** from **Miranda House** in Delhi to a **15-day course** on parliamentary procedures.

How Supreme Court deals with errant judges

News Excerpt:

A Bench of the **five senior-most** Supreme Court judges, headed by Chief Justice of India (CJI), expressed serious **concern about comments** made by Karnataka High Court Justice V Srishananda.

Justice Srishananda's Controversial Comments

- During a hearing, Justice Srishananda had referred to a particular locality of Bengaluru as being **"in Pakistan"**. In another hearing, he had made an **"objectionable"** comment against a female lawyer.
- While the judge later issued an apology, which led the Supreme Court to drop its intervention, the case highlighted significant concerns regarding the **behaviour of judges** in constitutional courts.

Disciplining Constitutional Court Judges

- **Impeachment Process:** As per the Constitution, impeachment, a political process, is the only recourse to dealing with errant judges. According to **Article 124(4)**, a judge of the Supreme Court (or any High Court) can be **removed** from office only "by order of the **President** passed after an address by each House of Parliament supported by a **majority of the total membership** of that House and by a **majority of not less than two-third** of the members of the House present and voting has been presented to the President in the same session for such removal **on the ground of proved misbehaviour or incapacity"**.

Alternative Mechanisms for Judicial Discipline:

Judicial intervention

- Over the years, the SC has developed alternative ways of disciplining judges.

Limitations of Impeachment

Impeachment proceedings have been triggered **only five times** in history — against Justice V Ramaswami (SC, 1993), Justice Soumitra Sen (Calcutta HC, 2011), Justice J B Pardiwala (Gujarat HC, 2015), Justice C V Nagarjuna (HC of Andhra Pradesh and Telangana, 2017), and then CJ Justice Dipak Misra (2018). The proceedings, however, have never been successful, although **Justice Sen** was impeached by the Rajya Sabha and subsequently resigned.

"Proven misbehaviour" or "incapacity" are the **only** two grounds for the removal of a judge of the constitutional court. This, along with the level of political consensus required to pass an impeachment motion, makes the standard for impeachment very high.

In many cases, such as instances of **indiscipline, petty corruption, biases**, or, as in the case of Justice Srishananda, questionable conduct in court, the issue may **not meet the threshold** for impeachment.

- For instance, in 2017, a five-judge Bench of the SC headed by then CJI Jagdish Khehar found **Calcutta High Court's C S Karnan** guilty of **contempt of court** and sentenced him to **six months imprisonment**.
 - Karnan had made several controversial actions, including accusing Supreme Court judges of corruption and nepotism.
- His **transfer** to the Calcutta HC in 2016 also occurred in this context.
- While this approach allowed the judiciary to address misconduct without impeachment, it raised concerns about the **appropriateness** of one constitutional court disciplining another.
 - While district courts are under the supervisory jurisdiction of the respective High Courts, the **relationship** between the **High Courts and the SC** is **different**.

Transfer policy

- Another way the SC exercises influence over High Court judges is through the Collegium. The **SC Collegium**, comprising five senior-most judges of the apex court, including the CJI, **recommends the transfer** of High Court judges.
- Given that the Collegium's decisions are **opaque**, this transfer policy can also be deployed as a tool to discipline judges.
 - For instance, in 2010, **Justice P D Dinakaran**, then of the Karnataka High Court, was **transferred** to the Sikkim High Court amidst corruption allegations.

○ Even as proceedings for his removal as a judge were **pending** before a **parliamentary panel**.

- While the transfer temporarily addressed the issue, critics argued that it simply "transferred corruption" rather than dealing with it directly.

Need for Reform

- While the judiciary must remain independent, there is also a growing call for greater **accountability mechanisms** to address instances of misconduct that do not rise to the level of impeachment.
- **Transparency** in the Collegium's decisions and more **structured methods** of addressing minor infractions could enhance the judiciary's credibility and ensure public trust in its functioning.

Marital relations must be exempt from rape provisions: Centre

News Excerpt:

The Union government told the Supreme Court that punishing non-consensual sexual acts by a man with his wife as 'rape' will impact conjugal relationships and lead to "serious disturbances" in the institution of marriage.

Context of the case:

- ◁ The Union government was responding to many public interest litigation petitions seeking to strike down Exception 2 of Section 375 of the Indian Penal Code (IPC).
 - The provision excludes non-consensual sexual intercourse by a husband with his wife if the latter is over 15 years of age, from the definition of 'rape'.

Marital Rape:

- ◁ Marital rape refers to unwanted intercourse by a man on his wife obtained by force, threat of force or physical violence or when she is unable to give consent.
- ◁ According to data from the National Family Health Survey-5 (NFHS-5), one in every 25 women in India reported being subjected to sexual violence by her husband.

Status of Marital Rape: Of 185 countries in the world, 77 have laws that criminalise marital rape. Another 74 have legal provisions allowing cases to be filed against spouses.

Union Government's Argument:

- ◁ **Sui Generis Nature of Marriage:** The government argued that marriage, as an institution, is fundamentally different from other male-female relationships due to the "tying of the matrimonial knot."
- ◁ **Conjugal Relationship:** It emphasised that within marriage, there exists a continuous expectation of



reasonable sexual access between spouses, which distinguishes the marital sphere from other relationships.

- < **Impact on Marriage:** The government contended that recognising non-consensual sexual acts as 'rape' within marriage could lead to "serious disturbances" in the marital relationship, affecting the institution of marriage itself.
- < **Balancing Consent and Marriage:** The government also argued that even if a law were framed in the future, it would have to balance protecting the cherished concept of consent by a woman within the confines of marriage with the competing position of the "potential accused husband."

SC hears case on UP Madrasa Law

News Excerpt:

The Supreme Court of India is currently examining the **legal status of madrasas**, focusing on their **educational standards** and **government funding**.

More about news:

- The controversy surrounding madrasas gained significant attention after a landmark ruling by the **Allahabad High Court** earlier this year.
 - The court ruled that the **Uttar Pradesh Board of Madarsa Education Act, 2004**, was **unconstitutional**, arguing that the education provided by these institutions violated the principle of **secularism** by promoting a narrow view of **religious supremacy**.
- A **Supreme Court** bench presided by the Chief Justice of India **stayed** the High Court's order.

- The **NCPCR submitted its views** in a clutch of appeals against an Allahabad High Court order.

Submission of the NCPCR:

- The NCPCR has told the Supreme Court that education imparted in madrasas is **not comprehensive**. Madrasas have an **arbitrary mode** of working without a **curriculum** and **evaluation** procedure as laid down under **Section 29** of the **Right to Education Act, 2009**.
- Children **not** in the **formal schooling system** are deprived of their fundamental right to elementary education, including entitlements such as **midday meals, uniforms, trained teachers**, etc. Since madrasas are **exempted** from the purview of the **RTE Act, 2009**, all children studying in the Madrasas are deprived of not only formal education in schools but also benefits as provided under the RTE Act, 2009.
- Though the RTE Act exempts madrasas from its purview, the children studying in them "have never been exempted from **Article 21A** of the Constitution of India in any judicial decision or constitutional interpretation.
- The denial to extend the right to education to children by these institutions with minority status deprives the children of **Article 14**, the fundamental right to equality before the law.

About Madrasas:

- Madrasa is an Arabic word for an **educational institution**. In the early centuries of Islam, mosques served as places of education, but from the **10th century** onward, madrasas came to acquire a **distinct identity** as institutions of religious learning in the Islamic world.
- Madrasa students' study to be **Maulvi** (equivalent to Class 10), **Alim** (equivalent to Class 12), **Kamil** (equivalent to a Bachelor's degree), and **Fazil** (equivalent to a Master's).
- More than **20 states** have their **madrasa boards**. State madrasa boards are governed by the state government



- concerned; the **state government appoints** teachers and other officials at recognised madrasas.
- As of 2018-19, there were **24,010 madrasas** in India, **19,132** of which were **recognised**, and the remaining **4,878** were **unrecognised**. As many as **60%** of the country's madrasas were in **Uttar Pradesh**—11,621 recognised and 2,907 unrecognised. The second-highest number of madrasas was in **Rajasthan**.
 - The bulk of the **funding** for madrasas comes from the respective **state governments**. The central government has a **Scheme for Providing Education to Madrasas/ Minorities** (SPEMM), under which financial assistance is provided to madrasas and minority institutions across the country.

Supreme Court clarification on online content on child sex abuse

News Excerpt:

The **Supreme Court** said that even **viewing, possessing, and not reporting** such content is **punishable** under the Protection of Children from Sexual Offences (POCSO) Act, regardless of whether it is shared or transmitted further.

Protection of Children from Sexual Offences (POCSO) Act:

- It **aims** to address offences of **sexual exploitation** and **sexual abuse** of children, which were either **not specifically defined** or **not adequately penalised**. The Act defines a child as any person **below** the age of **18 years**.
- The POCSO Act came into effect in **2012**, following India's ratification of the **UN Convention on the Rights of the Child** in 1992.
- It was amended in **2019** to introduce more **stringent** punishment, including the death penalty for Committing sexual crimes on children, to deter the perpetrators & prevent such crimes against children.
- In **2020**, the government notified the **POCSO Rules**.

About the case before the SC:

- Earlier this year, the **Madras HC quashed** the **criminal proceedings** against a man charged with **downloading and possessing child pornography** on his mobile phone.
- The FIR filed against the accused only mentioned **Section 14** of the **POCSO Act**, which punishes **using children** for "pornographic purposes", and the offences under Section 15 were added in subsequent chargesheets.
- The Madras High Court confined its ruling to Section 14 alone. It held that "**mere possession**" of child pornography would **not violate** the provision "since he has not used a child or children for pornographic purposes".

- The court also held that the offences under the POCSO Act could **only** be made out if the accused had **transmitted or published** the material, and there was no evidence to suggest that this took place.

Law in question:

- The Supreme Court Bench expanded the **interpretation of Section 15** of the POCSO Act, which deals with the "Punishment for storage of pornographic material involving a child".
- Originally, the **provision was restricted** to cases where a person stored child pornographic material "**for commercial purposes**".
- In **2019**, the POCSO Act was **amended** to introduce three connected offences under **Sections 15(1), (2) and (3)** with increasing grades of punishment — from fines to a three to five-year jail sentence. These punish
 - Any person, who stores or possesses pornographic material in any form involving a child, but fails to delete or destroy or report the same to the designated authority, as may be prescribed, with an intention to share or transmit child pornography;
 - Any person, who stores or possesses pornographic material in any form involving a child for transmitting or propagating or displaying or distributing in any manner at any time except for the purpose of reporting, as may be prescribed, or for use as evidence in court; and
 - Any person, who stores or possesses pornographic material in any form involving a child for commercial purpose.

Supreme Court Judgement:

- The **SC set aside a Madras HC decision** quashing criminal proceedings against a 28-year-old man who had downloaded two pornographic videos involving children on his phone.
- The Supreme Court **expanded** the **definition of "possession"** in child pornography cases to include cases where the individual may not have **physical possession** of child pornographic material, but they have "the power to control the material in question and the knowledge of exercise of such control".
 - The court termed this "**constructive possession**" and held that "**viewing, distributing or displaying**" such material would still amount to it being in the accused's "**possession**" under Section 15.
- The court said that if a person "immediately after storing and watching child pornography in his mobile phone **deletes the same before an FIR** could be registered" could still be found **liable** under Section 15.
- It has drawn attention to **Section 67B of the IT Act**, terming it a "**comprehensive provision**" to penalise various electronic forms of exploitation and abuse of children online. The Court has reminded platforms and

intermediaries of their duty to remove such content and report it to the relevant police units.

National Commission for Protection of Child Rights (NCPDR):

- It was constituted by the Government of India under the **Commission for Protection of Child Rights (CPCR) Act, 2005.**
- The commission consists of the following members namely:
 - A **chairperson** who is a person of eminence and has done outstanding work for promoting the welfare of children and
 - **Six members**, out of which **at least two are women**, from the following fields, are appointed by the Central Government from amongst persons of eminence, ability, integrity, standing and experience in -
 - Education
 - Child health, care, welfare or child development
 - Juvenile justice or care of neglected or marginalised children or children with disabilities
 - Elimination of child labour or children in distress
 - Child psychology or sociology
 - Laws relating to children

Supreme Court recalled its reference to CBI as a 'caged parrot'

News Excerpt:

For the **second time** in about a decade, the **Supreme Court** has used the expression "**caged parrot**" to refer to the country's premier crime investigation agency, the **Central Bureau of Investigation (CBI).**

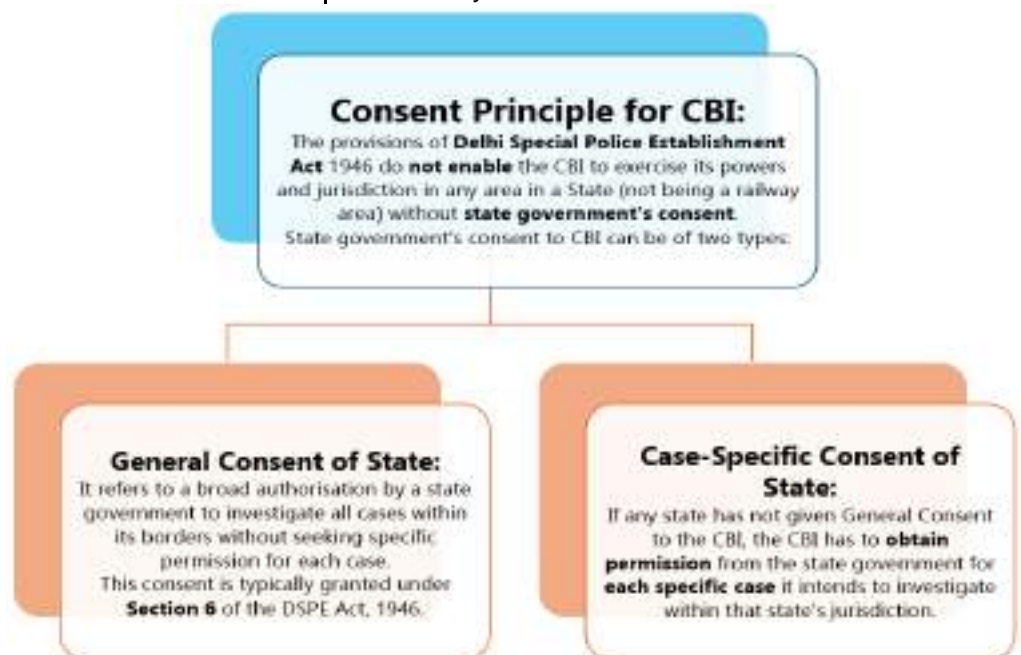
About the news:

- In his judgement **granting Delhi Chief Minister bail** in the CBI case over the alleged **Delhi liquor policy 'scam'**, Justice Ujjal Bhuyan wrote: "Not so long ago, this Court had **castigated the CBI** comparing it to a caged parrot. It is imperative that CBI **dispel the notion** of it being a caged parrot. Rather, the perception should be that of an uncaged parrot."
- Justice Bhuyan was referring to an observation made by Justice R M Lodha in **2013** while hearing a matter regarding alleged irregularities in allocating coal block licences to private

companies, referred to in the media as the "**Coalgate**" case.

About Central Bureau of Investigation (CBI):

- The Central Bureau of Investigation's origins go back to **1941** when the Government of India set up the **Special Police Establishment (SPE)** to investigate **bribery and corruption** in transactions with the War and Supply Department of India during **World War II.**
- The **Delhi Special Police Establishment (DSPE) Act 1946** transferred the SPE's superintendence to the Home Department, and its functions were enlarged to cover all departments of the Govt. of India.
 - The **SPE's jurisdiction** extended to all the **Union Territories** and could be extended to the **States with the consent** of the State Government concerned.
- The DSPE acquired its popular current name, the Central Bureau of Investigation (CBI), through a **Home Ministry resolution** dated **1.4.1963.** The CBI is **not a statutory body.**
- The **Santhanam Committee** on Prevention of Corruption (1962–1964) **recommended** the establishment of the CBI.
- Initially, the **offences** notified by the Central Government related only to **corruption** by Central Government servants.
 - In due course, with the establishment of many **public sector undertakings**, the **employees** of these undertakings were also brought under the **CBI's purview.**
 - Similarly, with the nationalisation of the banks in 1969, the **Public Sector Banks and their employees** also came within the ambit of the CBI.
- The CBI comes under the **administrative control** of the **Department of Personnel and Training (DoPT)** of the Ministry of Personnel, Public Grievances and Pensions.



SOCIAL ISSUES

ICMR gets U.N. award

News Excerpt

The ICMR has been honoured with the prestigious **2024 @UN Inter-Agency Task Force Award** for outstanding achievements in advancing multisectoral action on the prevention and control of **NCDs, mental health**, and the broader **NCD-related SDGs**.

About Non-Communicable Diseases (NCDs)

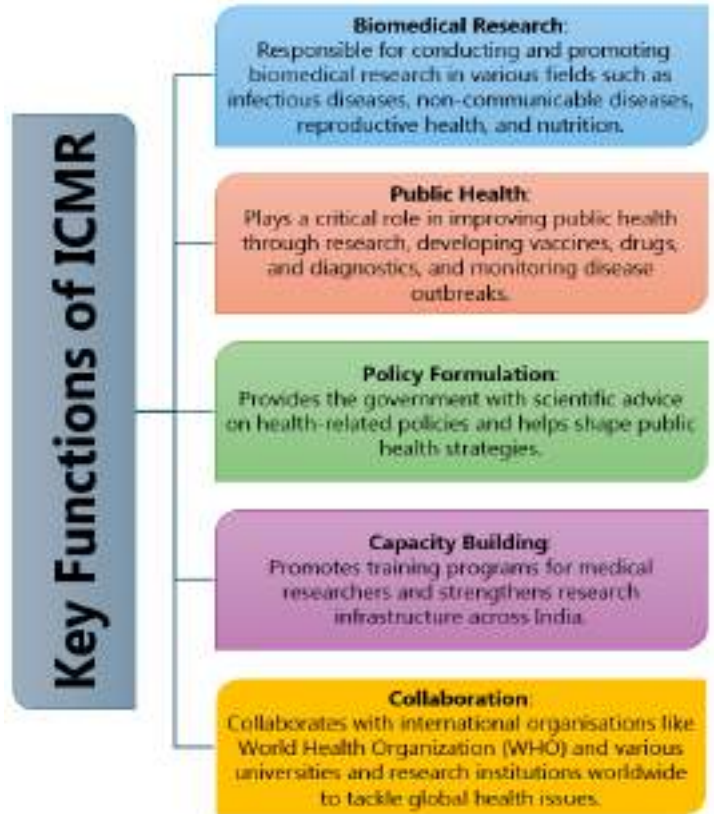
- **Non-Communicable Diseases** are chronic conditions that are not passed from person to person. They tend to be of long duration and are a result of a combination of genetic, physiological, environmental, and behavioural factors. The most common types of NCDs include:
 - **Cardiovascular diseases** (e.g., heart attacks, stroke)
 - **Cancers**
 - **Chronic respiratory diseases** (e.g., chronic obstructed pulmonary disease, asthma)
 - **Diabetes**
- **Global Impact:** NCDs are the leading cause of death globally, responsible for approximately 70% of all deaths worldwide.
- **Risk Factors:** Major modifiable risk factors include tobacco use, unhealthy diet, physical inactivity, and harmful use of alcohol.
- **Prevention and Control:** Prevention is largely focused on reducing these risk factors through public health campaigns, lifestyle changes, and policy measures like taxation on tobacco and alcohol, promoting physical activity, and encouraging healthy eating.
- **Economic and Social Impact:** NCDs place a significant burden on healthcare systems and contribute to economic strain, especially in low- and middle-income countries.

About Indian Council of Medical Research (ICMR)

- Established in **1911**, it is one of the oldest and largest medical research bodies in the world.
- Its headquarters is in **New Delhi**, and it works under the **Ministry of Health and Family Welfare**.

Initiatives by ICMR

- **Assistive Health Technology:** ICMR has set up national centres to develop tools and technologies that help people access better healthcare. ICMR conducted the biggest survey on assistive technology. This survey helps create better health policies and practices to improve care for people who need assistance.
- **Vaccine Development:** ICMR played a pivotal role in the development of India's COVID-19 vaccines, including collaborating on the development of Covaxin with Bharat Biotech.



- **National TB Control Program:** ICMR supports the government's tuberculosis eradication program by conducting research on diagnostics, treatment protocols, and vaccine development for tuberculosis.
- **India Hypertension Control Initiative (IHCI):** Launched to improve the treatment and management of hypertension across India.
- **National Cancer Registry Program:** This initiative collects data on cancer incidence, prevalence, and mortality across India to guide cancer control strategies.
- **India Diabetes Study:** ICMR has undertaken large-scale studies to assess the burden of diabetes and related metabolic diseases in India.
- **National Task Force on Cardiovascular Diseases and Stroke:** ICMR works on research projects aimed at reducing the burden of cardiovascular diseases and stroke.

Jordan eliminated leprosy

News Excerpt

The **World Health Organization (WHO)** congratulated the **Hashemite Kingdom of Jordan** for becoming the **first country in the world** to be officially verified as having eliminated leprosy.

About the news

- Jordan has not reported any **autochthonous** (locally acquired) cases of leprosy for over **two decades**, a testament to its effective public health strategies to eliminate the disease.

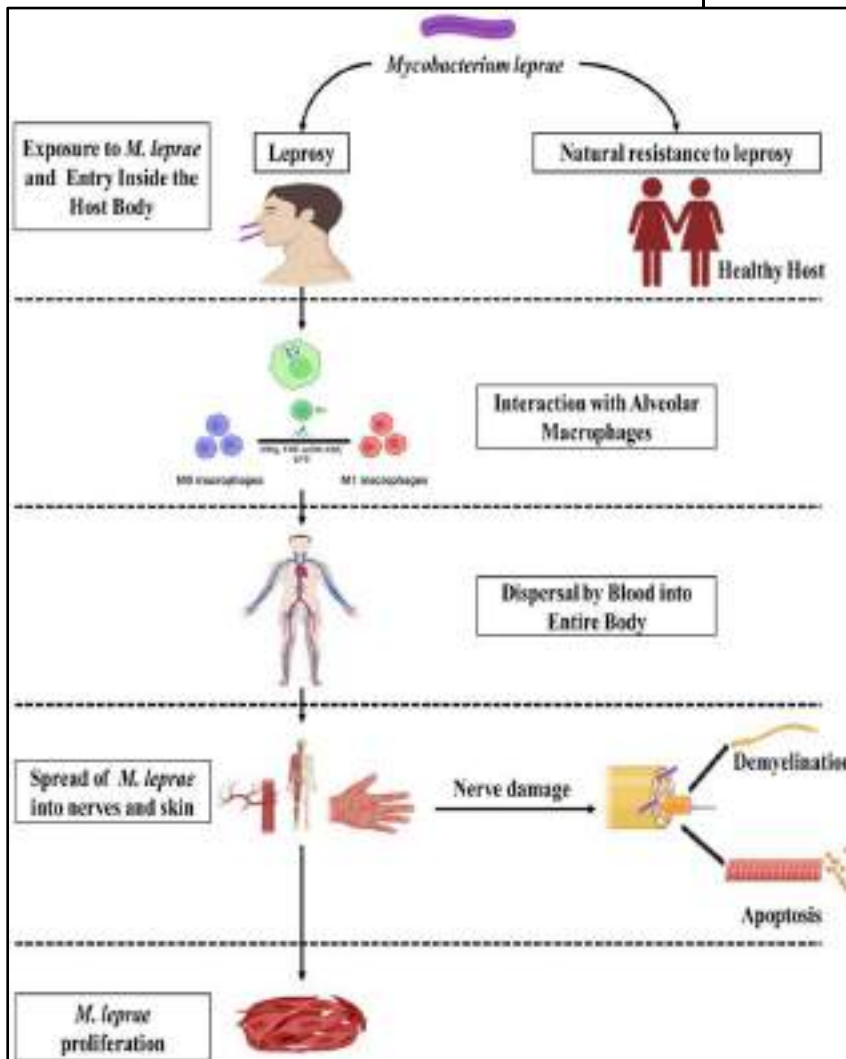
About Leprosy

- Leprosy, also known as **Hansen’s disease**, is a chronic infectious disease caused by **Mycobacterium leprae**.
- It affects the skin, peripheral nerves, mucosal surfaces of the upper respiratory tract, and the eyes.
- It is known to occur at **all ages** and is **not inherited**, but it is transmitted via droplets from the nose and mouth.
- There are **two types** of leprosy:
 - **Paucibacillary (PB) Leprosy:** Includes cases with a smaller bacterial load.
 - **Multibacillary (MB) Leprosy:** This includes more infectious cases with relatively larger bacterial loads.
- Leprosy is **curable**, and treatment through **multi-drug therapy (MDT)** during early stages can prevent disability.
- Leprosy is a **neglected tropical disease (NTD)**. According to the WHO, most countries with high rates of new leprosy cases are in **Africa and South-East Asia**.
 - **NTDs** are a diverse group of conditions caused by **various pathogens** (including viruses, bacteria, parasites, fungi, and toxins) and associated with devastating health, social, and economic consequences.

- Leprosy is **endemic** in several states and union territories of **India**. However, in **2005**, India **eliminated** leprosy as a **public health problem** at the national level, as per **WHO criteria** of less than 1 case per 10,000 population.

Initiatives Taken:

- **India:**
 - **National Strategic Plan (NSP) & Roadmap for Leprosy (2023-27):** It aims to achieve **zero transmission** of leprosy by 2027, three years before the Sustainable Development Goal (SDG) 3.3.
 - § **SDG 3.3:** To end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases by 2030.
 - **National Leprosy Eradication Programme (NLEP) 1983:** This programme has been implemented with the major objectives of reducing the disease burden, preventing disability, and improving awareness among the masses about Leprosy and its curability.
- **WHO:**
 - **Global Leprosy Strategy (2016–2020):** It aimed to reinvigorate efforts to control leprosy and prevent disabilities, especially among children still affected by the disease in endemic countries.



Stroke cases increasing globally: The Lancet study

News Excerpt

A study published in The **Lancet Neurology** journal highlights a significant global rise in stroke cases and related deaths. The study forms part of the **Global Burden of Disease, Injuries, and Risk Factors (GBD)** initiative.

Key Findings of the Lancet Study

- **Increasing Stroke Incidence and Deaths:** The number of people experiencing a stroke for the first time **surged by 70%** from 1990 to 2021, with **11.9 million new cases** reported in 2021. Deaths related to stroke increased by **44%** over the same period, reaching 7.3 million.
 - These numbers position stroke as the **third-leading cause of death** worldwide, following ischemic heart disease (short supply of blood to heart) and COVID-19.
- **Impact of Environmental Factors:** For the first time, **particulate matter (PM)** air pollution was found to contribute as much as smoking to fatal cases of brain haemorrhages.

About Global Burden of Disease, Injuries, and Risk Factors Study (GBD):

- It is a comprehensive regional and global **research program** of disease burden that assesses mortality and disability from major diseases, injuries, and risk factors.
- GBD is a collaboration of researchers from several countries, coordinated by the **Institute for Health Metrics and Evaluation (IHME)** at the University of Washington, United States.
 - The study reports a 72% increase in the negative health effects and early deaths due to strokes attributable to **high temperatures** since 1990.
- **Metabolic Risk Factors:** Stroke-related health issues attributable to high blood pressure, excess body weight, smoking, and physical inactivity grew from 100 million healthy life years lost in 1990 to **135 million** in 2021.
- **Regional Disparities and Socioeconomic Impact:** Over three-fourths of strokes occur in low—and middle-income countries, including Eastern Europe, Asia, and sub-Saharan Africa.
- **Dietary Improvements:** The burden of stroke risk factors linked to poor diets, such as high consumption of **processed meats** and low intake of **vegetables**, has decreased by 40% and 30%, respectively.
- **Reduction in Smoking and Air Pollution:** Public health measures such as **smoking bans** and **clean air zones** have had a measurable impact on reducing the burden of stroke. Smoking-related stroke risk decreased by 13%, and the effects of particulate matter (PM) air pollution on stroke fell by 20%

children, marking a **5.5% increase** from the previous year. Despite this increase, the percentage of the overall budget allocated to children **dropped slightly to 2.28%** from 2.31% in 2023-24.

• **Ministry-Wise Allocations for Child-Focused Interventions**

- **Department of School Education and Literacy:** 65.1% share of Child Budget (6.3% increase)
- **Ministry of Women and Child Development:** 18.2% share
- **Ministry of Tribal Affairs:** 6% share
- **Department of Health and Family Welfare:** 4.1% share

• **Sectoral Breakdown of Child-Focused Allocations**

- **Education:** 77.3% of total child allocations, reflecting the government's emphasis on building a robust education system.
- **Development (Including Nutrition):** 16.7% of total child allocations.
- **Health:** 4.1% of total allocations, marking a notable increase of 28.9% from the previous year.
- **Child Protection:** 1.8%, a 4.6% increase from the previous year.

Interventions introduced in the budget

- **National Pension System (NPS)-Vatsalya:** Parents and guardians can contribute to a minor's pension fund, which can be converted into a normal NPS account when the beneficiary child attains the age of 18 years.

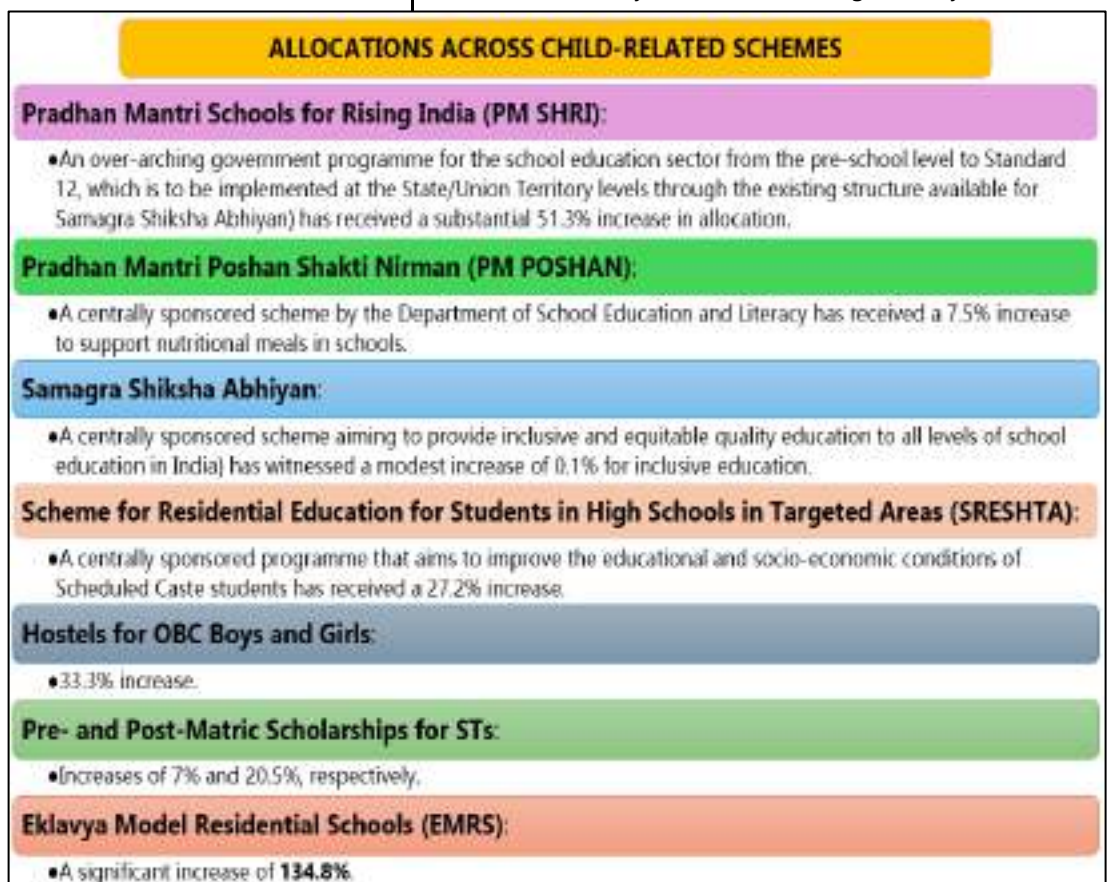
Union Budget 2024-25: Focus on Children

News Excerpt

The Union Budget 2024-25 outlines India's broader economic goals while emphasising children through specific allocations and interventions.

Overview of the Child Budget 2024-25

- The Union Budget 2024-25 allocated ₹1,09,921 crore for



- **Child-Centric Budgeting:** The Ministry of Finance has issued a directive requiring all ministries/departments to establish a '**Gender and Child Budget Cell**' and appoint nodal officers to focus on child welfare in budgeting processes.

Significance

- **Holistic approach:** This year's budget strongly emphasises creating an environment conducive to children's development.
- **Alignment with Global Commitments:** As a signatory of the **United Nations Convention on the Rights of the Child** (UNCRC), India continues its commitment to child rights.

About United Nations Convention on the Rights of the Child (UNCRC):

- The CRC was adopted by the United Nations in **1989**. It entered into force in **1990** after receiving a minimum of 20 ratifications.
- It is a **legally binding** treaty consisting of **54 articles**. Under its articles, all parties are required to ensure that **children's basic needs** are fulfilled and that they can reach their full potential.
- It has been **ratified** by all **UN members** except the United States, making it the most widely ratified human rights treaty in the world's history.

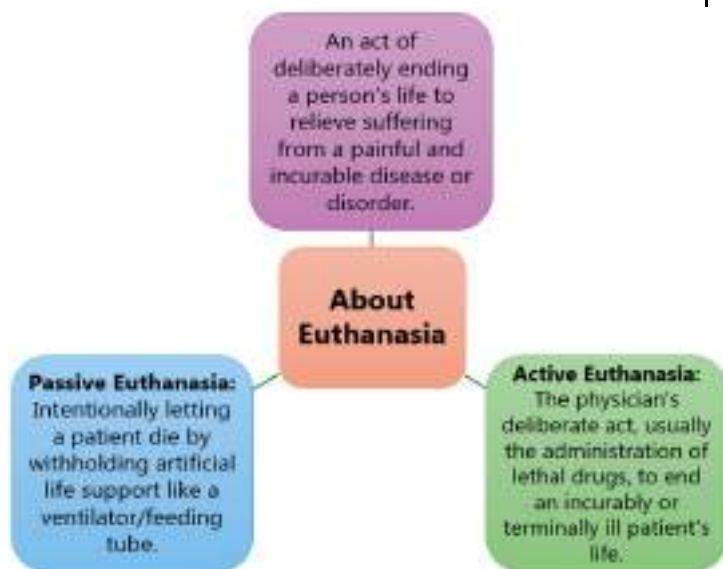
Draft guidelines on passive euthanasia

News Excerpt:

The Union Health Ministry released the 'Draft Guidelines for Withdrawal of Life Support in Terminally ill Patients'.

Key highlights of the guidelines:

- **Titled:** "Guidelines for Withdrawal of Life Support in Terminally Ill Patients" (Passive Euthanasia)
- **Definition of Terminal Illness:** An irreversible or incurable condition from which death is inevitable in the foreseeable future. Severe, devastating traumatic brain



injury, which shows no recovery after 72 hours or more, is also included.

- **Withdrawal of life support under four conditions:**
 - The individual must be declared brain stem dead as per the **Transplantation of Human Organs** (THOA) Act.
 - Medical prognostication must indicate that the patient's condition is advanced and **unlikely to benefit** from aggressive therapeutic interventions.
 - The patient or surrogate must document an **informed refusal**, following prognostic awareness, to continue life support.
 - There must be **compliance** with procedures prescribed by the **Supreme Court**.

Procedure prescribed by Supreme Court:

- Earlier, the SC made changes to the rules for passive euthanasia to make the process less complex and less time-consuming.
- **Legal Principles:** An adult patient capable of making healthcare decisions may refuse **life-sustaining treatments** (LST) even if they result in death.
 - LST may be withheld or withdrawn lawfully under certain conditions from persons who no longer retain decision-making capacity based on the fundamental right to Autonomy, Privacy and Dignity.
 - **Advance Medical Directives** (AMD) is a legally valid document that meets specified requirements.
- **Mechanism:** Proposals should be made by consensus among a group of at least three physicians who form the **Primary Medical Board** (PMB).
 - To fully inform the surrogate, the PMB must explain the illness, the medical treatment available, alternative treatment, and the consequences of remaining treated and untreated.
 - A **Secondary Medical Board** (SMB) of three physicians, with one appointee by the district's Chief Medical Officer (CMO), must validate the PMB's decision.
 - **Clinical Ethics Committee:** Constituted by hospitals for audit, oversight, & conflict resolution.

Legal Stance

- **India:** The SC, in **Common Cause vs. Union of India & Anr. (2018)** case recognised the **right to die with dignity** as a fundamental right under **Article 21** and **upheld the legal validity of passive euthanasia**. While **active euthanasia is illegal** in India
 - A **living will** is a written document **specifying the actions** to be taken if a person is unable to make medical decisions for themselves.
- **World:**
 - Euthanasia is legal in the Netherlands, Belgium, Luxembourg, Spain and Colombia.

- Certain **U.S. states**, such as Oregon, Washington, and California, allow assisted suicide under strict regulations.
- Switzerland allows assisted suicide. Canada permits both euthanasia and assisted suicide.
- **Assisted Suicide:** The individual self-administers a lethal substance, with medical assistance limited to providing the drug. It does not require the person to be terminally ill.

Recently, **Switzerland** police arrested four individuals linked to the death of a 64-year-old American woman. The woman, who had an **autoimmune condition**, reportedly used a **'suicide pod'** called Sarco to end her life.

About the Sarco Pod

- It is a **3D-printed euthanasia device** designed to facilitate **assisted suicide**. The Sarco Pod aligns with the concept of **"death with dignity."**
- When switched on, it gets filled with **nitrogen**, rapidly **reducing oxygen** levels. This leads to **loss of consciousness** within a few seconds, followed by a peaceful **death due to hypoxia** (lack of oxygen) within minutes.
- The Sarco Pod has sparked considerable **debate** worldwide, with questions about the **ethical implications** of euthanasia, the **legal status** of such devices, and concerns about **misuse**.



International Day of the Girl Child

News Excerpt:

The International Day of the Girl Child is celebrated annually on **October 11**.

Historical Background

- In **1995**, the **World Conference on Women in Beijing** marked a turning point for advancing the rights of women and girls worldwide.
 - Countries unanimously adopted the **Beijing**

Declaration and Platform for Action, the most progressive framework established to promote gender equality.

- The **United Nations General Assembly** passed **Resolution 66/170** on December 19, 2011, designating October 11 as the International Day of the Girl Child.

Transformative Impact of Supporting Girls

- If girls are **effectively supported** during their formative years, they have the power to become the workers, entrepreneurs, leaders, and change-makers of tomorrow, driving **social and economic transformation** across the globe.
- Research by UNICEF shows that despite facing numerous challenges, girls remain hopeful and determined to **create a better future**.

Why Advocate for Girls' Rights?

- One in five young women aged 20 to 24 were married as children.
- Nearly one in four married or partnered adolescent girls have experienced physical or sexual abuse.
- Globally, 75% of new HIV infections among adolescents occur in girls.
- One in three adolescent girls suffer from anemia, a form of malnutrition.
- Almost twice as many adolescent girls as boys are not in any form of education, employment, or training.

Schemes for Girl Child: Government Initiatives

- The total population of Women is registered at **58.75 Crore**, as per the **2011 Census**, underscoring the critical role of their empowerment and protection in fostering sustainable development.
- Initiatives such as **Beti Bachao, Beti Padhao** and **Sukanya Samriddhi Yojana** underscore efforts to promote **gender equality** and secure the future of girls by **encouraging savings** for education and marriage.
- Launched in **2015**, the **Sukanya Samriddhi Yojana** allows parents to invest in their daughters' futures, ensuring financial security and equal opportunities.

International Day of the Girl Child

Theme of 2024:

- Girls' Vision for the Future.

Key Objectives:

- Recognising **girls' rights** and raising **awareness** of the unique obstacles they face globally.
- Reminder that adolescent girls should have **equal and similar opportunities** for education, safety, and healthcare, like boys.
- Highlights the urgent need to **empower girls**.

- The **Scheme for Adolescent Girls (SAG)** and the **Scheme for Promotion of Menstrual Hygiene** address health and nutritional needs among women.
- **Udaan** is an innovative project launched in **2014** that aims to address the low **enrollment** of girl students in prestigious engineering institutions and **bridge the gap** between school education and engineering entrance examinations.
- The **National Scheme of Incentive to Girls for Secondary Education (NSIGSE)**, launched in **2008**, aims to enhance educational opportunities for girls, particularly those from Scheduled Caste (SC) and Scheduled Tribe (ST) communities.
- **Mission Vatsalya** focuses on child development and protection, with services like the **Child Helpline** and the **Track Child portal** to assist missing children.
 - The Track Child portal has been functional since 2012. This portal facilitates the **matching** of **'missing'** children being reported at Police stations with those **'found'** children residing in the Child Care Institutions (CCIs).
- The **PM CARES** for Children Scheme supports children orphaned by COVID-19.
- Collaborations with **NIMHANS** and the **E-SAMPARK** program provide mental health and medical care.



Legal measures to empower and protect the girl child

- The **Prohibition of Child Marriage Act, 2006**, aims to eliminate child marriage by penalising those involved.
- The **Protection of Children from Sexual Offences (POCSO) Act, 2012**, addresses child abuse with updated rules in 2020 to enhance its implementation.
- The **Juvenile Justice Act 2015** ensures the care and protection of needy children.

ECONOMY

Impact in India of US Fed cut

News Excerpt:

The **United States Federal Reserve** ('the Fed'), which is in **charge of the country's monetary policy**, announced that **it will cut the benchmark interest rate** — the **Federal Funds Rate** — by 50 basis points, or half a percentage point.

About cut in interest rate:

- A **cut in interest rate typically incentivises economic activity**, promotes growth, and **increases job creation** by making **it cheaper for people to borrow money**.
- Conversely, a **hike in interest rates or persistently high interest rates** tends to **drag down economic growth** and employment generation.
- Changes to the **US monetary policy** — be it the **amount of dollars** being made available in the market or the price at **which they can be borrowed (the interest rate)** — has an impact that goes far beyond **the country's geographical borders**. Among the most affected are **emerging economies like India**.
- This is not just due to the **US being the world's biggest economy** but also because the **US dollar is the world's most trusted and traded currency**. Several countries hold **US dollars as assets**.

Why did the Fed cut interest rates?

- To counter the **economic disruption** and a **recession experienced** in the wake of the **Covid-19 pandemic**, the Fed had **brought down interest rates close to zero** (0.25% to be precise).
- However, as the US economy recovered, **inflation started rising fast**. Russia's war with Ukraine and the associated supply disruptions made matters worse.

How will India be affected?

- There are **many different ways** in which India will be affected. **India is a capital-scarce economy**, and is always looking to **incentivise foreigners to invest in India**.
- **Lower interest rates** in the US will likely **incentivise global investors** to borrow in the US and invest in India — be it in stocks, debt, or in the form of **foreign direct investment (FDI)**.
- **Repeated lowering of interest rates** in the US will also lead to **some weakening in the US dollar's exchange rate** with other currencies such as the Indian rupee.
- In other words, **the rupee could see its exchange rate strengthen against the dollar**. This, in turn, will impact India's exporters (adversely) and importers (positively).
- **The RBI**, India's central bank, is already under **growing pressure to cut interest rates**.

- However, it is unlikely that **the US decision will be critical in RBI's calculations**. This is because **India and the US** have significantly **different inflation targets**, vulnerabilities to inflation spikes, and policy mandates.
- For instance, while **RBI keeps an eye on GDP growth rate**, it is **not explicitly concerned with unemployment data**.
- As has been seen in India over the past two decades, GDP growth can happen even without commensurate jobs growth.

Anti-India business sentiment

News Excerpt:

External Affairs Minister S Jaishankar recently said (at the **Global Centre for Security Policy in Geneva**) that **India's economic relationship with China** is **"very unfair and very unbalanced"**, as **"we don't have the same market access there**, while they have **much better market access in India."**

Key highlight: India-China Trade Deficit:

- < **Trade Imbalance:** India's trade deficit with China is widening, with Chinese imports surpassing \$100 billion in FY24, while Indian exports barely crossed \$16 billion.
- < **Perception of India:** Chinese social media reflects both interest and criticism of India. Many Chinese netizens view India positively for its cultural exports (e.g., Bollywood movies) and its space program but are critical of issues like the caste system and crime statistics.
- < **Border Dispute:** The ongoing border dispute and India's alignment with the West and the Quad are key sticking points in public

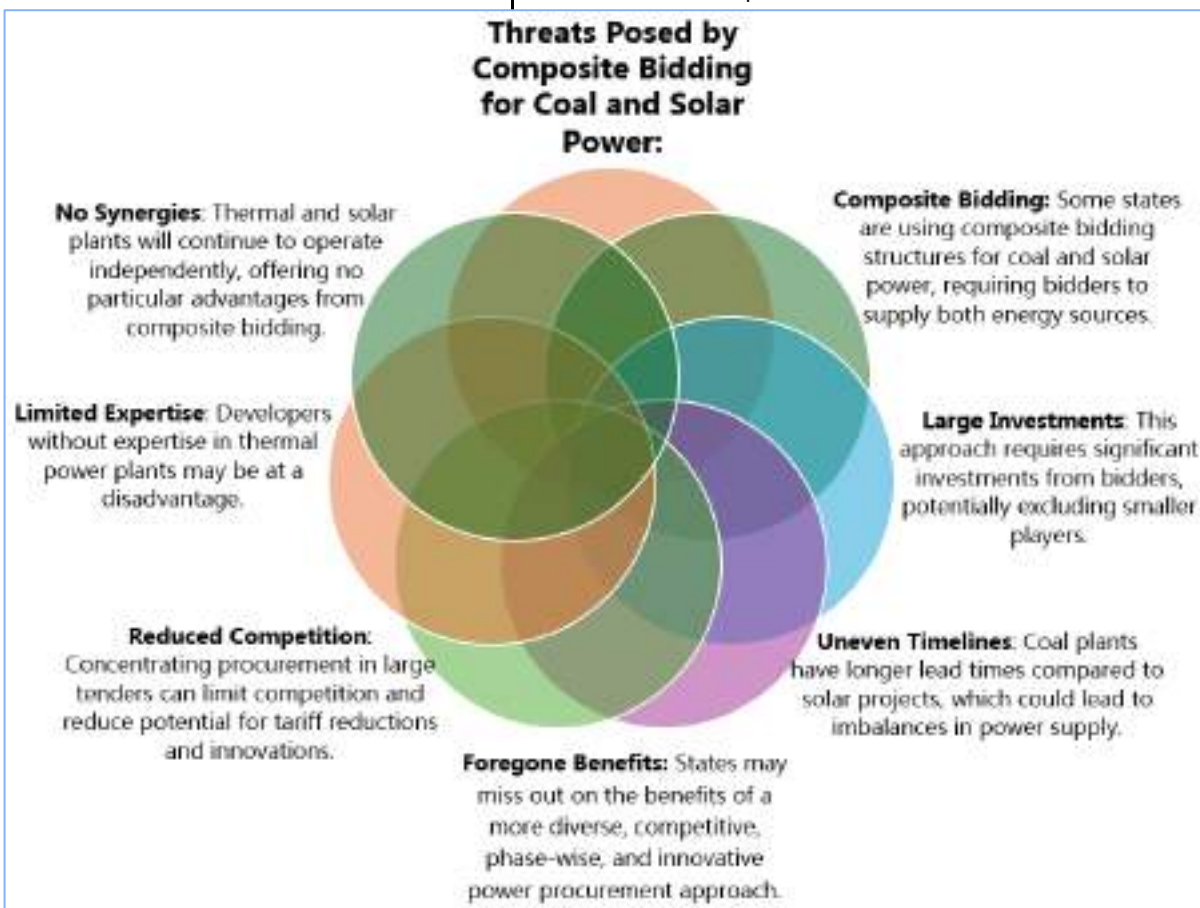
sentiment. Many Chinese believe India is trying to contain China.

- < **Admiration and Envy:** Some Chinese admire India for its perceived "happy-go-lucky" lifestyle and the success of Indian billionaires.
- < **Debate on Economic Decoupling:** Recent debates in China, spurred by reports like Bloomberg's on China's carmakers being asked not to export EV technology to India, have intensified calls to reconsider doing business with India. Chinese companies like Xiaomi and TikTok face "victimisation" and "harassment" in India, according to Chinese media, leading to discussions on decoupling from India's economy.
- < **Views on Chinese Businesses:** Some Chinese criticize their own businesses for focusing on short-term profits and lacking proper control in overseas investments. Many believe exporting technology and industrial capabilities to India would strengthen India and the US, ultimately harming China's own industrial supply chain.

Governments should encourage more players in the power sector

News Excerpt:

Given the **ever-growing demand** for reliable and affordable power, it is crucial that we continue to move forward towards fostering competition and market development, and not take a step back.



More about news:

- Two decades ago, India introduced competitive bidding for electricity power procurement, which has yielded significant results in the form of greater competition and increased investments.
- Recently, the **renewable energy (RE)** sector introduced several innovations to meet the growing demand for reliable power supply.
- Since 2018, over **9 GW of RE and 15 GWh** of storage have been contracted through storage-linked tenders to overcome the challenges of intermittent renewables.

Lower entry barriers in renewable energy (RE) sector:

- The **renewable energy (RE) sector** has lower entry barriers compared to traditional power sources encouraging participation from big as well as smaller players.
- **This is due to several factors:**
 - Shorter gestation periods.
 - Lower investment requirements.
 - Absence of fuel-related risks.
 - The modular nature of technologies, especially solar and battery energy storage.
 - The sector demonstrates a continuous learning curve, adapting with each new tender.
- **This evolution is evident in three key areas:**
 - Increased capacity
 - Price reduction
 - Improvements in tender conditions to meet the complex requirements of procurers.

Renewables-heavy electricity grid

News Excerpt:

With **India targeting to have half of its electric power capacity** come from **renewables by 2030**, the **resilience and stability of its power grid** have never been more critical. **Renewables**, while essential for a sustainable future, come with their own set of challenges.

Grid Flexibility and Ancillary Services

- ◁ **Challenges of Renewable Energy Integration:**
 - **Variability:** Renewable energy sources like wind and solar are inherently variable, posing challenges for grid stability.
 - **Flexibility Requirement:** The grid needs flexibility to adjust power generation based on demand.
 - **Ancillary Services Market:** A separate market for ancillary services is necessary to provide this flexibility.
- ◁ **Ancillary Services:**
 - **Types:** Primary, secondary, and tertiary services, each with different response times.

- **Importance:** Essential for balancing supply and demand, especially in grids with high renewable penetration.
- **Battery Energy Storage Systems (BESS):** BESS are crucial for providing primary ancillary services due to their fast response times.
- ◁ **India's Efforts:**
 - **GEAPP Pilot Project:** India launched a 20MW/40MWh BESS pilot project in New Delhi.
 - **Storage Requirement:** India estimates a storage requirement of 73.93 GW by 2031-32.
 - Ancillary services, particularly BESS, are essential for ensuring grid stability and integrating a higher share of renewable energy. Investing in BESS and other ancillary services is crucial for India's transition to a clean energy future.

Annual Survey of Industries (ASI) Results for 2022-23

News Excerpt:

Ministry of Statistics and Programme Implementation (MoSPI) has released the results of Annual Survey of Industries (ASI) for the reference periods April 2022 to March 2023.

About Annual Survey of Industries:

- ◁ The Annual Survey of Industries (ASI) is the principal source of **Industrial Statistics** in India.
- ◁ Till ASI 2009-10, the survey was conducted annually under the **statutory provisions of the Collection of Statistics Act 1953** and Rules framed there under in 1959 except in the State of Jammu & Kashmir where it is conducted under the Jammu & Kashmir Collection of Statistics Act 1961 and Rules framed there under in 1964.
- ◁ From ASI 2010-11 onwards, the survey is being conducted annually under the statutory provisions of the **Collection of Statistics (COS) Act, 2008** and the rules framed there-under in 2011 except in the State of Jammu & Kashmir where it is being conducted under the J&K Collection of Statistics Act, 2010 and rules framed thereunder in 2012.
- ◁ The **Collection of Statistics Act, 2008** has been amended in 2017 as Collection of Statistics (Amendment) Act, 2017 which extends the coverage to All India.
- ◁ **Objectives of the Survey:**
 - ◁ Annual Survey of Industries is conducted with the primary objective to provide a meaningful insight into the dynamics of change in the composition, growth and structure of various manufacturing industries in terms of output, value added, employment, capital formation and a host of other parameters.
 - ◁ It provides valuable input to the **National Accounts Statistics at national and state level.**
 - ◁ The results are prepared at state and major industry level.

Key highlights from the ASI 2022-23 results:

- The results show that the Gross Value Added (GVA) grew **by 7.3% in current prices** in the year 2022-23 over 2021-22. Increase in input was 24.4% while output grew by 21.5% in the sector in 2022-23 over 2021-22.

EMPLOYMENT GROWTH IN MANUFACTURING



- The year 2022-23 witnessed a growth in this sector for majority of the important economic parameters like invested **capital, input, output, GVA, employment and wages** and even surpassed the pre-pandemic level in absolute value terms.
- The main drivers of this growth in 2022-23 were industries like **Manufacture of Basic metal, Coke & Refined Petroleum Products, Food Products, Chemical and Chemical products and Motor vehicles**. These industries, taken together, contributed about 58% of the total output of the sector and showed output growth of 24.5% and GVA growth of 2.6% in comparison to 2021-22.
- The estimated number of persons engaged in this sector in 2022-23 has exceeded the pre-pandemic level (that is 2018-19) by more than 22.14 lakh. At the same time, average emoluments also registered an increase over previous year. Also, average emoluments per persons engaged in this sector had gone up by 6.3% in 2022-23 in comparison to 2021-22.

INDUSTRY PERFORMANCE

	Persons engaged (in mn)	Additional jobs created (in mn)	Sector GVA (₹ tm)
FY20	16.6	0.344	14.85
FY21	16.08	-0.534	16.17
FY22	17.2	1.1	20.47
FY23	18.49	1.3	21.97

Note: *Total emoluments is defined as the sum of wages and salaries including bonus; output and GVA in current prices

- Among the major states, in terms of GVA, Maharashtra ranked first in 2022-23 followed by **Gujarat, Tamil Nadu, Karnataka and Uttar Pradesh**. The top five states, taken together contributed more than 54% of the total manufacturing GVA of the country in 2022-23.
- The top five states employing highest number of persons in this sector were Tamil Nadu, Maharashtra, Gujarat,

Uttar Pradesh and Karnataka in ASI 2022-23. Taken together, these states contributed about 55% of total manufacturing employment in the year 2022-23.

New SEBI rules to curb F&O frenzy, aim to protect small investors

News Excerpt:

Markets regulator Securities and Exchange Board of India (SEBI) has released a set of six measures to strengthen the equity index derivatives — also known as equity futures & options (F&O) — framework.

About Securities and Exchange Board of India (SEBI):

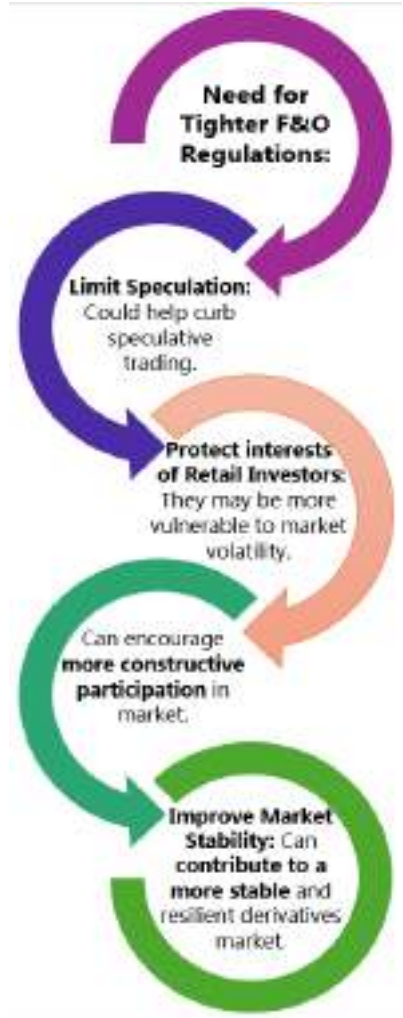
- It was **constituted as a non-statutory body on April 12, 1988**, through a resolution of the Government of India.
- It was established as a **statutory body in the year 1992** and the provisions of the Securities and Exchange Board of India Act, **1992** (15 of 1992) came into force on January 30, 1992.

Surge in F&O Trading Volumes:

- Exponential Growth:** The derivatives market has seen a significant increase in trading activity.
- Investor Losses:** Most investors have incurred losses in F&O trading.

Concerns and Risks:

- Impact on Capital Formation:** The surge in F&O volumes has raised concerns about its potential impact on capital formation.
- Systemic Risk:** Increased F&O activity poses a systemic risk to the country's economic growth.



About New Measures - Six measures and its Implications:

- Contract size for index derivatives recalibrated**
 - The minimum contract size at the time of its introduction on the market has been recalibrated to Rs **15 lakh from the existing stipulation of Rs 5-10 lakh**. The regulator

has said that the contract size should be fixed in such a way that the **contract value of the derivative on the day of review is Rs 15-20 lakh.**

- This will apply to all new index derivatives contracts introduced after **November 20 this year.** This step raises the entry barrier and seeks to ensure that participants in the derivatives market take on appropriate risks.
 - **Implication:** Increasing the **minimum contract size to Rs 15 lakh (from Rs 5-10 lakh) raises the entry barrier,** meaning only participants with substantial capital can trade these contracts. This is **intended to ensure that market participants, particularly retail traders,** are exposed to appropriate levels of risk and do not engage in speculative or excessive leverage-based trading. It **seeks to maintain market stability by encouraging participation** from more financially secure investors.

2. Upfront collection of options premiums

- **To deny undue intra-day leverage to the end client and discourage the practice of allowing positions beyond the collateral at the end client-level,** SEBI has mandated the collection of options premium upfront from options buyers by the **trading member (TM) or the clearing member (CM).** The new rule will be applicable from **February 1, 2025.**
 - **Implication:** By requiring the upfront collection of options premiums from buyers, **SEBI aims to curb intraday leverage and speculative trading.** This rule forces traders to pay the full premium upfront, thereby preventing them from taking positions without sufficient collateral. **It reduces the risks of margin shortfall for brokers and exchanges and helps ensure that participants trade within their financial capacity.**

3. Rationalisation of weekly index derivatives products

- SEBI has said that **expiry-day trading in index options at a time when option premiums are low, is largely speculative.** Stock exchanges offer short-tenure options contracts on indices which expire on every day of the week, leading to hyperactive trading in index options on expiry day.
- SEBI has directed that "henceforth, each exchange may provide derivatives contracts for only one of its benchmark index with weekly expiry". This will be effective from **November 20.**
 - **Implication:** The restriction of weekly expiry derivatives to only one benchmark **index per exchange aims to control the speculative frenzy that arises due to the low option premiums near expiry day.** By limiting the number of such products, SEBI seeks to reduce speculative trading volumes and the associated risks of market volatility, particularly on expiry days.

4. Intra-day monitoring of position limits

- Amid large volumes of trading on expiry day, there is a possibility of undetected intra-day positions beyond permissible limits. **"To address the risk of position creation beyond permissible limits...existing position limits for equity index derivatives shall henceforth also be monitored intra-day by exchanges,"** SEBI said. This will be effective from **April 1, 2025.**
 - **Implication:** Monitoring position limits on an intra-day basis ensures that traders do not exceed their permitted exposure levels, especially on expiry days when volumes surge. This **measure improves risk management and prevents large, undetected positions that could lead to market instability or manipulation.** The change also promotes more responsible trading behaviour among market participants.

5. Removal of 'calendar spread' treatment on expiry day

- Expiry day can see significant **'basis' risk, where the value of a contract expiring on the day can move very differently** from the value of similar contracts expiring in future. Given the large volumes on expiry day, from **February 1, 2025,** the benefit of offsetting positions across different expiries ('calendar spread') will not be available on the day of expiry for contracts expiring on that day, SEBI said.
 - **Implication:** On expiry day, offsetting positions between contracts expiring that day and future contracts will no longer be allowed to reduce margin requirements (known as "calendar spread"). **This reduces the risk of basis risk, where the price of the expiring contract diverges significantly from future contracts, potentially leading to unexpected losses.** This change increases margin requirements, making expiry-day trading more conservative.

6. Increase in 'tail risk' coverage on day of expiry

- The regulator has increased the **'tail risk' coverage by levying an additional 'Extreme Loss Margin' (ELM) of 2% for short options contracts.** ELM is the margin that exchanges charge over and above the normal margin requirement. Tail risk is the chance of a loss due to a rare event.
 - **Implication: By imposing an additional 2% margin (Extreme Loss Margin) on short options contracts on expiry day,** SEBI seeks to protect against tail risk — the risk of extreme price movements that could lead to significant losses. **This extra margin acts as a buffer to protect the market against unexpectedly large price swings,** especially during volatile expiry days, and promotes a safer trading environment.

AGRICULTURE

Weeds cause losses worth 92000 crore

News Excerpt:

Weeds are causing ₹92000 crore (\$11 billion) worth loss in crop productivity each year, according to a study



commissioned by the Federation of Seed Industry of India (FSII).

More details about news:

- The collaborative study recommended deployment of new, technology-led weed control strategies to address the menace.
- **FSII in its report** said, weeds are responsible for approximately **25-26% of yield losses in kharif crops and 18-25% in rabi across India.**

Key highlights:

- **Scope of the Study:** The study was conducted on seven crops: **rice, wheat, maize, cotton, sugarcane, soybean, and mustard.** It covered 30 districts across 11 states in India. The study group interacted with 3,200 farmers and 300 dealers, **Krishi Vigyan Kendras, and Agriculture department** officials to prepare the report.
- **Weed Management Practices:** The report recommended various weed management practices including:
 - **Use of herbicides.**
 - **Mechanization of weed removal.**
 - **Crop rotation.**
 - **Cover cropping.**
 - **Biological control.**

These measures could lower costs by 40-60% compared with traditional approaches.

- **Report Details:** The report titled 'Weed Management - Emerging Challenges & Management Strategies' was released by the **Indian Council of Agricultural Research (ICAR) Directorate of Weed Research and FSII.** The average expenditure on weed control per acre was found to be between ₹3,700 and ₹7,900.
- **Impact of Weeds on Agriculture:** Weeds are a leading contributor to crop losses among all biotic stresses, threatening agricultural productivity. **They pose a threat**

from the preparatory tillage stage to even post-harvest stage. Weeds emerge before the crop and compete for resources at every stage of crop growth.

• Expert Opinions and Recommendations:

- **Dr. S.K. Chaudhari (ICAR):** Collaboration between public and private sectors is essential to effectively tackle weed challenges. Given labour shortages and resource constraints, solutions like **mechanisation, herbicide-tolerant traits,** and precision agriculture are vital to help farmers.
- **Dr. P.K. Singh (Ministry of Agriculture):** There is a need for a robust weed management framework that **integrates traditional, mechanical, chemical,** and other innovative solutions. A technologically innovative, holistic, and integrated approach is crucial for addressing weed challenges, especially in the **context of natural and organic farming** and labour constraints.

Govt brings all Agri programmes under two umbrella schemes

News Excerpt:

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

About Scheme:

- The PM-RKVY and Krishonnati Yojana will be implemented with a **total proposed expenditure of over one lakh crore rupees.**
 - This includes over **57 thousand crore rupees** for PM-RKVY and **44 thousand 246 crores** for Krishonnati Yojana.
- The proposal of the **Department of Agriculture and Farmers Welfare** was approved for rationalization of all centrally sponsored schemes operating under this ministry into these two umbrella schemes.
- Aims to **increase farmers' income and ensuring food security for the middle-class people.** The two pillars for this are PM Rashtra Krishi Vikas Yojana' and 'Krishonnati Yojana'.
- The rationalization of various schemes has been undertaken to **avoid duplication, ensure convergence, and provide flexibility to states,** and state governments will also be able to draw a comprehensive strategic plan suiting their requirements for the agriculture sector.
- The PM-RKVY comprises of the schemes including **Soil health management, rainfed area development, Agro Forestry, Paramparagat Krishi Vikas Yojana, and Per Drop More Crop.**

FSSAI convenes meeting of Rice Millers and Fortified Rice Kernel manufacturers

News Excerpt:

Recently, the **Food Safety and Standards Authority of India (FSSAI)** convened a significant meeting with stakeholders from the Fortified Rice Kernel (FRK) manufacturing sector and rice millers in Hyderabad.

More detail about news:

- The meeting was chaired by **CEO FSSAI**, with special guests including, Commissioner & Principal Secretary to the Government of Telangana, along with other prominent officials from the **Food Safety and Consumer Affairs departments**.
- CEO FSSAI highlighted the importance of maintaining stringent standards for **FRK and the necessary compliance mechanisms** to be adhered to during the fortification process.
 - He reiterated the mandate for **third-party audits** to be conducted by all FRK manufacturers; failure to comply with these regulations will result in consequences for non-compliance.



Key Highlights:

- **Objective of the Program:** Aimed at addressing micronutrient deficiencies like **anaemia in the Indian population** through food fortification.
- **Role of FSSAI:** The Food Safety and Standards Authority of India (FSSAI) has established standards for **Fortified Rice Kernels (FRK) and FRK premixes to ensure quality**. FSSAI mandates batch-wise testing of FRK to maintain quality control.

- **Fortified Crop Varieties:** Recently, the Prime Minister launched **109 high-yielding, nutritionally fortified crop varieties** to boost agricultural productivity and address nutrient deficiencies.
- **Bioavailability of Nutrients:** The significance of bioavailability in **Fortified Rice Kernels (FRK)** was emphasized for effective nutrient absorption.
- **Manufacturers Involved:** Currently, over 900 companies are involved in **FRK manufacturing in India**.
- **Concerns Raised:** Recent reports of non-compliance were discussed, with concerns about **manufacturing practices and record-keeping**.
- **Challenges in Implementation:** D.S. Chauhan, Commissioner & Principal Secretary to the Government of Telangana, highlighted challenges in implementing rice fortification programs such as:
 - **Contamination and adulteration.**
 - **Hygiene issues.**
 - **The presence of duplicate products, especially with rice and tea.**
- **High-Quality Telangana Rice:** Despite challenges, Telangana rice was commended for its high quality.
- **Call for Awareness Programs:** Shri R.V. Karnan, Commissioner of Food Safety, advocated for: District-level awareness programs and Training sessions for manufacturers on **Good Manufacturing Practices (GMP)**.
- **Need for Testing Infrastructure:** Emphasis on identifying key locations within states to establish additional labs for **testing FRK samples to ensure prompt corrective actions** aligned with Food Safety and Standards Regulations.
- **Interaction with Stakeholders:** The meeting fostered interaction between **dignitaries and stakeholders** to discuss challenges in manufacturing, quality control, storage, and testing of FRK.
- **Commitment from FSSAI:** The CEO of FSSAI assured that the authority will address major issues faced by **FRK manufacturers and millers**.

Codex Committee on Nutrition and Foods for Special Dietary Uses

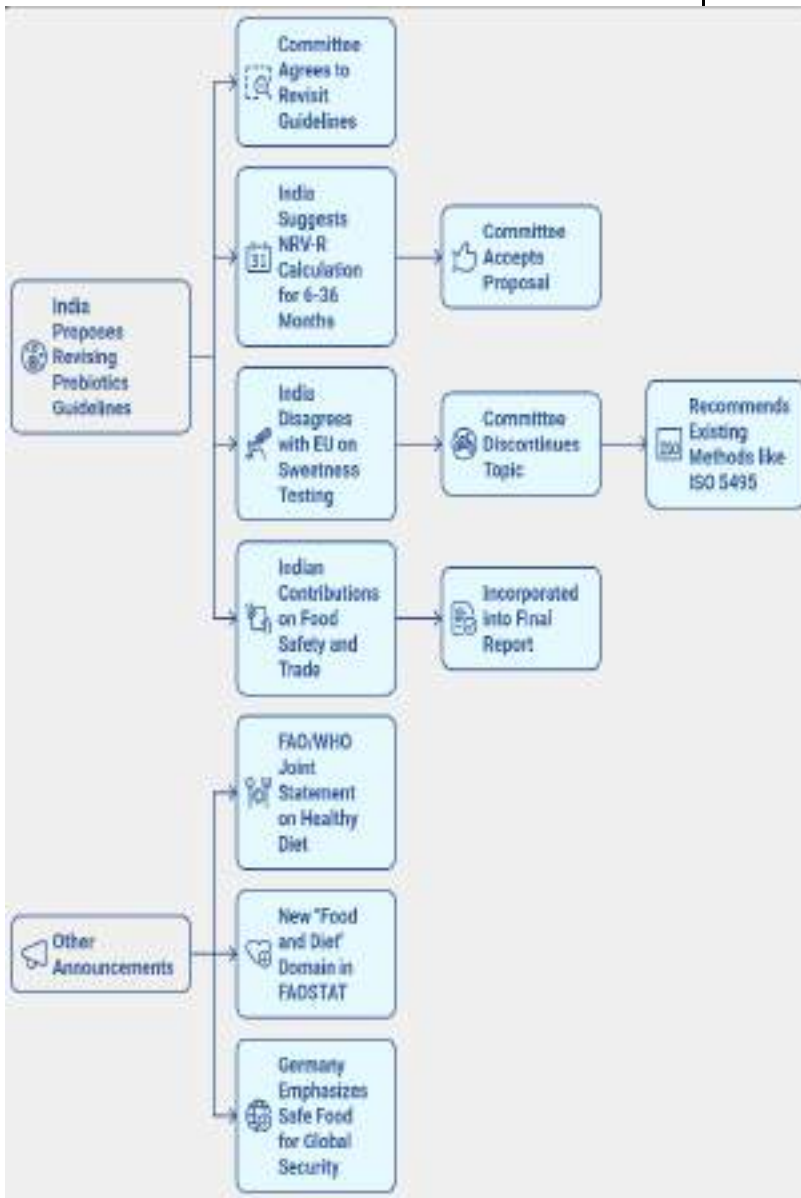
News Excerpt:

India participated in the **44th session of the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) held in Dresden, Germany**. India Advocates for Updated Probiotic Guidelines and Nutrient Standards at Codex Meeting.

More detail about news:

- As a key contributor, India made pivotal interventions on significant agenda items. It provided valuable insights on **nutrient reference values for persons aged 6 to 36 months** and extended its support to frame harmonized **probiotic guidelines** for foods and food supplements.

Key point of 44th Codex Committee on Nutrition (CCNFSDU) Meeting:



British. In 1965, the UK constituted the **British Indian Ocean Territory (BIOT)**, of which the Chagos Islands were central.

- Chagos was attached to Mauritius (then British colony) for administrative purposes.
- When Mauritius gained independence in 1968, Chagos remained with Britain, which gave Mauritius a **3 million pound grant** for the "detachment."

About Diego Garcia

- In 1966, **Britain** signed an **agreement** with the **United States** to use the BIOT for military purposes. Subsequently, the **plantation** on Diego Garcia was **shut down**, and it became unlawful for a person to enter or remain there without a permit.
- It became a fully operational **military base** in **1986**.

Dispute over Chagos Islands

- In **2015**, **Mauritius** initiated **legal proceedings** against the UK at the **Permanent Court of Arbitration**, challenging the UK's sovereignty claims and addressing the forced removal of the Chagossians.
- In **2015**, the Permanent Court of Arbitration **ruled** that the **UK had violated** Mauritius' rights under the United Nations Convention on the Law of the Sea (**UNCLOS**).
- In **2017**, the **UNGA** **voted on Mauritius' resolution** to seek an advisory opinion from the International Court of Justice (ICJ) on the Chagos Islands.
- In **2019**, the ICJ ruled that the 1965 detachment of Chagos from Mauritius before its independence was **illegal**. The ICJ issued an **advisory opinion** that asked the **United Kingdom**

to **unconditionally withdraw** its colonial administration from the area within six months.

INTERNATIONAL RELATIONS

Britain Returns Chagos Islands to Mauritius

News Excerpt:

The **United Kingdom (UK)** has agreed to **cede** sovereignty of the **Chagos Islands** to Mauritius. However, the UK will continue to exercise **sovereign rights over Diego Garcia** Island.

About Chagos Archipelago:

- The Chagos Archipelago is located in the **central Indian Ocean**, about 500 kilometres south of the **Maldives** and around 1,600 kilometres southwest of **India**.
- It comprises **58 islands**, with **Diego Garcia** being the **largest**.
- In **1715**, the **French** colonised Mauritius and the Chagos Islands. In **1814**, France ceded the islands to the



ASEAN-India and East Asia Summits 2024

News Excerpt:

The **21st ASEAN-India Summit** was held in **Vientiane, Lao PDR**, on 10 October 2024. **PM Modi** joined ASEAN leaders to review the progress of the **ASEAN-India Comprehensive Strategic Partnership** and chart the future direction of cooperation.

Key highlights of the Summit

- PM reiterated India's support for **ASEAN Unity, ASEAN Centrality** and **ASEAN Outlook on the Indo-Pacific**.
- Emphasizing the vibrancy of **India's Act East Policy**, PM noted that in the last ten years -
 - **India-ASEAN trade** had doubled to over **USD 130 billion**; ASEAN is today one of India's largest trade and investment partners.
 - **Direct flight connectivity** was established with **seven ASEAN countries**.
 - A promising beginning was made with **Fin-tech collaboration** with the region.
 - Significant progress has been made in restoring shared **cultural heritage** in **five ASEAN countries**.

PM Modi announced a **10-point plan** that was in keeping with the Chair's **theme of "Enhancing Connectivity and Resilience."**

- Celebrating **2025** as the **ASEAN-India Year of Tourism**, India will make **USD 5 million** available for joint activities.
- To celebrate a **decade of Act East Policy** through several people-centric activities, including Youth Summit, Start-up Festival, Hackathon, Music Festival, ASEAN-India Network of Think Tanks and Delhi Dialogue.
- To organize the ASEAN-India **Women Scientists Conclave** under the ASEAN-India Science and Technology Development Fund.
- Doubling the number of **scholarships at Nalanda University** and provision of new scholarships for ASEAN students at **Agricultural Universities** in India.
- Review of ASEAN-India Trade in **Goods Agreement** by 2025.
- Enhancing **Disaster Resilience**, for which India would make available **USD 5 million**.
- Initiate a new Health Minister's track towards building **Health Resilience**.
- Initiate a regular ASEAN-India **Cyber Policy Dialogue** mechanism towards strengthening Digital and Cyber Resilience.
- Workshop on **Green Hydrogen**.
- Invited ASEAN Leaders to join the '**Plant a Tree for Mother**' campaign towards building climate resilience.



- The PM underlined the need to complete the review of the **ASEAN-India FTA (AITIGA)** promptly to harness the greater economic potential for the benefit of the ASEAN-India community.
- The PM also discussed the progress made by the **scholarships** provided to ASEAN youth at **Nalanda University** in the India-ASEAN knowledge partnership.
- Leaders agreed to create a new **ASEAN-India Plan of Action (2026-2030)** that will guide both sides in realising the full potential of the ASEAN-India partnership.
- **Two Joint Statements** were adopted:
 - Strengthening ASEAN-India Comprehensive Strategic Partnership for Peace, Stability and Prosperity in the Region in the Context of the **ASEAN Outlook on the Indo-Pacific (AOIP)** with the support of India's Act East Policy (AEP).
 - **Advancing Digital Transformation:** Leaders appreciated India's leadership in digital transformation and welcomed partnership with India in digital public infrastructure, Financial Technology, Cybersecurity, Artificial Intelligence (AI), etc.

About ASEAN

- It was established on 8 August 1967 in **Bangkok, Thailand**, with the ASEAN Declaration (**Bangkok Declaration**) signed by Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Brunei Darussalam, Vietnam, Lao PDR, Myanmar, and Cambodia later joined.
 - **Timor-Leste** joined the ASEAN in 2022 as an Observer. ASEAN has agreed in principle to accept Timor-Leste as its **11th member**.
- ASEAN is a regional grouping that aims to promote **economic and security cooperation** among its

members. Its motto is “**One Vision, One Identity, One Community.**”

- Its **Secretariat** is located in Jakarta, Indonesia.
- As of 2022, ASEAN countries had a total **population of 662 million** and a combined gross domestic product (GDP) of **\$3.2 trillion**.

About East Asia Summit

- The East Asia Summit (EAS) process was initiated in **2005**, when the 1st East Asia Summit was convened in Kuala Lumpur, Malaysia.
- It comprises **eighteen participating countries**, including **ten ASEAN Member States** and **Australia, China, India, Japan, New Zealand, the Republic of Korea, the Russian Federation, and the United States of America**.
- The East Asia Summit has identified **six priority areas** of cooperation:
 - Environment and Energy, Education, Finance, Global Health Issues and Pandemic Diseases, Natural Disaster Management, and ASEAN Connectivity.

Canada and Australia Tighten International Student Permit Policies

News Excerpt

Canadian **PM Justin Trudeau** announced significant changes to the country's international work permit system. **Australia's Education Minister** announced a plan to introduce a **National Planning Level (NPL)** earlier. Both aimed at reducing International students.

Canada

Changes in International Work Permit System

- **Reduction in Student Permits:** Canada plans to issue **35% fewer** international student permits in 2024 than the previous year, with another 10% reduction in 2025. In 2023, Canada issued over 500,000 student permits, but this number is expected to drop to 437,000 by 2025.
- **Limitations on Low-Wage Temporary Foreign Workers:** Trudeau also announced reductions in the number of low-wage, temporary foreign workers and the shortening of their work terms. The government aims to encourage businesses to **invest in Canadian workers** rather than relying on temporary foreign labour.

New Restrictions on Postgraduate Work Permits (PGWPs)

- **Reduction in PGWPs:** Over the next three years, Canada plans to reduce the number of postgraduate work permits by 175,000 through stricter regulations.
- **New Language Proficiency Requirements:** Starting from November 1, international students will be required to pass the Canadian Language Benchmark (CLB) test before applying for a PGWP.

- **Limitations on Spousal Work Permits:** Spousal work permits will also be reduced by 50,000 and will only be granted if the spouse is pursuing a master's program for a minimum of 16 months.
- **Field of Study Restrictions:** Graduates from public colleges will still be eligible for PGWPs, but only if their field of study is connected to occupations that face long-term labour shortages in Canada.
- **Provincial Attestation Letter (PAL) Requirement:** Students enrolling in master's and doctoral programs will now need to obtain a Provincial Attestation Letter (PAL).

Australia:

National Planning Level (NPL)

- The NPL will **limit** the number of **new international students to 270,000 for 2025**. This proposed cap represents the **lowest intake** of international students in the last five years and a significant decrease from the 561,000 international students who began their studies in 2023.

Other measures taken to check migration

- Australia recently increased its **visa processing fee** from AUD 710 to **AUD 1,600**.
- Since January 1, Australia has introduced **stricter requirements** for International English Language Testing System (**IELTS**) scores and the **Genuine Student Test** for applicants.

Reasons Behind the Curb

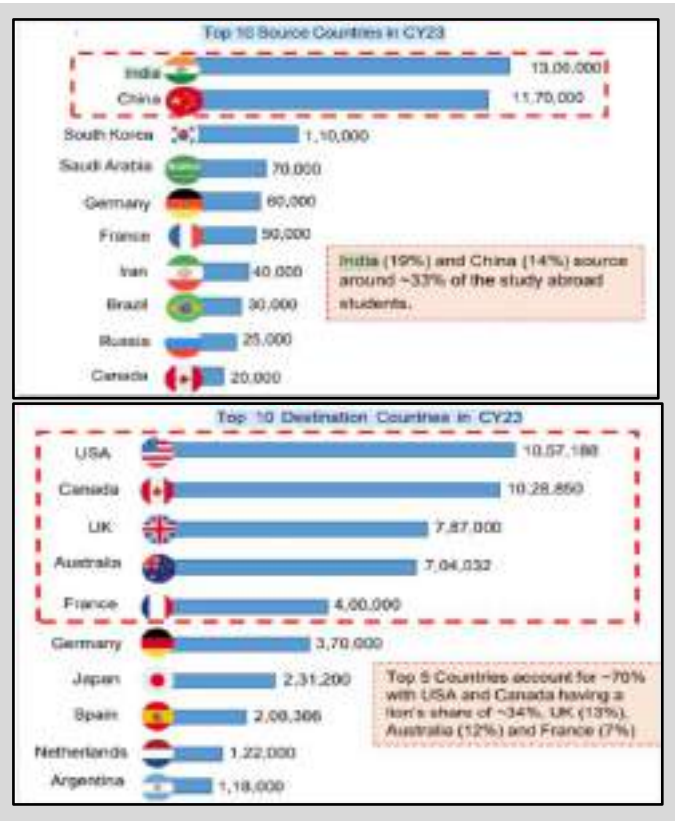
- **Infrastructure Pressure and Housing Costs:** There has been a significant rise in immigration, which has strained cities' infrastructure, raised rent prices, and increased demand for services.
- **Immigration System Abuse:** There have been instances where international students used the system to apply for asylum after arriving in Canada.

Alternatives for International Students

- **Shifting to Other Study Destinations:** These measures may encourage students, especially from countries like India and China, to explore alternative study destinations.
- Emerging educational hubs like Germany, Singapore, Italy, and Ireland are gaining popularity among international students due to their competitive educational systems and growing opportunities for work and immigration.

Top Countries for International Students

- **India and China** are the leading countries that **send students** abroad for education, contributing **nearly 40%** of the total international higher education expenditure.
- In 2023, **India** led global **overseas education spending** with an impressive **\$60 billion**, while China followed with \$40 million.



India Becomes 3rd Most Powerful Nation in Asia

News Excerpt

India surpassed Japan to become the third-largest power in the Asia Power Index 2024, reflecting its increasing geopolitical stature.

About Asia Power Index

- The **Lowy Institute** launched the Asia Power Index in **2018**. It is an **annual** measure of power dynamics in the **Asia-Pacific region**.
- It evaluates **27 countries** across the Asia-Pacific, examining their ability to shape and respond to the external environment.
 - **Timor-Leste** has been included for the **first time** in the 2024 edition, reflecting its growing importance in Southeast Asia.
- A country's **overall power score** is derived from a **weighted average** of the **eight measures**, encompassing **131 individual indicators**.

Criteria and Parameters of Power Measurement:

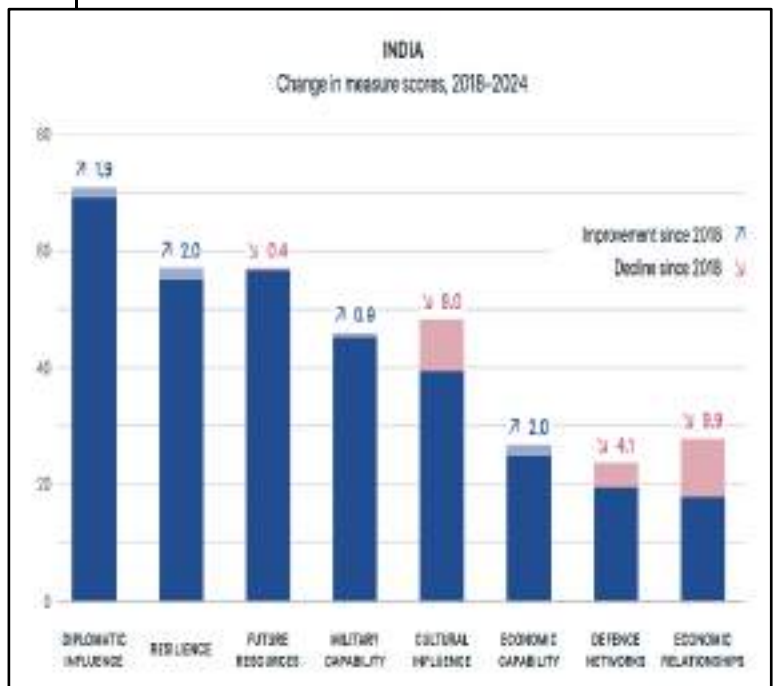
- **Resource-Based Determinants:**
 - **Economic Capability:** It is measured through indicators like GDP at purchasing power parity (PPP), technological sophistication, and global economic connectivity.
 - **Military Capability:** Evaluates conventional military strength based on defence spending,

armed forces, weapon systems, and signature capabilities like long-range power projection.

- **Resilience:** The internal capacity to deter threats to state stability, including institutional robustness, geopolitical security, and resource security.
- **Future Resources:** Forecasts the future distribution of resources, including economic, military, and demographic factors projected for 2035.
- **Influence-Based Determinants:**
 - **Economic Relationships:** The capacity to exercise leverage through trade, investment, and economic diplomacy.
 - **Defense Networks:** The strength of alliances and partnerships is measured through military cooperation and arms transfers.
 - **Diplomatic Influence:** The extent of a country's diplomatic reach, participation in multilateral forums, and foreign policy ambition.
 - **Cultural Influence:** The ability to shape international public opinion through cultural exports, media, and people-to-people ties.

Key Factors Behind India's Rise:

- **Economic Growth:** India has shown remarkable post-pandemic economic recovery, contributing to a **4.2-point rise** in its Economic Capability. India's massive population and strong GDP growth reinforce its standing as the world's third-largest economy in PPP terms.
- **Future Potential:** India's Future Resources score increased by **8.2 points**, signalling a potential demographic dividend. Unlike its regional competitors, particularly China and Japan, India benefits from a **youthful population** that will continue to drive economic growth and labour force expansion in the coming decades.



- **Diplomatic Influence:** India's **non-aligned** strategic posture has allowed it to navigate complex international waters effectively. In **2023**, India **ranked sixth** in terms of diplomatic dialogues, reflecting its active engagement in multilateral forums.
- **Cultural Influence:** India's score in Cultural Influence has also remained relatively strong, underpinned by its global **diaspora** and cultural exports.

UN peacekeepers at Lebanon's border

News Excerpt

India expressed concern over the worsening security situation in West Asia after two UNIFIL peacekeepers were injured near Lebanon's border with Israel.

About United Nations Interim Force in Lebanon (UNIFIL)

- It is a **peacekeeping mission** with over **10,000** civilian and military personnel from **50 countries** tasked with preventing violations along the **121-km "Blue Line"** border between **Lebanon and Israel**.
- It was established under a **2006 UN resolution**; the force is responsible for **ensuring** the area is **free of hostile activities**, including the presence of **weapons or fighters**.
- Though armed, the peacekeepers can **only use force** when their safety or that of civilians is in immediate danger, and they **report violations** to the **UN Security Council**.
- The **U.S. and Israel** have frequently **criticised UNIFIL** for being ineffective in preventing Hezbollah from stockpiling and firing rockets.

About UN Peacekeeping

- The UN Charter gives the Security Council primary responsibility for maintaining international **peace and security**. In fulfilling this responsibility, the Council can establish a **UN peace operation**.
- **Principles**
 - Consent of the parties
 - Impartiality
 - Non-use of force except in self-defence and defence of the mandate

ENVIRONMENT

China's Carbon Market

News Excerpt

China is seeking **public feedback** on a plan to include cement, steel, and aluminium production in its carbon emissions trading scheme (ETS).

About Carbon Market

- It is designed to help **control** and **reduce** greenhouse gas emissions by assigning a price to carbon dioxide (**CO₂**) emissions.
- A carbon market allows the **trade of carbon credits or allowances** between entities that emit CO₂ and those that reduce or sequester it.
 - **Carbon credits** are tradable permits representing the removal, reduction, or sequestration of one ton of carbon dioxide from the atmosphere.
 - **Carbon allowances**, or caps, are limits governments or countries set based on emission reduction targets. These caps regulate the total emissions allowed, creating a framework for trading.
- It was introduced in **1997** under the United Nations' **Kyoto Protocol**.
 - It introduced the concept of "**cap-and-trade**," where countries were allocated emission limits, and carbon credits could be traded among them.
 - It also introduced the **Clean Development Mechanism (CDM)**, which enables developed countries to invest in emission reduction projects in developing nations and earn carbon credits, which they could use to meet their targets.

About China's Carbon Market

- China's carbon market consists of a **mandatory emission trading system (ETS)** and a **voluntary** greenhouse gas (GHG) emissions reduction trading market, also known as the China Certified Emission Reduction (**CCER**) scheme.
 - **Emission Trading System (ETS):**
 - Under the scheme, firms are granted a **quota of free** certified emission allowances (**CEAs**). If actual emissions exceed a company's quota during a given compliance period, it must buy more allowances from the market to cover the gap. If its emissions are lower, it can sell its surplus CEAs.
 - It has become the **world's largest** emissions trading platform, covering about 5.1 billion tons of carbon dioxide equivalent, around 40% of China's total.
 - **China Certified Emission Reduction (CCER) Scheme:**
 - The CCER market allows broader participation and supports key emitters in meeting their targets under the ETS by providing an **option to offset 5%** of their total emissions with voluntary credit.

India's Carbon Market

- **Energy Conservation (Amendment) Act, 2022:** This act was enacted in 2023. It allows the Ministry of Power and central government authority to create and manage

carbon trading schemes and issue Carbon Credit Certificates.

- **Market-Based Emission Reduction Scheme:** India currently operates two market-based emission reduction schemes:
 - **Perform, Achieve and Trade (PAT):** The scheme aims at reducing Specific Energy Consumption (SEC), i.e. energy use per unit of production for Designated Consumers (DCs) in energy-intensive sectors, with an associated market mechanism to enhance the cost-effectiveness through certification of excess energy saving which can be traded.
 - **Renewable Energy Certificate (REC):** It is a market-based instrument to promote renewable energy and facilitate the compliance of renewable purchase obligations (RPO). It addresses the mismatch between the availability of RE resources in the state and the requirement of the obligated entities to meet the renewable purchase obligation (RPO).
- **Carbon Credits Trading Scheme (CCTS):** The CCTS is a unified Indian Carbon Market (ICM) established to reduce GHG emissions by trading carbon credit certificates. Obligated entities will have GHG emission intensity targets and receive or purchase carbon credit certificates based on performance.
- **Indian Carbon Market (ICM) Initiative:** The government plans to establish the Indian Carbon Market (ICM) as a national framework for decarbonising the domestic economy.

Azerbaijan's New Climate Fund

News Excerpt:

As the world gears up for the Conference of Parties (COP29) to the **UN Framework Convention on Climate Change (UNFCCC)**, Azerbaijan, the host of this year's event, has introduced a new **climate finance proposal**.

< The Conference of Parties (COP29) will take place in Baku from **November 11 to 22**. It will primarily focus on finalizing a new **climate finance agreement** for the post-2025 period.

About Climate Finance Action Fund (CFAF)

- The CFAF, Azerbaijan's brainchild, is designed to generate **financial contributions** for climate action, particularly in developing countries.
- This fund is **unique** in its reliance on **voluntary donations** from **oil and gas-producing countries and corporations**, a stark contrast to existing climate funds that rely on mandatory contributions from developed nations.
- Azerbaijan, a petroleum-based economy, has committed to making the **initial contribution** to the fund, though the target amount to be raised remains unspecified.

- The CFAF aims to channel **half of the funds** raised toward **climate projects** in developing countries, while the **other half** will help these nations implement their national **climate action plans**.

About UNFCCC

- It was signed in **1992** at the **United Nations Conference on Environment and Development**, also known as the **Earth Summit**, the Rio Summit or the Rio Conference. Its secretariat is in Bonn, Germany.
- It is the parent treaty of the **2015 Paris Agreement**. As mandated by the Paris Agreement, rich and industrialized countries have been under an obligation to raise at least **\$100 billion** annually since 2020.
- According to **Article 2**, the Convention's ultimate objective is "to achieve, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".
- **Article 7.2** defines the Conference of the Parties (COP) as the "**supreme body**" of the Convention, as it is its highest decision-making authority.

Azerbaijan's Broader Proposals for COP29

- A pledge to increase global **energy storage** capacity **sixfold** by 2030.
- A declaration to work towards establishing a global market for **green hydrogen**.
- A commitment to minimizing the **carbon footprint** of **digital technologies** and **data centres**.

South America is Burning

News Excerpt:

South America is witnessing its worst **forest fire** season in nearly two decades. Satellite data analyzed by Brazil's space research agency INPE has spotted **346,112 fire hotspots** so far this year in all 13 countries of South America.



Extent of Damage:

- The fires have primarily devastated the **Amazon rainforest**, impacting Brazil, Peru, Bolivia, Colombia, and other nations. In **Brazil** alone, which accounts for about **60% of all fires** in the region, over **11 million hectares of land** have been scorched between January

and August—an area roughly twice the size of Uttarakhand, India.

- Three key ecosystems—the **Amazon, Cerrado,** and **Pantanal**—have been particularly hard-hit.

- **Refined Methodology:** The Ministry has stated that the elephant census employed refined counting methods, making comparisons with previous censuses challenging.

- This census's new **DNA profiling method** is more **precise**, but experts suggest it may **not fully explain the drastic fall** in elephant populations. For instance, In northern landscapes like the **Shivalik Hills** and the **Gangetic Plain**, the new method yielded results (2,062 elephants) similar to those of previous censuses (2,096 elephants), indicating that the sharp declines in other regions are likely due to real factors, not just methodological changes.

Previous Elephant Counting Methods

- **Total Direct Count (Pre-2002):** Until 2002, elephants were counted using the total direct count method, which involved simply counting the number of elephants sighted. However, this method had **limited**

scientific credibility for larger landscapes or populations.

- **Indirect Dung Count Method (Post-2002):** In 2002, the indirect dung count method was introduced, especially in southern states. This method involved enumerators walking along designated lines in forests, recording elephant dung, and factoring in the dung decay rate to estimate elephant densities. This method provided **more reliable data** on elephant populations over larger areas.
- **Sample Block Counts:** The total direct count method was later modified into sample block counts, which surveyed limited **five-square-kilometre areas** to increase the probability of detecting and enumerating elephants. The elephant density in these blocks was extrapolated to estimate populations in larger areas.

Converging Tiger and Elephant Census Methods

- On **World Elephant Day (August 12)** in 2021, the Environment Minister announced that the government would “harmonise population estimation methods along more scientific lines” by “converging elephant and tiger population estimation” for the first time.
 - **Forest areas** are divided into **cells** where ground surveys are conducted to detect signs of tigers. These surveys assess **vegetation quality, prey availability,** and **human disturbance** to estimate tiger densities.
 - This method was adapted for elephants in the 2022-23 census using **camera traps** and a **statistical model** called mark-recapture.
 - However, unlike tigers, **elephants do not have unique markings** like stripes. Instead, **genetic mark-recapture** was employed, with elephant dung samples analysed to differentiate individual

Causes of Wildfires:

Seasonal Agricultural Practices:

The annual increase in fires from August to October can be attributed to farmers intentionally burning land for agriculture.

Drought Conditions:

About 59% of Brazil faces drought, with historic lows in river flows throughout the Amazon basin. The recent El Niño phenomenon intensified these conditions, making fires more likely to spread.

Deforestation:

High levels of deforestation, particularly in Amazon, have created conditions conducive to wildfires. Deforestation alters regional weather patterns, increasing droughts that make forests more vulnerable to fires.

Climate Change:

Recent studies indicate that rising temperatures have made droughts 30 times more likely and have intensified extreme weather patterns.

Health Implications:

- The smoke from these fires has created **toxic air quality** across multiple countries, deteriorating **visibility** and **health concerns**.
- The smoke has led to **respiratory issues**, with experts warning that thousands may suffer **premature deaths** due to smoke inhalation. Studies estimate that wildfire smoke contributes to approximately **12,000 early deaths** annually in South America.

Elephant Census

News Excerpt

The Environment Ministry has delayed the release of the elephant census report until at least June 2025, Status of Elephant in India 2022-23, due to the pending completion of the census in the Northeast.

Key highlights from the unreleased report

- **Decline in Elephant Populations:** The shelved report reveals a sharp decline in elephant populations, particularly in the east-central and southern landscapes:
 - **Southern West Bengal:** 84% decline
 - **Jharkhand:** 64% decline
 - **Odisha:** 54% decline
 - **Kerala:** 51% decline
- The report attributes this decline primarily to **"mushrooming developmental projects"** such as unmitigated mining and linear infrastructure construction, threatening the species' habitat and survival.

elephants based on microsatellite loci (genetic markers).

Significance of Timely Census Data

- Experts worry that the delay in releasing the census report could harm elephant **conservation efforts**, as it could **inform policies** and **guide interventions**.
 - **For example**, elephant populations in **Odisha** face specific threats from mining and low-hanging power lines, and the drastic decline in numbers should have already prompted action.

Green patch spreads in Antarctica

News Excerpt

A new study reveals that **plant cover** on the **Antarctic Peninsula**, a mountainous region extending towards **South America**, has increased more than **tenfold** in recent decades due to rising temperatures.

Key highlights of the study



- Scientists from the University of Exeter, Hertfordshire, and the British Antarctic Survey published their study, which used **satellite images** of the **Antarctic Peninsula between 1986 and 2021**.
- **Vegetation cover** rose from below one square kilometre in 1986 to about **12 square kilometres in 2021**. This increased plant cover by a **factor of ten** is symptomatic of the various transformations in this area.
- The main impetus behind this greening is climate change. In particular, the **air temperature has increased** in the Antarctic Peninsula **nearly threefold** the average global rate. This warming has created circumstances that challenge plant growth, especially **Moss** in this portion of the Antarctic.
- It also states that the average global temperature has risen, and as a result, **recurrent heat waves** are more powerful, which contributes to the growth of vegetation even more.

Impact of the Vegetation Growth

- It has consequences for the contemporary **fauna and flora** of this territory. If the **new plant species** are somehow interrelated with

ice, they can **threaten native species** that have learned to exist in that environment.

- The spread of vegetation also affects the **soil's physical, chemical, and biological** characteristics and the **nutrient cycle** from the soil to the food chain. Specialists are worried about such shifts, as these changes may threaten extraordinary Antarctic species and **decrease diversity**.
- Ice shelves and floating glaciers help regulate global temperature by **reflecting sunlight** into space. The greening of Antarctica could endanger the **balance** since **vegetation reflects more heat** than white ice and snow. It can increase global temperature, intensifying more changes that participate in the cycle of change, worsening climate change.

SCIENCE & TECHNOLOGY

SPACE

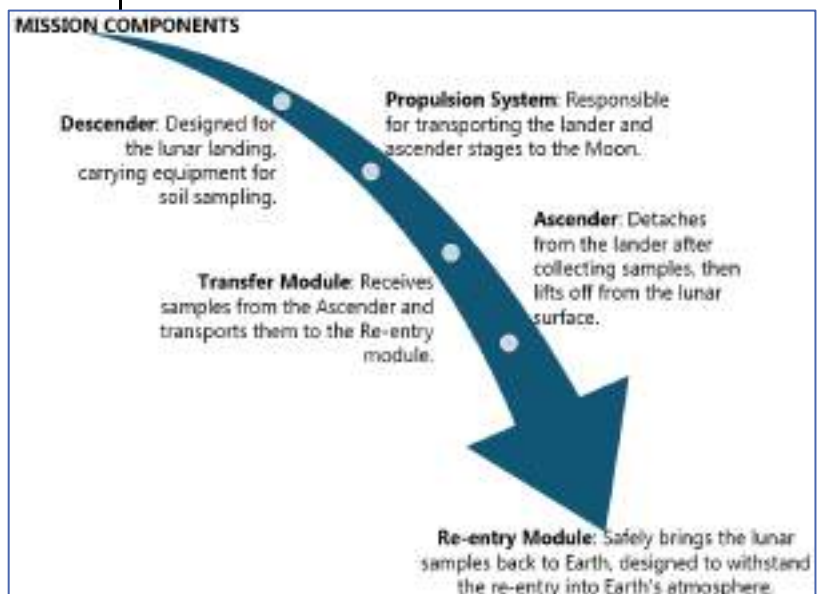
New Moon Mission approved

News Excerpt:

The **Union Cabinet** has officially approved the **Chandrayaan-4 mission**, a lunar sample-return mission.

More about Chandrayaan-4

- The mission will be managed by the **Indian Space Research Organisation (ISRO)**, and is allocated a total funding of **Rs 2,104.06 crore**.
- The **focus of Chandrayaan-4** will be to develop and demonstrate **critical technologies** required for **landing Indian astronauts on the moon** and **ensuring their safe return to Earth**.
- The **Chandrayaan-4 mission** is a **precursor to India's ambition of landing astronauts on the moon by 2040**.
- Major technologies to be demonstrated include
 - **docking/undocking**,
 - **lunar landing**,



- safe return to Earth, and
- lunar sample collection and analysis, etc.
- ISRO will be responsible for **the spacecraft's development and its launch**, while all **critical technologies** required for the mission will be developed domestically.

Green lights two other major space initiatives:

- **Venus Orbiter Mission (VOM):** This mission will explore Venus's atmosphere and geology.
- **Bharatiya Antariksh Station (BAS):** The Cabinet approved the development of **India's space station**, set to be called the **Bharatiya Antariksh Station**.
 - The **first module of BAS** is scheduled for launch in 2028. Once operational, **BAS will become one of the few active space stations**, joining **the International Space Station** and **China's Tiangong**. It will serve as a **hub for scientific research and experiments** in space.

First mission to Venus

News Excerpt:

The **Union Cabinet** approved **India's first mission to Venus** which ISRO aims to launch in **March 2028**.

More about the news:

- < This is **the country's second interplanetary mission** after the **Mars Orbiter Mission** launched in 2013.
- < The **Venus mission** is meant **to study the planet from an orbit around it**, focusing on the planet's surface, sub-surface, atmosphere, ionosphere, and its interaction with the Sun.

Why is it important to study Venus?

- **Venus** is often called **Earth's twin** because **it is similar in mass, density, and size**.
- Therefore, **studying Venus** may offer scientists clues about **the evolution of Earth**. Notably, **Venus is thought to have had water at some point in its history** but has now become a **dry and dusty planet**.
- The mission will carry **scientific instruments from India and abroad** to examine the **surface and sub-surface of Venus**, its atmosphere, its ionosphere, and its interaction with the Sun.

The planet differs from Earth

- **First**, it has an **extremely high surface temperature** of around **462 degree Celsius**, even hotter than **Mercury** — the planet that is **closest to the Sun**.

- **Second**, the atmospheric pressure on Venus is **much higher than on Earth**. It is almost **similar to the pressure felt underneath the oceans on Earth**.
- **Third**, **96.5% of the atmosphere of Venus** is made up of **carbon dioxide** and there are **sulphuric acid clouds** on the planet.
- **Fourth**, **Venus rotates very slowly on its axis** as compared to Earth. **One rotation of Venus** lasts around **243 Earth days**.

About the Venus mission:

- With **Earth and Venus** coming close to each other — offering **the shortest path for a mission** — **only every 19 months**, the timeline is of **extreme importance**.
- The mission was earlier planned for 2023 but as per the recent Cabinet, **approvals will now take place in March 2028**.
- The mission will carry **scientific payloads weighing around 100 kg**.
- It will follow a plan similar to **India's other space exploration missions** — the satellite will gain speed in **Earth's orbit**, will get **sling-shot towards Venus**, and then get captured in its orbit.
- Once the **satellite exits the Earth orbit**, it will take around **140 days to reach Venus**.
- The mission will also see **India perform aero-braking for the first time**.

What is aero-braking?

Inside Planet VENUS

Venus is often visible to the naked eye in the morning and evening sky. It has often been called Earth's "twin" because of its similar size, but space probes have discovered that the environment there is actually quite inhospitable.

THICK ATMOSPHERE
96.5% carbon dioxide, 3.5% nitrogen plus trace gases

SURFACE CONDITIONS
AIR PRESSURE: 90x Earth
TEMPERATURE: 870°F (465°C)
WINDS: up to 220 mph (100 m/s)

METAL CORE It is not known if Venus' core is solid. Unlike Earth, Venus' weak magnetic field is not produced by a dynamo in the core.

GRAVITY 0.9 OF EARTH

EARTH 10ft dunk
VENUS 11ft dunk

The surface of Venus photographed by a Russian probe in 1982

Venus, 7,520 mi (12,100 km) in diameter, is slightly smaller than Earth

SOURCE: NASA
KARL TATE, SPACE.com

- Keeping in mind the **fuel considerations**, the **satellite would be placed in a highly elliptical orbit of 500 km x 60,000 km around Venus**. This, however, is too high for the science payloads to **conduct experiments**.
- The satellite will be **brought down to either 300 x 300 km or 200 x 600 km orbit** — depending on the requirements of the finalised payload — with the help of **aero-braking**.
- This will see the **satellite being pushed down to around 140 km several times** when it is at the point in the **elliptical orbit where it is closest to Venus**.



- At this height, **the satellite will skim through the outer layer of the Venusian atmosphere**, which will create a **drag slowing down the satellite and thereby reducing the height of the orbit gradually**.
- The **height range at which the satellite skims the atmosphere** has to be selected very carefully — **if the satellite plunges too deep, it may face extreme friction and burn up**, but if it is **too shallow**, it may take a **very long time for the satellite to reach the desired orbit**.
- It will take around **six months for the satellite to reach the intended orbit**, as per discussions of scientists during the Venus science meet in 2022.
- **Once the intended orbit is reached**, however, the satellite will **completely exit the planet's atmosphere**.
- This is because if the **satellite continues to experience the drag**, it will have to use up a lot of fuel **to prevent the orbit from reducing further**.

Are other countries also trying to study the planet?

- There have been **several missions to Venus in the past** by the **United States**, the **erstwhile USSR**, **Japan**, and a **collaborative mission of the European Space Agency (ESA) with Japan**.
- The US has planned at least **two more missions to Venus in the future** — **DaVinci in 2029** and **Veritas in 2031** — and the **ESA has planned the EnVision mission for 2030**.

GENERAL SCIENCE

First Government supported LLM Initiative

News Excerpt:

BharatGen, a **pioneering initiative in generative AI** designed to **revolutionize public service delivery** and **boost citizen engagement** through **developing a suite of foundational models in language**, speech and computer vision, was inaugurated by Dr. Jitendra Singh, Union Minister of State (Independent Charge) for Science and Technology in New Delhi.

More about BharatGen

- **BharatGen is a proud example of India's commitment to advancing homegrown technologies.**
- It positions **India as a global leader in the field of Generative AI**, much like our achievements with UPI and other innovations that have transformed various sectors.
- This initiative marks the **world's first government-funded Multimodal Large Language Model project** focused on creating efficient and **inclusive AI in Indian languages**.
- **Spearheaded by IIT Bombay under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)**, of the **Department of Science and Technology (DST)**, the initiative **will create generative AI systems** that can generate high-quality text and **multimodal content in various Indian languages**.
- **BharatGen will deliver generative AI models and their applications as a public good** by prioritizing **India's socio-cultural and linguistic diversity**.
- It strives to **address India's broader needs** such as **social equity, cultural preservation, and linguistic diversity**, while ensuring that **generative AI reaches all segments of society**.
- **BharatGen is aligned with the goal of making AI accessible to all citizens**, using AI **not only for industrial and commercial purposes** but also to **address national priorities** like cultural preservation and inclusive technology development.

Features of BharatGen

- The **four key distinguishing features of BharatGen** are the **multilingual and multimodal nature** of foundation models; **Bhartiya data set based building, and training**; **open-source platform and development of an ecosystem** of generative AI research in the country.
- The project is expected to be completed in **two years along with plans** to benefit several government, private, educational, and research institutions.
- **BharatGen will cater to both text and speech**, ensuring **coverage across India's diverse linguistic landscape**. By training on **multilingual datasets**, it will deeply

capture the nuances of Indian languages, which are **often underrepresented in global AI models**.

- Further, unlike models that rely on global datasets, **BharatGen focuses** on developing processes for collecting and curating **India-centric data**, ensuring that the **country's diverse languages**, dialects, and cultural contexts are accurately represented.
- This emphasis on data sovereignty **strengthens India's control** over its digital resources and narrative.

Minerals Security Finance Network (MSFN)

News Excerpt:

India has joined the US-led initiative Minerals Security Finance Network (MSFN), aimed at securing supply chains for critical minerals. The announcement was made during the United Nations General Assembly.

About MSFN:

- MSFN stems from the Minerals Security Partnership (MSP) established by the US in 2022.
- India was inducted into MSP in June 2023.
- It aims to **reduce the global reliance on countries like China, particularly for rare earth minerals**, which are critical for various technologies.
- The initiative **seeks collaboration between Development Finance Institutions (DFIs) and Export Credit Agencies (ECAs)** from participating nations, alongside the private sector, to create synergies and increase production capacity for critical minerals.
- It is primarily focused on minerals like cobalt, nickel, lithium, and the 17 rare earth elements (REs), essential for electric vehicle batteries and high-end electronics.
- **The global demand for critical minerals is increasing due to the clean energy transition.**
- MSFN focuses on ensuring resilient supply chains for these minerals.

Significance for India:

- **China holds a dominant position in the rare earth minerals market**, particularly in heavy rare earth elements (HREEs) like dysprosium and terbium.
- Currently, **India relies heavily on imports of these elements from China.**
- India joined MSFN aiming **to secure minerals for its growing electric vehicle (EV) and electronics sectors.**
- India seeks to **diversify its supply sources from Argentina, Chile, Australia, and Africa.**

NCoE for AVGC-XR

News Excerpt:

The **Union Cabinet**, chaired by **Prime Minister Narendra Modi** approved the **establishment of the National Centre**

of Excellence (NCoE) for Animation, Visual Effects, Gaming, Comics and Extended Reality (AVGC-XR).

About NCoE for AVGC-XR

- It will be set up as a **Section 8 company under the Companies Act, 2013** in India, with the **Federation of Indian Chambers of Commerce & Industry** and **Confederation of Indian Industry** representing the industry bodies as partners with the Centre.
- The **NCoE will be set up in Mumbai** and is in pursuance of the Union Minister for Finance and Corporate Affairs' budget announcement for 2022-23 regarding the **establishment of an AVGC** (animation, visual effects, gaming and comics) Task Force in the country.
- **With rapidly evolving technology and increasing internet penetration** across the country, coupled with lowest data rates, **the usage of AVGC-XR globally** is poised to grow at an exponential pace.
- This will **act as the pinnacle institution to anchor the AVGC-XR ecosystem** in the country.
- Along with offering specialised **training-cum-learning programmes** to equip both amateurs and professionals with the latest skill sets in **cutting-edge AVGC-XR technologies.**
- The institution will focus on creating **Indian IP, leverage India's cultural heritage** in the new age and create a multiplier effect.

Cancer Moonshot Initiative

News Excerpt:

The **Quad grouping** took a **groundbreaking cancer initiative global** called the **Quad Cancer Moonshot Initiative.**

More about the Initiative

- It will **focus on expanding cervical cancer screening; increasing vaccinations** against the **human papillomavirus, or HPV**, a common **sexually transmitted infection** that is the **primary cause of cervical cancer**; and treating patients.
- It was announced by **US President Joe Biden** on the sidelines of the **Quad Leaders Summit**, will begin by catering **to cases of cervical cancer.**
- Aimed at implementing **innovative strategies to prevent, detect, treat and alleviate the impact of cancer on patients and their families**, the **Quad initiative** will work to promote **human papillomavirus (HPV) vaccination**, increase access to screenings, and expand treatment options and care in underserved areas.

India's contribution to the Cancer Moonshot Initiative

- India is working on an **AI based treatment protocol for the disease.**

- PM Modi dedicated a “grant of US \$7.5 million to cancer testing, screening, and diagnostics in the Indo-Pacific region”.
- India will provide support for radiotherapy treatment and capacity building for cancer prevention in the Indo-Pacific.
- Indo-Pacific countries will be benefiting from the supply of 40 million doses of vaccine from India under GAVI and QUAD programs.
- India will, additionally, offer technical assistance to interested countries in the Indo-Pacific region on DPI for cancer screening, care and continuum through its US \$10 million contribution to WHO’s-Global Initiative on Digital Health.

- 41 economies are performing below expectations on innovation, the majority from Latin America, the Caribbean and Sub-Saharan Africa.

India’s results:

- The index, has placed India at the top among the 38 lower-middle-income economies.
- The report recognises India’s regional dominance, ranking it first among 10 economies in Central and Southern Asia.
- India has secured the fourth position in the World Intellectual Property Organisation (WIPO) Science and Technology (S&T) Cluster Ranking, the report added.

India in Global Innovation Index

News Excerpt:

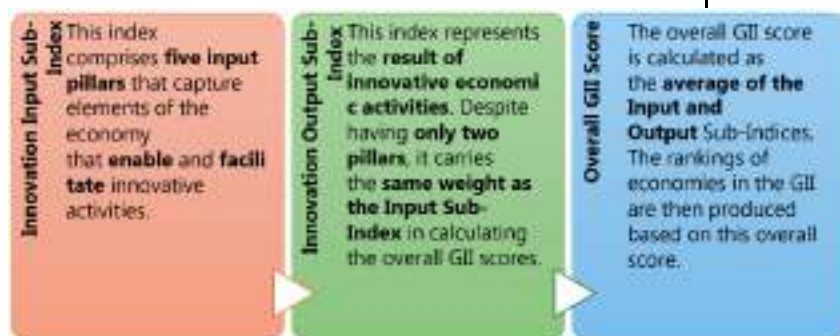
India has ascended 42 positions in the Global Innovation Index (GII) since 2015 and now ranks 39th out of 133 economies evaluated.

About World Intellectual Property Organization (WIPO)

- < WIPO is a specialized agency of the United Nations, located in Geneva, Switzerland.
- < Established in 1967, WIPO is a global forum for intellectual property policy, services, information, and cooperation (For both industrial property (inventions, trademarks, and designs) and copyrighted materials (literary, musical, photographic, and other artistic works)).
- < It is a self-funding agency of the United Nations with 193 member states.
- < The Global Innovation Index (GII) is used to gauge a nation’s innovation capabilities.
- < It is developed jointly by Cornell University, INSEAD and WIPO and is published annually since 2007.



- Several Indian cities, including Mumbai, Delhi, Bengaluru, and Chennai, have been listed among the world’s top 100 S&T clusters, cementing India’s position as a hub for research and technological advancement.
- India also ranks seventh globally in intangible asset intensity, reflecting its strength in non-physical assets such as patents and trademarks, which are crucial drivers of innovation.



Measures calculated in the Global Innovation Index (GII)

Key findings of the 2024 Report:

- Most innovative economies: Switzerland > Sweden > USA > Singapore > UK.
- Fastest 10-year climbers: China, Turkiye, India, Viet Nam and the Philippines.
- China (11th rank) remains the only middle-income economy in the top 30.

DISEASES

Dengue surged across the world

News Excerpt

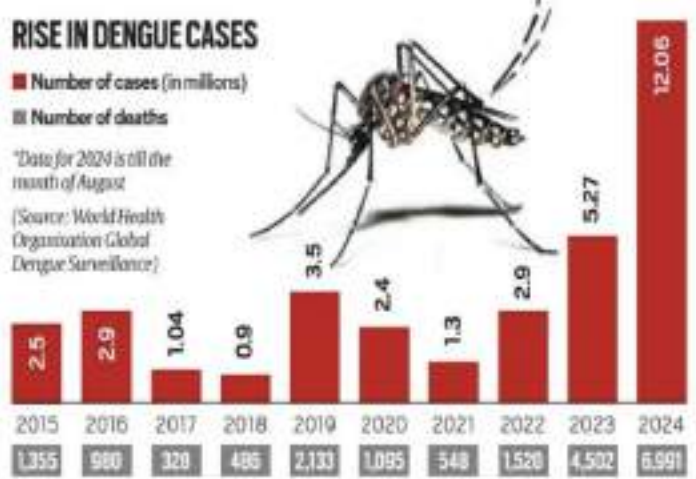
A record number of dengue cases have been reported in India and worldwide this year, with Brazil and other South American countries worst affected.

About Dengue

- Dengue is a **mosquito-borne tropical disease** caused by the dengue virus (**Genus Flavivirus**).
- It is transmitted by several female mosquitoes within the genus *Aedes*, principally ***Aedes aegypti***. This mosquito also transmits **Chikungunya, Yellow fever and Zika**.
- There are **four** distinct but closely related **serotypes** (separate groups within a species of microorganisms that all share a similar characteristic) of the virus that causes dengue (**DEN-1, DEN-2, DEN-3, and DEN-4**).
- **Symptoms:** Symptoms include sudden high fever, severe headaches, pain behind the eyes, and severe bone, joint, and muscle pain.
- **Diagnosis:** A **blood test** diagnoses dengue infection. No specific medicine treats it.
- **Vaccine:** The dengue vaccine **CYD-TDV or Dengvaxia** is a live, attenuated dengue virus that must be administered to people ages 9 to 16 who have had previous dengue infection and live in endemic areas.
- **Qgenda** is a Live-attenuated vaccine recommended for ages 6–16 in high-transmission areas. It is administered in a two-dose series three months apart.

Global Burden of Dengue

- According to the **WHO's** global dengue surveillance data, more than **12 million** cases and **6,991 deaths** were recorded globally until August.
- Data from the World Health Organization (WHO) show that the number of dengue cases has **increased yearly**.



This makes dengue the only infectious disease for which annual mortality is rising.

- Notably, India is witnessing an increase in the geography of the infection. The disease spread from only **eight states and Union Territories** in **2001** to **every state and UT in 2022**, with Ladakh reporting the first two cases that year.

Reason for Surge in Dengue Cases: The Lancet identifies “the triad of urbanisation, climate change, and the movement of people and goods” as facilitating the spread of dengue and its mosquito vector.

- **Urbanisation:** The disease can spread more quickly in urban areas with a dense population. Urban spaces provide ample breeding grounds for the *Aedes aegypti* mosquito, which breeds in clean, stagnant water.
- **Climate Change:** Increased temperatures allow mosquitoes to breed in places they previously could not, such as higher altitudes.

- **Movement of People:** The global movement of people and goods has generally led to a greater spread of infections that these people carry with them.

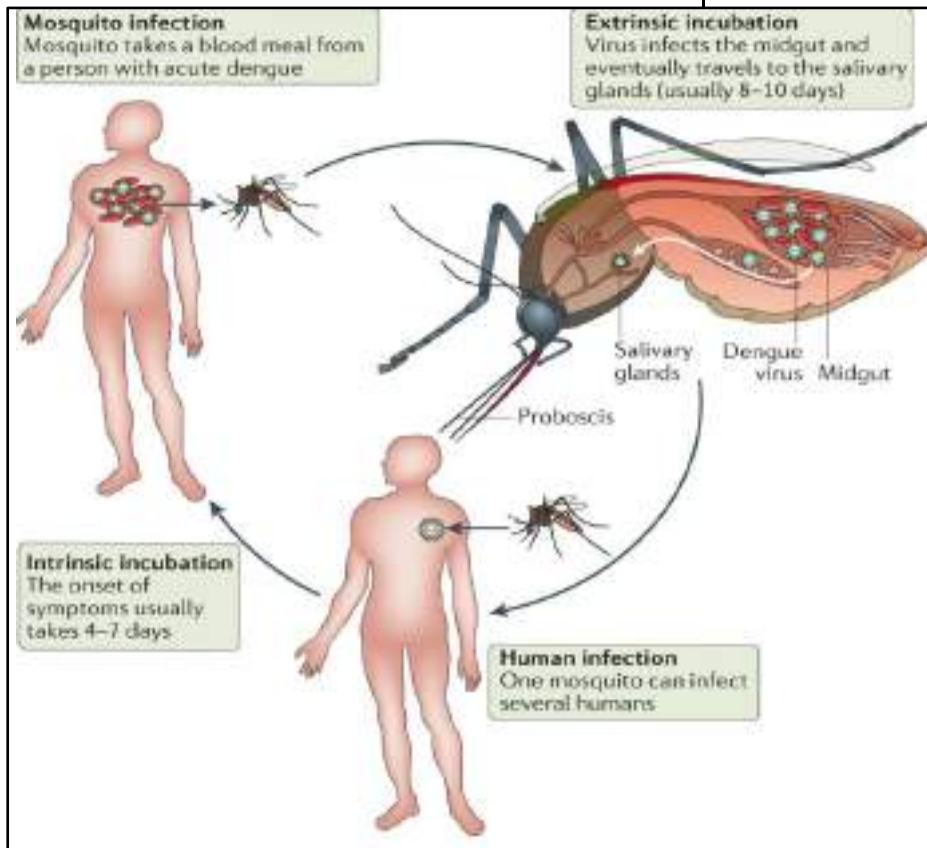
India has eliminated Trachoma as a public health problem

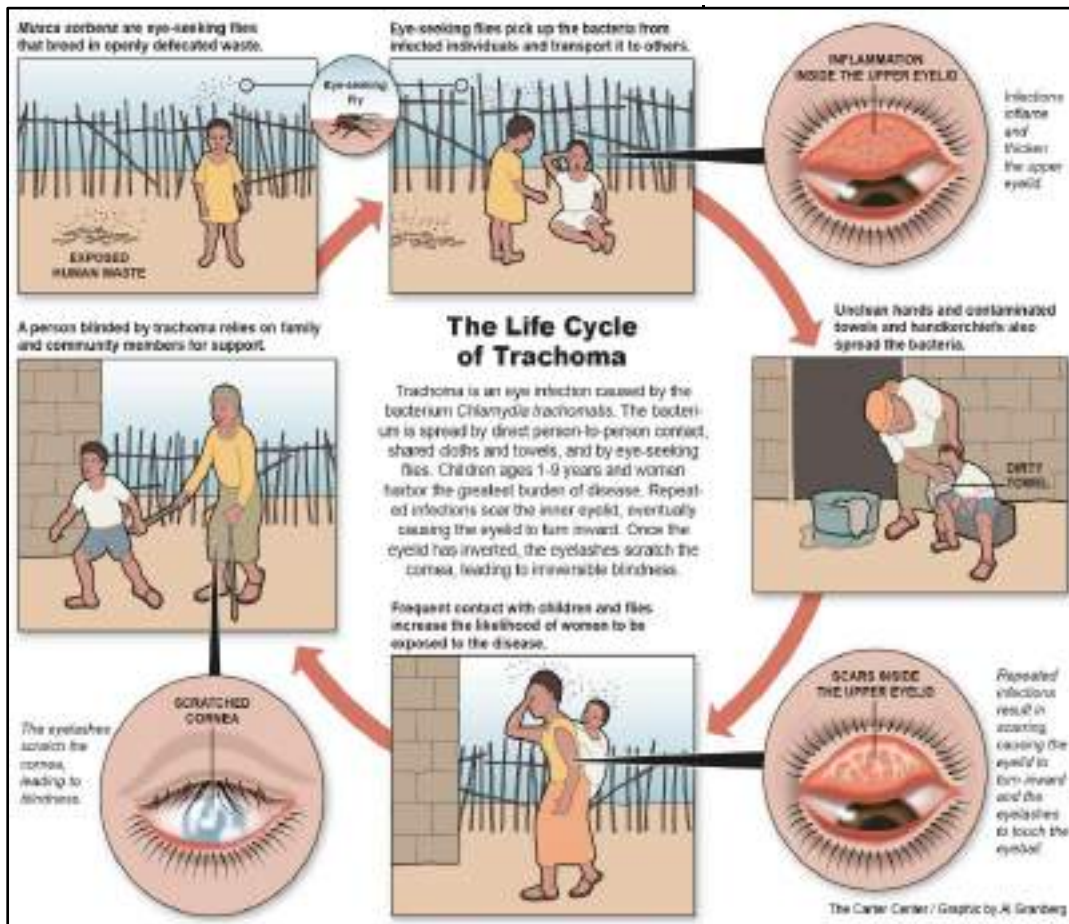
News Excerpt:

World Health Organisation (WHO) has declared that **India** has eliminated Trachoma as a public health problem becoming the **third country** in the South-East Asia Region after Nepal and Myanmar.

About Trachoma

- Trachoma is a **bacterial infection** that affects the eyes. It is caused by the bacterium **Chlamydia Trachomatis**.





- The **National Trachomatous Trichiasis (TT only) Survey** was carried out in **200 endemic districts** of the country under NPCBVI from **2021-24**, which was a mandate set by WHO in order to declare that India has eliminated Trachoma as a public health problem.

Marburg virus outbreak

News Excerpt

The deadly Marburg virus has overwhelmed **Rwanda's** fragile **healthcare system**, as about **80%** of infections are among **medical workers**.

About Marburg Virus

- The Marburg virus is a highly **dangerous** virus that

- It is **contagious**, spreading through contact with the eyes, eyelids, nose, or throat secretions of infected people. If left untreated, it causes **irreversible blindness**.
- Trachoma is found in underprivileged communities living in **poor environmental conditions**.
- Trachoma was amongst the leading cause of blindness in the country during 1950-60. In **2017**, India was **declared free** from infective Trachoma.
- WHO has termed Trachoma as a **neglected tropical disease**. WHO estimates suggest that **150 million people** worldwide are affected by Trachoma, and **6 million** of them are blind or at risk of visually disabling complications.

Initiatives taken

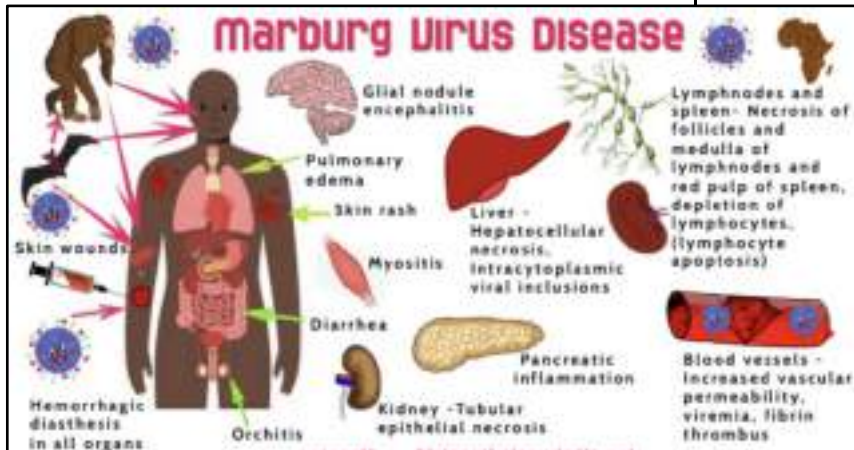
- The **National Trachoma Control Program** was launched in 1963 and later on Trachoma control efforts were integrated into India's **National Program for Control of Blindness (NPCB)**.
- In **1971**, blindness due to Trachoma was 5%. Today, due to the various interventions under the **National Programme for Control of Blindness & Visual Impairment (NPCBVI)**, it has come down to less than 1%.
- WHO SAFE strategy** was implemented throughout the country wherein SAFE stands for adoption of **surgery, antibiotics, facial hygiene, environmental cleanliness**, etc.

causes Marburg Virus Disease (MVD), also known as **Marburg Hemorrhagic Fever**. It belongs to the same **family** of viruses as **Ebola** (the filovirus family).

- MVD has a case **fatality rate** that can range from **24% to 88%**, depending on the virus strain and how cases are managed.
- Two large outbreaks, which occurred simultaneously in **1967** in Marburg and Frankfurt, Germany, and Belgrade, Serbia, led to the initial recognition of the disease. It was caused by the **African green monkeys** (*Cercopithecus aethiops*) imported from Uganda.
- Transmission:**
 - The Marburg virus initially spreads from animals to humans, primarily through exposure to **Rousettus bats**, particularly the **Egyptian fruit bat**, found in caves or mines.
 - Once a person is infected, it can spread from human to human through:
 - Direct contact** with the blood and bodily fluids of an infected person.
 - Indirect contact** with surfaces or objects, such as bedding or clothing contaminated with these fluids. However, unlike the common cold or flu, the virus does not spread through the air.

- Medical workers** are often at risk due to contact with patients, especially during outbreaks.

become infected by feeding on birds carrying the virus.
 3. Human-to-human transmission is rare but can occur through blood transfusions, organ transplants, or from mother to baby during pregnancy, childbirth, or breastfeeding.



Lymph nodes and spleen - Necrosis of follicles and medulla of lymph nodes and red pulp of spleen, depletion of lymphocytes. (lymphocyte apoptosis)

Blood vessels - increased vascular permeability, viremia, fibrin thrombus

< WNV is found in Africa, Europe, the Middle East, North America, and West Asia. In recent decades, it has spread to many parts of the world, including North America, where it has become a seasonal epidemic.

< There is no specific treatment for WNV infection. For mild cases, over-the-counter pain relievers may alleviate symptoms.

Cellulitis Disease

News Excerpt:

Recently, Cellulitis has now become widespread in the erstwhile Karimnagar district.

About:

- Cellulitis is a common bacterial skin infection. It affects the deeper layers of the skin and enters through a break or crack in the upper layer.
- It is primarily **caused by the Streptococcus and Staphylococcus bacteria**. The bacteria enter through cuts, bruises, scrapes, insect bites (e.g., bedbugs, mosquitoes), and other injuries.
- It is common among people working in agricultural fields, construction sites, and individuals with compromised skin integrity. Those with diseases like leukaemia, HIV-AIDS, and diabetes, which lower immunity, are at higher risk.



- Visible Signs include **swollen skin, red rashes that appear suddenly, and pain or tenderness in the affected area**. Other Symptoms includes fever, chills, and sweating.
- It is treated with antibiotics, and most individuals recover fully within 24 hours after treatment. Quick treatment is crucial to prevent complications.

- Symptoms:**
 - Symptoms typically begin between **2 and 21 days** after exposure to the virus.
 - Early symptoms** include high fever, severe headache, muscle aches, diarrhoea, abdominal pain, and vomiting. As the disease progresses, more **severe symptoms** may develop, including Bleeding (both internal and external).
- Diagnosis:**
 - Since many of the disease's symptoms are similar to **malaria** and **typhoid** fever, diagnosing is difficult. However, **Polymerase Chain Reaction (PCR)** and **Enzyme-Linked Immunosorbent Assay (ELISA)** testing can be used to confirm a case.
 - Patients often die **8 to 9 days** after the onset of symptoms, primarily from severe **blood loss** and multiple **organ failure**.
- Treatment:**
 - MVD has **no approved vaccines** or specific antiviral treatments. However, supportive care can improve the chances of survival.
 - Rehydration with **oral or intravenous fluids** to maintain fluid and electrolyte balance. **Blood transfusions** and **oxygen therapy** may also be required for severe cases.

West Nile Virus

News Excerpt:

Ukraine is facing a serious West Nile virus (WNV) outbreak.

About West Nile Virus (WNV)

- It is a that primarily affects birds but can also infect humans and other animals.
- It belongs to the **Flavivirus genus** which also includes dengue, yellow fever, and Zika viruses.
- WNV is most commonly transmitted to humans through the **bite of infected Culex mosquitoes**. Mosquitoes

- < If left untreated, cellulitis can enter the bloodstream and spread to other parts of the body, which can be life-threatening.

INTERNAL SECURITY

Financial Action Task Force

News Excerpt:

The Financial Action Task Force (FATF) has lauded India's efforts to implement measures to tackle illicit finance including money laundering and terror funding.

More detail about news:

- Additional Secretary, Revenue, Ministry of Finance said that in its **Mutual Evaluation Report for India 'Anti-Money laundering and Counter terrorist financing Measures'** FATF emphasizes that India has achieved a high-level of technical compliance across the FATF Recommendations.
- India has taken significant **steps to implement measures to tackle illicit finance**, the reports mention.

India's Anti-Money Laundering and Counter-Terrorist Financing (AML/CFT) Framework:

- **FATF-APG-EAG Assessment:** The joint **FATF-APG-EAG assessment concluded** that India's AML/CFT framework is yielding positive results. Indian authorities make effective use of **financial intelligence and cooperate** well at both domestic and international levels.
- **"Regular Follow-Up" Status:** Following the assessment, India was placed in "**regular follow-up**", the highest rating category by FATF. Other **G-20 countries** with this status include UK, France, and Italy.
- **Financial Inclusion and Digital Payments:** India has made significant progress in financial inclusion, more than doubling the **population with bank accounts**. Reliance on digital payment systems has increased, supporting financial transparency and **contributing to AML/CFT efforts**.
- **Effective Cooperation:** Despite the size and complexity of India's system, authorities cooperate effectively on illicit financial flows. Positive results were achieved in **international cooperation, asset recovery**, and applying financial sanctions for proliferation financing.
- **Risk Understanding and Preventive Measures:** Indian authorities have a good understanding of risks related to **money laundering, terrorism, and proliferation financing**. Commercial banks demonstrate a strong understanding and application of preventive measures in the financial sector.
- **Need for Risk Sharing and Stakeholder Involvement:** Authorities need to share insights on risk with all relevant stakeholders, including **non-profit organisations**. Outreach efforts to non-profit organisations to raise

awareness of their **terrorist financing risks need improvement**.

- **Challenges in Terrorism Financing:** India faces serious terrorism and terrorist financing threats, especially from groups like **ISIL or Al Qaeda**. While India has demonstrated the ability to conduct complex financial investigations, there is a need to focus on **prosecuting and sanctioning terrorist financiers**.
- **Non-Profit Sector Vulnerabilities:** Measures to prevent the non-profit sector from being abused for terrorist financing need to be implemented in a risk-based manner. **Outreach to non-profits is required to educate** them on terrorist financing risks.
- **Politically Exposed Persons (PEPs):** Financial institutions are taking steps to apply enhanced measures to international PEPs. However, **India must address the lack of coverage of domestic PEPs** in technical compliance and ensure full implementation of requirements by reporting entities.
- **Non-Financial Sector and Virtual Asset Providers:** Preventive measures by the non-financial sector and virtual asset service providers are in their early stages. **Supervision of these sectors needs improvement**, with a focus on cash restrictions in the precious metals and stones sector.

Mehdi Foundation International

News Excerpt:

Recently, a family of four Pakistani nationals, living under the false name of Sharma, was arrested from the outskirts of Bengaluru.

More details about news:

- < They had obtained **fake passports and Aadhar cards**.
- < They had been living in India **illegally since 2014**.
- < The four have told the police they are linked to the **Mehdi Foundation International (MFI)**, for which **they faced persecution in Pakistan**.

About Mehdi Foundation International:

- The **Mehdi Foundation**, also known as **Messiah Foundation**, was **started in Pakistan in the 1970s**.
- Earlier, it was called **Riaz Gohar Shahi International**, after its founder **Riaz Ahmed Gohar Shahi**, a Pakistani spiritual leader.
- It was formally **named MFI in 2002**. The organisation preaches **interfaith, peace, harmony, humanity beyond religion**, and **Sufi traditions**.
- The **MFI claims that today**, it has a presence in **several Asian countries**, and in **Europe and the USA**.

How has India dealt with MFI members in the past?

- **Many MFI members** have **moved to Bangladesh and India**. In 2007, **as many as 63 Pakistani MFI members** obtained **tourist visas** to India and upon reaching New

Delhi, **staged a protest in front of the Pakistan embassy**. They burnt their Pakistan passports and visas.

- While they were arrested for **staying in India illegally**, the Indian government in **2011 granted** them refugee status and they were sent to **Canada, USA and countries in Europe**.

DefConnect 4.0

News Excerpt:

Recently, the **union defence minister** inaugurated **DefConnect 4.0**, in Delhi. It was hosted by **Innovations for Defence Excellence - Defence Innovation Organisation (iDEX-DIO)** under the Department of Defence Production, Ministry of Defence, at the **Manekshaw Centre, Delhi Cantonment**.

Key highlights:

- **Advancing Indigenous Innovation:** Aims to celebrate and enhance **India's growing defense ecosystem** by promoting **self-reliant defense technologies**.
- **Participants:** The event will gather **Armed Forces, Defence PSUs, start-ups**, MSMEs, academia, incubators, investors, and policymakers to discuss collaboration and innovation.
- **Cutting-edge Innovations:** iDEX innovators will exhibit advanced technologies, products, and capabilities to a broad audience of stakeholders.
- **Collaboration and Dialogue:** The event encourages partnerships and discussions aimed at driving innovation in defense, fostering long-term collaboration among various sectors.
- **Budget Insights:** Focus on **key takeaways from recent budget announcements** related to the defense innovation ecosystem.
- **Semiconductor Domain:** Highlighting initiatives and opportunities in the semiconductor sector.



Viksit Bharat by 2047:

- **Vision and Alignment:** DefConnect 4.0 aligns with India's broader goal of **Viksit Bharat by 2047**, aiming to

position the country as a global leader in defense innovation.

- **Government Initiatives:** Through programs like iDEX, the government is promoting **local talent, encouraging start-ups, and fostering indigenous defense solutions** to strengthen India's defense capabilities.

iDEX Impact:

- **Defence India Start-up Challenges:** Launched **11 editions**, with over 9,000 applications.
- **Collaborations:** iDEX is working with more than **450 start-ups/MSMEs** on important defense projects.
- **Vision for the Future:** iDEX supports the goal of **Viksit Bharat by 2047**, contributing to self-reliance in the defense and aerospace sectors.

Dragon drones

News Excerpt:

A deadly new weapon has taken to **the skies in the Russia-Ukraine war**. Both sides have posted **visuals of drones appearing to rain down fire** — earning this weapon the moniker of **"dragon drone"**.

About 'dragon drones':

- **Dragon drones** essentially release a substance called **thermite** — a **mixture of aluminium and iron oxide** — developed **a century ago** to weld **railroad tracks**.
- **When ignited** (usually with the help of an electrical fuse), **thermite triggers a self-sustaining reaction** that is **quite difficult to extinguish**.
- It can burn through almost anything, **from clothes to trees to military-grade vehicles**, and can even **burn underwater**. On humans, **it causes severe**, possibly **fatal, burns and bone damage**.
- **Combining thermite** with **high-precision drones** that can bypass traditional defences makes dragon drones **'highly effective' and 'dangerous'**.
- **Dragon drones** are believed to have been **first deployed in the Russia-Ukraine war around September**.

Israel prefers THAAD air defence system

News Excerpt:

The United States are likely to station its **Terminal High Altitude Area Defense (THAAD) air defence** batteries in Israel in the backdrop of tensions with Iran.

About Terminal High Altitude Area Defense (THAAD):

- The name THAAD comes from **the way the air defense system operates -- intercepting incoming ballistic missiles** during their final phase of flight -- which is called the **"terminal phase."**

- It has the ability to **intercept targets within** (endoatmospheric) and **outside (exoatmospheric)** the atmosphere. **THAAD** can fend off short, medium, and **intermediate-range ballistic missiles**.
- The **standout feature of THAAD systems** is that they don't carry warheads. Instead, it relies on **its kinetic energy of impact** to destroy the incoming rockets.
- **THAAD radars** are capable of **detecting and tracking approaching missiles** at ranges of **870 to 3,000 km**.
- **The US Army has seven THAAD batteries** in its possession. Apart from radar and radio facilities, each system consists of **six truck-mounted launchers** and 48 interceptors and requires 95 soldiers to operate it.
- THAAD incorporates **four main components**: the **interceptor, launch vehicle, radar, and fire control system**.
- Each launcher carries up to **eight interceptors** and a **typical THAAD battery** includes 6 launchers, and each launcher takes up to 30 minutes to reload.

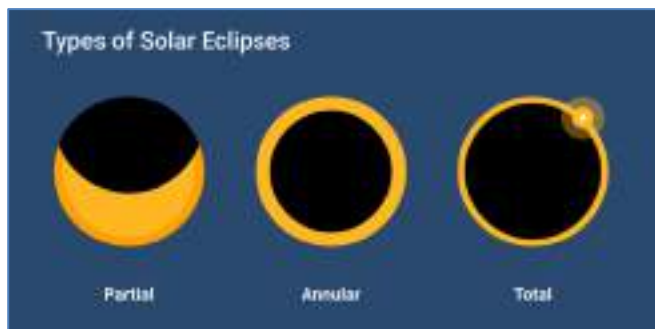
GEOGRAPHY

Annular solar eclipse

News Excerpt:

On 2 October 2024, an **annular solar eclipse** was **visible in parts of South America**, and a **partial solar eclipse** was **visible in parts of South America, Antarctica, North America, the Atlantic Ocean, and the Pacific Ocean**, including **Hawaii**. The **solar eclipses weren't visible in India**.

What is a solar eclipse?



- A **solar eclipse** takes place **when the Moon moves in the middle of Earth and the Sun**. The **Moon blocks the light of the Sun**, either **fully or partially**, which casts a **huge shadow** on some parts of the world.
- There are **four different types of solar eclipses**, including **total solar eclipse, annular solar eclipse, partial solar eclipse, and hybrid solar eclipse**.
- When the **Moon blocks the Sun entirely**, the areas in the centre of the **Moon's shadow** at the time **witness a total solar eclipse**.

- The **sky darkens** and people who are in the path of a **total solar eclipse** can get a **glimpse of the Sun's corona** — the **outer atmosphere** — which is usually **not visible due to the bright face of the Sun**.
- **When the Moon passes in front of the Sun** but is **at or near the farthest point** from Earth, an **annular solar eclipse occurs**.
- In this scenario, **the Moon covers the Sun** in such a way that **only the periphery of the Sun remains visible** — looking like a **ring of fire**.
- A **partial solar eclipse** takes place **when the Moon blocks just a part of the Sun**, giving it a **crenate shape**.
- During both **partial and annular eclipses**, the regions **outside the area** covered by the **Moon's umbra** — the middle and the darkest part of the lunar shadow — **will see a partial solar eclipse**. **Partial solar eclipse** is the **most common type of solar eclipse**.
- A **hybrid solar eclipse** — the **rarest type of solar eclipse** — is witnessed when an eclipse shifts between annular and total as **the shadow of the Moon moves across the globe**.
- In this case, some parts of the world see a **total solar eclipse**, while others observe an **annular solar eclipse**.

How often does a solar eclipse take place?

- A **solar eclipse is witnessed only during the new moon** — when the **Moon and Sun are aligned on the same side of Earth**.
- A **new moon occurs about 29.5 days** because that is how long it takes the Moon to orbit Earth.
- This, however, does not mean that a **solar eclipse happens every month**. It takes place only between two to five times annually. But why?
- It is because **the Moon does not orbit Earth** in the same plane as the **Earth orbits the Sun**. In fact, the **Moon is tilted by about five degrees** with respect to Earth.
- As a result, most of the time when **the Moon is in between the Sun and Earth**, its shadow is **either too high or too low** to fall on the Earth.

Ladakh aurorae validate space weather tracking efforts

News Excerpt:

Ladakh's recent sightings of aurora, marked by reddish or greenish light in the night sky and usually observed in the far northern regions, is a validation of our efforts in space weather monitoring, a team of astrophysicists that predicted the activity about 48-72 hours prior said.

More detail about news:

- The appearance of **intense, red-coloured light rays in the sky** on the intervening night of **October 10-11** was the latest in a series of recent auroral sightings --

previous ones occurred on those of **May 11 this year, and November 5 and May 10 of 2023.**

- ◁ All-sky cameras of the Bengaluru-based **Indian Institute of Astrophysics (IIA) at Hanle** and Merak in Ladakh captured the aurorae throughout the night.

Aurora Sightings in India and Solar Activity:



◁ Solar Activity and Aurorae:

- Aurorae are caused by charged particles from the Sun interacting with **Earth's magnetosphere.**
- They are typically seen in high-latitude regions but can be observed in **lower-latitude regions** during periods of heightened solar activity.
- Solar storms, like **coronal mass ejections (CMEs)**, are responsible for increased aurora activity.
- The current solar cycle is at its peak, with **higher sunspot** activity compared to the previous cycle.

◁ CESSI's Role:

- **The Center of Excellence in Space Sciences India (CESSI)** monitors space weather and predicts potential disruptions.
- CESSI accurately predicted the **current solar cycle's peak** in 2024.
- The team at CESSI detected **solar flares and associated solar storms**, leading to predictions of increased space weather activity.

◁ Impact of Solar Storms:

- Solar storms can cause communication **blackouts, satellite outages**, and other disruptions.
- An "**extreme**" solar storm could have severe consequences for critical infrastructure and services.
- The recent aurora sightings in India are a sign of **heightened solar activity and potential risks.**

◁ Importance of Space Weather Monitoring:

- **Space weather monitoring** is crucial for protecting satellites and critical infrastructure.
- CESSI's research contributes to our understanding of **solar activity and its potential impacts.**
- Early warnings from space weather monitoring can help **mitigate** the effects of solar storms.

DISASTER MANAGEMENT

Human induced climate change behind flooding disasters in Nepal

News Excerpt:

World Weather Attribution, an international collaboration, has underscored the urgent need for Nepal to limit development in low-lying, riverside areas of the cities and scale up early warning and prompt action to avoid repeat of flooding disasters.

Key Findings on the Nepal Floods:

◁ Impact of Climate Change:

- The recent floods in **Nepal were made 10% more intense due** to human-induced climate change.
- Increased frequency and severity of extreme rainfall events are expected in **the future due to rising temperatures.**
- Limiting development in **flood-prone areas** is crucial for reducing future flood impacts.

◁ Attribution Study:

- A group of 20 researchers conducted a study to attribute the **Nepal floods to climate change.**
- The study analyzed **rainfall data** and compared it to climate models.
- The findings confirmed that climate change played a **significant role in intensifying the rainfall.**

◁ Impact of the Floods:

- The floods caused widespread damage and **loss of life** in Nepal.
- **Kathmandu Valley** experienced unprecedented flooding.
- Over **50 people** were killed, and property worth billions of rupees was damaged.

◁ Urgent Need for Action:

- The study highlights the urgent need to address climate change to **mitigate the impacts** of extreme weather events.
- Reducing greenhouse gas emissions is essential for **limiting global warming and reducing** the frequency and intensity of floods.
- Investing in climate adaptation measures, such as **flood control infrastructure and early warning systems**, is crucial for protecting vulnerable communities.

Exercise AIKYA

News Excerpt:

Recently, the National Disaster Management Authority (NDMA), in collaboration with the Southern Command of the Indian Army and Tamil Nadu State Disaster Management Authority (TNSDMA), conducted "EXERCISE AIKYA," an

Integrated Symposium cum **Table Top Exercise (TTEx)** on disaster management, in Chennai.



Key points:

- **Objectives:**
 - Integration of India's Disaster Management community.
 - Testing roles and responsibilities in emergency situations.
 - Fostering discussions on technologies and trends in disaster relief.
 - Reviewing lessons from recent operations.
- **Participants:**
 - Representatives from **six southern states/UTs**.
 - Central ministries overseeing disaster management
 - State Disaster Management Authorities (**SDMAs**)
 - Armed forces (Indian Army, Navy, Air Force)
 - Response agencies (**NDRF**, Indian Coast Guard, CRPF, CISF, Railways)
 - Early warning agencies (**IMD, NRSC, INCOIS, CWC, FSI**)
 - Geographical Survey of India (**GSI**)
 - Department of Telecommunications (**DoT**)
 - Research institutions (**NIDM, NIOT, IIT Madras, DAE**)
- **Simulated Emergencies:**
 - **Tsunami**
 - **Landslide**
 - **Flood**
 - **Cyclone**
 - **Industrial incident**
 - **Forest fire**
- **Focus Areas:**
 - Recent events in Tamil Nadu, **Wayanad**, and Andhra Pradesh

- **Leveraging technology** and AI for disaster management
- Economic costs of **disasters**
- Vulnerabilities specific to Peninsular India
- Strategies to improve **response times**.

- **Leadership:**

- Lt Gen Syed Ata Hasnain (Retd), Member, NDMA
- Lt Gen Dhiraj Seth, Army Commander Southern Command
- Lt Gen Karanbir Singh Brar, GOC Dakshin Bharat Area
- Piyush Anand, DG, NDRF

- **Significance:**

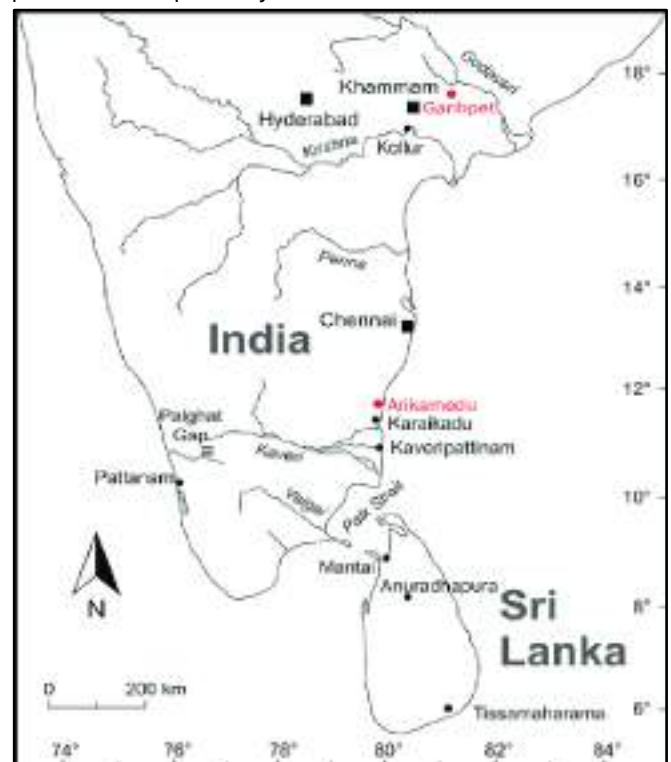
- **EXERCISE AIKYA** marks a significant **step towards a more resilient disaster management framework in India**.
- The NDMA and Indian Army Southern Command plan similar exercises with other institutions to **further strengthen national disaster preparedness and response capabilities**.

ART AND CULTURE

Arikamedu

News Excerpt

Despite its critical role in **international trade**, Arikamedu is today neglected, with little local awareness or efforts to preserve it for posterity.



About Arikamedu

- Arikamedu, located between **Veerampattinam Beach** and the **Ariyankuppam River** in Puducherry, was once a thriving port city known as '**Podouke**'.
- It played a significant role in **Indo-Roman maritime trade** from the 1st century BCE to the 1st century CE, as documented in the **Periplus of the Erythraean Sea**, an ancient text describing trade routes.
- The first mention of Arikamedu was by French astronomer **Guillaume Le Gentil** in the 18th century, who noted the presence of ancient ruins, including **high walls** and **embankments**.
 - However, it was not until **1941** that the site gained significant attention when French archaeologist **G Jouvey Dubreuil** identified Arikamedu as the ancient city of 'Podouke'.
- Though early excavations revealed intriguing artefacts, including **beads, gems**, and a **bead featuring the head of Augustus**, these were primarily of interest to antiquarians who sought artefacts rather than knowledge of the past.
- **Sir Mortimer Wheeler's** 1945 excavation uncovered key features of Arikamedu, including:
 - A **warehouse structure** over **45 meters** long, constructed from bricks and lime mortar.
 - Three distinctive types of pottery:
 - § **Arretine Ware**: Red-glazed pottery from the Mediterranean.
 - § **Amphorae**: The Romans typically use High-necked handled jars to store wine or oil.
 - § **Rouletted Ware**: A dish with an incurved rim and a rouletted base design.
 - § Wheeler also uncovered various Roman artefacts such as **glass beads, terracotta figurines**, and **Roman coins**, solidifying Arikamedu's role as a commercial hub.
 - § He proposed that the site had two distinct sections: the **northern area** as the harbour and the **southern area** as the industrial town.
- In subsequent excavations from **1947 to 1950**, French archaeologist **Jean-Marie Casal** found connections between Arikamedu and **Megalithic burials** in the nearby region of **Suthukeny**, suggesting continuous occupation from the **Iron Age** through the **medieval Chola period**.
 - His discoveries, including **Black and Red Ware** and **medieval pottery**, pointed to a much longer habitation, likely until the **18th century**.
- Professor Vimala Begley conducted the last significant excavation in the late 20th century.
 - Her findings suggested that the **southern settlement** of Arikamedu dated back to **300 BCE**, while the northern portion remained occupied until the **medieval period**.

- Her research confirmed that Arikamedu was continuously used as a port city from **300 BCE to the 18th century**.

Some findings from Arikamedu

Grey pottery with engravings



A statue of a girl with a bird, 2nd Century CE



About Black and Red Ware

- **Description:** This type of pottery is distinguished by its use of red pigments for the background and glossy black paint for creating designs and figures.
- **Common Themes:** Trees, birds, animal figures, and geometric patterns.
- **Technique:** The painted designs were usually intricate, reflecting the artistic sensibilities of the Harappan people.
- **Manufacturing:** Most painted potteries were fine wheel-made wares, showcasing the advanced potter's wheel technology of the Harappans. A few examples of handmade potteries have also been found.

- **Polychrome Pottery:** Although rare, some examples of polychrome pottery (using multiple colours) have been discovered, indicating a diversity in pottery-making techniques.



Rani Durgawati

News Excerpt

The Chief Minister of **Madhya Pradesh** chaired a **State Cabinet meeting** in **Singrampur, Damoh district**, to mark the **500th birth anniversary** of the 16th-century tribal queen **Rani Durgavati**.

About Rani Durgawati

- Rani Durgavati was born in **1524** in Mahoba's **Chandela dynasty** (present-day Uttar Pradesh, near the border with Madhya Pradesh).
 - Chandelas were known for building the famous **Khajuraho temples** in the **11th century**.
- She was married to **Dalpat Shah**, son of **Gond King Sangram Shah** and gave birth to a son in 1545 A.D. who was named **Vir Narayan**.
 - Gond is a prominent **tribe in central India** known for its rich cultural heritage and resilience.
- Dalpatshah died in about 1550 A.D., and as Vir Narayan was too young then, Durgavati took the reins of the Gond kingdom in her hands.
 - Two ministers, **Adhar Kayastha** and **Man Thakur**, helped the Rani manage the administration successfully and effectively.
- Rani moved her **capital to Chauragarh** instead of Singaugarh. Chauragarh was a fort of strategic importance situated on the **Satpura hill range**.



- She extended her territory and accomplished the **political unification of Gondwana**, also called **Garha-Katanga**. It included the regions of **Narmada Valley** and parts of **Northern Madhya Pradesh**.
- Rani Durgavati opposed the Mughal Empire's expansion in the mid-16th century. She displayed strong leadership while fighting against **Akbar's commander, Asaf Khan** and the neighbouring **Malwa Sultan Baz Bahadur**.
- She initially triumphed in the battle against Asaf Khan, but the Mughals overwhelmed her forces. Rather than surrendering, Rani Durgavati chose to **sacrifice** her life.
- **Abul Fazl**, Akbar's court historian, describes her as a combination of **beauty, grace, and bravery**.

Deendayal Upadhyaya's Birth Anniversary

News Excerpt

Antyodaya Diwas was observed on **25th September 2024** to commemorate the birth anniversary of Pandit Deendayal Upadhyaya.

About Pandit Deendayal Upadhyaya

- He was born in **1916** in **Mathura**, Uttar Pradesh.
- He **co-founded** the **Bharatiya Jana Sangh (BJS)**, which later evolved into the Bharatiya Janata Party (BJP). He was also a **key thinker** for the **Rashtriya Swayamsevak Sangh (RSS)**.
- He launched the weekly '**Panchjanya**' and the daily '**Swadesh**'. He was a journalist in '**Rashtra Dharma**' daily, worked as an editor for **Panchjanya**, and wrote a column called '**Political Diary**' for the weekly '**The Organiser**'.
- He also wrote several books, including **Samrat Chandragupt**, **Jagatguru Shankaracharya**, **Political Diary**, **Integral Humanism**, **Ekatma Manav—vad**, and an analysis of the **Five Year Plans** in India.
- He was the founder of the **Integral Humanism philosophy**. He introduced the **concept of Antyodaya** to uplift the poorest. He also promoted self-reliance (**Swadeshi**) and decentralisation of power.
- He died on February 11, 1968, under mysterious circumstances in **Mughalsarai, Uttar Pradesh**.
- Since **25 September 2014**, his birth anniversary has been observed as Antyodaya Diwas to recognise his efforts and contributions to the nation.

Concept of Antyodaya

- The word "Antyodaya" is derived from the Sanskrit word "**Antya**," which means "**last**," and "**Udaya**," which means "**rising**." Thus, Antyodaya means the upliftment of the last person in society.
- Antyodaya is a **socio-political concept** based on the idea that society's well-being is measured by how well it treats its weakest members.

C.C. NOVEMBER '24

- The principle focuses on developing **marginalised and economically disadvantaged** people, ensuring access to basic needs such as food, shelter, education, and healthcare.
- Antyodaya Diwas is a day to ensure that **no person**, regardless of socio-economic standing, is **left behind** in India's development journey.

Philosophy of Integral Humanism

- The philosophy of "integral humanism" is defined as **"a classless, casteless and conflict-free social order."**
- It discusses the integration of indigenous **"Indian culture"** into the social, political, and economic fabric of the nation. It provides for a **holistic idea of human welfare**.
- It envisions a synthesis of **materialism, spiritualism, and cautious desire**, as each has a role in achieving happiness. It also argues that an economic index cannot solely measure satisfaction or happiness.

Cabinet Greenlights National Maritime Heritage Complex at Lothal

News Excerpt

The **Union Cabinet**, chaired by PM Modi, has **approved** the development of the **National Maritime Heritage Complex (NMHC)** at Lothal, Gujarat.

About NMHC

- This initiative, led by the **Ministry of Ports, Shipping & Waterways**, aims to celebrate and showcase India's extensive **maritime heritage**, which spans over 4,500 years.
- The proposed project will encompass several key components, including a **museum** featuring 14 galleries, a **Lothal Town** and **Open Aquatic Gallery**, a **Lighthouse Museum**, a **Bagicha Complex**, **Coastal State Pavilions**, and the **Recreation of Lothal City**.
 - Additional features include **Eco-resorts**, a **Museum**, theme-based parks, and a **Maritime Research Institute**.
- To oversee the implementation of the NMHC, the Ministry of Ports, Shipping & Waterways (MoPSW) has appointed the **Indian Ports Association** as the nodal agency, with the **Indian Port Rail Corporation Ltd (IPRCL)** serving as the executing agency.
- The project will be completed in **two phases**.

Significance of NMHC

- It will curate and display a **rich array of artefacts**, from ancient relics to modern treasures, as an **educational platform** that inspires visitors to explore the depths of our **maritime history**.
- NMHC will stimulate **economic growth** and significantly benefit **local communities**, tourists, researchers, scholars, government bodies, educational institutions,

cultural organisations, environmental and conservation groups, and businesses.

- The development of the NMHC is expected to create **approximately 22,000 jobs**, with 15,000 direct and 7,000 indirect employment opportunities.

About Lothal

- Lothal, a name that combines the Gujarati words **"Loth"** and **"thal,"** meaning **"the mound of the dead,"** is rich in historical importance.
- This ancient city, dating back to **2400 BCE**, grew into a bustling **trading port** within the Indus Valley Civilization.
 - Artefacts at the site suggest that trade may have occurred with distant lands, including **Mesopotamia, Egypt, and Persia**.
- Archaeologists believe Lothal was strategically placed along a **major river system** that formed part of the **old trade route** linking **Sindh to Saurashtra** in Gujarat.
- Among the most significant discoveries is the **world's oldest known artificial dock**, connected to an ancient course of the Sabarmati River.
- The site also revealed an **acropolis**, a **lower town**, a **bead factory**, **warehouses**, and a well-designed **drainage system**, all of which underscore Lothal's status as a vital trading city.
- The **network of canals** and dockyards shows the advanced planning and skill that marked Lothal's urban design.

Periyar's 146th birth anniversary

News Excerpt

Rationalist **social reformer** Periyar EV Ramasamy was remembered on his **146th birth anniversary** on September 17.

About Periyar EV Ramasamy

- Born in **1879**, Periyar means **"Respected Elder."** He is known as the **'Father of the Dravidian movement'**.
- Periyar started his political journey as a **Congress worker** in his hometown of Erode.
- He gained national recognition during the **Vaikom Satyagraha of 1924**, a mass movement demanding that **lower-caste individuals** be allowed access to public roads near the Vaikom temple.
 - His efforts earned him the title **Vaikom Veerar** (Hero of Vaikom).
- One notable incident that divided Periyar and the Congress was his quarrel with Mahatma Gandhi over the issue of **separate dining arrangements** for Brahmin and non-Brahmin students at **Gurukulam**, a Congress-sponsored school.
 - **Gandhi** responded that students should **not be forced** to dine together, as their moral principles guided them. He believed that social reform was a gradual process.

- This difference in approach frustrated Periyar, and in **1925**, he **resigned from Congress**, accusing the party of perpetuating caste discrimination instead of fighting against it.
- The **Self-Respect Movement** in **1925** promoted **marriages** without rituals, divorce rights, and equal property rights for women—radical ideas for the time.
 - He believed that **women** should not be confined to traditional roles as child-bearers and insisted on **equal rights** in education and employment.
- Periyar prioritized **addressing caste inequality**, believing that Tamil identity was inherently egalitarian and unpolluted by the caste divisions introduced by Aryan invaders from the north.
 - He appealed to people to **abandon caste suffixes** in their names and not mention caste. He **instituted inter-dining** with food cooked by Dalits in public conferences.
- In the 1930s, Periyar **opposed** the Congress Ministry's **imposition of Hindi**, comparing it to Aryanisation and viewing it as an attack on Tamil identity and self-respect.
- In the **1940s**, he founded the Dravidar Kazhagam (DK), which advocated for the formation of an **independent Dravida Nadu** comprising the southern states of Tamil Nadu, Kerala, Andhra Pradesh, Karnataka, and Telangana.
- Since **2021**, **Tamil Nadu** has celebrated its birth anniversary as **'Social Justice Day'**.

Story of the Great Stupa of Sanchi

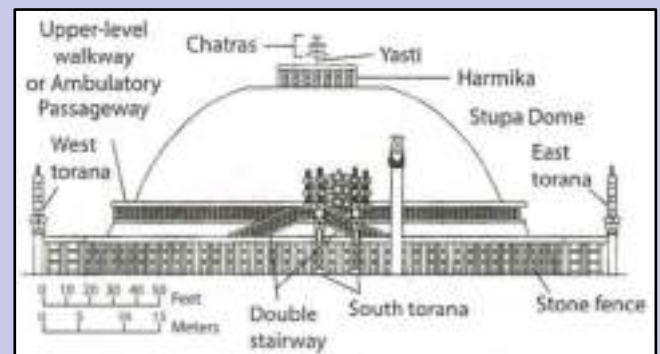
News Excerpt

On a recent visit to the **Humboldt Forum museum** in Berlin, India's External Affairs Minister S. Jaishankar stopped by the **replica of the East Gate of Sanchi's Great Stupa**.

About Stupa

- **Origin:** Stupa is a **pre-Buddhist** tumuli in which sramanas were buried in a seated position called chaitya. The term "stupa" comes from the Sanskrit word "stupa," which means **"heap" or "pile."**
- **After Buddha's Death:** Nine stupas were erected. These are at Rajagriha, Vaishali, Kapilavastu, Allakappa, Ramagrama, Vethapida, Pava, Kushinagar and Pippalivana.
 - **Eight Stupas:** Contained relics of Buddha.
 - **Ninth Stupa:** Contained the pot where the relics were originally kept.
- **Significance:** One of the primary purposes of a Stupa was to serve as a **repository for relics** associated with the Buddha or other significant Buddhist figures. Besides housing relics, Stupas were erected to **commemorate significant events** in the Buddha's life, such as his birth, enlightenment, first sermon, and death.
- **Construction and Materials**

- **Unburnt Bricks:** The **core** of the stupa was made of unburnt bricks.
- **Burnt Bricks and Plaster:** The **outer surface** was constructed using burnt bricks, which were then covered with a thick layer of plaster.
- **Medhi and Toran:** Decorated with wooden sculptures.
- **Basic structure of Stupa**
 - **Anda (Dome):** The main hemispherical mound represents the burial mound of the Buddha.
 - **Harmika:** A square platform on top of the dome symbolises the abode of the gods.
 - **Chattra:** A parasol-like structure on top of the harmika represents high rank and protection.
 - **Medhi (Drum):** The circular base supporting the anda. It is decorated with wooden sculptures.
 - **Toran (Gateways):** Four elaborately carved gateways at the cardinal points. They symbolise the entry points to the sacred space.
 - **Pradakshina Patha:** The circumambulatory path around the stupa at ground level. Devotees used it to walk around the stupa clockwise as an act of devotion.
 - **Vedika (Railing):** The surrounding railing encloses the pradakshina patha. It is often intricately carved with scenes from the Jataka tales and other significant events in the life of Buddha.



Great Stupa of Sanchi



- Sanchi is renowned for its well-preserved stupas and as a **key site** for studying the **evolution of Buddhist art and architecture** in India.
- The Great Stupa at Sanchi, commissioned by **Emperor Ashoka** in the **3rd century BCE**, is one of India's oldest and largest stupas.

- The construction of this complex spanned several centuries, with the **latest additions** made in the **12th century CE**.
- Ashoka's wife, **Devi**, from the nearby town of Vidisha, oversaw the construction of the stupa, which was later expanded with the support of **Vidisha's merchant community**.
- The Great Stupa and Sanchi's other Buddhist monuments were collectively designated a **UNESCO World Heritage site** in **1989**.
- It is featured on the **reverse side** of the **200 currency note** to highlight its significance as a cornerstone of Indian cultural heritage.

Architectural Features of the Great Stupa

- The stupa itself is relatively simple. It consists of a large **hemispherical dome** crowned with a **chhatra** (parasol), a symbol of protection.
- **Toranas**: Constructed during the **Satavahana dynasty** in the **1st century BCE**, the toranas are positioned at the **four cardinal points** around the stupa. These gateways are composed of two pillars supporting three curved horizontal beams, or **architraves**, adorned with exquisite sculptures.
- **Artistic Details**: The toranas display detailed carvings of scenes from the Buddha's life, stories from the **Jataka Tales**, and **Buddhist symbols**. The depiction is notable for its **rhythmic symmetry**, **floral motifs**, and even amorous scenes contrasting with Buddha's teachings.
- **Buddha Representation**: Interestingly, despite being dedicated to Buddhism, the gateways **avoid depicting the Buddha** in his human form, which aligns with the period's artistic norms.

Eastern Gateway

- The upper architrave of this gate shows the **seven Manushi Buddhas** (past Buddhas). The middle depicts the **Great Departure** when Prince Siddhartha leaves Kapilavastu to live as an ascetic in search of enlightenment. The lower architrave portrays **Emperor Ashoka's visit to the Bodhi Tree**.
- Other artistic elements include the **shalabhanjika** (a fertility emblem represented by a yakshi grasping the tree branch), elephants, winged lions, and peacocks, which add to the gate's decorative richness.

Replicas of Eastern Gateway

- When British officer **Henry Taylor** discovered the Sanchi complex in 1818, it was largely in ruins. Major restoration efforts began only in the 1910s, led by the **Archaeological Survey of India (ASI)** under **John Marshall**, with financial support from the **begums of Bhopal**.
- During this period, many **European treasure hunters** tried to take parts of Sanchi's gates to Europe but settled for **plaster casts** instead.

- The East Gate became Europe's most famous of Sanchi's toranas. In the 1860s, **Lieutenant Henry Hardy Cole** made a plaster cast for the Victoria and Albert Museum.
- Subsequently, **copies of this cast** were displayed in museums **across Europe**, including Berlin's Königliches Museum für Völkerkunde. The replica at the **Humboldt Forum in Berlin** was created using a cast made in 1970 from the original plaster model.

Southern Gateway

- The Southern Gateway, the **first of the four** to be erected, is situated directly in front of the steps leading to the stupa's terrace. It is considered the **main entrance** to the stupa.
- The decorations emphasise the **role of Ashoka** in spreading Buddhism.

Northern Gateway

- The Northern Gateway, the **second** to be constructed, is the **best-preserved** of the four. It retains most of its original ornamental figures and clearly shows the artistic style used in all the gateways.
- This gateway features panels that narrate various **events** from the Buddha's life.
- A notable **atypical panel** depicts **foreigners making a dedication** at the Southern Gateway.

Western Gateway

- The Western Gateway, the **last** of the four to be built, follows the same structural design as the other gateways, with **two square pillars**, **capitals**, and a superstructure of three architraves.

5 New Classical Language Approved

News Excerpt

The **Union Cabinet**, chaired by PM Modi, has approved conferring classical language status on **Marathi, Pali, Prakrit, Assamese, and Bengali** languages.

About Classical language

- The Classical Languages serve as a **custodian** of Bharat's profound and ancient **cultural heritage**, embodying the essence of each community's historical and cultural milestone.
- The government decided to create a new category of languages as "**Classical Languages**" on 12th October 2004, declaring **Tamil** as a Classical Language and setting the following as **criteria** for the status of Classical Language:



- High Antiquity of its early texts/ recorded history over a thousand years.
- A body of ancient literature/ texts, which is considered a valuable heritage by generation of speakers.
- The literary tradition must be original and not borrowed from another speech community.
- The criteria was **revised in 2005** as follows, and **Sanskrit** was declared a Classical Language:
 - High antiquity of its early texts/recorded history over a period of 1500-2000 years.
 - A body of ancient literature/texts, which is considered a valuable heritage by generations of speakers.
 - The literary tradition be original and not borrowed from another speech community.
 - The classical language and literature being distinct from modern, there may also be a discontinuity between the classical language and its later forms or its offshoots.
- The following languages have been conferred the status of Classical Languages so far:

Language	Date of Notification
Tamil	12/10/2004
Sanskrit	25/11/2005
Telugu	31/10/2008
Kannada	31/10/2008
Malayalam	08/08/2013
Odia	01/03/2014

- The **Linguistics Experts Committee** (under Sahitya Akademi) further **revised the criteria** in a meeting on 25.07.2024. Sahitya Akademi has been appointed as the LEC's nodal agency.
 - High antiquity of (its) is early texts/recorded history over a period of 1500- 2000 years.
 - A body of ancient literature/texts, which is considered a heritage by generations of speakers.
 - Knowledge texts, especially prose texts in addition to poetry, epigraphical and inscriptional evidence.
 - The Classical Languages and literature could be distinct from its current form or could be discontinuous with later forms of its offshoots.
- The LEC also recommended that **Marathi, Pali, Prakrit, Assamese, and Bengali** fulfil revised criteria for classical languages.
 - The primary states involved are **Maharashtra** (Marathi), **Bihar, Uttar Pradesh and Madhya Pradesh** (Pali and Prakrit), **West Bengal** (Bengali), and **Assam** (Assamese).

Significance

- The inclusion of languages as classical language creates significant **employment opportunities**, particularly in **academic** and **research** fields.

- The preservation, documentation, and digitisation of ancient texts of these languages will **generate jobs** in archiving, **translation, publishing, and digital media**.
- The broader **cultural and academic impact** will extend **nationally** and **internationally**.

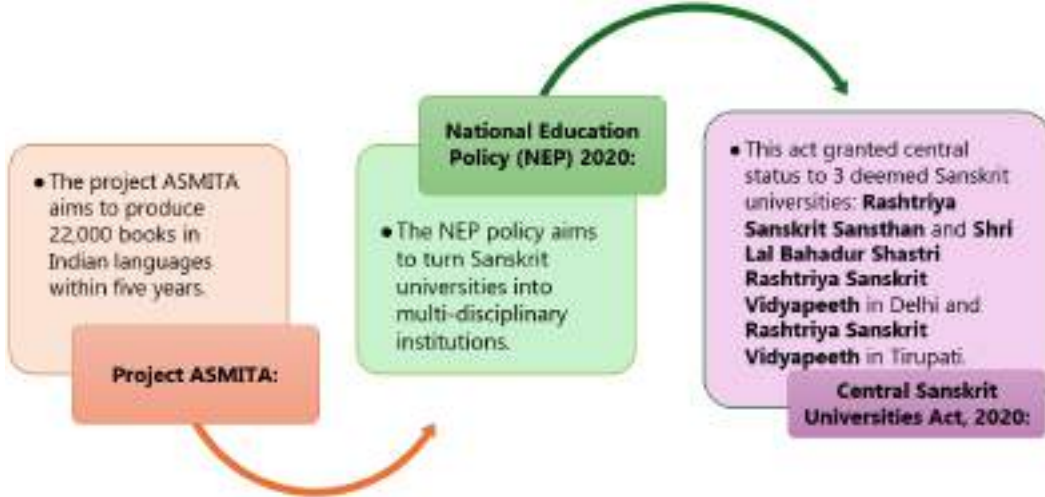
Implementation strategy and targets

- The **Ministry of Education** has taken various steps to promote Classical Languages.
 - **Three Central Universities** were established in 2020 through an Act of Parliament to promote the Sanskrit language.
 - The **Central Institute of Classical Tamil** was established to facilitate the translation of ancient Tamil texts, promote research, and offer courses for University students and Tamil language scholars.
 - The **Centres for Excellence for Studies** in Classical **Kannada, Telugu, Malayalam, and Odia** were established under the auspices of the Central Institute of Indian Languages in Mysuru.
- The **University Grants Commission** (UGC) supports the creation of **Professional Chairs** in central universities and research institutions to focus on classical Indian languages.
- **Two international awards** are given annually to scholars who have contributed notably to the research, teaching, or promotion of classical Indian languages: the **Presidential Award of Certificate of Honour** and the **Maharshi Badrayan Samman Award**.

Constitutional Provisions to Promote Languages

- **Eighth Schedule:** To promote the progressive use, enrichment and promotion of the language. Consists of **22 languages**:
 - Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri.
- **Article 344(1)** provides for the constitution of a Commission by the President on the expiration of five years from the commencement of the Constitution for the progressive use of Hindi.
- **Article 351** provides that it shall be the duty of the Union to promote the spread of the Hindi language.

Government Interventions to Promote Languages



About Prakrits: Language of the People

- ‘Prakrit’ comes from ‘Prakriti’, meaning ‘source’ or ‘origin’. Most scholars agree that this has to do with the Prakrits originating from Sanskrit, the language of the Vedas and later Hindu literature.
- There is no one Prakrit language. Instead, Prakrit generally refers to a **group of closely related Indo-Aryan languages**, which may also have other names.
 - Their defining feature is that they were much **simpler than Sanskrit**, and thus, the language **used by the masses** (as opposed to Sanskrit being the language of the elites and high literature).
- **Historian A L Basham** wrote in his classic **The Wonder that Was India (1954)**: “By the time of the Buddha, the masses were speaking languages much simpler than Sanskrit. These were the Prakrits, of which several dialects have been attested.”
 - Most pre-Gupta inscriptions—like the famous **Ashokan edicts** (dated to the 3rd Century CE)—were written in some form of Prakrit. Inscriptions and edicts were meant for the public rather than for a small group of elite intelligentsia (like Sanskrit texts).
 - Basham also noted that “**women and humbler characters** of the Sanskrit drama are made to speak in formalised Prakrit of various dialects”.

Some notable Prakrits include:

- **Magadhi**: It was the official language of the **Mauryan court** and the language of the people of Magadha (present-day Bihar). The **Ashokan edicts** were composed in this language.
 - This language would find wide use in **Eastern India** and later evolved into modern-day languages such as **Bengali, Assamese, Odia**, and the **Bihari** languages (Bhojpuri, Magahi, Maithili), among others.
- **Ardhamagadhi**: Literally “**half-Magadhi**”, was a later variation of the Magadhi language prominently used by **Jain scholars**.

○ Linguist A C Woolner argued that this is the definitive form of Prakrit, with other forms being variants of Ardhamagadhi.

(Introduction to Prakrit, 1928). Most Prakrit courses today teach Ardhamagadhi.

- **Shauraseni**: This language is used in **North and Central India**. In Sanskrit plays, the speech of **women and people from the lower classes** is often denoted in this Prakrit, which later evolved into **Hindustani, Punjabi**, and

other languages of the Hindi group.

About Pali: Language of Buddhist Canon

- Pali has traditionally been identified with **Magadhi Prakrit**. The word ‘pali’ means “**lines or series**,” a reference to Pali being the language of the series of Buddhist texts.
 - However, Some modern scholars believe Pali to be a **mix of combined Prakrit languages** (including more western dialects) and partially Sanskritised.
- Apart from Ardhamagadhi, the language of the **Jain agamas**, the other language to emerge in this regard is Pali, the language of the **Theravada Buddhist canon**.
- The Pali Canon falls into three general categories or pitaka (basket). Together, it is thus known as **Tipitaka** (“three baskets”). These include
 - **Vinaya Pitaka** (or the “Discipline Basket”) deals with the rules or discipline of the Buddhist sangha (monastic order)
 - **Sutta Pitaka** (or the “Sayings Basket”) is the largest basket, comprising the Buddha’s discourses and sermons, as well as some religious poetry.
 - **Abhidhamma Pitaka**, the basket that further elaborates on Buddhist philosophy.
- After Theravada Buddhism declined in India, Pali survived as an **ecclesiastical language** in **Sri Lanka, Myanmar, Thailand, Laos**, and **Cambodia**, where this Buddhist school continued to prosper.

About Marathi

- Modern Marathi descends from **Maharashtri Prakrit**, a Prakrit dialect used in western India, which was the official language of the **Satvahanas**.
- The oldest evidence of Maharashtri Prakrit is a **stone inscription** in the Pune district, dated to the **1st century BCE**.
- The earliest evidence of the more modern Marathi can be traced to a **copper-plate inscription** in **Satara**, dated 739 CE.

About Bengali & Assamese

- Both languages have their origins in **Magadhi Prakrit**.
- The date they emerged is contested, with scholars putting forward dates of origin ranging from the **6th to the 12th centuries**.
- They took on a form that may be **recognisable today** well into the **second millennium CE**.
- The legendary linguist Suniti Kumar Chatterji suggested that the Indo-Aryan vernacular likely differentiated itself in Assam before Bengal.

Celestial and Seasonal Symbolism in Harappan Culture

News Excerpt

Harappans integrated celestial knowledge into their **cultural, religious, and agricultural practices**, passing down these traditions to later civilisations, especially the **Vedic culture**.

Celestial Observations

- Many ancient cultures, including the Harappan civilisation, recognised the significance of the **Big Dipper constellation** (known for its shape resembling a giant spoon).
- As the Big Dipper's position changes throughout the year—during **spring, summer, autumn, and winter**—it traces a symbolic shape known as the **hooked cross**.
 - This pattern is more than a celestial map; it was integral to marking significant times for **sowing seeds, harvesting crops, migrating with animals**, and anticipating natural phenomena like floods or rains.

Swastika: Symbolism in Vedic Tradition

- In **Vedic traditions**, this hooked cross became known as the **Swastika**, a symbol representing **cosmic order and well-being**.
- "Swastika" derives from the Sanskrit word **su-asti**, which means **"to let good things happen."**
 - This symbol appears on **Harappan seals**, suggesting that the Harappans not only recognised the movement of the Big Dipper but also aligned their lives and cities with the cosmic order.
- Whether they used the term **"swastika"** or had similar beliefs about the **SaptaRishi Mandala** (Big Dipper) remains speculative.
 - However, they had an advanced **understanding of celestial movements**, as their cities aligned to cardinal directions, indicating a keen awareness of their place in the universe.



Seven Sages and Seven Sisters: The Cosmic Connection

- **Animal and Tree Worship in Harappan Rituals**

- Ritual practices among Harappans, such as **tree worship** and **animal sacrifice**, connect with cosmic symbolism.
- **Harappan seals** depict scenes of animals sacrificed to deities, a practice that may mirror rituals tied to celestial and seasonal cycles.
 - One particular seal shows a **markhor (wild goat)** being offered by a devotee wearing a horned helmet to a deity standing between trees, also wearing a horned helmet.
- The emphasis on trees, animals, and celestial alignment suggests a cosmological framework where **nature, the stars, and human rituals** are deeply intertwined.

Seven People Dancing

- One of the most **intriguing depictions** on Harappan seals shows seven figures dancing, wearing distinctive attire such as **plumage on their heads, skirts, bangles, and a pigtail or hood** behind their heads.
- The interpretation of these figures remains open to debate.
 - They could represent the **Pleiades constellation** (Krittika Nakshatra), which is associated with the eastern sky and the arrival of spring.
 - Alternatively, they may symbolise the **SaptaRishi Mandala**, the Big Dipper. These seven figures might be **men or women**, but the association with the seven stars indicates a celestial connection.
- In **Vedic literature**, the seven sages had seven wives, and these celestial figures eventually moved from the northern sky to the eastern horizon to reside with **Taurus (Rishabha Rashi)**, the bull.



Harappan Contributions to Vedic Astronomy

• Nakshatra System

- One of the most significant contributions of Harappan civilisation to later Vedic culture was the **Nakshatra system**, which divided the sky into **27-star clusters**.
- This system is recorded in **Vedic texts** but not in the **Avesta** (the religious texts of ancient Persia), indicating that it was a **uniquely Harappan** memory passed down to later Aryan settlers.
- The moon's position in relation to these **nakshatras** around **3000 BCE** was vital in formulating the **Hindu calendar**.

- Each month in the calendar was named after the star cluster near which the full moon occurred, reflecting an intricate **blend of astronomy and daily life**.
- **Grid Layout of Cities and Celestial Alignment**
 - The Harappan civilisation's fascination with the skies was **not limited** to **abstract symbolism**. It manifested in the physical layout of their cities.
 - For instance, cities like **Kalibangan** were laid out in a **grid pattern** with streets running along cardinal directions. This alignment is likely connected to **stellar observation**, as seen in the strange, oblique cuts in **rectangular rock-cut wells in Dholavira**.
 - Harappan **pottery** also features celestial symbols, such as **peacocks flying towards the stars** and **fish carrying stars in their bodies**. The connection between fish and stars is particularly noteworthy.
 - Scholars suggest that the words for **star and fish** were the same in the **Harappan language**, as in modern **Dravidian** languages like Tamil, where the word "**min**" refers to both.

GOVERNMENT SCHEMES

India's First Fashion Forecasting Initiative 'VisioNxt'

News Excerpt:

Recently, the Union Ministry of Textiles launched VisioNxt, a bilingual web portal, and India-specific Fashion Trend Book Paridhi 24x25.

About VisioNxt Fashion Forecasting Initiative:

- VisioNxt is a Fashion Forecasting Initiative of the **National Institute of Fashion Technology (NIFT)**.
 - It aims to foster healthy global competition and elevate Indian culture and design to new heights globally
- The fashion industry will benefit from the **Artificial Intelligence (AI) and Emotional Intelligence (EI)**- based trend insights offered by VisioNxt.
- Its mission is to **identify, map, and analyse geo-specific trends**, reflecting India's positive plurality, cultural diversity, and socio-economic nuances while collating comprehensive trends and insights.
- VisioNxt—a **Trend Insights and Forecasting Initiative**—was conceived

and established at **NIFT Delhi (Creative Lab) and NIFT Chennai (Insights Lab)** with the support of the **Ministry of Textiles, Government of India, in 2018**.

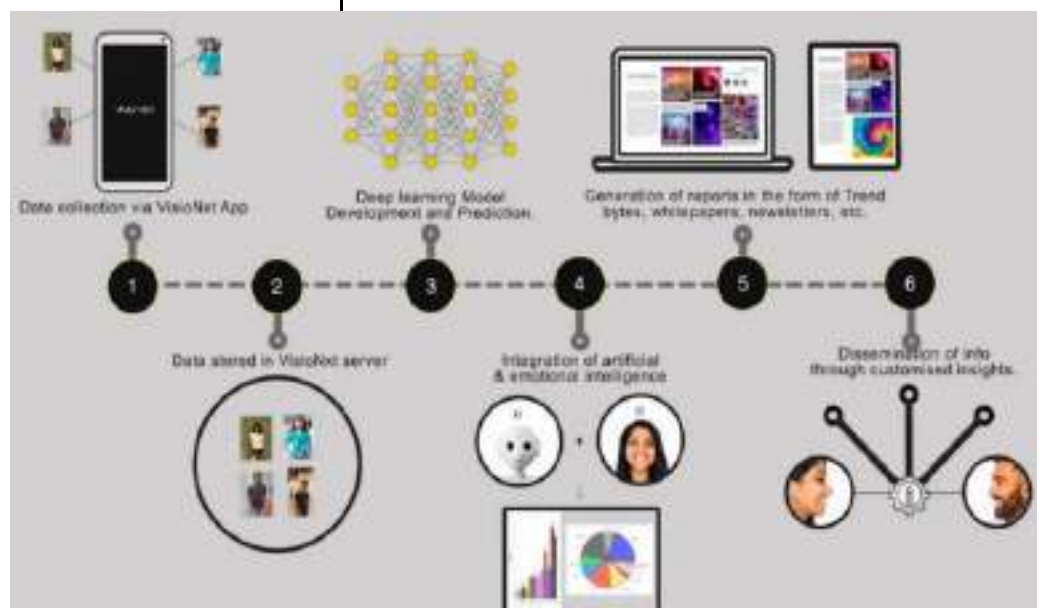
- The initiative, now centralised in Chennai, focuses on delivering **trend insights and forecasting** for the Indian fashion and retail market. It also offers various trend related consultancy services, academic courses, workshops etc.

Objective of VisioNxt:

- VisioNxt initiative will foster healthy global competition and elevate **Indian culture and design** to new heights globally.
- **India's entry into the forecasting space offers multiple advantages** it reduces dependence on global forecasting agencies, provides unique insights into Indian fashion consumers, integrates India's strength in information technology with textiles, and combines artificial and human intelligence.
- **The initiative empowers users to design, produce, and launch consumer-focused, targeted collections for this diverse nation.** 'Paridhi will mark the launch of VisioNxt's first inclusive fashion trend forecast and a web portal to disseminate India-specific fashion trends.
- **VisioNxt positions India globally** among countries that predict fashion trends, increasing the visibility of Indian fashion vocabulary and identity while reducing dependence on international trend agencies.

VisioNxt Overview Key Points:

- **Cultural Diversity and Fashion Insights:** VisioNxt focuses on India's vast cultural plurality, which includes **22 official languages, 121 languages, 270 mother tongues, and numerous tribes and religions**. This diversity is a rich foundation for understanding fashion consumption and human expression, creating insights tailored to the Indian textile, fashion, and retail industries.



- **Youth Demographic Impact:** With over **62% of its population** in the working age group and more than **54% below 25 years old**, India's young demographic significantly influences lifestyle and fashion trends. VisioNxt aims to map this emerging cohort's preferences to develop targeted industry strategies.
- **Technology and Data Security:** The organisation employs a systematic human network across India, supported by the **in-house developed VisioNxt app**, which ensures **data security and ethical accessibility**. This infrastructure facilitates sharing and collaborating on real-time insights.
- **Strategic Partnerships and Innovations:** Funded by the **Ministry of Textiles**, Government of India, and based at the **National Institute of Fashion Technology (NIFT)**, VisioNxt leverages its extensive network of 18 campuses and a robust alumni base.
 - The lab has developed '**Deep Vision**,' an indigenous trend forecasting system that combines **Artificial Intelligence (AI) and Emotional Intelligence (EI)** to generate actionable insights for the fashion industry.

VisioNxt 6 Pillars:

- The VisioNxt spotters are trained using a distinct training module called "**TrendOrb**", which stands on 6 pillars of learning, namely - **Scan, Capture, Map, Cluster, Analyse and Present**, in that very order, respectively.

How VisioNxt Works:

- VisioNxt employs a hybrid model to map emerging trends and forecasts using an advanced deep learning system called "**DeepVision**." This model is built on a rich dataset comprising over **54,000 primary and 33,000 secondary images**. Successfully tested, it features a pioneering Indian fashion-wear taxonomy curated in-house, encompassing more than **60 indigenous and 40 western product categories**.
- The "DeepVision" model **decodes patterns and interprets fashion trends** in India by identifying specific product attributes—such as distinguishing between a Kurta and a Kurti, recognizing colors like red or yellow, and noting styles that are plain or striped, short or long. Utilizing **convolutional neural network architecture** at VisioNxt's Insights Lab, these insights are transformed into comprehensive reports with design and color recommendations.
- VisioNxt stands out as the only trend insights research lab in India to gather this extensive data through a network of over **800 trained trend spotters across 16 cities**. These spotters capture not just the mood and spirit of everyday life but also **emerging product details and DIY trends** via a unique ethical image collection platform.

Trend Book - PARIDHI 24x25

- "PARIDHI" represents a **groundbreaking milestone** in India's fashion and cultural landscape, emerging as the country's first-ever trend book.
- This publication is not just a compilation of trends; it offers a **distinctive and profound perspective** on the dynamic Indian cultural landscape and the evolving mindset of its people.
 - It challenges traditional boundaries, **both literal and metaphorical**, encouraging readers and creators alike **to introspect, explore**, and transcend beyond conventional limits.
 - It invites its **audience to explore the infinite possibilities** that lie both within and beyond their current understanding of **culture, fashion, and identity**.
 - This exploration is not just about **physical or geographical boundaries** but also about pushing the boundaries of thought, creativity, and expression.

Pradhan Mantri Janjatiya Unnat Gram Abhiyan

News Excerpt:

The Union Cabinet approved Pradhan Mantri Janjatiya Unnat Gram Abhiyan with total outlay of Rs.79,156 crore (Central Share: Rs.56,333 crore and State Share: Rs. 22,823 crore) for improving the socio-economic condition of tribal communities, by adopting saturation coverage for tribal families in tribal-majority villages and aspirational districts.

About Pradhan Mantri Janjatiya Unnat Gram Abhiyan:

- This will cover around **63,000 villages benefiting more than 5 crore tribal people** as announced in the Budget Speech 2024-25.
- It will cover **549 districts, and 2,740 blocks spread across all tribal majority villages**.
- India has ST population of **10.45 crore as per 2011 census** and there are more than 705 tribal communities, spread across the country, living in remote and hard-to-reach areas.
- The Pradhan Mantri Janjatiya Unnat Gram Abhiyan envisions saturation of critical gaps in **social infrastructure, health, education, livelihood, through different schemes of Govt of India** by convergence and outreach and ensure holistic and sustainable development of tribal areas and communities based on learnings and success of PMJANMAN (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan).
- The Mission comprises **25 interventions which will be implemented by 17-line ministries**.

Development Action Plan for Scheduled Tribes (DAPST):

Each Ministry/Department would be responsible for implementation of the scheme related to it in a time bound manner through funds allocated to them under

Development Action Plan for Scheduled Tribes (DAPST) in next 5 years to achieve following goals:

• **Goal-I:**

Developing Enabling Infrastructure:

- (i) **Pucca house for eligible Households with other entitlements:**

Eligible ST household shall have access to pucca housing under the **PMAY (Gramin)** with availability of **tapped water (Jal Jeevan Mission)** and **electricity supply (RDSS)**. Eligible ST household shall also have access to **Ayushman Bharat Card (PMJAY)**.

- (ii) **Improving Village infrastructure:** Ensuring all weather road connectivity to **ST majority villages (PMGSY)**, provide access to **mobile connectivity (Bharat Net)** and internet, infrastructure for improving health, nutrition, and education (**NHM, Samagra Shiksha and Poshan**).

• **Goal-2: Promotion of Economic Empowerment:**

- (iii) **Skill Development Entrepreneurship promotion and enhanced livelihood(self-employment)** - Providing access to training (**Skill India Mission/ JSS**) and ensuring that ST boys/girls get access to long-term skill courses after 10th/12th standard every year. Further, Marketing support through Tribal Multipurpose Marketing Centre (**TMMC**), **Tourist Home Stays and Agriculture, Animal Husbandry** and Fishery support for FRA Patta holders

• **Goal-3: Universalization of Access to Good Education:**

- (iv) **Education** - To increase GER to the national levels in school and higher education and to make quality education affordable and accessible to ST students (**Samagra Shiksha Abhiyan**) by setting up tribal hostels in schools at district/block level.

• **Goal-4: Healthy lives and Dignified Ageing:**

- (v) **Health** – To ensure enhanced access to quality health facilities to ST households, reach towards the national standards in **IMR, MMR** and coverage of immunisation through **Mobile Medical Units** in areas where sub centre is more than **10 km in plain areas** and 5 kms in Hilly areas (**National Health Mission**).



The Mission targets in respect of 17 Ministries are as under:

S. No.	Ministry	Interventions/ (Scheme)	Beneficiary/ Intervention figure
1.	Ministry of Rural Development (MoRD)	Pucca houses- (PMAY)- Gramin	20 lakhs houses
		Connecting Road – (PMGSY)	25000 km road
2.	Ministry of Jal Shakti	Water Supply-Jal Jeevan Mission (JJM)	(i). Every eligible village (ii). 5,000 hamlets ≤ 20HH
3.	Ministry of Power	House Electrification- [Revamped Distribution Sector Scheme (RDSS)]	Every unelectrified HH and unconnected public institutions. (~ 2.35 lakh)
4.	Ministry of New and Renewable Energy	Off-grid Solar. New Solar Power Scheme	(i). Every unelectrified HH and public institutions are not covered through grid.
5.	Ministry of Health and family Welfare	Mobile Medical Units- National Health Mission	Up to1000 MMU
		Ayushman Card – Pradhan Mantri Jan Arogya Yojana (PMJAY)-NHA	Every eligible HH covered under the Abhiyan
6.	Ministry of Petroleum & Natural Gas	LPG Connections - (PM Ujjwala Yojana)	25 Lakhs HH (subject to approval of targets under original scheme and upon continuation of the scheme)
7.	Ministry of Women and Child Development	Establishment of Anganwadi Centres- Poshan Abhiyan	8000 (2000 New Saksham AWC) & 6000 upgradation to Saksham AWC)
8.	Ministry of Education	Construction of Hostels-Samagra Shiksha Abhiyan (SSA)	1000 hostels
9.	Ministry of AYUSH	Poshan Vatikas-National AYUSH Mission	700 Poshan Vatikas
10.	Department of Telecom	Universal Service Obligation Fund/Bharat Net (DoT-MoC)	5000 Villages
11.	Ministry of Skill Development and Entrepreneurship	Skill India Mission (Existing Schemes)/propose	Skilling Center in tribal districts
			1000 VDVks, Tribal Groups etc
12.	Ministry of Electronics & IT	Digital Initiative	As applicable

13	Ministry of Agriculture & Farmer welfare	Promotion of sustainable agriculture - Multiple Schemes of DoAFW	FRA Patta holders (~2 lakhs beneficiaries)
14	Department of Fisheries	Fish culture support-Pradhan Mantri Matsya Sampada Yojana (PMMSY)	10,000 community and 1,00,000 individual beneficiaries
	Department of Animal Husbandry & Dairying	Livestock rearing-National Livestock Mission	8500 Individual /Group beneficiaries
15	Ministry of Panchayati Raj	Capacity building-Rashtriya Gram Swaraj Abhiyan (RGSA)	All Gram Sabhas and concerned officers at Sub division, District and State level dealing with FRA
16	Ministry of Tourism	Tribal Home Stays-Swadesh Darshan	1000 Tribal Home Stays with support of upto Rs 5 lakh per unit (for new construction), upto Rs 3 lakhs (renovation) and Rs 5 lakh for village community requirement.
17	Ministry of Tribal Affairs	Pradhan Mantri Adi Adarsh Gram Yojana (PMAAGY)	Enhancing the scope of SCA to Tribal Development / PMAAGY by including other interventions#
100 Tribal Multi-purpose Marketing Centers, improving infrastructure of Ashram Schools, Hostels, Govt./State Tribal Residential schools, Centre of Competencies for Sickle Cell Disease (SCD) and counselling support, Support for FRA & CFR Management interventions, setting up of FRA Cells, and project management funds with incentives for top performing tribal districts.			

Innovative schemes to promote livelihood and generate income amongst tribals and forest dwelling communities under Abhiyan:

- **Tribal Home Stay:** To tap the tourist potential of tribal areas and to provide an alternate livelihood to the tribal community, **1000 Home stays** will be promoted under **Swadesh Darshan** through **Ministry of Tourism**.
 - In villages which have **tourist potential**, funding will be provided to the **tribal Household and the village for construction of 5-10 Homestays** in one village.
 - Each household will be eligible for Rs. **5.00 lakhs** for the construction of two new rooms and upto Rs. **3.00 lakhs** for renovation of existing rooms and Rs **5 lakh for village community requirement**.
- **Sustainable Livelihood Forest Right Holders (FRA):** The Mission has special focus on **22 lakh FRA patta holders residing** in forest areas and in convergence with **Ministry of Tribal Affairs, Ministry of Agriculture and Farmer Welfare (MoAFW), Department of Animal**

Husbandry, Department of Fisheries and Ministry of Panchayati Raj, the benefits of different schemes will be converged & provided.

- The interventions are aimed to **expedite the process of recognizing and securing forest rights**, empowering tribal communities to enable them for maintenance and conservation of forest and also providing them **sustainable livelihood** through support of government scheme.
- The Abhiyan will also catalyze that the pending FRA claims are expedited and training of all stake holders and officers at **Block, District and State level** will be given by **Ministry of Tribal Affairs and Ministry of Panchayati Raj**.
- **Improving infrastructure of Govt residential Schools and Hostels:** The tribal residential schools and Hostels target remote tribal areas and aim to **develop local educational resources** and promote enrolment and retention.
 - **The Abhiyan aims to Improve infrastructure of Ashram schools/hostels/Tribal schools /Govt residential schools** for upgradation on the lines of PM-Shri Schools.
- **Advance facilities for diagnosis of Sickle Cell Disease:** To provide affordable and accessible diagnostic and SCD management facilities with special emphasis on pre-natal diagnosis and to reduce the prevalence of the disease by preventing future births with SCD, **Centre of Competence (CoC)** would be set up in **AIIMS and premier Institutes in the States** where the Sickle disease is prevalent and where expertise of conducting these procedures is available.
- **Tribal Multipurpose Marketing Centre (TMMC):** For Effective marketing of tribal products and for improving **marketing infrastructure, awareness, branding, packaging, and transportation facilities 100 TMMCs** will be set up to enable the tribal producers to get right price for their produce/ products and facilitate the consumers in buying **tribal produce / products** at right price directly from the tribals.
- The Abhiyan has been planned based on learning and Success of **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN)**, which was launched by Hon'ble PM on **Janjatiya Gaurav Divas on 15th November, 2023** with budget of Rs. 24104 crore focusing on the PVTG population.

PM Internships Scheme

News Excerpt:

The Union government opened up a portal for India's top 500 companies to participate in the one-year **The Prime Minister's Internship Scheme (PMIS)** announced in this year's Union Budget to bridge the gap between the skill sets of unemployable youth and those needed by employers.

More details about news:

- **One lakh youth** are expected to get internships by **December 2**; the first batch can apply between **October 12 and 25**.
- As many as **111 corporates** — including the **Mahindra and Mahindra group, Max Life Insurance, and Alembic Pharma** — had already signed up within hours of the portal's launch, offering **1,077 internships**.
- This kicks off a process that is expected to result in about **one lakh youngsters joining the on-the-job training exercise**, officially called **The Prime Minister's Internship Scheme in Top Companies (Scheme)**, by December 2.
- The scheme that aims to **train one crore youth in five years** is a pilot project being undertaken at a cost of **₹800 crore**. The lessons learnt from this will help fine-tune the scheme's design before the Cabinet's approval is sought for a full-fledged rollout.

Matching locations and needs:

- **Portal Launch for Internships:** The portal pminternship.mca.gov.in is set to be opened on **Vijaya Dashmi**, October 12 for youngsters to enroll for internships.
- **Eligibility Age Group:** The portal is targeted at young people in the **age group of 21 to 24 years**.
- **Enrollment Period:** The window for enrolling will be open from **October 12 to October 25** for the first batch of internships.
- **Candidate Data Requirements:** Candidates must share and self-certify their educational qualifications and residential **pin codes** on the portal.
- **AI-Driven Matching Process:** Artificial Intelligence tools will be used to match candidates' **data with companies' needs and locations**.
- **Local Internship Placements:** The goal is to offer internships within the same district where the **candidate resides, or a neighbouring district** if necessary. If neither is possible, placements will be made within the candidate's own State.
- **Shortlisting Process:** A shortlist of candidates will be generated for companies to consider based on the **AI-driven** matching process.

Post-grads not eligible:

- **Ineligibility Criteria:**
 - The scheme is **not** open to **postgraduates**.
 - Children of regular and **permanent employees** in the Central or State governments are not eligible.
 - Graduates from premier institutes like **IITs, IIMs, and NIDs are excluded**.
 - Professionals with qualifications like **CA, CS, and MBBS are also not eligible**.
 - Individuals from households where a person earned an income of **8 lakh or more** in 2023-24 are ineligible.

- **Call Centre Queries:** Call centres have already received around **1,000 calls regarding** the scheme. The call centres operate in multiple languages: **Marathi, Kannada, Gujarati, Odiya, Malayalam, Bengali, Assamese, and Telugu**.
- **Breakdown of Queries:** 44% of the calls have come from **graduates**, 11% of the calls were from individuals who completed Class 12 and 13% of the calls were from postgraduates, who are not eligible for the scheme.

Skills Gap:

- **Objective of the Scheme:** The scheme aims to help unemployable youth who have educational credentials but lack the skills required for available jobs.
 - The internship is designed to provide these individuals with exposure to real-world workplaces and industry needs, making them more employable in the future.
- **Internship Timeline and Stipend:** By December 2, the goal is to have about one lakh interns join their respective companies for a **12-month internship**.
 - The Centre will make a **one-time payment of 6,000, plus 4,500 for each month of training**.
 - The company will contribute an additional ₹500 per month from its mandatory corporate social responsibility (CSR) corpus.
- **Eligibility Criteria:** Candidates who are eligible for internships include those who have:
 - Passed **high school or higher secondary** school.
 - Obtained a certificate from an **industrial training institute (ITI)**.
 - Completed a diploma from a **polytechnic institute**.
 - Graduates with degrees such as **BA, B.Sc, B.Com, BCA, BBA, or B.Pharma**.
 - Unemployed youth enrolled in **online, or distance learning courses** are also eligible to apply.
- **Exclusions:** Candidates undergoing any skilling, apprenticeship, internship, or student training programme under a **Central or State government scheme are not eligible** for this internship scheme.

Quotas will apply:

- **Reservations/Quotas:** Reservations for **Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs), and people with disabilities** will apply to this scheme, following the same guidelines used in government hiring.
- **Grievance Redressal:** Each participating company will assign a nodal person to handle grievances related to the internship. The Ministry will have oversight over the **grievance redressal process** to ensure proper resolution.
- **Participation of Companies:** The top **500 companies**, identified based on their CSR spending in recent years, can also nominate their vendors and suppliers to participate in the internship scheme.

'Bio-RIDE' scheme

News Excerpt:

The Union Cabinet approved continuation of the two umbrella schemes of Department of Biotechnology (DBT), merged as one scheme- **Biotechnology Research Innovation and Entrepreneurship Development (Bio-RIDE)**' with a new component namely Biomanufacturing and Biofoundry.

About Bio-RIDE Scheme:

- The proposed outlay for the implementation of the unified scheme '**Bio-RIDE**' is **Rs.9197 crore** during the 15th finance Commission period from **2021-22 to 2025-26**.
- Bio-RIDE scheme is designed to **foster innovation, promote bio-entrepreneurship**, and strengthen India's position as a global leader in biomanufacturing and biotechnology.
- It aims to accelerate research, **enhance product development**, and bridge the gap between academic research and industrial applications.
- The scheme is part of the Government of India's mission to **harness the potential of bio-innovation to tackle national** and global challenges such as healthcare, agriculture, environmental sustainability, and clean energy.
- The scheme has three broad components:
 - a) **Biotechnology Research and Development (R&D).**
 - b) **Industrial & Entrepreneurship Development (I&ED).**
 - c) **Biomanufacturing and Bio-foundry.**

Implementation of Bio-RIDE Scheme will -

- **Promote Bio-Entrepreneurship:** Bio-RIDE will nurture a thriving ecosystem for startups by providing seed funding, **incubation support, and mentorship** to bio-entrepreneurs.
- **Advance Innovation:** The scheme will offer grants and incentives for cutting-edge research and development in areas like **synthetic biology, biopharmaceuticals, bioenergy, and bioplastics**.
- **Facilitate Industry-Academia Collaboration:** Bio-RIDE will create synergies between academic institutions, **research organizations, and industry** to accelerate the commercialization of bio-based products and technologies.
- **Encourage Sustainable Biomanufacturing:** A significant focus will be placed on promoting environmentally sustainable practices in **biomanufacturing, aligned with India's green goals**.
- **Support researchers through Extramural funding:** Bio-RIDE will play critical role in advancing scientific research, innovation, and technological development across diverse fields of biotechnology by supporting extramural funding **to research institutions,**

universities, and individual researchers in areas such as agriculture, healthcare, bioenergy, and environmental sustainability.

- **Nurturing Human Resource in Biotechnology sector:** Bio-RIDE will provide holistic development and support to students, young researchers and scientists working in the multidisciplinary areas of Biotechnology. The integrated programme of **Human Resource Development** will contribute towards the capacity building and skilling of the manpower and make them competent to leverage the newer horizon of technological advancements.

Bio-RIDE and Circular-Economy:

- **Circular-Bioeconomy Initiative:** A component on Biomanufacturing and Biofoundry is being initiated to enable a Circular-Bioeconomy in the country. This aligns with the '**Lifestyle for the Environment (LiFE)**' mission launched by the Hon'ble PM to mitigate **global climate change** through environmentally friendly solutions.

Goals of the Bio-RIDE Component: Biomanufacturing aims to nurture the potential for:

- **Development of indigenous innovative solutions.**
- **Improvement of healthcare outcomes.**
- **Enhancement of agriculture productivity.**
- **Fostering the growth of the bioeconomy.**
- **Scaling-up and commercialization of bio-based products.**
- **Expanding India's cohort of a highly skilled workforce.**
- **Intensifying entrepreneurial momentum.**



Bio-RIDE
Cabinet approves 'Biotechnology Research Innovation and Entrepreneurship Development (Bio-RIDE)'

- Bio-RIDE is a merger of Biotechnology Research and Development & Industrial & Entrepreneurship Development (I&ED) of Department of Biotechnology with a new component i.e. Biomanufacturing and Biofoundry
- Proposed outlay of the unified scheme is **Rs.9197 cr** from 2021-22 to 2025-26
- Implementation of Bio-RIDE Scheme will:
 - Promote Bio-Entrepreneurship
 - Advance Innovation
 - Facilitate Industry-Academia Collaboration
 - Encourage Sustainable Biomanufacturing
 - Support researchers through Extramural funding
 - Nurture Human Resource in Biotechnology sector

- **DBT's Alignment with National Vision:** The Department of Biotechnology (DBT) aligns its efforts with the vision of harnessing biotechnology as a precision tool for national development and societal well-being. The aim is to **make India globally competitive** in biotechnology research, innovation, translation, entrepreneurship, and industrial growth.
- **Vision for Bioeconomy by 2030:** The mission is to achieve a **US\$300 billion Bioeconomy by 2030** through these initiatives.
- **Bio-RIDE Scheme's Contribution:** The Bio-RIDE Scheme will significantly contribute towards realizing the vision of 'Viksit Bharat 2047'.

Benefits of Bio-RIDE Scheme:

- ◁ **Nurturing Entrepreneurs:** Provide financial support, mentorship, and networking to help bio-entrepreneurs grow their businesses.
- ◁ **Promoting Innovation:** Offer incentives and IP protection to encourage high-risk, high-reward biotechnology research and development.
- ◁ **Fostering Collaboration:** Facilitate partnerships between academia and industry for knowledge exchange and joint research projects.
- ◁ **Sustainable Biomanufacturing:** Support sustainable biomanufacturing technologies and policies for environmental impact reduction.
- ◁ **Supporting Researchers:** Fund researchers outside government and support research infrastructure development.
- ◁ **Developing Human Resources:** Enhance biotechnology education and training to build a skilled workforce with practical experience.

Jal Jeevan Mission: Ensuring Tap Water for 15 Crore Rural Families

News Excerpt:

The Jal Jeevan Mission (JJM) was launched by the Prime Minister on August 15, 2019, with the ambitious goal of providing tap water supply to every rural household by 2024. At the time of its inception, only 3.23 crore (17%) of rural households had tap water connections.

About Jal Jeevan Mission:

- The mission aims to bridge this gap by providing nearly **16 crore additional households** with tap water by 2024, ensuring the **functionality of existing water supply systems**, and directly benefiting over **19 crore rural families**. This

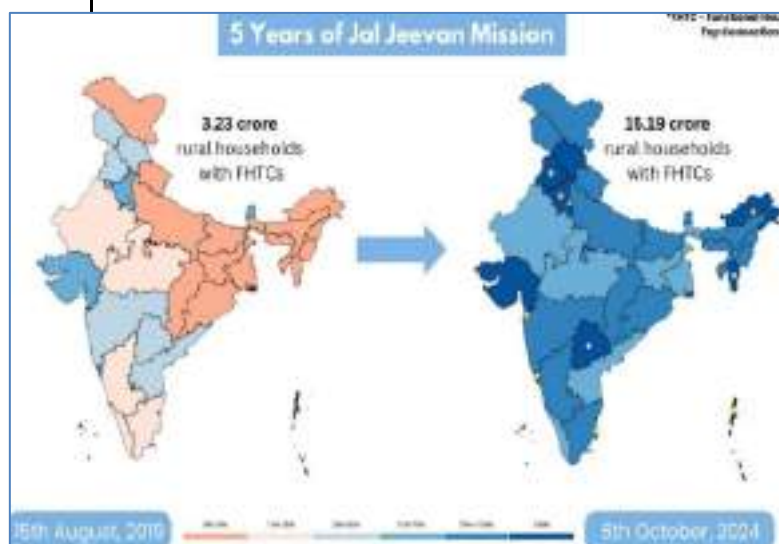


initiative is intended to **reduce the rural-urban divide** and enhance public health.

- Jal Jeevan Mission also strives for the freedom of mothers and sisters from centuries old drudgery of fetching water for the household, and **improving their health, education and socio-economic condition**.
 - The Mission is bringing '**ease of living**' and adding pride and dignity to rural families.
- Jal Jeevan Mission also implements source **sustainability measures as mandatory elements**, such as recharge and reuse through greywater management, water conservation and rainwater harvesting.
- The Mission is based on a **community approach to water** and will include **extensive Information, Education and Communication (IEC)** as a key component. JJM looks to create a janandolan for water, thereby making it everyone's priority.

Key Achievements:

- As of October 6, 2024, Jal Jeevan Mission has successfully provided **tap water connections to 11.95 crore** additional rural households, bringing the total coverage



to more than **15.19 crore households**, which accounts for **78.58% of all rural households in India**.

- The mission has reached a **significant milestone**, profoundly impacting the lives of rural people by providing them with reliable access to potable water in their homes.

The broad objectives of the Jal Jeevan Mission include:

- Providing **Functional Household Tap Connection (FHTC)** to every rural household.
- Prioritizing FHTC provision in quality-affected areas, **drought-prone regions, desert areas**, and Sansad Adarsh Gram Yojana (SAGY) villages.
- Ensuring functional tap connections in schools, **Anganwadi centers, gram panchayat buildings**, health and wellness centers, and community buildings.
- Monitoring the functionality of tap connections.
- Promoting voluntary ownership among the local community through contributions in **cash, kind, or labor (shramdaan)**.
- Ensuring the sustainability of **water supply systems, including water sources, infrastructure**, and funding for regular operations and maintenance.
- Empowering and developing human resources in the **water sector, covering construction, plumbing, electrical work, water quality management**, water treatment, catchment protection, and more.
- Raising awareness about the significance of **safe drinking water** and involving stakeholders to make water everyone's responsibility.

Components under JJM:

- Efforts should be made to source funds from **different sources/ programmes** and convergence is the key.
- Development of in-village piped **water supply infrastructure** to provide tap water connections to every rural household.
- Development and augmentation of **reliable drinking water sources** to ensure long- term sustainability.
- Bulk water transfer, treatment plants, and **distribution networks**.
- Technological interventions for contaminant removal in areas with **water quality issues**.
- Retrofitting of ongoing and completed schemes to provide FHTCs at a **minimum service level of 55 liters per capita per day (lpcd)**.
- **Greywater management**.
- Support activities such as **Information, Education, and Communication (IEC), Human Resource Development (HRD)**, training, utility development, water quality.
- **Laboratories**, research and development, capacity building of communities, etc.

- Addressing unforeseen challenges due to **natural disasters or calamities**, as per Ministry of Finance guidelines on Flexi Funds.

Impact of JJM:

- The World Health Organization (WHO) estimates that achieving JJM's goals will save **over 5.5 crore hours daily**, primarily for women, otherwise spent collecting water.
- WHO also projects that ensuring **safely managed drinking water** for all households in India could prevent nearly **400,000 deaths** from diarrheal diseases, saving approximately **14 million Disability Adjusted Life Years (DALYs)**.
- Nobel laureate **Prof. Michael Kremer's** research suggests that safe water coverage could **reduce mortality among children under five by nearly 30%**, potentially saving 136,000 lives annually.
- The Indian Institute of Management Bangalore, in partnership with the International Labour Organization (ILO), estimates that **JJM will generate 59.9 lakh person-years** of direct and 2.2 crore person-years of indirect employment during its capital expenditure phase. Additionally, the operation and maintenance phase could generate 13.3 lakh person-years of direct employment.

Community Involvement:

- To instill a sense of ownership among rural communities, **JJM emphasizes village-level planning and community participation** in all water supply decisions. Initiatives under the mission include:
- The formation of 5.32 lakh **Village Water & Sanitation Committees (VWSCs)** or Pani Samitis, with at least 50% women members and representation from marginalized communities, to manage water supply systems.
- Training five women from each village to test water samples using **Field Test Kits (FTKs)**. As of 2024-25, 24.64 lakh women have been trained, and over 54.20 lakh samples have been tested.
- Engaging over 14,000 NGOs, voluntary organizations, women's self-help groups, and community-based organizations as **Implementation Support Agencies (ISAs)** to facilitate community participation in planning, implementing, managing, and maintaining water supply systems.

Progress Under the Mission (as of October 6, 2024):

- 15.19 crore (78.58 %) of rural households in the country have been provided with tap water connections. The latest status of the **Har Ghar Jal initiative shows that 165 districts** have reported their progress (indicating that tap water is being supplied to all households, schools, and Anganwadi centres as confirmed by the water supply department).

- **11 States/UTs**, which include, Goa, A & N Islands, Dadra Nagar Haveli & Daman Diu, Haryana, Telangana, Puducherry, Gujarat, Himachal Pradesh, Punjab, Mizoram, and Arunachal Pradesh have provided tap water connection to all **rural households (100%) in the respective State/UT**.
- Till date **9,29,805 schools and 9,66,805 Anganwadi centres** have tap water supply.

Subhadra scheme launched

News Excerpt:

On 17 September 2024, Prime Minister launched the **Subhadra Yojana**, the **Odisha government's** scheme to transfer **Rs 10,000 per year** to eligible women beneficiaries in the state **between the ages of 21 and 60**.

About Subhadra scheme:

- The scheme is named after **Goddess Subhadra**, the younger sibling of Lord Jagannath, the presiding deity of Odisha.
- **Over five years until 2028-29**, the scheme will provide **more than 1 crore women** across the state with financial assistance of **Rs 10,000 annually**.
- The transfers will be made in **two instalments of Rs 5,000 each**, on **Rakhi Purnima (Raksha Bandhan)**, which typically falls in August), and **International Women's Day** (March 8) every year. **More than 50 lakh women** have already registered for the scheme.

- Women from **economically well-off families, government employees, and income-tax payees** will not be eligible for the scheme.

Financing the scheme:

- Official sources said the government has **budgeted for Rs 55,825 crore** for the scheme for five years from 2024-25 to 2028-29. For the current (2024-25) financial year, a **sum of Rs 10,000 crore** has been set aside for the scheme.
- Officers in the state finance department said there will be **no financial constraints** for the scheme, on which the government will remain focused.

Cruise Bharat Mission

News Excerpt:

The **Central government** recently launched the **five-year Cruise Bharat Mission**, aiming to **boost cruise tourism** in India to **1 million passengers** and **create 400,000 jobs by 2029**.

More detail about Mission:

- **The mission** includes setting up a **dedicated fund**, easing of **cabotage regulations** and **financial incentives**.
- **The mission** is based on **critical pillars of infrastructure development**, amp up cruise experience for tourists and sustainability of resources.
- The **three-phase Mission** will develop **world class infrastructure** and enable growth of cruise tourism and maritime trade.

- The mission has been **divided into three phases**, which will be implemented by **2029**. The Centre aims to **increase sea cruise calls** from **125 to 500 by Phase-3**.

- **Till October 2025**, the Centre will conduct **market studies** and **identification of projects** to support in financial and regulatory ways going forward.

- Cruise circuits to be designed to celebrate and promote globally the cultural, historical and natural heritage of Bharat.

- Mission to be implemented in **Three Phases & cover three key segments - Ocean & Harbour cruise, River & Island cruise, Island cruise**.
- Cruise Bharat Mission will also result in over 1.5 million river cruise passengers over more than 5,000 Kms of Operational Waterways in India.
- Between **2025-27**, the ministry will concentrate on developing **new cruise terminals**, marinas, and destinations to **activate high-potential cruise locations and circuits**.
- In **Phase-3**, the Centre will look to integrate all cruise circuits across the **Indian Subcontinent**.

SCHEME STATUS

- 92 lakh beneficiaries have registered for Subhadra Yojana so far
- > First instalment of ₹5,000 released to 25 lakh women on Sept 17
- > Each beneficiary to get ₹50,000 in five years
- > Two instalments of ₹5,000 each will be deposited in the bank accounts of beneficiaries every year
- > Over 1 crore women to benefit from the scheme
- > All women aged between 21 and 60 years with family income of less than ₹2.5 lakh will be included

How it will work:

- The money will be deposited directly into the beneficiary's **Aadhaar-enabled single-holder bank account**.
- The government has made **e-KYC mandatory for the scheme**. A **Subhadra Debit Card** will be issued to the beneficiaries.
- A **total of 100 beneficiaries** with the **highest number of digital transactions** in each **gram panchayat** and **urban local body area** will receive an additional incentive of Rs 500.

New Labelling Rules for Green Products

News Excerpt:

Recasting its flagship scheme on labelling of eco-friendly products, the Union Environment Ministry notified the Ecomark Rules, 2024, almost a year after its draft rules were notified.

About New Rules for Green Products:

- The Rules were notified to keep it in line with existing sustainability and environmentally friendly practices and with the Environment Ministry's Mission LIFE (Lifestyle for Environment), which promotes sustainable consumption.
- The rules spell out the conditions, procedure, verification process and compliance mechanism of the scheme.
- It also contains a detailed criterion that manufacturers need to follow for grant of Ecomark.
- The criteria include, among others, conditions such as reducing pollution by minimising or eliminating generation of waste and environmental emissions, using recycled material or making recyclable products, reducing use of pollution energy sources and reducing use of environmentally harmful materials.
 - Consumers want sustainable consumption, and these rules will help them make an informed choice. It is also a way of nudging companies to adopt sustainable practices.
- As part of the Ecomark Rules, the notification has also spelt out detailed criteria for 17 categories of products ranging from paints, cosmetics, batteries, edible oils, tea, coffee, toilet soaps to coir and paper.
 - Products from these categories also need certification from the Bureau of Indian Standards, compliance with pollution norms and meet other specific category related criteria.
- Under the voluntary scheme, companies can apply for Ecomark for a product with the Central Pollution Control Board, which will then entrust the work of verifying Ecomark labelling applications to registered agencies that are experienced and qualified in the field of environment and matters related to labelling.

Financial incentive for 'indigenous' cow

News Excerpt:

The Maharashtra government announced a subsidy of Rs 50 per animal per day for cattlesheds (gaushalas) that take care of indigenous (desi) breeds of cows.

More detail about news: The government has also declared the state's indigenous cow breeds as "RajyaMata-Gomata".

Indigenous vs nondescript:

- Indigenous cows are those that belong to any of the breeds registered as such by the Karnal-based National Bureau of Animal Genetic Resources, a body

under the Indian Council of Agricultural Research (ICAR).

- Its aims to "protect and conserve indigenous farm animal genetic resources for sustainable utilisation and livelihood security".
- Nondescript cows, on the other hand, have no recognised breed characteristics.

Desi milch animals:

- There are 37 indigenous cattle breeds in India, of which only four are good milch animals. The vast majority of indigenous breeds are primarily used for agriculture and transport.
- Indigenous breeds produce only 3.44 kg of milk per day on average, compared to 8.55 kg per day for exotic/ crossbred animals, according to the central government's Basic Animal Husbandry Statistics (BAHS) 2023.
- While Indian breeds are hardier and believed to be better suited to Indian conditions, for farmers, milk production is key.

Arguments for desi:

- The conservation of indigenous breeds. The National Gokul Mission which was launched in December 2014 had a component of the preservation and promotion of indigenous breeds of bovine animals.
- Advocates for desi breeds claim they produce 'A2' milk, which is supposed to be healthier than the 'A1' milk produced by animals that have been crossed with exotic breeds like Holstein Friesian, Jersey, and Brown Swiss. A1 and A2 contain genetic variants of proteins, which differ in their amino acid sequence.
- There is no scientific consensus on whether A2 milk is really healthier.
- In August, the food safety regulator Food Safety and Standard Authority of India (FSSAI) advised Food Business Operators (FBOs) to not market their milk and milk products "in the name of A1 and A2" but withdrew the advisory days later.

MISCELLANEOUS

Ratan Tata passes away

News Excerpt:

Veteran industrialist Ratan Tata, the chairman emeritus of the Tata Group, passed away at the age of 86.

About Early Life and Education:

- Ratan Tata was born on 28 December 1937, in Bombay, into the illustrious Tata family, one of India's most iconic business dynasties.
- He pursued a degree in architecture from Cornell University, followed by a management program at



Harvard Business School, which equipped him with the skills necessary for a successful career in business.

Career with Tata Group:

- **Ratan Tata** joined the **Tata Group in 1961**, starting at the grassroots level. His initial role **involved working on the shop floor of Tata Steel in Jamshedpur**, providing him with **invaluable hands-on experience**.
- He became the **Chairman of Tata Group in 1991**. Under his leadership, the conglomerate underwent a **significant transformation**, expanding its **global footprint** and diversifying into various industries.
- **Tata's bold and visionary business strategy** led to **landmark acquisitions**, including **Tetley (UK)**, **Corus (UK)**, and **Jaguar Land Rover (UK)**, solidifying the Tata Group's reputation on the international stage.
- **In 1996**, he recognized the **potential in the telecommunications sector** and launched **Tata Teleservices**, marking the group's entry into a **rapidly growing industry**.

Milestones in Automotive and Beyond:

- **In 1998**, under Ratan Tata's leadership, **Tata Motors launched the Tata Indica**, a significant milestone in **India's automotive history**.
- This was the **first indigenously designed passenger car**, revolutionizing the automotive landscape in India.
- **The acquisition of VSNL** (Videsh Sanchar Nigam Limited) in 2002 paved the way for Tata Communications, further **enhancing the group's capabilities** in the telecommunications sector.
- **In 2008**, **Ratan Tata's vision of making cars affordable for the masses** came to fruition with the launch of the **Tata Nano**, famously priced at just Rs 1 lakh.
- **In 2012**, **Tata Global Beverages** formed a partnership with **Starbucks**, significantly expanding **its reach in the global coffee market**.

Philanthropy and Awards:

- **Ratan Tata** was **deeply committed to social welfare**, directing about 65% of Tata Group's profits to **charitable trusts** focused on **education, healthcare, and rural development**. His philanthropic initiatives significantly impacted countless lives across India.
- Although **he retired as Chairman of Tata Sons in December 2012**, **Ratan Tata** remained actively involved with the group and **its philanthropic initiatives**, continuing to guide and inspire.
- **His contributions to business and society** earned him numerous accolades, including the **Padma Bhushan in 2000** and the **Padma Vibhushan in 2008**, two of **India's highest civilian honours**.

Nobel Prize in Literature 2024

News Excerpt:

The Nobel Prize in Literature 2024 was awarded to South Korean author **Han Kang** "for her intense poetic prose

that **confronts historical traumas** and **exposes the fragility of human life**.

About news:

- **Born in 1970** in the **South Korean city of Gwangju** before moving to capital Seoul, Kang comes from a **literary background**, her father being a reputed novelist.
- Alongside her writing, **she has also devoted herself to art and music**, which is reflected throughout her entire literary production.
- According to the Nobel Press Conference, **she is the first South Korean writer** to win the award.
- **Han Kang** began her career in **1993** with the publication of a number of poems in the magazine 'Literature and Society'.
- Her prose debut came in **1995** with the short story collection 'Love of Yeosu', followed soon afterwards by **several other prose works**, both novels and short stories.
- **Kang's major international breakthrough** came with the novel (**The Vegetarian**).
- **Written in three parts**, the book portrays the **violent consequences** that ensue when its **protagonist Yeong-hye** refuses to submit to **the norms of food intake**.



PHILOSOPHY OF THE MONTH

Mental Well-being and the Pursuit of the Good Life

This philosophical note examines the idea that India's focus on material wealth and consumerism is contributing to a mental health crisis. **This societal emphasis on material gain, while driving economic growth, has come at the expense of mental well-being.**



The Allure of Materialism and the Neglect of Well-being

- ◁ In India, success is often equated with relentless productivity and material wealth.
- ◁ **This prioritisation of material success often leads to the neglect of mental well-being, even as India's developmental aspirations rise.**

The Quest for Meaning and the Drawbacks of Consumerism

- ◁ At the heart of this crisis lie fundamental existential questions about **identity, purpose, and how to live a fulfilling life**.

- ◁ Ancient Greek philosophers like **Socrates and Aristotle** grappled with fundamental questions about the nature of the good life. **Socrates** famously stated, "**The unexamined life is not worth living**", emphasizing the importance of self-reflection in understanding our values and purpose. **Aristotle**, on the other hand, linked the good life to eudaimonia - a state of flourishing achieved through virtuous living and the pursuit of excellence.
- ◁ However, in contemporary society, these profound inquiries are **often overshadowed by the pursuit of efficiency, productivity, and material wealth**. This emphasis on material gain, while driving economic growth, comes at a significant cost to mental well-being. They suggest that **material wealth, while offering temporary comfort, fails to address deeper emotional and psychological needs**. Individuals often find themselves feeling isolated and purposeless despite achieving material success, experiencing a disconnect from their communities and a sense of meaninglessness.

Rethinking Freedom: Consumer Choice vs. Deeper Values

- ◁ **A significant contributor to India's mental health crisis, according to the sources, is the conflation of freedom with consumer choice.**
- ◁ As India's middle class grows, many associate their ability to buy goods with personal freedom and success.
- ◁ **This perspective, however, prioritises material wealth over deeper values like equality and fraternity.**
- ◁ The result is a society that measures happiness by buying power, leading to a cycle of consumption that fails to improve long-term mental health.
- ◁ **Restricting freedom to consumer choice makes people feel inadequate, as they struggle to meet the ever-increasing standards of material possessions.**

Addressing the mental health crisis requires a multifaceted approach. This includes:

- ◁ **Promoting mindfulness and social-emotional learning:** These practices can help individuals develop self-awareness, manage stress, and build healthy relationships.
- ◁ **Creating a culture that values mental well-being:** This involves challenging the stigma surrounding mental health and encouraging open conversations about mental health issues.
- ◁ **Implementing social policies that reduce inequality and provide mental health support:** Addressing socioeconomic disparities and ensuring access to mental health services are crucial steps in tackling the crisis.
- ◁ **Programmes promoting mindfulness, social-emotional learning, community living, and mental health awareness are crucial to creating a culture that values mental well-being.**
- ◁ **Social policies that reduce inequality and provide mental health support are also essential to addressing this crisis.**

By emphasizing that a truly good life is not about material possessions but about our relationships with ourselves, our communities, and the environment. **Prioritising community, equity, and mental well-being is presented as the way to build a healthier, more connected society where people feel supported and valued.** Addressing the root causes of the mental health crisis is essential to creating a more meaningful and fulfilling future for all.

THEMATIC ESSAY

1. Those who seek a better life must first become a better person.
2. It is not because things are difficult that we do not dare; it is because we do not dare that things are difficult.

CONTEMPORARY ETHICS CASE

Q. On a sunny day, a fishing boat, the 'Sea Sonora,' set sail with a group of unsuspecting tourists on board. Little did they know that their voyage would end in a devastating tragedy. Captain Santosh, the fishing boat's owner, had illicitly converted it into a tourist vessel without obtaining the necessary safety certifications. He ignored regulations in his quest for quick profits, cutting corners to save costs and maximize his gains. The misdeed didn't stop there. Inspector Vikas Naidu, a government official responsible for ensuring safety, had been bribed by Captain Santosh to turn a blind eye to the illegal conversion.

As the Sea Sonora sailed further into the open sea, disaster struck. The boat encountered rough waters and quickly succumbed to the treacherous waves. Panic ensued as the boat capsized, plunging its passengers into the cold, unforgiving depths of the ocean. Tragically, twenty innocent lives were lost that day, their hopes and dreams extinguished by the greed and negligence of those responsible for their safety.

News of the incident spread like wildfire, sending shockwaves through the community. The families of the victims demanded answers and justice. The corrupt alliance between Captain Santosh and Inspector Vikas Naidu began to unravel as investigations were launched to determine the cause of the accident.

You have been given the task to look into the matter and come up with the root cause of the problem. You must provide guidelines and safety protocols to all the tourist boat owners who operate in your jurisdiction.



(a) Discuss the ethical issues involved in the case.
 (b) Suggest ways to empower local communities dependent on tourism-related activity.
 (c) What standard operating procedure must be followed?

(Answer in 250 words) 20 marks



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MODEL CONTENT

PLACE IN NEWS IN INDIA

<p>Eturnagaram Wildlife Sanctuary</p> <p>News Excerpt: Recently, a catastrophic weather phenomenon flattened an estimated 50,000 trees over 332 hectares in Mulugu's Eturnagaram Wildlife Sanctuary, devastating the landscape.</p>	<p>About</p> <ul style="list-style-type: none"> Eturnagaram Wildlife Sanctuary (established in 1953) is one of oldest sanctuaries situated in Warangal, Telangana. Bounded by Laknavaram Lake. The natural park is spread over an area of 806 sq.kms in Warangal district. Perennial River Dayyam Vagu flows through this sanctuary. Eturnagaram Wildlife Sanctuary separates wildlife sanctuary into two parts. Fauna: Indian Gaur, Giant Squirrels, Sloth Bears, Indian Bison, Black Bucks, Chinkaras and Tigers. Flora: Some of finest teak wood found here. The plethora of water in the sanctuary attributes to the presence of reptiles like the famous Mugger crocodiles and snakes like the Cobra, Python and Krait. 
<p>Mudumalai tiger reserve</p> <p>News Excerpt: The highly invasive tree, Senna spectabilis, has been removed from around 400 hectares of the Mudumalai Tiger Reserve (MTR) since January of this year.</p>	<p>About Mudumalai Tiger Reserve:</p> <ul style="list-style-type: none"> Mudumalai Tiger Reserve is located in the Nilgiris District of Tamil Nadu state spread over 688.59 sq.km. at the tri-junction of three states, viz, Karnataka, Kerala and Tamil Nadu and it plays an unique role by forming part of the Nilgiris Biosphere Reserve, the first Biosphere Reserve in India, declared during 1986. It has a common boundary with Wayanad Wildlife Sanctuary (Kerala) on the West, Bandipur Tiger Reserve (Karnataka) on the North, and the Nilgiris Division on the South and East and Gudalur Forest Division on the South West, together forming a large conservation landscape for flagship species such as Tiger and Asian Elephant. Forest cover: As per Forest Survey of India assessment (2009) the forest cover in Mudumalai Tiger Reserve is Very Dense Forest – 47.05 km², Moderately Dense Forest – 214.98 km² and Open Forest – 56.16 km². Flora and Fauna: The Reserve has tall grasses, commonly referred to as "Elephant Grass", Bamboo of the giant variety, valuable timber species like Teak, Rosewood, etc., <ul style="list-style-type: none"> There are several species of endemic flora. Such a varied habitat is inhabited by a variety of animals which include Tiger, Elephant, Indian Gaur, Panther, Sambar, Spotted Deer, Barking Deer, Mouse Deer, Common Langur, Malabar Giant Squirrel, Wild Dog, Mongoose, Jungle Cat, Hyena, among others. Birds: This reserve has got a wide variety of more than 260 species of birds. Eight percentage of bird species found in India are recorded in Mudumalai. 

Barak Bhuban Wildlife Sanctuary

News Excerpt:

A petition alleged that 15 hectares of forest land inside the Barak Bhuban Wildlife Sanctuary had been diverted illegally to construct a road leading to the top of Bhuban Hill.

About Barak Bhuban wildlife sanctuary:

- Spread over an area of 320 sq km between the Barak and Sonai rivers.
- The Assam government had approved creation of the Barak Bhuban Wildlife Sanctuary in July 2022.
- The sanctuary has eight recorded species of primates and is an important habitat for the king cobra snake.
- Sanctuary is named after the second-largest river in the northeast and is spread across three districts – Cachar, Hailakandi and Karimganj.
- **Fauna:** Barak Bhuban wildlife sanctuary serves as a critical habitat for a diverse range of wildlife. Eight primate species, including the slow loris, rhesus macaque, and hoolock gibbon, find refuge here.



Amangarh Tiger Reserve

News Excerpt:

Recently, the body of an eight-year-old tiger was found on the border of Amangarh Tiger reserve of Bijnor and Jim Corbett National Park.

About Amangarh Tiger Reserve:

- Amangarh Tiger Reserve is located in the **Bijnor district of Uttar Pradesh.**
- **Spreading over an area of 9500 Ha (95 Sq.Kms)** with a combination of grasslands, wetlands and dense forest.
- It has been declared as **buffer area of Corbett Tiger Reserve to be known as the Amangarh Tiger Reserve**, so lying adjacent to Corbett Tiger Reserve is now a corridor to Asiatic Elephant, Tiger and much other wild life.
- **The robust Asiatic Elephant and the roaring Tiger among the wild animals are the star attractions of this area.** The Cheetal, Sambhar, Kakar, Leopard, Bear, Porcupine. Wild Boar, Jackal, Jungle cat etc., and the avifauna including Spangled Drongo, Golden Backed Wood Pecker, Jungle owlet, Red jungle fowl, grey horn bill and hornbill make this area a prestigious natural heritage.
- **Wild Life:** Tiger, Elephant, Swamp deer, Sambar, Cheetal, Hog deer, Kakar, Langur, Sloth bear, Porcupine, Otter, Monitor lizard, Turtles, Python, Gangetic Dolphin, Mugger, Gharial etc.
 - Birds include Hornbill, Red Jungle Fowl, Pea fowl, Bengal Florican, Fishing eagle, Serpent eagle, Osprey, Woodpeckers, Shama, Indian Pitta, Paradise flycatcher, Orioles, Emerald dove etc.



SPECIES IN NEWS

Exceptional new fish fossil sparks

News Excerpt: A new research published in Nature Communications, revealed the best-preserved coelacanth fossil ever found from the ancient period hundreds of millions of years ago when these ancient sea-dwellers first evolved.

More detail about news:

- The fossil comes from the Gogo Formation on Goonyandi Country in northern Western Australia.

About Coelacanths: Living Fossils

- **Coelacanths** are deep-sea fish that live off the coasts of southern Africa and Indonesia and can reach up to two metres in length. For a long time, scientists believed they were extinct.
- **Lobe-finned fish:** Coelacanths have fleshy fins with bony structures similar to tetrapod limbs.
- **Ancient lineage:** Fossils date back over 410 million years, making them one of the oldest surviving fish groups.
- **Diversity in the past:** Over 175 fossil species have been identified, indicating a diverse past.
- **Extinction and Rediscovery:** Believed extinct at the end of the Cretaceous period, a living coelacanth (Latimeria) was discovered in 1938.
- **Significance:** The discovery of Latimeria was a major scientific breakthrough, challenging previous assumptions about extinction.
- **Living Fossils:** Coelacanths are often referred to as "living fossils" due to their ancient lineage and unique features.



Swallowtail butterflies

News Excerpt: According to recently published study in the Journal of Threatened Taxa, the overexploitation of 25 species of host plants valued for their medicinal properties threatens the swallowtail butterflies in the forest habitats of a part of Assam often referred to as the "citrus belt of the world".

- **Status: International Union for Conservation of Nature-** globally endangered.



Key points:

- India hosts 77 of the 573 swallowtail butterfly species recorded across the world so far.
- The International Union for Conservation of Nature designated the **northeastern part of the country**, where 69 species have been recorded, a **'swallowtail-rich zone' under the Swallowtail Conservation Action Plan.**
- Study documented 4,267 individuals belonging to 35 species representing eight genera. Three are endemic to the region while 12 enjoy federal protection.
- The findings suggest that the studied landscape [in the Bodoland Territorial region] is crucial in supporting larval host plants, adult resources of swallowtail butterflies, and other abiotic factors.
- The Bodoland Territorial Region is a Sixth Schedule area covering 8,970 sq. km. About 40% of it is covered with forests, mostly toward the border in the north with Bhutan. The butterflies in the Region's Manas Biosphere Reserve were found to count 25 plant species from six families as their essential food sources.

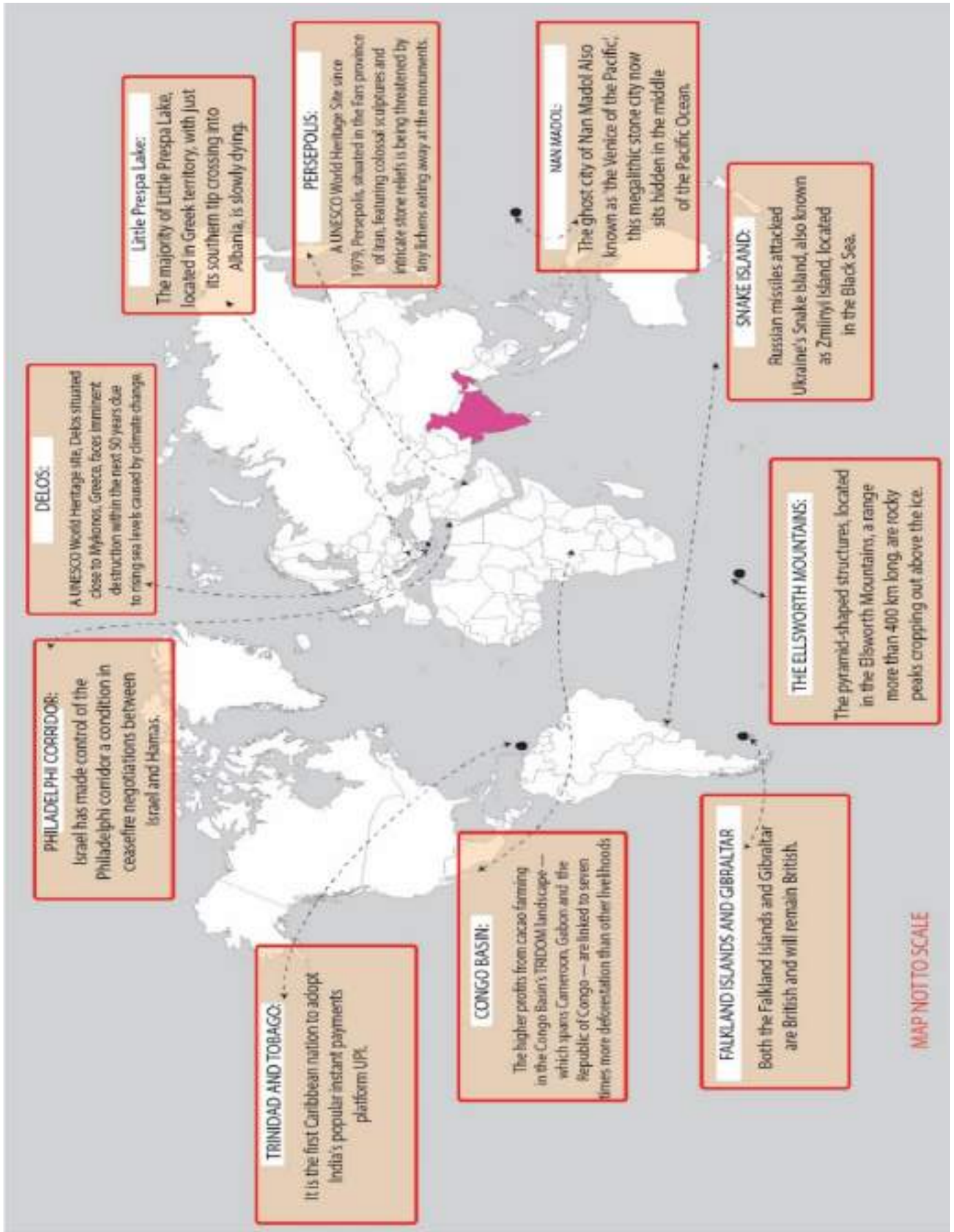


Threat to Swallowtail Butterflies Due to Overexploitation of Host Plants

- **Overexploitation of Host Plants:** Medicinal plants like Bhutan glory and Kaiser-i-Hind are being overexploited, leading to their decline.
- **Habitat Loss:** Shrinking forested lands and overexploitation of citrus species have confined them to home gardens.
- **Impact on Swallowtails:** Decline of host plants affects the density of swallowtail butterflies belonging to various genera.
- **Specialized Diets:** They have specific dietary needs, relying on plants from particular families.
- **Essential Role of Host Plants:** Host plants are crucial for the reproduction and sustenance of swallowtail butterflies. The lack of host plant resources raises concerns about the long-term survival of swallowtail butterflies.

<p>Scuba-diving tropical lizards</p> <p>News Excerpt: In a new research carried out by Binghamton University, scientists discovered a scuba-diving tropical lizard called the Anolis aquaticus, which can breathe underwater and release special bubbles through its nostrils that cling to its head.</p> <p>< These green-brown water anoles can dive underwater to escape would-be predators — and stay there for over 15 minutes thanks to an air bubble.</p>	<p>Key Finding: How Researchers Discovered Tropical Lizards' Underwater Breathing Technique</p> <ul style="list-style-type: none"> ● Experiment: Researchers studied water anoles to understand their underwater survival strategy. ● Camouflage: Water anoles use air bubbles to camouflage themselves underwater. ● Respiratory Function: It's unclear whether the air bubble is a byproduct of respiration or if the lizards can breathe underwater. ● Emollient Experiment: Applying emollient to the lizard's skin prevented air bubbles from forming, confirming their importance for underwater survival. ● Extended Underwater Time: Air bubbles allow lizards to stay underwater for longer periods. ● Predator Avoidance: Jumping into water helps anoles escape predators like birds and snakes. ● Camouflage: Water anoles are well-camouflaged underwater, making it difficult for predators to spot them. 
<p>Entomacrodus thalassinus, a rare reef fish</p> <p>News Excerpt: Entomacrodus thalassinus was discovered among the intertidal rocky reefs near Visakhapatnam Fishing Harbour during a survey.</p> <ul style="list-style-type: none"> ● Conservation: IUCN Least Concern 	<p>Key Points:</p> <ul style="list-style-type: none"> ● This species was found among intertidal rocky reefs during the low tides near Visakhapatnam Fishing Harbour. "Entomacrodus Gill is represented by four species —E. striatus; E. vermiculatus; E. epalzeocheilos and E. marmoratus. ● This present record confirms the presence of the Entomacrodus thalassinus from India for the first time. ● Previously it has been recorded from Japan, French Polynesia, Australia, Sri Lanka, Papua New Guinea, Philippines, New Caledonia, Seychelles, Madagascar. ● Entomacrodus thalassinus is closely associated with E. macrospilus, which is recorded from Eastern and Western Central Pacific," ZSI scientist. ● The study revealed 13 newly recorded sea slugs, 11 undocumented fish species, two new brachyuran crabs, on the Andhra Pradesh coast along with the first-ever Indian sighting of Entomacrodus thalassinus. ● Key facts: <ul style="list-style-type: none"> ○ Depth: 0-11 m ○ Habitat: Reef associated ○ Max Size: 4 cm SL 

MAP CONNECT: WORLD



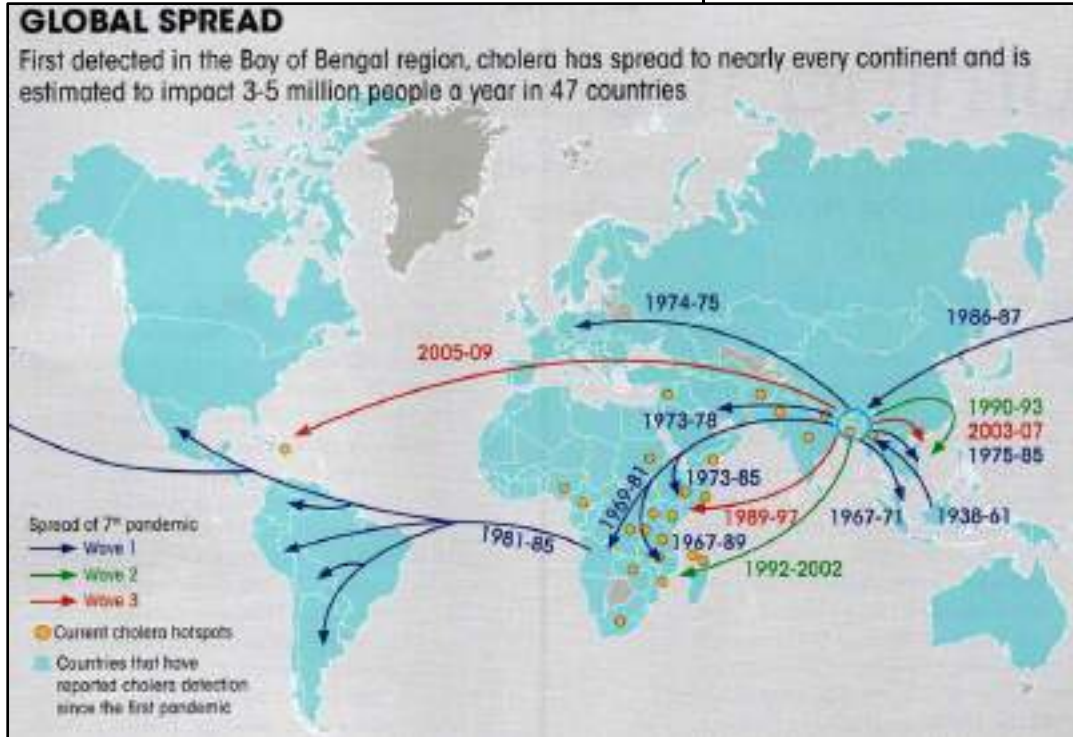
SNAPSHOTS: THEMES OF THE MONTH

DTE SNAPSHOT (OCTOBER)

CHOLERA TAKES AN UGLY TURN

Introduction

Cholera is a **waterborne** disease caused by the bacterium



Vibrio cholerae. The World Health Organization (WHO) has classified the ongoing cholera resurgence as a **Grade 3 emergency**. Conflict, inadequate access to safe water, poor sanitation, and climate change contribute to this surge.

Global Outbreaks and Trends

- According to **WHO's global cholera statistics for 2023**, cholera cases and deaths increased significantly, with **45 countries** reporting outbreaks. The resurgence is particularly severe in Africa, which saw a **125% increase** in cases in 2023 alone.
- Cholera is a **notifiable disease** in India. This requires states to report cholera outbreaks to the **Integrated Disease Surveillance Programme (IDSP)** under the Union Ministry of Health and Family Welfare.
 - Studies suggest that the **Sundarbans** could be the **ground zero** of cholera, which has caused **seven pandemics** in the past 200 years.
 - In **South 24 Parganas**, West Bengal, India, communities continue to battle cholera outbreaks, particularly following the **monsoon season**. Villagers rely on contaminated water sources, making the region a cholera hotspot.

Role of Climate Change in Cholera Outbreaks

- Studies have demonstrated that *Vibrio cholerae* **flourishes in warm, brackish water**, and each degree

rise in temperature could significantly increase cholera cases.

- **Extreme weather events** like floods, cyclones, and droughts also create conditions ripe for cholera transmission.
 - After **cyclone Aila** struck in 2009, **West Bengal** experienced a surge in cholera. Similarly, cyclones in

Odisha have been linked to large cholera outbreaks due to damage to water and sanitation systems.

- During droughts, water storage practices during prolonged dry spells can lead to contamination.

Underreporting and Inadequate Surveillance

- The IDSP **only reports positive cases** from outbreaks, **missing sporadic cases**, leading to a significant underestimation of the disease's impact. There are also **reporting biases** within the country. States like **Karnataka** have a better reporting system

and report proportionately more cases than states with poor reporting systems, such as **Uttar Pradesh**.

- Globally, underreporting of cholera outbreaks is common, driven by **stigma, fear of economic impacts, and inadequate laboratory capacity**. In many regions, particularly in Africa and Asia, governments are reluctant to acknowledge the true scale of cholera due to concerns about the implications for **trade and tourism**.
 - However, the **WHO** advises **against embargoes** on food imports from cholera-affected countries, restrictions on people's movements, and the requirement for vaccination proof in case of international travel.

Vaccine related challenges

- While vaccination campaigns in India and other countries have shown promising results, **logistical challenges**, such as **cold-chain capacity** and **resource allocation**, often hinder their implementation.
- India is rolling out the **oral cholera vaccine (OCV) Euvichol-Plus** in high-risk areas like South 24 Parganas. It offers protection against the two major **serogroups** of *Vibrio cholerae*, **O1 and O139**, provides a protective efficacy of **65%**, and can last up to **five years**.
- Globally, the demand for cholera vaccines has outpaced supply. In 2024, WHO reported a **critical shortage of**

OCV, prompting a shift from a two-dose regimen to a **single dose** in emergencies.

Way Forward

- As cholera continues to spread in both endemic and emerging regions, a **multifaceted approach** is required, which includes strengthening **surveillance** systems, improving **water and sanitation** infrastructure, expanding access to **vaccines**, and addressing the broader impacts of **climate change**.
- Sustained **investment** and predicting the actual demand for vaccines are urgent needs. Also, efforts should be made to **engage new private players** to increase vaccine production.

NOTIONAL COVERAGE

Extension of Pradhan Mantri Jan Arogya Yojana (PMJAY)

- The Union Government of India has recently announced the extension of the PMJAY to all citizens **aged 70 years and above**.
 - PMJAY is a publicly funded national health insurance program that provides cashless access to hospital services worth up to **5 lakh per year**.
- This expansion aims to include the elderly covered under private health insurance policies or the **Employees' State Insurance Scheme**. Those benefiting from other public health insurance schemes like the **Central Government Health Scheme** can choose between their existing coverage or opt for PMJAY.

Limitations of PMJAY

- Restricted Service Coverage:** PMJAY currently focuses on health conditions that require hospitalization, leaving a significant gap in coverage for conditions that can and should be managed at the primary care level.
 - Outpatient care** and **medications** are major contributors to out-of-pocket expenditures and are **not** adequately covered.
 - Patients often need multiple **follow-up visits** after initial consultations, incurring additional costs.
- Limited Penetration in Tier-2 and Tier-3 Cities:** The scarcity of accreditation-eligible hospitals in smaller cities and towns has limited PMJAY's reach and population coverage.
- Issues Highlighted by the CAG 2023 Report**
 - Quality Deficits:** Non-functioning equipment, insufficient bed capacity, lack of blood banks, and inadequate emergency transport services in accredited hospitals across several states.
 - Fraud Concerns:** Issues related to fraud in patient registration, although partially clarified by the government.
 - Co-Payments:** Instances where patients had to make payments beyond the insurance coverage were noted.

- Challenges with Private Hospitals:** Private hospitals have been less enthusiastic about PMJAY due to:
 - Payment Rates:** Discontent with the rates offered under the scheme.
 - Payment Delays:** Frustration over delayed reimbursements.
 - Complex Claims for the Elderly:** Elderly patients often have multiple coexisting conditions requiring care from various specialties, complicating the claims process.

Case study - US Healthcare System

- High Expenditure, Low Outcomes:** Despite the highest health expenditure among OECD countries, the US has the lowest life expectancy, which declined from 79 years in 2019 to 76 years in 2021.
- Overreliance on Private Sector:** The predominantly private healthcare system has not resulted in better health outcomes.

Way Forward

- Higher Investment in Health:** As of 2022, an estimated 149 million people in India were 60 or older. Due to population growth and rising life expectancy, this number is projected to increase to **347 million by 2050**. India must spend **at least 2.5% of its GDP** on health services.
 - Significant funds are required to expand infrastructure, bridge human resource gaps, and cover operational expenses through programs like the National Health Mission.
- Capacity building:** There is a need to strengthen the capacity of **public sector health services**. Only when there is a countrywide presence of well-resourced and well-governed public sector health services can the proper terms of engagement with the private sector be set to protect the public interest and advance **Universal Health Coverage (UHC)** in an efficient, equitable and economically efficient manner.

Promises renewed

Introduction:

On September 22, 2024, the **United Nations General Assembly** adopted the "**Pact for the Future**" during the Summit of the Future in **New York**. The Pact has 56 action points and was adopted without a vote.

Key Components of the Pact

- Sustainable Development and Climate Action:** The Pact calls for reforms to the international financial system and increased funding to support climate resilience, particularly for vulnerable nations.
- Transforming Global Governance:** The pact underscores the UN's central role and stresses the need to reform key international institutions, including the UN Security Council, to make them more democratic, representative, and effective.

- **Peace and Security Reforms:** These include democratizing the UN Security Council, advancing nuclear disarmament, and preventing the weaponization of new technologies, particularly in outer space.
- **Global Digital Compact:** Commitments under this compact include ensuring universal internet access, embedding digital cooperation in human rights principles, and developing governance mechanisms to oversee the use and development of AI.
- **Declaration on Future Generations:** It outlines actions to ensure that the needs and interests of future generations are considered in today's decision-making processes.
- **Human Rights and Gender Equality:** The document reiterates the need to uphold human rights worldwide, empower women, and promote gender equality in all areas of governance and development.

Significance of the pact

- **Renewed Commitment to Multilateralism:** Despite growing doubts about the effectiveness of multilateral institutions like the UN, the Pact clearly states that global challenges require collective solutions.
 - The shift towards unilateralism was notably evident during the 2021 UN Environment Assembly, where **vaccine nationalism**, **trade protectionism**, and **declining international cooperation** were identified as major global concerns.
- **Addressing Digital and Technological Challenges:** The Pact addresses the digital divide and the ethical challenges of emerging technologies by ensuring equitable access to digital resources and promoting responsible AI governance.
- **Ensuring the Well-being of Future Generations:** By prioritising the interests of youth and future generations in global governance, the Pact seeks to ensure that the world's future leaders are equipped to address the challenges they will inherit.

Conclusion:

The UN's Pact for the Future represents a bold and ambitious vision for reshaping global governance in the 21st century. At a time of rising polarization and the temptation to turn inward, the Pact serves as a reminder that global problems require global solutions.

NOTHING MICRO ABOUT THIS MENACE

Introduction

In November 2024, global leaders will gather in **Busan, South Korea**, for the final round of negotiations on the **Global Plastics Treaty**. This legally binding agreement aims to tackle plastic pollution at its source.

Understanding Microplastics

- Microplastics are tiny plastic particles with a diameter of up to **5 mm**.
- **Sources of Microplastics**

- **Degradation of Larger Plastics:** Plastic waste that breaks down into smaller fragments over time.
- **Industrial and Cosmetic Products:** Intentionally produced microplastics, such as the raw materials used in plastic fabrication and small microbeads found in personal care products like toothpaste and exfoliants.

Impact of Microplastics

- **Accumulation in Human Organs:** A preprint study by the University of New Mexico 2024 found a significant accumulation of microplastics and **nanoplastics** (particles less than 1 micrometre in diameter) or **MNPs** in human brains. These particles were detected in **liver, kidney, and brain** samples, with concentrations in the brain ranging from 7 to 30 times higher than in other organs.
 - A 2024 study in the New England Journal of Medicine detected microplastics in patients' **carotid artery plaque**, revealing a link between MNP presence and an increased risk of heart attacks and strokes.
- **Soil Ecosystems:** Microplastics disrupt soil ecosystems by hampering soil quality, affecting microbial activity, and reducing plant growth.
- **Aquatic Food Chains:** Microplastics form biofilms that attract microbial organisms. Aquatic life then consumes these organisms, bringing microplastics into the food chain. This can lead to endocrine disruption, growth inhibition, and reproduction issues in marine organisms.
- **Algae and Zooplankton:** Microplastics can block sunlight needed for photosynthesis in algae, while zooplankton exposed to microplastics experience stunted growth and higher mortality rates.

Global Efforts to Mitigate Microplastic Pollution

- **Cosmetic Industry:** In 2014, the **Netherlands** banned microbeads in cosmetics, followed by similar restrictions in the **UK** in 2018. **China**, the **US**, and **Canada** have also implemented bans.
- **EU Regulations:** In 2019, the European Chemicals Agency introduced extensive restrictions on intentionally added microplastics in products sold in the EU. These restrictions were enacted under the **Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)** regulation 2023, banning microplastics in cosmetics and detergents.
- **India:** India has imposed restrictions on overall plastic production and use, indirectly contributing to reduced microplastic generation.

Global Plastics Treaty and Future Commitments

- The Global Plastics Treaty will discuss measures to tackle microplastics at various stages, including during wastewater treatment. New technologies, such as **electrocoagulation** and the **sol-gel process** (a chemical technique in which microbeads are trapped in a silica gel

for removal), show promise for more effectively removing microplastics from wastewater.

- The treaty will encourage further research into microplastic pollution **detection, monitoring, and mitigation** techniques.

YOJANA SNAPSHOT (OCTOBER)

10 years of Swachh Bharat Mission

Introduction

Sanitation in India has deep historical roots, tracing back to the **Indus Valley Civilization**. Cities like Harappa and Mohenjo-Daro exhibited advanced **waste management systems**, showcasing the importance of **hygiene** and **cleanliness** in early Indian society. However, in **modern times**, India has faced significant challenges in ensuring adequate sanitation, particularly as its population has grown rapidly. This lack of sanitation facilities created numerous **socio-economic challenges**, particularly regarding public health, safety, and gender equity.

GANDHIJI'S PHILOSOPHY ON SWACHHATA THROUGH SELF-PRACTICE

- **Self-Scavenging and Dignity of Labour:** Gandhiji believed everyone should be responsible for their cleanliness, famously saying, "**Everyone must be his own scavenger.**" His experiences with untouchability, such as **questioning his mother** about touching the scavenger's son, shaped his lifelong commitment to erasing the social stigma associated with scavenging.
- **Realisation in South Africa:** Gandhiji's emphasis on cleanliness began in South Africa, where he saw the unsanitary conditions of Indian communities and encouraged them to maintain personal and environmental cleanliness. His insistence on cleanliness was part of a broader philosophy that included **truthfulness** and **learning English** for communication.
- **Leading by Example:** During the **1901 Congress session** in **Kolkata**, Gandhiji was appalled by the poor sanitary conditions and took up the broom to clean the surroundings. Despite his high social status as a lawyer, he **led the cleaning campaign**, emphasizing that cleanliness was everyone's responsibility, not just that of the lower castes.
- **Mass Contact and Swachhata Campaigns:** During the **Salt March**, Gandhiji's volunteers were instructed to maintain cleanliness by burying excreta and ensuring their surroundings were clean. This approach extended to his mass contact programs in villages, where he and

his followers would engage in cleaning work while educating villagers about the importance of sanitation.

- **Reconstructing Society:** Gandhiji viewed sanitation as crucial and included it in his **18-point constructive program** to reconstruct Indian society. Two of the 18 points were related to Swachhata—**village sanitation** and **knowledge of health and hygiene**. His efforts to clean and transform society were about physical hygiene, purifying social relations, and eradicating untouchability.



Early Initiatives: From CRSP to Nirmal Bharat Abhiyan

- The **Central Rural Sanitation Programme (CRSP)** was launched in **1986**, it primarily focused on constructing toilets but lacked a comprehensive approach to address behavioural change.
- To rectify this, the **Total Sanitation Campaign (TSC)** was introduced in **1999**, which added the element of **Information, Education, and Communication (IEC)** activities aimed at creating demand for sanitation.
- In **2012**, the **Nirmal Bharat Abhiyan (NBA)** was introduced to build on these efforts, promoting community-led approaches to sanitation. However, by 2014, it was evident that India needed a more comprehensive, transformative approach to sanitation, paving the way for a new national strategy.
- However, in **2014**, sanitation coverage in India was **only 39%**, leaving over 55 crore people, especially in rural areas, without access to basic toilet facilities. This situation led to widespread **Open Defecation (OD)**.

Swachh Bharat Mission: A Paradigm Shift in Sanitation

- Launched on 2 October 2014, this mission aimed not only at **infrastructure development** (toilet construction) but also at driving **behavioural change**, encouraging **community participation**, and leveraging **political will**.

- The goal was to make India **Open Defecation Free (ODF)** by 2019, a target that was achieved on time.



- The rationale behind the SBM was recognising that sanitation is a multi-dimensional issue. Poor sanitation affects **public health, gender equity, environmental sustainability, and economic development.**

Impact of SBM

- Health Impact:** A recent report from **Nature** indicated that the SBM has significantly reduced infant mortality by averting 60,000-70,000 deaths annually.
- Environmental Impact:** According to a **UNICEF report**, ODF villages had a **12.70 times lower** likelihood of **groundwater contamination**, which is critical to the long-term health of rural communities.
- Economic Impact:** A **World Bank** study estimated that India lost approximately **6.4% of its GDP** in 2006 due to poor sanitation, amounting to **USD 38 billion** annually. These losses stem from healthcare costs, reduced productivity, and missed educational opportunities.
 - The **UNICEF** study indicated that households in ODF villages **saved Rs 50,000 annually** due to avoided health costs.
- Impact on Sustainable Development Goals (SDGs)**
 - SDG 3 (Good Health and Well-being):** Reducing waterborne diseases due to improved sanitation aligns with this goal.
 - According to WHO, SBM has helped **avert 3 lakh child deaths** annually due to **diarrhoea**.
 - SDG 5 (Gender Equality):** Access to safe and private sanitation facilities has enhanced the dignity, safety,

and educational opportunities for women and girls, reducing school absenteeism.

- Studies by organisations such as the **Bill & Melinda Gates Foundation (BMGF)** and **UNICEF** have shown that SBM significantly improved the nutrition and safety of women and children. There were 58% higher cases of wasting among children in non-ODF areas, and **93% of women** in ODF villages felt **safer**.
- SDG 6: Clean Water and Sanitation**, it seeks to ensure the availability and sustainable management of water and sanitation for all by 2030.
 - India achieved **ODF status in 2019**, eleven years ahead of the global SDG deadline.
 - Target 6.2** emphasises ending open defecation and providing equitable sanitation for all. The SBM directly contributed to achieving this target through the construction of over **116 million household toilets**.

Swachh Bharat Mission Phase II (2020-2025)

- ODF Sustainability:** Ensuring that ODF villages maintain their status through community monitoring and retrofitting toilets where necessary.
- Solid and Liquid Waste Management (SLWM):** Building compost pits, waste stabilisation ponds and adopting waste-to-energy technologies to tackle solid and liquid waste.
- Visual Cleanliness:** Ensuring litter-free public spaces, proper drainage systems, and waste segregation at the household level.
- Community Engagement and Capacity Building:** Engaging local leaders, Self-Help Groups (**SHGs**), and Panchayati Raj Institutions (**PRIs**) to build community capacity for long-term sanitation management.
- SMART Approach for the Future**
 - Sustainability of assets and behaviors;
 - Making women central to development.
 - Accelerating private sector involvement.
 - Re-establishing communication protocols.
 - Training and technological interventions.

Pollution Crisis in Ganga

- The Ganga originates from the Himalayas and flows through the plains of India, **supporting over 40%** of the country's population.
- It is an epicentre for **religious rituals** and gatherings like the Kumbh Mela. Apart from its spiritual value, the Ganga plays an integral role in the lives of millions by contributing more than **40% to India's GDP** and supplying **one-third** of the nation's **surface water**. This water is critical for agriculture, with 90% used for irrigation.
- A study published in **Nature's Scientific Reports** highlighted that the Ganga's groundwater **flow has reduced by 50%** since the 1970s, primarily due to over-extraction. If this trend continues, parts of the river may

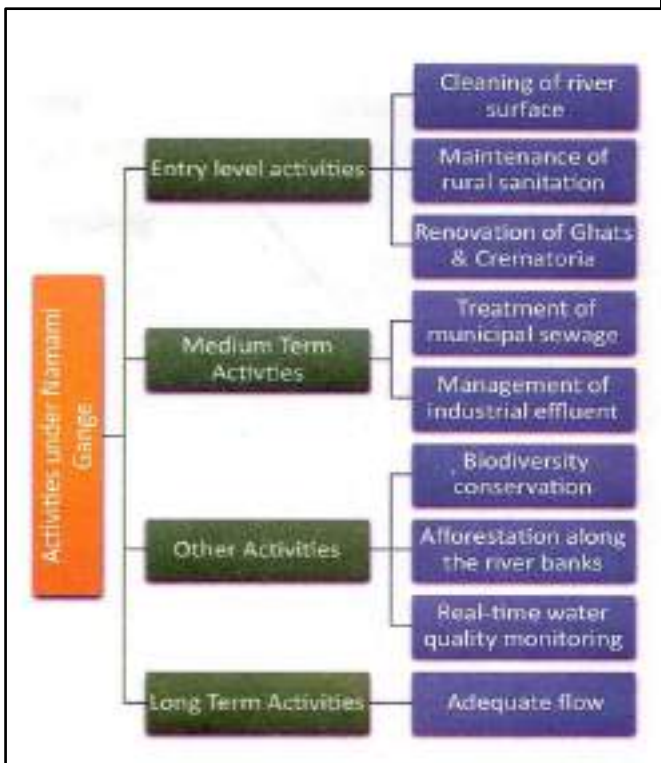
face severe water shortages, drastically **affecting** the Indo-Gangetic region's **agriculture, drinking water, and industrial processes.**

Key Sources of Pollution

- **Industrial Effluents:** Factories along the river discharge untreated waste into the Ganga, significantly degrading water quality.
- **Untreated Sewage:** Cities and towns along the river contribute vast amounts of untreated domestic sewage.
- **Religious and Cultural Practices:** Disposing of religious materials also contributes to the river's pollution.

Government Interventions for Rejuvenation

- **Ganga Action Plan (GAP):** Launched in **1986**, it was one of the first major initiatives to clean the Ganga. The objectives were to:
 - Set up sewage treatment plants
 - Improve sanitation infrastructure
 - Control industrial waste discharge



- **Namami Gange Programme:** Launched in 2014. In 2016, the government established the **National Council for River Ganga** (Rejuvenation, Protection and Management) to prevent pollution and rejuvenate the Ganga Basin. The focus was on comprehensive river rejuvenation and included:
 - **Sewage Treatment Infrastructure:** Over 800 sewage treatment plants were proposed or constructed.
 - **Afforestation and Biodiversity Restoration:** Projects were undertaken to restore aquatic life and improve biodiversity.
 - **Industrial Effluent Monitoring:** A stricter regime for monitoring industrial discharge was established.

- **Community Involvement:** Initiatives like Ganga Vichar Manch and Ganga Praharis encouraged local community participation in cleaning efforts.

Way forward - Sustainable Sanitation

- The success of sanitation initiatives hinges on a consistent power supply, which is often challenging in remote regions. To achieve the goal of universal access to clean water and sanitation, India must embrace **smart grid** and **renewable energy** technologies.
 - These innovations can **overcome the challenges** of inconsistent power supplies and water scarcity, ensuring that sanitation systems are reliable, sustainable, and efficient.
- **Role of Renewable Energy in Sanitation:** Renewable energy, particularly solar power, can play a crucial role in rural sanitation by:
 - **Powering Water Pumps:** Solar energy ensures a consistent supply of water for drinking and sanitation needs.
 - **Cost Savings:** Solar PV systems reduce electricity costs for Gram Panchayats, freeing up funds for other developmental activities.
 - **Waste Management Operations:** Solar energy powers waste treatment facilities, contributing to better sanitation practices.
- **Smart Grid and Renewable Energy Integration:** A **Smart Grid** is an advanced electrical grid that integrates automation, communication, and IT systems to monitor and control real-time power flow. Integrating smart grids and renewable energy can address these challenges by providing:
 - **Sustainable Energy Solutions:** Renewable energy sources like solar and biomass offer consistent power for sanitation needs.
 - **Improved Monitoring and Control:** Smart grids allow for better management of power distribution and load balancing, essential for maintaining sanitation systems in rural areas.
- **Microgrid:** It is an independent energy system comprising distributed energy sources (such as solar, wind, or microturbines) that can operate in parallel with or independently from the main grid.
- **Utilizing Rural Biomass:** India has a target of **50%** cumulative electric power **installed capacity** from **non-fossil** fuel-based energy sources and achieving **net zero** by 2070. This highlights the potential of **biomass** and **waste-to-energy** systems.
 - These solutions not only reduce **waste management costs** but also offer environmental and social benefits, including the reduction of air, water, and land pollution.

KURUKSHETRA SNAPSHOT (OCTOBER)

Health & Nutrition

Introduction

- India is currently grappling with the triple burden of disease, which includes:
 - **Chronic energy deficiency/under-nutrition:** Widespread under-nutrition affecting vulnerable populations, leading to stunted growth and poor health outcomes.
 - **Diet and lifestyle-related chronic degenerative diseases:** A growing concern due to changing dietary patterns and sedentary lifestyles, leading to an increase in non-communicable diseases (NCDs) such as diabetes, cardiovascular diseases (CVDs), and obesity.
 - **Infectious diseases:** Ongoing challenges with infectious diseases, particularly in underprivileged areas with inadequate sanitation and healthcare access.
- It is estimated that **unhealthy diets** account for **56.4%** of the **total disease burden** in the country. A balanced diet, along with regular physical activity, can significantly reduce the incidence of chronic diseases such as coronary heart disease, hypertension, and type 2 diabetes.

Dietary Guidelines for Indians-2024:

Based on the ICMR-NIN Dietary Guidelines for Indians-2024 with slight modifications.

- Eat a variety of foods to ensure a balanced diet.
- Eat plenty of vegetables (particularly GLVs) /fruits (in moderation) and legumes.
- Obtain good quality proteins and essential amino acids (EAAs through appropriate combination of foods; and avoid protein supplements to build the muscle mass.
- Use a variety of oils/fats in moderation; choose a variety of oil seeds, nuts, millets (nutri-cereals/shree-anna) and pulses/legumes to meet the daily needs of fats and especially the essential fatty acids (EFAs).
- Restrict salt intake; and keep sugar intake to a minimum.
- Minimize the consumption of high fat, sugar, salt (HFSS) and ultra-processed foods (UPFs).
- Drink adequate quantities of water and other fluids/beverages.
- Consume clean & safe food including water.
- Adopt appropriate pre-cooking/cooking methods to minimize the nutrient losses.
- Ensure provision of extra food and appropriate healthcare during pregnancy & lactation.
- Ensure exclusive breastfeeding for the first six months and continued breastfeeding till two years & beyond.

- Start feeding home-made semi-solid complementary foods to the infant soon after the age of six months.
- Ensure adequate quantities of nutritionally appropriate diets for children and adolescents, both in health and disease/sickness.
- Include nutrient-rich foods in the diets of the elderly for better health and well-being.
- Be physically active and exercise regularly to maintain good health.
- Adopt a healthy lifestyle to prevent overweight/obesity (esp. abdominal obesity), type 2 diabetes (T2D), hypertension (HTN), coronary artery disease (CAD) etc.
- Read the information on food labels carefully to make informed and healthy food choices.

Recommended Food Groups: The guidelines encourage the inclusion of a variety of foods in daily diets:

- **Cereals & millets:** Cereals, millets and their products like bread, suji, vermicelli, noodles/ pasta etc.
- **Pulses & legumes:** Pulses and legumes (whole/split/dehusked) and their products
- **Starchy Roots & tubers:** Potato, sweet potato, arbi, yam, tapioca, etc.
- **Green leafy vegetables:** Seasonal & regional green leafy vegetables (GLVs)
- **Other Vegetables:** Seasonal vegetables other than GLVs and Roots & tubers
- **Fruits:** Seasonal fruits/fruit products
- **Dairy products:** Milk, curd, butter milk, paneer, processed cheese etc.
- **Meat/fish/poultry (Flesh foods):** Eggs, meat, fish, poultry etc.
- **Nuts, oil seeds, oils and fats:** Nuts (Peanuts/walnuts/almonds etc), oil seeds (sesame/sunflower seeds etc), vegetable oils, ghee, butter, cream etc.
- **Spices, condiments & herbs:** Spices, condiments & herbs like turmeric, dry ginger, mustard, pepper, cumin, coriander, etc.

"My Plate for the Day" Concept

- This approach ensures that all essential nutrients are consumed in the right proportions.
- The **ICMR-NIN** (National Institute of Nutrition) recommends sourcing macro- and micronutrients from **at least eight food groups**. Daily diets should include items from 5-7 food groups, with vegetables and fruits forming half of the plate, and the rest filled with cereals, pulses, flesh foods, nuts, and milk products.

Role of Indigenous Knowledge in Combating Malnutrition

- **Balanced Nutritional Intake:** Traditional diets in rural India often include a variety of locally sourced foods such as millets, pulses, vegetables, and fruits that provide essential nutrients. These foods are rich in vitamins,

minerals, proteins, and dietary fiber, addressing both macronutrient and micronutrient deficiencies.

- **Example:** In Karnataka and Maharashtra, grains like ragi (finger millet) and jowar (sorghum) are staple foods. These are high in calcium, iron, and fiber, which are beneficial in combating malnutrition among children and women.
- **Health Benefits of Indigenous Foods:** Many indigenous foods, especially leafy greens and wild edibles, are rich in micronutrients like iron, vitamin A, and calcium, which are essential in preventing diseases such as anemia.
 - **Example:** In Odisha, tribal communities consume wild leafy greens like amaranth and drumstick leaves, which help reduce anemia.
- **Promotion of Indigenous Crops:** Indigenous crops such as millets and pulses are drought-resistant and require fewer inputs, making them ideal for arid and semi-arid regions. These crops not only provide nutrition but also contribute to food security.
 - **Example:** In Rajasthan, bajra (pearl millet) is an essential crop that is rich in iron and dietary fiber, sustaining the population, especially during droughts.
- **Climate-Resilient Food Systems:** Traditional agricultural knowledge includes strategies for adapting to local environmental conditions, such as drought-resistant crops and water-conservation techniques, which are crucial for sustaining food production.
 - **Example:** In Gujarat, stepwells and rainwater harvesting systems are used to ensure a stable food supply in arid regions.
- **Utilization of Wild Foods:** Many rural communities gather wild foods like fruits, nuts, and leafy greens, which are nutrient-dense and serve as an essential safety net during food scarcity.
 - **Example:** In Jharkhand, tribal communities rely on wild mushrooms and berries, particularly during lean seasons.
- **Medicinal Properties of Indigenous Foods:** Many traditional foods possess medicinal properties, contributing to the overall health of rural populations. These foods are often rich in bioactive compounds that help prevent and manage chronic diseases.
 - **Example:** In Andhra Pradesh, tamarind, used widely in cooking, is known for its digestive benefits and ability to manage blood sugar levels.
- **Traditional Dietary Practices and Gut Health:** Fermented foods, common in traditional diets, are beneficial for gut health, which is vital for nutrient absorption and immunity.
 - **Example:** In Nagaland, fermented soybean (axone) is rich in protein and probiotics, supporting gut health and overall nutrition.

- **Role in Maternal and Child Health:** Traditional knowledge is vital in addressing the specific nutritional needs of mothers and children, particularly during pregnancy, lactation, and early childhood.
 - **Example:** In Uttar Pradesh, traditional postpartum diets, rich in sesame seeds, jaggery, and ghee, contribute to maternal recovery and improved lactation.
- **Revival of Traditional Foods Through Community Efforts:** Community-led initiatives are reviving traditional food practices, particularly in areas where they have been neglected. These efforts are crucial for reintroducing nutrient-rich foods into local diets.
 - **Example:** In Odisha, community efforts have revived the cultivation and consumption of traditional millets like kodo and kutki, improving nutrition for children.
- **Complementary Role in Government Programmes:** Traditional knowledge can complement modern nutritional interventions by providing culturally appropriate, locally sourced solutions to malnutrition. This integration enhances the sustainability of government programs.
 - **Example:** In Karnataka, incorporating millets into the Mid-Day Meal Scheme (PM-POSHAN) has improved school children's nutrition.
- **Incorporation into Public Health Campaigns:** Public health campaigns promoting traditional diets can address malnutrition while preserving cultural heritage. Such campaigns raise awareness about the nutritional benefits of indigenous foods.
 - **Example:** In Maharashtra, public health campaigns have emphasized local foods like bhakri (millet flatbread) and varan (lentil stew), increasing their consumption.

Role of Agriculture in Promoting Health and Nutrition

- **Biofortified Crops:** Biofortification is the process of breeding crops to increase their nutritional value, particularly in micronutrients like iron, zinc, and vitamin A. This is especially important in regions where access to a diverse diet is limited.
 - **Harvest Plus Initiative:** This global initiative has successfully developed biofortified varieties of staple crops such as rice, maize, and sweet potatoes. These crops play a crucial role in addressing "hidden hunger" by improving nutrient intake in developing nations.
- **Dietary Diversity in Indian Agriculture:** India's agricultural sector is inherently diverse, thanks to its varied agro-climatic zones. The country grows a wide range of crops, from cereals and pulses to vegetables, fruits, and livestock products, which contribute to a balanced and healthy diet.
 - **Mixed Farming and Agroforestry:** Practices like mixed farming and agroforestry—where spices, fruits,

and vegetables are grown alongside cereals—promote dietary diversity. In states like **Kerala** and **Karnataka**, such practices ensure that farming families have a year-round supply of diverse food items. The **NFHS-5** reports an improvement in the dietary diversity of households due to mixed farming practices, leading to improved nutritional status, especially among women and children.






- **Pulses:** As a key part of the Indian diet, pulses are a rich source of plant-based protein, iron, and folic acid. Government initiatives like the **National Food Security Mission** have promoted pulse cultivation, enhancing both nutrition and sustainable agriculture.
- **Nutrition-Sensitive Agricultural Policies:** India's agricultural diversity, when aligned with nutrition-focused policies, has the potential to improve food security and dietary diversity.
 - **Mission for Integrated Development of Horticulture (MIDH):** It has strengthened the connection between agricultural practices and dietary diversity, positioning India as one of the world's leading producers of fruits and vegetables.
 - **Sustainable Agriculture and Food Safety:** Sustainable agriculture policies like the **Paramparagat Krishi Vikas Yojana (PKVY)** promote organic farming, which reduces harmful pesticide use and supports the production of chemical-free, healthier food. A **2021 study** found out that organic farming have lower pesticide residues, reducing long-term health risks associated with chemical exposure.

Role of Health tech Startups

- **Telemedicine Platforms:** These platforms utilize telecommunication technologies to provide medical consultations, prescription renewals, and specialist advice without the need for patients to travel long distances.

- **Benefits for Rural Areas:** Telemedicine platforms enable patients in remote areas to receive timely healthcare services, improving access to care and reducing the burden of traveling to cities for medical attention.
- **Digital Health Monitoring:** Digital health monitoring tools collect and analyze personal health data using devices such as wearables and sensors. These tools allow patients to monitor health parameters like blood pressure, glucose levels, and heart rate, providing real-time data to healthcare providers for informed decision-making.
- **Empowering Patients:** By allowing individuals to actively participate in managing their health, digital health platforms foster patient engagement and enable early detection of health issues.
- **E-Pharmacy:** E-pharmacies provide a convenient platform for ordering medicines online, making it easier for people in rural areas to access prescription drugs. This service eliminates the need for patients to travel to pharmacies, offering home delivery of medications through websites or mobile apps.
 - **Wide Reach:** The rapid growth of the e-pharmacy industry, with an expected annual growth rate of 44% by 2025, is helping rural populations access essential medicines.
- **Artificial Intelligence-Based Diagnostics:** AI-based diagnostics use machine learning algorithms to analyze medical data and improve the accuracy and efficiency of diagnoses. These technologies are especially valuable in rural areas, where access to specialized healthcare is limited.
 - **Improved Accuracy:** AI-driven diagnostic tools help healthcare providers in rural areas offer better diagnostic accuracy, leading to more effective treatments and improved patient outcomes.

Government initiatives towards digital healthcare:

 ABHA (AYUSHMAN BHARAT HEALTH ACCOUNT)	 NATIONAL DIGITAL HEALTH MISSION (NDHM)	 ESANJEEVANI	 PRADHAN MANTRI DIGITAL HEALTH MISSION (PM-DHM) PORTAL	 DIGITAL PAYMENT PLATFORMS FOR HEALTHCARE
<p>A digital health ID system designed to provide citizens with a unique health ID, enabling them to access and manage their health records and avail services.</p> <p>Facilitates easy access to healthcare services, streamlines the process of health record management, and integrates with the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PM-JAY) for better access to insurance benefits.</p>	<p>A comprehensive initiative aimed at developing an integrated digital health ecosystem in India.</p> <p>Includes the creation of digital health IDs, electronic health records (EHRs), a health information exchange, and telemedicine services to enhance the accessibility and efficiency of healthcare delivery.</p>	<p>A digital platform for managing and analyzing health data.</p> <p>Supports data collection and reporting for various health programs, helping in decision-making and policy formulation.</p>	<p>An online platform for managing and accessing health services under the National Digital Health Mission.</p> <p>Provides access to digital health records, health IDs, and information about health services and benefits.</p>	<p>Platforms such as the National Payments Corporation of India (NPCI) support digital payments for healthcare services.</p> <p>Facilitate cashless transactions, streamline billing processes, and integrate with health insurance and reimbursement systems.</p>

Case study - Digi Qure

- Digi Qure's mission is to provide **affordable and accessible healthcare** to rural populations. The startup offers **tele-consultation services** through video calls, allowing patients in remote areas to consult with doctors for just **Rs 1**.
- Digi Qure connects rural residents to healthcare professionals, providing them with digital prescriptions, lab test services, and referrals to partner hospitals.
- In addition to this, the startup launched the '**Saksham Card**', a subscription service that costs **Rs 365 per year** (just Rs 1 per day) and covers healthcare services for up to four family members.
- Since its inception, Digi Qure has served more than **20,000 people** in rural areas of Madhya Pradesh.

Conclusion:

India's **triple burden** of disease demands a **multifaceted approach** to health and nutrition. **Balanced diets**, sustainable **agricultural practices**, and **indigenous knowledge** play vital roles in addressing these challenges. The rise of **Healthtech startups** is also transforming healthcare access, particularly in rural areas, providing innovative solutions for better health outcomes and improved nutritional standards across the country.

EPW SNAPSHOT (OCTOBER)

What Would a People-centred AI Policy for India Look Like?

Introduction

Digital sovereignty and **technological leadership** are often narrowly defined, focusing on government control and the number of startups. However, true sovereignty and leadership should focus on solving real problems and **prioritising public welfare** over capital-driven, short-term desires.

Generative AI and its Emergence

- Generative AI, represented by models like **ChatGPT**, **Stable Diffusion**, and **Gemini**, uses large datasets to generate text, images, videos, or audio. These models drive market movements and influence global policy, making analysis of India's AI policy essential.
- Platforms like **Facebook**, **Amazon**, and **Google** have redefined industries by connecting actors and using data from user interactions to drive business models.
 - These use speculative capital to **undercut competitors**, driving them out of business, only to **raise prices later**. This behaviour has led to destructive economic practices like ride-hailing platforms like **Uber** or **Amazon's marketplace** dominance.
- While not as fraudulent, generative AI raises questions about its **economic usefulness**. The reliability of AI-generated content is **debatable**, and its deployment

carries significant risks, especially in critical sectors like **healthcare**.

Different AI Strategies

- **Big Tech's Vision of AI:** Big Tech sees generative AI as a transformative technology poised to revolutionize various sectors, but its actual impact is uncertain.
- **US and Indian Government Approaches:** The US views generative AI as critical for national security, while India focuses on digital sovereignty and leveraging AI to position itself in global supply chains. **For instance**, India's **Semiconductor Mission** and **IndiaAI Mission** seek to position India at a meaningful place in the global semiconductor manufacturing, assembly and testing supply chain.
- **The Third Way and Democratizing AI:** Some technologists advocate for frugal, use-case-led AI models, while others push for a democratised approach to AI development that considers the **needs of workers** and affected **communities**.

Socio-economic Problems and AI

- **Flaws in the Current Approach:** AI policies in India often focus on deploying technology in sectors like agriculture and education without addressing the underlying political and economic issues.
- **Agriculture and AI:** AI solutions like **Agri Stack** ignore the complex realities of Indian agriculture, including caste-based land ownership. These initiatives may benefit large capital interests rather than farmers.
- **EdTech and Unreliable AI in Education:** The rise of edtech companies like Byju's reveals how AI solutions exploit vulnerabilities in sectors like education, where the government's underinvestment is a significant issue.

Way forward - Characteristics of a Good AI Policy for India

- **Evidence-Based Investment:** AI investments should be based on strong evidence of usefulness rather than speculation. Investments in computational power and semiconductors should be carefully weighed against the uncertain future of AI's role in productivity.
- **Reducing Deployment Harm:** Clear legal frameworks are needed to address liability issues arising from AI deployment. Ensuring cybersecurity and protecting data should also be priorities in AI policy.
- **Reclaiming Digital Public Infrastructure (DPI):** DPI can counter big tech's monopolistic tendencies by providing shared digital infrastructure for public and private players. India's **success with UPI** is an example of a DPI that prevents market monopolization.
- **Broadening AI Policy:** India should expand its AI policy beyond deep learning and chatbots, exploring alternative AI approaches that could yield long-term benefits. A focus on developing new AI hardware and fostering local innovation should be part of a broader strategy.

Multipolar World

Introduction

The idea of a multipolar world order, where power is distributed among various nations rather than concentrated in one superpower, has gained traction in recent years. The BRICS countries—**Brazil, Russia, India, China, and South Africa**—are seen as pivotal in this transition. The upcoming BRICS summit in Kazan could play a key role in determining whether BRICS can become a catalyst for a multipolar world.

Concept of Multipolarity

- Over the past five centuries, international relations have evolved through different phases, starting with the **Eurocentric Westphalian system**. This system established state sovereignty, followed by the **Vienna and Yalta** systems, further shaping global power dynamics.
- The idea of multipolarity emerged in the mid-1990s, gaining prominence through figures like **Yevgeny Primakov** and **Mao Zedong's "Theory of Three Worlds."** It reflects the desire to move away from a unipolar system dominated by the United States and toward a more balanced global power structure.

Key Features of Multipolarity

- Dismantling US Hegemony:** The push for multipolarity involves challenging the US's dominance in global institutions and fostering fairer and more equitable international relations.
- Economic Growth and the Rise of the Global South:** Enabling economic growth in developing countries despite resource constraints is a critical element of multipolarity.
- Alternative Financial Systems:** Another crucial feature is the creation of parallel payment systems to counter the established, US-dominated financial structures.
- Global Security Framework:** Multipolarity seeks to develop a global security framework that promotes peace and stability and moves away from Western-led security structures.
- Non-Interference in National Systems:** Respecting the cultural, religious, and value systems of different nations is integral to multipolarity, as opposed to imposing Western universalism.

BRICS and Its Role in Multipolarity

- Challenges to US-led Globalisation:** The liberal world order, centred on globalisation and open markets, has required countries to sacrifice some sovereignty. BRICS offers an alternative path to economic development.
 - BRICS has taken steps to reject the notion of American exceptionalism, with China proposing **security initiatives** and developing new **transport routes**.
- Economic Strength of BRICS:** In 2018, BRICS countries' combined GDP surpassed that of the G7

regarding purchasing power parity (PPP). By 2023, BRICS accounted for 32.2% of global GDP, exceeding the G7's 30%.

- Russia's Economic Resilience:** Russia's ability to withstand Western sanctions and continue growing demonstrates the potential of BRICS countries to challenge US dominance.
- Trade Dependencies:** Developed countries increasingly rely on developing nations for trade, enhancing the appeal of BRICS.
- Rising Importance of National Currencies:** Trade within BRICS is increasingly conducted in national currencies, reducing dependency on the US dollar.
 - BRICS is working toward creating **alternative financial payment systems** and expanding trade cooperation, aiming to reduce reliance on Western systems.

Challenges Faced by BRICS

- Lack of Alternative Financial Institutions:** BRICS faces difficulties establishing alternatives to Western financial and regulatory institutions like the IMF and World Bank.
- Internal Differences Among BRICS Members:** Each BRICS country has its unique relationship with the West, making it challenging to create a unified approach to global financial systems.
- Expansion and Membership Issues:** While interest in joining BRICS+ remains high, internal disagreements and external pressures, including Western interference, complicate expansion efforts.

Conclusion

The shift toward a multipolar world order is still in progress, with **BRICS** playing a **central role**. However, internal conflicts and resistance from Western powers present challenges. BRICS's economic agenda, which focuses on creating alternative financial systems and fostering global cooperation, will likely drive its **evolution** and **contribution** to a multipolar world.



Saving Punjab and Haryana from Ecological Disaster

Introduction

In Punjab and Haryana, government subsidies have created a **skewed incentive structure** favouring paddy cultivation. This article explores how shifting farmers from paddy cultivation to other crops can lead to more sustainable agriculture, saving water and energy and reducing environmental degradation while maintaining profitability.

Green Revolution and its Impact

- **Rise of Self-sufficiency:** India, once food-scarce in the 1960s, became self-sufficient in staples like wheat and rice due to the Green Revolution of the 1970s, especially in Punjab and Haryana. High-yielding varieties (HYVs), enhanced irrigation, mechanization, and using fertilizers and pesticides boosted food production and government procurement.
- **Punjab and Haryana's Role:** These states emerged as key contributors, with their combined rice and wheat production rising from 5% in 1960–61 to 19.7% by 2023–24. This growth came at an environmental cost, which is now becoming increasingly evident.

Consequences of Intensive Agriculture

- **Overexploitation of Natural Resources:** Punjab and Haryana's intensive agriculture practices have led to soil nutrient depletion, groundwater overuse, and rising pollution levels. For instance, Punjab extracts more groundwater annually than naturally recharged, and its groundwater levels have steadily declined.
- **Water-Intensive Rice Cultivation:** Rice, a water-guzzling crop, exacerbates the region's environmental stress. It requires 20–25 irrigations compared to 4–5 irrigations in other crops.
- **Greenhouse Gas (GHG) Emissions:** Rice farming in Punjab and Haryana also produces significant GHG emissions, including methane (CH₄) and nitrous oxide (N₂O), which have a much higher impact on global warming than carbon dioxide (CO₂).
- **Health Issues:** The overuse of fertilisers and pesticides in these states has been linked to various health problems, such as cancer and kidney failure.

Subsidy Imbalance: Paddy's Predominance in Indian Agriculture

- **Subsidies Favouring Paddy Cultivation:** The union and state governments heavily subsidise inputs for agriculture, but the benefits are disproportionately skewed towards paddy cultivation. Punjab receives subsidies amounting to ₹38,973 per hectare, and paddy cultivation consumes vast amounts of water, power, and fertilisers.
- **Paddy's Higher Profitability:** Paddy offers farmers higher financial returns than other Kharif crops, driven partly by subsidies and government procurement at minimum support prices (MSP).

- **MSP Assurance for Paddy:** Paddy farmers benefit from guaranteed government procurement at MSP, offering a safety net against market fluctuations. This support is not as readily available for other crops, further entrenching paddy cultivation.

Way forward - Policy Recommendations for Crop Diversification

- **Incentivizing Shift from Paddy:** To encourage farmers to switch from paddy to alternative crops like pulses, oilseeds, millets, and kharif maize, a more substantial upfront incentive of ₹30,000–₹40,000 per hectare should be offered. These incentives can be funded by repurposing the subsidies saved from power, water, and fertilizers.
- **Public–Private Partnerships for Carbon/Green Credits:** Farmers can benefit financially from carbon credits by reducing GHG emissions through alternative farming practices. The carbon credits system can provide an additional income stream for farmers switching away from paddy.
- **Promoting Horticulture through One District–One Product:** Ecologically vulnerable areas in Punjab and Haryana should be identified, and cluster-based high-value horticulture crops like guava, dragon fruit, and strawberries should be promoted for export markets.
- **Bioethanol Production from Maize:** Shifting paddy cultivation to maize can help meet India's ethanol blending targets under the **Ethanol Blended Petrol (EBP) Program 2025** without impacting food security. This can contribute to "Atmanirbhar" fuel production, reducing the dependence on imported energy.
- **Poplar-based Agroforestry:** Poplar agroforestry models, compatible with kharif and rabi crops, offer a sustainable solution. These trees can sequester carbon, further contributing to climate mitigation efforts.

The Poverty of Neo-liberal Economics

Introduction

Central banks, initially created to manage government finances and serve as **lenders of last resort**, evolved. In the 20th century, they took on new roles, including moderating business cycles focusing on **price stability** and **short-term interest rates**. However, this approach is problematic, especially for developing countries, where the central bank's role must encompass broader macroeconomic concerns beyond price stability.

Global and Domestic Financial Cycles

- **Short-Term Focus in Monetary Policy:** Central banking often focuses on short-term economic developments, assuming a clear understanding of economic mechanisms. Türkiye's currency crises and the global economic shock since 2018 required a shift from this narrow focus.

- **Global Financial Cycles:** Türkiye's economic instability was linked to global financial cycles driven by US monetary policy and liquidity conditions in Europe and China. These cycles influence capital flows, leverage cycles, and exchange rates, forcing developing countries to align their monetary policies with the Federal Reserve's actions.

Türkiye's Unorthodox Measures: A Case Study

- **Dealing with Currency Crises:** In response to the 2018 currency crisis, Türkiye restricted FX swaps and limited foreign participation in its bond and equity markets. The central bank had to step in to support the banking sector by creating new financial facilities, reflecting the need for active central bank intervention.
- **Growth at All Costs Approach:** Türkiye's attempts to prioritise growth through interest rate cuts in 2021 backfired, leading to an exchange rate crisis and inflationary pressures. This demonstrates the limits of focusing on short-term growth without managing broader macroeconomic risks.
- **Return to Conventional Policies:** After the 2023 elections, Türkiye returned to orthodox interest rate policies, but these measures were insufficient to restore stability. Capital flows remained inadequate, and the high interest rates had depressionary effects, demonstrating the limitations of orthodox central banking in developing countries.

- **Neglect of Capital Flow Restrictions:** Public and policymaker debates neglected the importance of capital flow restrictions, focusing instead on a return to orthodoxy. Türkiye's experience highlights the need for a more nuanced approach that balances interest rate policies with capital controls.

Lessons for Developing Countries

- **Medium-Term Policy Horizon:** Developing countries should adopt a medium-term policy horizon and a more holistic macro-financial stability framework. This includes using macroprudential tools and capital controls to manage integration into global finance.
- **Technological and Industrial Policies:** Developing countries must align their policies with technological and industrial advancements in central economies, preparing for future cycles of cross-border capital flows.
- **Managing Integration into Global Finance:** Central banks in developing countries should not shy away from adjusting rules and policies to manage integration into global finance. Interest rate policies alone are insufficient for addressing broader macroeconomic challenges.
- **Impact on Social Inequality:** Policies based on orthodox frameworks often exacerbate income and wealth inequality in developing countries. Central banks must consider the social implications of their policies and focus on broader economic stability rather than narrowly on price stability.

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