



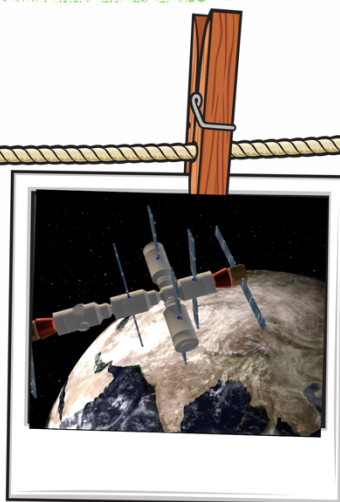
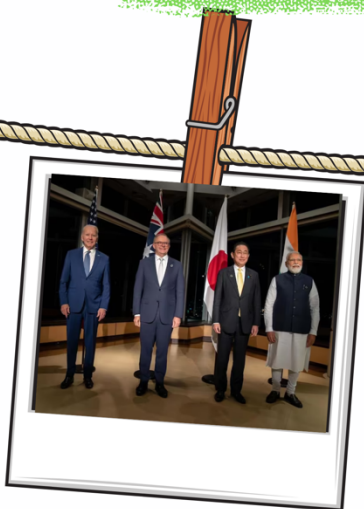
Monthly Current Affairs



To The Point

by Dhananjay Gautam

September 2024



Subscribe to our



Freedom UPSC with **Dhananjay Gautam**



Index

1. International Relations	3
2. Polity & Governance	22
3. Economics	36
4. Security & Defense	68
5. Environment	76
6. Social Issues	92
7. Science & Technology	111
8. Art & Culture	134
9. Ethics	142
10. Schemes	146

freedom UPSC
TOGETHER WE SCALE HEIGHTS



QUAD

Context:

The Prime Minister of India attended the Quad Leaders' Summit in Wilmington (US).

More about the news

- Over the past four years, Quad Leaders have **met six times**, including twice virtually.
- The year **2024 marks 20 years since the formation of the grouping**.
- The Quad Leaders' Summit adopted the **Wilmington Declaration**.
- India will host the **2025 Quad Leaders Summit**.

Key announcements in the Wilmington Declaration

- Health Security: 'Quad Cancer Moonshot'**, a partnership to save lives in the Indo-Pacific region by combating cervical cancer.
- Quality Infrastructure: 'Quad Ports of the Future Partnership'** which will harness the Quad's collective expertise to support sustainable port infrastructure development.
- Critical and Emerging Technologies: A 'Semiconductor Supply Chains Contingency Network Memorandum of Cooperation'** to enhance the resilience of Quad's semiconductor supply chains.
- Quad Investors Network (QUIN):** Mobilizing several investments to promote supply chain resilience, advance joint research
- Climate and Clean Energy:** Collective Quad effort to boost energy efficiency, including deployment and manufacturing of high-efficiency affordable cooling systems in the region.
- Space:** India's establishment of a **space-based web portal for Mauritius**, to support the concept of open science for space-based monitoring of extreme weather events and climate impact.
- Maritime Security:**
- 'Maritime Initiative for Training in the Indo-Pacific (MAITRI)'** to maximize tools provided through Indo-Pacific Partnership for Maritime Domain Awareness (announced in 2022) and other Quad initiatives.
- 'Quad-at-Sea Ship Observer Mission'** in 2025 to improve interoperability and advance maritime safety.

About Quadrilateral Security Dialogue (Quad)

- Quad is a **Plurilateral framework of maritime democracies** and a **Global Force for Good** that delivers real, positive, and enduring impact for the Indo-Pacific.
- Members:** The Quad is a diplomatic partnership (**neither a military alliance nor a mutual defence agreement**) between Australia, India, Japan, and the US.
- Purpose:** It is committed to supporting an open, stable and prosperous Indo-Pacific that is inclusive and resilient.



- **Key Summit:** Quad Leaders' Summits and Foreign Ministers' Meetings are held on an annual basis.
- The mandate of the Quad has gradually expanded with **six working groups** covering health, climate, critical and emerging technology, space, infrastructure and cyber.

Global Significance of QUAD	Significance of Quad for India
<ul style="list-style-type: none"> • Strategic Balance: QUAD serves as a counterbalance to China's growing influence, particularly in the Indo-Pacific. • Maritime Security: It helps ensure a free, open, and inclusive Indo-Pacific region, upholding international laws like the UN Convention on the Law of the Sea (UNCLOS). • Economic Collaboration: in areas such as infrastructure investment, cooperation on standards, and supply chains, etc. • Health and Humanitarian Efforts: QUAD played a pivotal role during the COVID-19 pandemic, committing to deliver up to a billion vaccine doses globally. ◦ Additionally, the group is active in disaster response, helping countries in the region during natural calamities. 	<ul style="list-style-type: none"> • Strategic balance against China: QUAD offers India a platform to align with like-minded countries, thereby enhancing its security posture and reducing the threat of Chinese encirclement. • Strengthening Act East Policy: QUAD contributes to India's strategic objectives of strengthening ties with countries in East Asia and Southeast Asia • Boost to India's military capability: Bilateral defence and security partnerships supplement India's defense capabilities especially in maritime domain. For instance, Malabar exercise 2024 enhance the ability to train and operate jointly. • Technological and Economic Cooperation: India benefits from QUAD initiatives aimed at building secure supply chains in critical areas like semiconductors. India, Japan and Australia formally launched the Supply Chain Resilience initiative • This reduces India's dependency on China for key imports and aligns with India's broader Aatmanirbhar Bharat initiative.

Challenges to QUAD

- **Less institutionalisation:** In its current form, Quad remains relatively institutionalized. The forum is maintained by meetings, semi-regular summits, information exchanges.
- **Perceived as a Cold War mentality:** China has criticized the Quad diplomacy as reflective of a "Cold War mentality" and an attempt to establish an "Asian NATO".
- **Divergent National Interests:** For instance, India focuses mainly on regional security, especially regarding China, while the U.S. has broader global strategic interests.
 - Australia's **economic reliance on China** and **Japan's security dependence** on the U.S. further complicates alignment.
- **Maintain its unique character:** Defining the Quad's purpose as distinct from other regional groupings like ASEAN, Pacific Islands Forum, and IORA has proven to be difficult.



- **US is distracted from Indo-Pacific:** In international policy, wars in Europe and the Middle East mean that US attention to Asia will be more limited.

India's concerns regarding QUAD

- **Reluctance towards Military Alliance:** India is cautious about the Quad becoming a formal military alliance.
 - It values the grouping for **non-traditional security cooperation** but is resistant to a collective military role, which would compromise its strategic autonomy.
- **Possibility of reactivating tensions with China:** India is the only country among the Quad members that shares its borders with China. This makes it imperative for India to ensure that Quad is not reduced to an anti-China grouping.
- **Other group such as SQUAD (comprising Australia, Japan, the Philippines, and US):** May take focus away from the QUAD.
- **India's flexible approach:** India continues to nurture flexible partnerships with countries, including some that are antagonistic toward the Quad, like SCO.
- **Impact on other partners:** India's involvement in Quad could risk alienating other important Indian partners like Russia and Iran.

Way Forward

- **Institutionalizing the Quad:** Establishing a **formal structure or secretariat** could enhance its effectiveness, making it a more permanent feature in regional security and diplomatic engagements.
- **Augment existing organisations in region:** Quad, rather than replacing, should seek to augment other multi-laterals or regional organizations and provide an inclusive vision for cooperation.
- **Engage other players:** Quad needs to proactively engage with regional partners in initiatives that resonate with their respective interests and priorities.
- **Balancing clarity and ambiguity:** By not explicitly highlighting traditional security concerns, such as potential Chinese military actions, the Quad can focus on areas of shared interests while **minimizing the risk of direct confrontation with China**.

Related News

Quad 'Principles for Digital Public Infrastructure (DPI)'

The principle for DPI was released acknowledging the **importance of digitalisation to transform societies** and to achieve the UN 2030 Agenda for Sustainable Development.

About DPI

- DPI is a digital network that enables countries to **safely and efficiently deliver economic opportunities and social services to all residents**.
 - DPI can be **compared to roads**, which form a physical network that **connects people** and provides access to a huge range of goods and services.
 - **'India Stack'** is India's own foundational DPI.



Quad's Key Principles for DPI

- **Inclusivity:** Eliminate economic, technical & social barriers, empowerment of end-users, and avoid erroneous algorithmic bias.
- **Collaboration:** Enable development of **user-centric solutions** and **facilitate sustained adoption** and allow innovators to develop new services.
- **Modularity and Extensibility:** A modular architecture to **accommodate changes/modifications** without undue disruption.
- **Scalability:** Use flexible design to easily **accommodate any unexpected increase in demand**.
- **Sustainability:** Ensure sustainability through **adequate financing and technological support**.
- **Other Principles:** Interoperability, respect for human rights, grievance redress, contribute to SDGs, protect intellectual property rights, **Governance for Public benefit, trust, & transparency, ensure security and privacy.**

India's Role in Conflict Resolution

Context:

The Russian President stated that he's in regular contact with India, Brazil, and China regarding efforts to resolve the Ukraine conflict.

More on the News

- The Russian President's remarks came after the **Prime Minister of India's visit to Kyiv** where he held talks with the Ukrainian President.
 - Previously, **the PM of India had paid a visit to Russia.**
- **Two years into the Russia-Ukraine Conflict**, Europe's largest conflict since World War II, shows **no signs of ending soon.**
 - **Russia did not attend** the Swiss summit on peace in Ukraine.
 - There is a **6-point Brazil-China proposal** that calls for a **Russia-Ukraine summit**, that **Ukraine has rejected.**

India's Evolving Role as a Proactive Mediator in Global Conflict Resolution

- **India as a proactive mediator:** India's diplomacy has become more proactive, fostering closer international relationships and mediation in regional conflicts.
 - **E.g., India facilitated the end of Saudi Arabia's 70-year ban** on using its airspace for flights to Israel in 2018.
- **India's 5-S (Samman, Samvaad, Sahyog, Shanti and Samridhhi) approach' towards foreign policy:** Symbolises India's **independent foreign policy** and uniquely positions India to mediate peace.



- **India firmly believes dialogue and diplomacy, as ways out of the conflict:** For instance, the Prime Minister of India along with other world leaders played a key role in preventing a nuclear strike by Moscow on Kyiv in 2022 (CNN report).
- **India, as a voice of the Global South:** India, actively pursued conflict resolution under its G20 presidency by highlighting the devastating war (Russia-Ukraine) outcomes.
- **India's ancient philosophy of Vasudhaiva Kutumbakam' & rich history of purveyor of peace:** Position India uniquely as a mediator and conciliator in world affairs.
 - E.g., India has never subscribed to the doctrine of militarism and war in her history.
- **India's proactive engagement with the world:** In fostering dialogue and acting as a humanitarian first responder, "ever-ready to assist the global community in times of need". E.g. India was the first to provide drinking water to Maldives during its water crisis in 2014.
 - This **new identity** has helped India to leverage her position to resolve conflict.
- **Conflict Resolution Experience:** India's experience in addressing both internal and regional conflicts, positions it as a potential peacemaker (see box).

India's historic efforts in peace mediation

- **1955:** India mediated between USSR and Austria for the withdrawal of Soviet troops from Austrian soil, and is credited for persuading Austria to declare neutrality.
- **1956:** India mediated in the Korean crisis – engaging the US, China and USSR.
- **1950s and 60s:** India was the Co-Chairman of the International Commission for Supervision and Control in the war in Vietnam.
- **1979:** India's Finance Minister called off his China visit, and actively supported Vietnam on China's aggression.

Barriers to India's Role as a Mediator in Global Conflict Resolution

- **Historical alignments:** India's strategic partnerships limit perceived neutrality. E.g., India's abstentions on UN resolutions against Russia in the Ukraine conflict.
- **Regional rivalries:** Tensions with neighbouring countries affect India's mediator role. E.g., the India-Pakistan rivalry complicates potential mediation in Afghanistan.
- **Economic priorities:** Balancing diplomatic efforts with economic interests can constrain India's mediating act. E.g., India's oil imports from Iran.
- **Limited global influence:** India's diplomatic capacity, compared to established global powers like the USA and UK, is relatively limited, affecting its capacity to mediate complex international disputes effectively.
- **Domestic Challenges:** Internal issues such as internal conflicts, insurgencies, and political instability detract from India's ability to project itself as a model for peace.
 - India has rejected **third-party mediation on Kashmir**.

Way forward

Download Our Application



Freedom UPSC with **Dhananjay Gautam**



- **Proactive role as a mediator:** India could provide a neutral platform for a **peace dialogue** to all stakeholders. For instance, India could also host a **global peace summit for this Russia-Ukraine war**.
- **Partnerships:** India can contribute more to peace-making efforts, **alongside like-minded nations powers** (like South Africa, Brazil, Indonesia etc) and **traditional Western peacemakers** (Switzerland, Norway, etc.)
- **Utilising experience:** India should emulate its **Korean crisis peace** efforts by leveraging **UN mechanisms, diplomatic leadership, non-alignment, and commitment to humanitarian values**.
- **Capacity building:** Form peace teams within the Ministry of External Affairs and think tanks to study global conflicts and develop resolution strategies similar to **Peace Research Institute Oslo (PRIO) of Norway**.

Conclusion

India's role in conflict resolution is increasingly significant as it emerges as a voice for the Global South. Shifting from ad hoc to active international engagement, India's diplomatic efforts reflect its growing global influence and aspirations.

India-Singapore Relations

Context:

Prime Minister of India visited Singapore during the second leg of a two-nation trip to South-East Asia, having travelled to Brunei Darussalam in the first leg.

Key Outcomes of the Singapore visit

- **Comprehensive Strategic Partnership:** Strategic Partnership established in 2015 was elevated to Comprehensive Strategic Partnership.
- **India and Singapore signed four Memorandum of Understanding (MoU):** In the fields of digital technologies, semiconductors, health cooperation and skill development.
 - **MoU on India-Singapore Semiconductor Ecosystem Partnership:** Envisages cooperation in semiconductor cluster development, talent cultivation, and advanced manufacturing, particularly developing resilient supply chains.

About India-Singapore relations

- **Historical connect:** **Sir Stamford Raffles** established Singapore as a trading station in 1819 and it was governed from Kolkata. India was one of the first countries to recognize Singapore in 1965.
- **Trade and economic cooperation:** Singapore is **India's largest trade partner** in ASEAN; it's **India's 6th largest trade partner** (2023-24).
 - Bilateral trade expanded after the conclusion of **Comprehensive Economic Cooperation Agreement (CECA)** to **USD 35.6 billion** (2023-24).
 - India is a net importer.



- India signed **Direct Tax Avoidance Agreement (DTAA)** with Singapore in 2016 to check tax evasion.
- **Defence relationship:** Defence collaboration enhances India's regional strategic maritime reach as far as the South China Sea and reinforces Singapore's role as a security partner in the Indian Ocean.
 - Bilateral exercises by the three services: **Exercise Agni Warrior** (Army), **Exercise SIMBEX** (Navy) and **Air Force Exercise Joint Military Training (JMT)**.
- **Fintech: RuPay card & UPI-Paynow Linkage** are landmark developments in the area of cross-border Fintech.
- **Multilateral cooperation:** India and Singapore are part of multilateral groups like the **East Asia Summit, Commonwealth, IORA (Indian Ocean Rim Association)** and **IONS (Indian Ocean Naval Symposium)**.
 - Singapore has joined the **International Solar Alliance** and **Global Bio-fuel Alliance**.
 - Both closely cooperate on, and support the **Indo-Pacific Economic Framework for Prosperity (IPEF)**.
- **Indian Community:** Ethnic Indians constitute about **9.1 % of the resident population in Singapore**.
 - In addition, among the **1.6 million foreigners residing** in Singapore, about **1/5th** are Indian citizens.
 - **Tamil** is one of the four **official languages** of Singapore.

Challenges faced in India-Singapore relations

- **Overwhelming Chinese presence:** Singapore's investments in China account for **nearly 85 percent of the total inbound investments** China has received from Belt and Road countries.
 - China is Singapore's **third-largest trading partner**.
- **Singapore is known as a tax haven:** Though **\$ 11.7 billion** was invested in FY 2023-24, a significant portion of this can be due to **roundtripping**.
- **India's trade concerns include:** Inadequate market access for **service exports and greater mobility of people** (professional talent migration).
- **Gold smuggling:** Smugglers in Singapore have been approaching Indian migrant workers flying home to act as 'gold mules' by carrying jewellery.
- **Anti-India sentiments:** Many such cases were seen where Indian workers working in Singapore **were bullied on social media and in the workplace**.

Way ahead for improving India-Singapore relations

- **Third Review of CECA:** Both countries can finish the Third CECA Review, ensuring the **agreement stays relevant for future economies**.
 - This aims to adapt to changing economic landscapes and maintain beneficial trade relations.



- **Review of ASEAN-India Trade in Goods Agreement (AITIGA):** To make it more business-friendly, simple, and trade-facilitative. The goal is to substantially conclude this review by 2025.
- **Urban Planning and Development:** Collaborations between **Singapore Cooperation Enterprise (SCE)** and various states in India on smart cities and urban infrastructure including housing can be done.
- **Mitigating anti-Indian sentiments:** The Indian embassy in Singapore could set up a helpline or support system for Indian workers facing such issues.
- **Leveraging Services Trade:** India should engage with Singapore to **liberalise the service sector and maximise its comparative advantage** to reduce the trade deficit.

Conclusion

Singapore serves as India's strategic partner and economic bridge to East Asia, fostering trade, investment, and cultural ties while enhancing India's regional influence and connectivity.

Security Of Supplies Arrangement

Context:

India and the US have signed a **Security of Supply Arrangement (SOSA)** and **Memorandum of Agreement (MoU)** regarding the **Assignment of Liaison Officers**, during the Defence Minister's visit to the US.

More on the news

- **Security of Supply Arrangement (SOSA)**
 - **Promote national defence:** Governments to **secure** the mutual timely provision of **defence-related goods and services during peacetime, emergency, and armed conflict.**
 - **Meet national security needs:** It would allow both countries to request each other for priority delivery of certain defence items.
 - India is **the 18th SOSA** partner of the US. It is **legally non-binding.**
 - The US and India are negotiating a **binding Reciprocal Defence Procurement (RDP) Agreement.**
- **MOU on Assignment of Liaison Officers:** Increase **information-sharing** between India and the US, and **post-Indian armed forces officers in key strategic US Commands**
 - India will deploy the **first Liaison Officer** to the **US Special Operations Command** headquarters in Florida.

India-US cooperation milestones on defence

- **The Framework for the US-India Defence Relationship (2015):** Formalized both countries' commitment to enhancing cooperation in the defence sector.



- **The US designated India as a Major Defence Partner in 2016:** This led to India's 2018 elevation to **Strategic Trade Authorization tier 1 status**, granting **license-free access to various military and dual-use technologies**.
- **The 2+2 meetings between India-US (2018):** The 2+2 meetings signify the participation of Ministers holding Foreign and Defence portfolios, from each of the two countries.
 - **Aim:** To build a stronger, more integrated strategic relationship in a rapidly changing global environment.
- **The roadmap for defence industrial cooperation (2023):** Priority areas of cooperation included Intelligence, Surveillance, and Reconnaissance (ISR), Undersea Domain Awareness, Air Combat and Support, etc.
- **The US-India Initiative on Critical and Emerging Technology (iCET) (2023):** To expand the strategic technology partnership and defence industrial cooperation.
 - **INDUS-X:** Took forward the commitment to build a defence innovation bridge under iCET.
- **India and the US have signed four foundational agreements:** For enhanced military cooperation (See infographic).

Significance of India-US defence cooperation

- **Diversifying India's Defence Suppliers:** **Russia supplied 65%** of India's weapons purchases of more than **\$60 billion** during the last two decades, according to the **Stockholm International Peace Research Institute (SIPRI)**.
 - **E.G.,** SOSA allows India to diversify defence suppliers, reducing dependence on Russian equipment.
- **Intensifies the Indo-US strategic partnership:** The **four 'foundational agreements'** bring India closer to the US; give India access to advanced US intelligence information, etc.
- **Deepen military partnership and interoperability:** **E.g.,** The Malabar exercises (India hosted Australia, Japan and U.S. forces in 2024) have provided a shared platform for **exchanging doctrines, refining training skills**, etc.
- **Counter China in the Indo-Pacific:** India's increasing role in shaping regional security by ensuring freedom of navigation, now especially as a member of the Combined Maritime Force (CMF).
 - CMF is a **multi-national naval partnership to promote security, stability, and prosperity across** approximately 3.2 million square miles of **international waters**.
- **Access to advanced US defence technology:** **E.g.,** India became the first non-treaty partner to be offered a MTCR Category-1 Unmanned Aerial System-the Sea Guardian UAS.
- **Industrial growth:** The growing synergies in defence ecosystems under the INDUS-X can help to diversify investment opportunities, high-potential start-ups, exposure to emerging defence markets, etc.

Challenges in India-US Defence cooperations



- **Strategic Divergences:** India's ties with Russia (arms & oil purchases), and US relations with Pakistan create friction in the defence partnership.
 - Treat of **US's Countering American Adversaries Through Sanctions Act (CAATSA)** for procuring military hardware from Russia.
- **Lack of technology transfer:** The US companies prefer arms sales over technology sharing.
- **Regulatory Hurdles:** India's slow acquisition process and offset credit issues deter US firms.
- **Indo-US defence partnership escalates tensions:** The closer Indo-US strategic partnership raises a regional security issue, as China sees it as a threat.
- **Intellectual property concerns:** US has included India in the 'priority watch list' of countries for alleged problems related to IP protection and enforcement, and has said there will be particularly intense bilateral engagement on the matter during the coming year.

Way forward

- **Focus on interoperability:** Increase joint military exercises and training programs to improve interoperability between US and Indian forces.
- **Expand intelligence sharing:** Deepen intelligence cooperation, particularly in areas of mutual concern such as counter-terrorism and regional security threats.
- **Conclude the Reciprocal Defence Procurement (RDP) Agreement:** It promotes rationalisation, standardisation, interchangeability, and interoperability of conventional defence equipment with US allies and other friendly governments
- **Conclude pending negotiations:** E.g., Negotiations are underway to manufacture GE F-414 jet engines in India for the LCA MK 2 fighters.
- **Advance Multilateral Coordination:** Prioritise coordination in forums like the Quad and I2U2 (India, Israel, the US, and the UAE) to address international strategic issues.

Conclusion

India-US defence agreements mark a significant step forward, enhancing strategic ties, fostering technology sharing, and bolstering regional security through deeper cooperation and mutual commitment to shared goals.

IPOI

Context:

The Indo-Pacific Oceans Initiative (IPOI) completes 5 years.

About the Indo-Pacific Oceans Initiative (IPOI)

- It is a **non-treaty-based voluntary arrangement** that promotes cooperation for a **free and open Indo-Pacific** and the **rules-based regional order**.
- **Genesis:** It was launched by India in 2019 at the East Asia Summit (EAS) in Bangkok (Thailand).

Download Our Application



Freedom UPSC with **Dhananjay Gautam**

Page No

12

- **Aim:** It seeks to build a sense of community by creating new partnerships with like-minded countries through practical cooperation.
- **Philosophy:** Builds upon India's 'Security and Growth for All in the Region (SAGAR)' initiative of 2015.
 - SAGAR vision is to have inclusive **development joining economic assistance and maritime security concerns** on a common platform while respecting international maritime laws and norms.

What Is the Indo-Pacific?

- The Indo-Pacific is a **construct of contested interpretation**.
- **Geo-spatial & strategic interpretation:** The Indo-Pacific is understood as an **interconnected space** between the **Indian Ocean and the Pacific Ocean**, joined together by its main trading channel, the **Malacca strait**.
 - It is home to **more than half of the world's population**, and nearly **2/3rds of the global economy**.
- **India's definition:** The "Indo-Pacific" stretches from the Eastern coast of Africa to the Americas.
- **USA's definition:** Indo-pacific extends up to the west coast of India which is also the geographic boundary of the US Indo-Pacific command to the Americas.

Significance of the Indo-Pacific Ocean Initiative (IPOI)

- **Strategic Relevance:** It widens the scope of the Indo-Pacific narrative **beyond traditional security and geopolitical** challenges to include **economic, development and environmental** challenges in the maritime domain.
- **Synchronize, synergize, and channelize collective efforts:** It **unites regional partners, aligning diverse initiatives towards common goals** of maritime security and sustainable development.
 - E.g., ASEAN Outlook on the Indo-Pacific (AOIP) and Indo-Pacific Oceans Initiative (IPOI) complement each other.
- **Countering regional threats:** It can address China's assertive behaviour in the **Indo-Pacific**.
 - E.g., In 2020, **India and Vietnam** agreed to enhance their **bilateral cooperation** in line with IPOI.
- **Maritime Security:** The **maritime security pillar** of the IPOI seeks to manage peace in the Indo-Pacific maritime domain through **cooperative engagement between partners**.
- **Addresses resource geopolitics:** Promoting cooperation in securing critical minerals (**cobalt, lithium, nickel**) and rare earth elements (**as tellurium and neodymium**).
- **Flexible Framework:** Provides an adaptable, non-institutional platform for regional cooperation, allowing responsive adjustments to emerging Indo-Pacific challenges.

Key challenges facing the Indo-Pacific Ocean Initiative (IPOI):

- **Institutional deficiency:** The absence of a suitably articulated direction and agenda for multistakeholder and multilateral cooperation under each pillar has been a limiting factor.
- **Geopolitical tensions:** it further complicates the narrative of the Indo-Pacific, as China sees it as another step towards its containment.
- **Resource constraints:** Limited funding mechanisms for joint initiatives & uneven technological and infrastructural capabilities among partners.
- **Regulatory harmonization:** Difficult to align diverse national policies and regulations & establish common standards.
- **Inclusivity issues:** Limited representation of East African and Gulf Cooperation Council countries.

Way forward

- **Vision and broad agenda:** Based on discussions, dialogue, etc a collective vision statement on the initiative can be adopted. For each pillar, a brief plan and agenda for the next five years can be outlined.
- **Pillar-specific dialogues:** Lead countries should undertake to steer periodic dialogues related to each pillar. These can be in coordination with the EAS, East Asia Maritime Forum (EAMF), Indian Ocean Rim Association (IORA), etc.
- **Participation of East Africa, Gulf Cooperation Council countries and small island states:** Their participation and leadership can be encouraged, which would make IPOI a truly regional construct.
- **Periodic dissemination:** An annual summary for each pillar, by the leading countries can contribute significantly to promoting a common understanding of the direction being taken.

Conclusion

India's Indo-Pacific approach, an extension of its Act East policy, embraces inclusivity and freedom of navigation. It fosters partnerships with key regional players like, Japan, South Korea and Australia, while promoting a balanced, cooperative framework for all nations in the international seas.

TAPI Gas Pipeline Project

Context:

Recently, Afghanistan and Turkmenistan officials jointly inaugurated Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline project on Turkmenistan side and Afghanistan said to begin work on TAPI pipeline.

About TAPI Project

- TAPI Pipeline, emerged in mid-1990s, is designed to transport natural gas extracted from the Galkynysh gas field in southeastern Turkmenistan.
 - The Galkynysh gas field (previously called ÄzölÄtten Gas Field) was discovered in 2006 and is located 75 km southeast of Mary, Turkmenistan.



- It is **one of the world's five largest gas fields** with estimated reserves of **4 to 14 trillion cubic meters** and proven **commercial reserves of 2.8 trillion cubic meters**.
- The field also holds around **300 million tons of oil**.
- It spans approximately **1,800 kms from Turkmenistan to Afghanistan, Pakistan, and India**.
- It is expected to transport approximately **33 billion cubic meters of natural gas annually**.
- **Asian Development Bank (ADB)**, acting as the **transaction adviser**, is financing the project.

Significance of the TAPI Project

- **Strategic and Geopolitical:** Economic interdependence may pave the way for improved relations between India and Pakistan.
 - It can also **help India counter China's growing influence in Central Asia**.
- **Economic:** Access to potentially cheaper natural gas could boost India's industrial sector, may reduce India's trade deficit by lowering energy import costs, etc.
- **Energy Security:** TAPI could provide a stable, long-term source of natural gas, helping to diversify India's energy mix and reduce dependence on oil imports.

Conclusion

TAPI has the potential to transform the energy landscape of South and Central Asia, fostering greater regional integration and economic development. However, the project's long history of delays and setbacks underscores the need for realistic expectations and flexible and adaptive strategies for implementation.

Other Short News

India signed first-of-its-kind agreements under IPEF

Recently, India signed and exchanged first-of-its-kind agreements focused on **Clean Economy, Fair Economy, and IPEF Overarching arrangement** under **Indo-Pacific Economic Framework (IPEF) for Prosperity**.

- IPEF is structured around **4-pillars** (refer infographics).

IPEF Clean Economy Agreement (Pillar-III)

- **Development and deployment of clean energy technologies:** To accelerate energy security, climate resilience, and emissions mitigation among IPEF partners.
- **Investments and capacity building:** For industries, especially MSMEs and integrate Indian companies into global value chains through collaborative programs such as IPEF Catalytic Capital Fund, IPEF Accelerator, etc.

IPEF Fair Economy Agreement (Pillar-IV)



- **Transparent and predictable trade and investment environment:** By combating corruption and supporting initiatives to improve tax transparency, domestic resource mobilization, and tax administration.
- Enhancing **information sharing**, facilitating **asset recovery**, and strengthening **cross-border investigations** and **prosecutions**.

Overarching IPEF Agreement

- **Aim:** Establish a **high-level political oversight framework** at **Ministerial level** over various **individual IPEF agreements**.
- **Significance:** Provide **identity to the group** and **longevity to IPEF partnership** by creating a **formal mechanism**, potential to **enhance India's productive capacity**, **integration into supply chains**, etc.

Pacific Islands forum

Pacific Islands forum (PIF) endorsed the Australia-funded Pacific Policing Initiative (PPI).

- PPI is **designed to elevate the law enforcement capabilities of Pacific nations**, ensuring they are better equipped to handle law and order challenges and internal security threats.
- PPI aligns with the **Pacific Islands Forum's 2050 Strategy for the Blue Pacific Continent**
- Analysts see it as a **move to limit China's influence over Pacific security**.

About PIF

- It is the region's premier **political and economic policy organization** and works towards a **Pacific Vision of peace, harmony, and prosperity**.
- Founded in 1971, PIF has **18 members** across Pacific Ocean. (Refer Infographic)

Issues Faced by Pacific Countries

- **Climate Change:** PIF members are the worst affected, due to sea level rise, ocean warming, acidification, etc.
- **Geopolitical Power struggle:** Between China and the US for influence over the region.
- **International Drug Trafficking:** Pacific Islands are used as a stop on transnational narcotics smuggling routes from Asia and the Americas.

India's engagement with Pacific Region

- **Significance:** Pacific Islands are vital for India's **energy security and maritime interests**, in line with a broader strategy of ensuring a **free, open, and inclusive Indo-Pacific region**.
- **Initiatives:** Indo-Pacific Oceans Initiative (2019), Forum for India-Pacific Islands Cooperation (2014), etc.



UN adopts Pact for the Future at the UN Summit for the Future

Pact along with its annexes **Global Digital Compact** and a **Declaration on Future Generations** is designed to **address 21st century challenges** (E.g. climate change, conflict, human rights etc.) through militarism

- Pact has been adopted by **member countries by consensus** with a small group of seven countries **led by Russia holding out**.

Key deliverables in Pact include:

- **Sustainable development and financing for development**
 - Giving developing countries a **greater say at international financial institutions**;
 - Strengthening the **global financial safety net** to protect the **poorest**.
- **International Peace and Security**
 - Recommitment to nuclear disarmament with goal of **totally eliminating nuclear weapons**.
 - Avoid weaponization and misuse of new technologies, such as **lethal autonomous weapons**.
- **Science, Technology, and innovation, and digital cooperation**
 - **Scientific research** in responsible and **ethical manner** protecting human rights.
 - **Protect indigenous and traditional knowledge, empower women and remove gender-risks** emanating from emerging technologies.
- **Youth and Future Generation:** Take account of future generations in our decision-making
- **Transforming Global Governance**
 - Strengthen international frameworks that govern outer space (**Also preventing arms race in outer space**).
 - Reform **effectiveness and representativeness of UNSC** prioritizing under-representation of Africa.

India, GCC adopt Action Plan for Joint Activities

Joint Action Plan 2024-2028 was adopted at the recently held 1st ever India-Gulf Cooperation Council (GCC) Joint Ministerial Meeting for Strategic Dialogue.

Key Outcomes of the Ministerial Meeting

- **Joint Action Plan 2024-2028:** for undertaking various joint activities in diverse areas including health, trade, security, agriculture and food security, transportation, energy, culture, amongst others.
 - **More areas of cooperation can be included** in the Joint Action Plan, based on mutual consensus, later on.
- **3P Framework:** India affirmed framework of 3Ps—**people, Prosperity and Progress** to enhance partnership between India & GCC.



- **Humanitarian crisis in Gaza:** External Affairs Minister states that India's position has been principled and consistent and any response must take into account the principles of humanitarian law.

India-GCC Relations

- **Political: 1st India-GCC Political Dialogue** was held in 2003. Currently, India has **strategic partnerships with Saudi Arabia, UAE, & Oman**.
- **Trade & Investment:** Bilateral trade stood at **USD 161.59 billion** in FY 2023-24.
 - **UAE is the 7th largest source of FDI in India.**
- **Diaspora:** Approximately **8.9 million Indian expats** (66% of NRIs) reside in GCC countries.
 - **Share of inward remittances from the GCC region are about 30% (2020-21).**
- **Energy:** GCC countries contribute to **35% of India's oil imports and 70% of gas imports (2021-22).**

India-Brunei Darussalam Elevate Bilateral Ties to 'Enhanced Partnership'

'Enhanced Partnership' symbolizes a new phase in India-Brunei relations, with a **focus on mutual cooperation and shared strategic interests**.

- It was the **first bilateral visit by an Indian Prime Minister to Brunei**.
- Both countries **established diplomatic relations in 1984**.

Key Highlights of the visit

- **Acknowledged to expand defence cooperation** through joint exercises, training programs etc.
- Agreed on the importance of pursuing a **policy of development rather than expansionism in Southeast Asia**.
 - Experts observe it as a counter to Chinese influence.
- Agreed to work together for **enhanced multilateralism reflective of contemporary realities**.
- **Cooperation in the operation of Telemetry, Tracking, and Telecommand Station** for Satellite and Launch Vehicles.
- **Leveraging respective strengths** including in technology, finance, manufacturing and processing.

Significance of Brunei Darussalam for India

- **Strategic Importance:** Important partner in **India's Act East Policy and Indo-Pacific Vision**.
 - Brunei is also an ASEAN member.
- **Indian Diaspora:** Approximately 14,000 Indians are residing in Brunei.



India-Denmark Green Strategic Partnership

Recently, MoUs were signed under Green Strategic Partnership to strengthen the India-Denmark's maritime relations.

About Green Strategic Partnership(GSP):

- **Signed in 2020**, It **expands economic relations and green growth**, creates jobs and strengthens cooperation on addressing global challenges.
- **Focus of GSP:** Implementation of the Paris Agreement and the UN Sustainable Development Goals.
- **Joint Action Plan on Green Strategic Partnership (2021-2026):** was also drawn up for furthering GSP.
- Under GSP, collaboration has expanded across **key areas such as Quality shipping, Cooperation on Port State Control**, Maritime training and education etc.

G4 Nations

The Minister of External Affairs meets foreign ministers of G4 nations in New York.

- The group reaffirmed its **commitment to urgent reform of the United Nations Security Council** through text-based negotiations.

About G4 Nations

- It includes **Brazil, Germany, India, and Japan**.
- The G4 nations **support each other's bids for permanent seats on the United Nations Security Council**.
- **Group has proposed that Council's membership shall be increased from 15 to 25-26**, by adding six permanent and four or five non-permanent members.

India's military diplomacy

In recent months, India's military diplomacy has intensified with consecutive exercises involving countries from around the world for all three Services.

What is Military Diplomacy?

- Also known as Defense Diplomacy, it refers to **pursuing foreign policy objectives** through the **peaceful employment of defense resources and capabilities**.
- **India's military diplomacy involves** contributing to UN **peacekeeping**, providing **humanitarian assistance**, **conducting joint exercises**, etc.

What are the significances of Military Diplomacy?

- **Building trust and confidence:** Regular dialogue and military exchanges can help reduce mistrust and likelihood of conflicts.

- **Strengthening alliances and partnerships:** Defense cooperation agreements, technology transfers, and joint military drills, etc., can result in greater collaboration in regional security architectures. **e.g.**, QUAD Security Dialogue.
- **Defense modernization and capabilities:** Through transfer of technology, knowledge sharing, and training. **e.g.**, Joint development of BrahMos missiles by India and Russia.
- **Others:** Strategic balancing in geopolitically sensitive regions; enhanced soft power through humanitarian aids, etc.

Challenges in India's Military Diplomacy: Balancing strategic partnerships with major global powers like the US and Russia, 'Big Brother' perception among South Asian nations, capacity gaps in terms of domestic manufacturing capabilities, etc.

India's proactive engagements—through military exercises, capacity building, and peacekeeping operations—**demonstrate its commitment to fostering security cooperation** and shaping future **security architecture of Indo-Pacific and beyond**.

Recent Military Exercises

- **Exercise Varuna:** Indian Navy's P8I Poseidon Aircraft is on 1st-ever deployment in Europe to participate in 2024 edition of 'Exercise Varuna'.
 - **Exercise Varuna** is **bilateral naval exercise** between **India and France**. **2024 edition** was conducted in **Mediterranean Sea**.
- **Exercise Eastern Bridge VII:** The **7th edition** of the **Exercise Eastern Bridge** between **Indian Air Force (IAF)** and the **Royal Air Force of Oman (RAFO)** concluded. It was held at **Masirah** (Oman).
- **EXERCISE AL NAJAH V:** Indian Army Contingent participated in 5th edition of **INDIA- OMAN Joint Military Exercise AL NAJAH V** at Rabkoot Training Area in Salalah, Oman.
- **Yudh Abhyas:** India-US Bilateral Army Exercise.
- **Tarang Shakti:** Multilateral Air Exercise involving countries like Australia, Greece, Sri Lanka, etc.
- **Malabar Naval Exercise:** Involving India, Australia, Japan and the US.
- **Indra:** Bilateral exercise between India and Russia.

Operation Sadbhav

India launched Operation Sadbhav to provide **humanitarian assistance and disaster relief (HADR)** to **Laos, Myanmar and Vietnam**.

- The operation was launched in the wake of **disasters caused by Typhoon Yagi**.
- Operation Sadbhav is part of **India's broader effort to contribute to HADR within the ASEAN region**, in line with its longstanding '**Act East Policy**'.



Northern United-2024

Recently, **China and Russia** announced **joint naval and air drills 'Northern United-2024'** in the **Sea of Japan** and the **Sea of Okhotsk**.

About Northern United 2024

- It aims to **improve strategic cooperation between the China and Russia** and “strengthen their ability to jointly deal with security threats.”

About Sea of Japan and Okhotsk

- Sea of Japan is **marginal sea of the western Pacific Ocean**. It is **bounded by Japan and Sakhalin Island to the east** and by **Russia and Korea to the west**.
- **Sea of Okhotsk** is **bounded on** by **Kamchatka Peninsula and the Kuril Islands** (East and Southeast), by **northern coast of Japanese island of Hokkaido** (South), and by **Sakhalin Island** (Southwest).

Axis of Resistance

About Axis of Resistance

- It is a network of autonomous militant Islamist groups led by **Iran and its roots goes back to the Iranian Revolution of 1979**.
- It includes
 - **Hezbollah** (Lebanese Shia militant organization)
 - **Hamas** (Palestinian Sunni militant group)
 - **Palestinian Islamic Jihad**
 - **Houthis** (Yemen militant group)
- **Hezbollah (meaning 'Party of God')** which was founded in the early 1980s in Lebanon is the biggest and most capable member of the “**axis of resistance**”.

Fast Track Immigration - Trusted Travellers' Programme (FTI-TTP)

More than 18,000 individuals registered on the first list of FTI-TTP.

- In June 2024 the FTI-TTP was inaugurated at Indira Gandhi International Airport, New Delhi.

About FTI-TTP

- **Nodal Ministry:** Ministry of Home Affairs
- **Objective:** To **speed up the Immigration clearance process** for eligible persons at select major airports through **electronic gates**.
- **Two phases:** In the first phase, **Indian citizens and OCI cardholders** are covered and in the second phase, **foreign travellers** will be covered.
- **Airports covered:** **21 major airports** in the country will be covered.
- **Nodal agency:** Bureau of Immigration



One Nation One Election

Context:

The Union Cabinet has **accepted** the recommendations of the **High-Level Committee on Simultaneous Elections** under the **chairmanship** of former President **Shri Ram Nath Kovind**.

About Simultaneous Elections

- Simultaneous Elections (popularly known as One Nation, One Election) means holding elections to the House of the People, all the State Legislative Assemblies, and local bodies i.e., Municipalities and Panchayats, together
 - Simultaneous elections **do not mean that voting across the country** for all elections **needs to happen on a single day**.
- In India, simultaneous elections to the Lok Sabha and Vidhan Sabhas were held in the years 1951-52, 1957, 1962 and 1967.
 - This cycle was **disrupted** due to **premature dissolution** of State Assemblies in 1968-69 and of the Lok Sabha in 1970.

Need for Simultaneous elections

- Governance and development:** Frequent elections delay development programs due to the Model Code of Conduct (MCC).
 - Frequent elections affect **economic growth, investment** decisions and **opportunity cost of deferred economic decisions**.
 - Conducting elections to all three tiers of the Government **together would avoid disruption of supply chains** and production cycles due to **migrant workers** seeking leave of absence to cast their vote.
- High financial burden:** Holding simultaneous elections would reduce the massive expenditure incurred for conduct of separate elections every year.
- Diversion of human resources:** Such as **security forces** and other **electoral officers** (like Teachers) from their **primary duties** for significantly prolonged periods.
- Reducing the burden on courts:** Fewer elections mean fewer election-related disputes, reducing the workload on courts.
- Reducing identity politics:** Frequent elections use identity politics, like caste and class stirring division and disrupting societal cohesion.
- Voter participation:** Staggered elections induce 'voters' fatigue' and present a significant challenge in ensuring their participation.

Key highlights of High-Level Committee on Simultaneous Elections

The committee **advocated simultaneous elections for Lok Sabha, State Legislative Assemblies, and local bodies** to address the **burden** on the Government, businesses, Courts, political parties, civil society etc. due to **frequent elections**. Recommendations are as follows:

Download Our Application



Freedom UPSC with **Dhananjay Gautam**



- **Synchronization of Elections:** Elections to be held in two phases
 - **First phase:** Conduct **Lok Sabha and State Legislative Assembly** elections simultaneously.
 - **Second phase:** Conduct **local body elections** (Panchayats and Municipalities) within **100 days** of general elections.
- **Constitutional Amendments proposed:** The high-level committee had proposed amendments to three Articles, insertion of 12 new sub-clauses in the existing articles and tweaking three laws related to Union Territories having legislative assemblies.

Insert Article 82A	Amendment of Article 83 (Duration of Houses of Parliament) and Article 172 (Duration of State Legislatures):	Introduction of Article 324A
<ul style="list-style-type: none"> • Article 82A(1) will state that "on the date of the first sitting of the House of the People after a general election", the President will issue a notification bringing Article 82A into effect. The date of this notification "shall be called the Appointed date". • Article 82A(2) will state that "all the Legislative Assemblies constituted in any general election held after the appointed date shall come to an end on the expiry of the full term of the House of the People." 	<ul style="list-style-type: none"> • In case of a hung House, a no-confidence motion or defection, fresh elections to be conducted to constitute the new Lok Sabha or State Assembly for the unexpired term of the immediately preceding full term of the House. <ul style="list-style-type: none"> ◦ It ensures continuity in cycle of Simultaneous Elections. 	<ul style="list-style-type: none"> • Relating to holding simultaneous elections to Municipalities and Panchayats with general elections. <ul style="list-style-type: none"> ◦ Ratification by states required

- **Single electoral roll:** To be prepared by the Election Commission of India in consultation with the State Election Commission(s) by amending **Article 325**.
 - As it includes **amending State subjects (Local Government)** in the 7th Schedule, **Part IX, and Part IXA** of the Constitution of India, **ratification by the States** required under **Article 368(2)**.
- **Need for ratification by states:** The Committee observed that constitutional amendments in relation to terms of Parliament and state assemblies will not require ratification by states. However, constitutional amendments in relation to local bodies will be required to be passed with ratification by at least half of the states.



- **Making Logistical arrangements for conduction of Simultaneous Elections**
 - **For elections to the House of the People and State Legislative Assemblies:** The **Election Commission of India** will draw a plan for advanced estimation of procurement of EVMs/VVPATs, deployment of polling personnel, security forces etc.
 - **For elections to Municipalities and Panchayats:** The **State Election Commission(s)** in consultation with the **ECI**, will draw a plan for the logistical requirements.
- Constitution of an **Implementation Group** to monitor the execution of the process.

Challenges and complexities of simultaneous elections

- **Overshadowing regional issues:** Conducting elections simultaneously to the Lok Sabha and all State assemblies would result in national issues overshadowing regional and State specific issues.
- **Impact on the Regional parties:** Simultaneous elections may create a system where National political parties would have a significant advantage over regional parties.
- **Political accountability:** Frequent elections hold lawmakers accountable, while fixed terms may provide unwarranted stability without performance scrutiny challenging democratic principles.
- **Concerns Regarding Federalism:** Constitutional Amendments concerning the term of the state legislative assemblies under **Article 172** can be carried out **without ratification by states**. Thus, **opinion and say of States is reduced**.
- **Logistical Issues:** Organizing ONOE would require significant resources, including a vast supply of electronic voting machines and trained personnel to oversee the process.

Conclusion

A delicate balance between the efficiency gains of simultaneous elections and the foundational principles of federalism, democratic integrity, and political plurality needs to be ensured through detailed legislative deliberations.

Global AI Governance

Context:

The **Council of Europe (COE) Framework Convention on Artificial Intelligence (AI) and human rights, democracy and the rule of law**, the first legally binding international treaty on AI, was opened for signature.

More on the news

- COE is an **intergovernmental organisation** formed in 1949, with 46 members including Japan, and the U.S., plus countries of the EU bloc and others.
- The **Framework Convention** was initiated in 2019, when the ad hoc Committee on Artificial Intelligence (CAHAI) was tasked with examining the feasibility of such an instrument.
- It aligns with new regulations and agreements, including the **G7 AI pact**, **Europe's AI Act**, and the **Bletchley Declaration**.



Key provision of the Framework Convention

- **Scope:** Covers the use of AI systems by **public authorities** “including **private actors** acting on their behalf” and **private actors**.
- **Obligation of signatories:** Parties will **adopt or maintain appropriate legislative, administrative or other measures** to ensure that Activities within the lifecycle of artificial intelligence systems are-
 - **Consistent with obligations to protect human rights**, as enshrined in applicable international and domestic law.
 - **Not used to undermine the integrity, independence and effectiveness** of democratic institutions and processes.
- Does **not regulate technology** and is essentially **technology-neutral**.
- **Risk-based approach** adopted for the design, development, and decommissioning of AI systems globally.
- **Exceptions:** Does not apply to national defence matters nor to **research and development activities**, except when the testing of AI systems may have the potential to interfere with human rights, democracy, or the rule of law.
- Underlines fundamental **principles related to activities within the lifecycle of AI systems** (see infographic).

What is the need for global AI governance?

- **Risk Mitigation:** Global governance can set standards to mitigate global risks associated with AI systems like job displacement, discrimination, misuse in surveillance and military applications, AI Arms Races etc.
- **Threat to democratic functioning:** E.g., disinformation and deep fakes can impact the integrity of democratic processes.
- **Tackling Inequities:** The global AI governance landscape is uneven, with many developing nations, particularly in the global South, lacking a voice in decision-making.
- **Transboundary nature:** Issues associated with AI systems like data privacy and security can impact multiple countries simultaneously.
- **AI Misalignment:** It happens when AI systems act in ways that do not reflect human intentions. Examples include unsafe medical recommendations, biased algorithms, and issues in content moderation.
- **Wide scale deployment:** AI systems are increasingly being adopted in decision-making in key sectors like healthcare, finance, and law enforcement.

What are the challenges in global AI governance?

- **Representation Gap:** AI governance initiatives largely lack representation, leading to significant gaps in national and regional efforts that affect AI assessment decisions and funding.



- E.g., many initiatives exclude entire regions, with seven countries participating in all and 118, mostly from the global South, entirely left out.
- **Coordination Gap:** Lack of Global Mechanisms for international standards and research initiatives, leads to issues like-
 - **Fragmentation, reduced interoperability and incompatibility** between different plurilateral and regional AI governance
 - **Ad Hoc Responses** to AI challenges.
 - **Narrow Focus**, hindering their ability to tackle its complex global implications.
- **Implementation Gap:**
 - **Lack of stronger systems to hold governments and private companies accountable** for their commitments regarding AI governance.
 - **Limited networking and resources** in National strategies for AI development, leading to ineffective implementation.
 - **No Dedicated Funding Mechanism** for AI capacity-building with the scale or authority.

Steps taken to regulate AI

In India

- **National Strategy for Artificial Intelligence (NSAI):** NITI Aayog launched the #AIforAll strategy to harness AI in sectors like healthcare, agriculture, and education.
- **Principles for Responsible AI:** NITI Aayog released "Principles for Responsible AI," focusing on ethics and accountability, followed by "Operationalizing Principles for Responsible AI," which provided actionable steps for implementation by the government and private sector.
- **National Program on AI (India AI):** The Ministry of Electronics and Information Technology (MeitY) initiated the India AI program to foster AI innovation, skill development, and address ethical concerns.
- **Digital Personal Data Protection Act:** Enhances data protection for individuals and address AI-related privacy concerns.
- **Global Partnership on AI (GPAI):** India is a GPAI member, participating in global discussions on responsible AI and aligning its strategies with international standards.

Global

- **G7 pact on AI:** It aims to establish a global framework for the responsible development and use of AI systems, and participation is voluntary.
- **Europe's AI Act:** It is Europe's first major regulation on artificial intelligence, categorizing applications into three risk levels: unacceptable risk applications, high-risk applications etc.
- **The Bletchley Declaration:** It establishes a shared understanding of the opportunities and risks posed by frontier artificial intelligence (AI). It was signed by 28 countries and the European Union.



Way forward

- **Suggestions of UN report titled 'Governing AI for Humanity':**
 - **Adoption of flexible, globally connected approach** to AI governance that fosters shared understanding and benefits.
 - **Create an Independent international Scientific Panel** on AI that consist of diverse experts who serve voluntarily.
 - **Establish a biannual policy dialogue** on AI governance at UN meetings to engage government and stakeholders, focusing on best practices that promote AI development.
 - **Create an AI exchange** that unites stakeholders to develop and maintain a register of definitions and standards for evaluating AI systems.
 - **Establish AI capacity development network** that connects UN's affiliated centres to provide expertise and training to key stakeholders
 - **Global Fund for AI**, an independently managed fund, can collect public and private contributions and distribute resources to enhance local access to AI tools.
- **Other steps that can be taken:**
 - **Formulating AI Law:** MeitY is drafting a new law on artificial intelligence (AI) to harness its economic benefits while addressing potential risks and harms.
 - **Ensuring AI Alignment:** AI alignment ensures that artificial intelligence systems operate according to human values and ethics and can address issues like discrimination and misinformation.

Grievance Redressal Mechanism

Context:

Recently, Ministry of Personnel, Public Grievances & Pensions (MoPPG&P) issued comprehensive Guidelines for Handling Public Grievances for making grievance redressal time-bound, accessible and meaningful.

Key highlights of Comprehensive Guidelines for Handling Public Grievances

- An **integrated user-friendly grievance filing platform with CPGRAMS** to provide citizen a single window experience.
 - This will **help de-duplication and save time/efforts of officials** from resolving same grievances on multiple portals.
- **Appointment of Nodal Officers for Public Grievances** in all Ministries/ Departments who will address grievances promptly, fairly and efficiently.
- **Dedicated Grievance Cells** shall be set-up in every Ministry/ Department with sufficient resources having knowledge of schemes and activities.
- **Timelines** for effective grievance redressal have been **reduced to 21 days** from existing 30 days.



- **Grievance redressal assessment index** for ranking Ministries/ Departments shall be issued on monthly basis.
- 2024 Policy Guidelines manifest technology improvements undertaken with **10-step reform process adopted**.
 - Government implemented 10-step reforms of CPGRAMS (Centralised Public Grievance Redress and Monitoring System) in 2022.

About Grievance Redressal Mechanism (GRM)

- GRM of an organisation is an **important instrument to measure its effectiveness** as it provides feedback on the working of the organisation.
 - Its basic principle is that **if promised level of service delivery is not achieved** or if a **right of a citizen is not honoured** then citizen should be able to take recourse to a mechanism for grievance redressal.
- **Two designated nodal agencies in Union Government handling grievances are:**
 - Department of Administrative Reforms and Public Grievances, DARPG (under MoPPG&P).
 - Directorate of Public Grievances, Cabinet Secretariat.
- **Status of Grievance Redressal:** CPGRAMS portal has **redressed nearly 60 lakh Public Grievances in period 2022-2024** and has **mapped 1.01 lakh Grievance Redressal officers** of Ministries/ Departments and States/ UTs.
 - CPGRAMS is an **online platform available to citizens 24x7** to lodge their grievances to public authorities on any subject related to service delivery.
 - It is a **single portal connected to all Ministries/Departments** of Government of India and States through **role-based access** to the officers in portal.

Other Initiatives taken for Grievance Redressal

- **Constitutional and statutory institutions:** Like CVC, Lokayuktas, NHRC, SHRC etc. have **mandate to look into complaints** of corruption, abuse of office by public servants, negligence in conduct of public servant regarding human rights violation etc.
- **Grievance Redressal Assessment Index (GRAI):** Conceptualised and **designed by DARPG** based on recommendation of Parliamentary Standing Committee of MoPPG&P.
 - It aims to present organisation-wise comparative picture and provide valuable insights about strengths and areas of improvement regarding GRM.
- **Pro-Active Governance and Timely Implementation (PRAGATI):** Multi-purpose and multi-modal platform to address common man's grievances, and simultaneously monitoring/reviewing programmes/projects of Centre/State/UT Governments.
- **E-Nivaran:** Launched by Central Board of Direct Taxes to fast-track taxpayer grievances and ensure early resolution of their complaints
- **Citizen Charter:** It solves the problems which a citizen encounters while dealing with organisations providing public services.



Issues associated with Grievance Redressal Mechanism

- **Delays:** Delays in grievance redressal due to **bureaucratic hurdles, limited resources, or inefficient workflows** undermines public confidence in the government.
- **Corrupt Practices:** In some instances, grievance redressal mechanisms themselves are subject to corrupt practices, where officials allegedly delay or manipulate outcomes in exchange for bribes.
- **Lack of Integration:** Multiplicity of grievance redressal platforms across different sectors (e.g., public distribution systems, consumer rights), across states, makes it difficult for citizens to lodge and track their complaints.
- **Digital divide:** Many citizens, particularly in rural areas, **lack access to internet or digital literacy** required to use online redressal platforms effectively.

Way ahead

- **2nd ARC Recommendations:**
 - States may be advised to **set up independent public grievances redressal authorities** to deal with complaints of delay, harassment or corruption.
 - Government organizations should **analyse complaints received and identify areas wherein interventions would be required** to eliminate underlying causes that lead to public grievances.
- **Recommendations of Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice, (25th Report):**
 - Grievance-handling system should be **accessible, simple, quick, fair, responsive and effective**.
 - Public Grievance Redressal Mechanism should be **envisaged in statutory form on line of RTI Act, 2005** which would make it mandatory on all State Governments/UTs/etc. to **pursue grievance till their final disposal**.
- **Decentralized redressal:** Decentralize GRM so that local or regional offices are empowered to resolve issues, **reducing the burden on central authorities** and ensuring faster resolutions.
- **Reduce bureaucratic layers:** Simplify the process of filing complaints by **minimizing paperwork and formalities, focussing on making system accessible**, and citizen friendly.
 - For example, setting up and effective operationalization of Information & Facilitation Counters.
- **Review and monitoring:** Establish a **robust monitoring system to analyse performance** of grievance-handling departments and officials through periodic audits and evaluations.
- **Feedback mechanism:** Establish **key performance indicators for online grievance management system** like response times, resolution rates, and citizen satisfaction.
- **Integrating Technology:** AI can be employed to categorize/prioritize grievances and **utilize data analytics to identify trends/patterns in grievances**, helping in allocation of resources and policy adjustments.



Unified Pension Scheme

Context:

Recently, Union Cabinet has approved the Unified Pension Scheme (UPS).

About Unified Pension Scheme

- It is based on the recommendations of **T. V. Somanathan Committee (2023)**. Persistent demands for **Old Pension Scheme (OPS)** led to its formation.
- Existing as well as future employees will have an option of joining New Pension Scheme or UPS. Choice, once exercised, will be final.
- Provisions of UPS will apply to past retirees of NPS (who have already superannuated).

Comparison between Unified Pension Scheme, New Pension Scheme and Old Pension Scheme

Parameters	Unified Pension Scheme (UPS)	New Pension Scheme (NPS)	Old Pension Scheme (OPS)
Eligibility	<ul style="list-style-type: none"> It will be effective from April 1, 2025 and applies to all Central government employees. 	<ul style="list-style-type: none"> Launched in 2004 for providing retirement income to all citizens between 18 and 65 years. 	<ul style="list-style-type: none"> Introduced in 1950s and applicable only to government employees.
Assured Pension	<ul style="list-style-type: none"> 50% of average basic pay drawn over last 12 months prior to superannuation for a minimum qualifying service of 25 years. It will be proportionate for a lesser service period (minimum service of 10 years). 	<ul style="list-style-type: none"> Pension amount is not fixed as it is a market-linked scheme. 	<ul style="list-style-type: none"> Central government employees will receive 50% of their last drawn salary. Provided fixed monthly income.
Minimum Pension	<ul style="list-style-type: none"> Rs.10,000 per month on superannuation after minimum 10 years of service. 	<ul style="list-style-type: none"> Not Applicable 	<ul style="list-style-type: none"> Rs. 9000 per month
Family Pension	<ul style="list-style-type: none"> On demise, pension amounting 60% of employee's pension before demise. 	<ul style="list-style-type: none"> In case, Government servant has opted for benefits under NPS, family would get benefits from his 	<ul style="list-style-type: none"> Granted to widow / widower and where there is no widow /



		accumulated pension wealth under NPS.	widower to children of a Government servant who entered in service in a pensionable establishment on or after 01/01/1964 but on or before 31.12.2003.
Inflation Indexation	<ul style="list-style-type: none"> In form of Dearness Relief based on All India Consumer Price Index for Industrial Workers (AICPI-IW), similar to service employees. 	<ul style="list-style-type: none"> Not available 	<ul style="list-style-type: none"> Dearness relief, which adjusted pension for inflation, and offered a family pension to dependents.
Contribution	<ul style="list-style-type: none"> Employee contribution will not increase. Government contribution increased from 14 to 18.5%. 	<ul style="list-style-type: none"> Employees are required to contribute 10% of their salaries, while employers can contribute up to 14%. 	<ul style="list-style-type: none"> No employee contributions required.

Conclusion

UPS aims to combine the best aspects of both the OPS and NPS systems, and reintroduce an assured minimum pension. Further, UPS aims to improve the financial security and quality of life for government employees and their families.

Other Short News

'Black Coat Syndrome' In Courts

President called out 'Black Coat Syndrome', and urged Supreme Court to Lead with Justice for All.

- Highlighting the delay in Justice, the President used this term to describe **anxiety experienced by ordinary citizens in court settings**.



- Term is analogous to the “**White Coat Hypertension**” i.e. increase in people’s blood pressure in the hospital.

Reasons for such perception

- **High pendency:** As of August 31, 82,887 cases are pending in SC (National Judicial Data Grid).
 - Additionally, delays in deciding serious crimes like rape leads to public perception of insensitivity in the judicial system.
- **Frequent adjournments:** It causes great mental and financial pressure specially for people traveling from villages to courts.
- **Issues with district judiciary:** For instance, only 6.7% of court infrastructure at the district level is female friendly.
 - District-level courts significantly shape the public’s perception of the judiciary.

Rights of Detenu in Preventive Detention

In **Jaseela Shaji vs Union of India case (2024)**, the Supreme Court highlighted the rights of detenu (detained person) to make an effective representation against preventive detention.

- Preventive detention means **detention of a person without trial**.

Highlights of the Judgment

- Detenu has the **right to be furnished with the grounds of detention along with the documents** relied on for such detention.
 - If there is **failure or even delay in furnishing** those documents, it would amount to **denial of the right to make an effective representation** under **Article 22(5)** of the Constitution.
- **Article 22(5)** mandates that detaining authority must:
 - Inform detenu as soon as practicable of **grounds on which detention** has been made.
 - Provide detenu the earliest **opportunity of making a representation against detention order**.

Preventive Detention

- **Article 22(3)** allows the authorities to **detain individuals for preventive reasons**, such as the maintenance of **public order or national security**.
- The constitution provides for **certain safeguards**:
 - No preventive detention law should authorize the **detention beyond three months unless an Advisory Board approves it**.
 - Grounds for preventive detention shall be communicated at the earliest.
 - Provide earliest opportunity of making a representation.



Unlawful Activities (Prevention) Act (UAPA), 1967

Supreme Court ruled that **14-day timeline for granting sanction for prosecution under UAPA, 1967 is mandatory** and not discretionary.

About UAPA, 1967

- It provides for more **effective prevention of certain unlawful activities of individuals and associations** and for dealing with terrorist activities.
- Prosecution of individuals accused of terrorism requires **prior sanction from government** via two steps i.e.
 - An **independent authority must review evidence gathered by investigators** and make a recommendation to government **within seven working days**. (Rule 3 of Unlawful Activities (Prevention) (Recommendation & Sanction of Prosecution) Rules, 2008)
 - **Government then has an additional seven working days to decide** whether to grant or deny sanction based on authority's recommendation (Rule 4).

Plea Bargaining

As per the Ministry of Law and Justice, only 0.11% of cases were resolved through plea bargaining in 2022.

About Plea Bargaining

- It is an agreement between defense and prosecution where accused pleads guilty for a lesser offense or a reduced sentence.
- **Introduced in 2006** as part of a **set of amendments to CrPC**.
- In section 290 of BNSS, **plea bargaining** has been made **time bound and application can be made within 30 days** from date of framing of charge.
- **Application:** Applies only to offenses punishable by up to seven years of imprisonment, with further restrictions **excluding** cases involving crimes against **women, children, or socio-economic offenses**.

2023 Amendment to Rule 3 of IT Rules 2021

Bombay HC struck down the 2023 amendment to Rule 3 of the IT Rules mandating establishment of Fact Checking Units (FCU)

- Verdict has been delivered in the **Kunal Kamra vs Union of India case (2024)**.

Background

- The 2023 amendment [(3(1)(b)(v))] to **IT (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021** empowered the Government to identify **fake news** pertaining to its business on **social media platforms** through FCU.
 - Such news was to be **flagged and taken down** by the intermediary.



- Failure to do so would subject the intermediaries to a **legal action and losing their safe harbor** (legal immunity against third-party consent).
- In 2023, Supreme Court stayed the Centre's notification establishing FCU in **Press Information Bureau (PIB)**.

Key Observations by the HC

- Rules are **ultra vires (unconstitutional)** or beyond the powers of the **IT Act, 2000**.
- **Violate the Principles of Natural Justice and Fundamental Rights under Articles:**
 - **14** [Equality before Law]
 - **19 (1) (a)** [Freedom of Speech and Expression]
 - **19 (1) (g)** [Freedom to practice any profession]
 - **21** [Right to Life and Personal Liberty].
- **Vague**, does not clearly define fake or misleading news.
 - Also, in the absence of "**right to the truth**," the **State** is not **responsible** for providing citizens with only accurate information determined by the FCU.
- Fail to satisfy the **test of proportionality**

23rd Law Commission Constituted

President approves the constitution of the 23rd Law Commission for a **three-year term**, that is, from **1st September, 2024 to 31st August, 2027**.

23rd Law Commission

- **Mandate:** To review and recommend legal reforms to enhance the Indian legal system.
- **Composition:** It will include a full-time chairperson, four members, and additional ex-officio and part-time members.

Terms of Reference (ToR)

- **Review/Repeal of obsolete laws:**
 - Create a **Standard Operating procedure** for **periodic review** of existing laws for **simplification**.
 - Based on the relevance, current economic needs, **suggest repealing and amendments to the laws**.
- **Law and Poverty:** Examine laws affecting the **poor** and conduct **post-enactment audits of socio-economic legislation**.
- **Review of Judicial Administration:**
 - Ensure **economic disposal of cases** by elimination of delays and **speedy clearance of arrears**.



- **Simplification of processes**, harmonizing rules of various **high courts**.
- **Directive Principles of State Policy (DPSPs)**: Examine existing laws and suggest reforms to ensure effective implementation of DPSPs and to attain the objectives set out in the Preamble.
- **Gender Equality**: Strengthen laws through examination and suggesting amendments.
- **Revision of Central Acts** to remove anomalies and inequities.
- Examine the **impact of globalization on food security, unemployment** and recommend measures for the protection of the **marginalized**.

Sanction for Prosecuting a Public Servant

Recently, the Governor of Karnataka gave approval for **investigation for prosecution of the Chief Minister**.

Sanction for prosecution:

- There is a **requirement of grant of sanction** before prosecution of a public servant to **protect public servants from malicious prosecution**.
- **Competent authority for granting sanction**: State or Central **government** (CrPC) and authority having **power to remove** the public servant (PCA).

Legal Framework:

- Section 218 of the **Bharatiya Nagarik Suraksha Sanhita (BNSS)** (earlier covered under Section 197 of CrPC)
- Section 17A (2018 amendment) and 19 of the **Prevention of Corruption Act, 1988 (PCA)**.

Asian Organization Of Supreme Audit Institutions (ASOSAI))

Proposal for removal

The President of India attended the opening ceremony of the **16th ASOSAI Assembly** organised by the **Comptroller and Auditor General (CAG) of India** in New Delhi.

About ASOSAI

- It is one of the Regional Groups of the International Organization of Supreme Audit Institutions.
- It was established in 1979 with 11 members, now the membership has grown to 48.
- The **first Assembly and Governing Board meeting was held in New Delhi, India**.
 - India is holding the current chair of ASOSAI.
- At the Assembly, the Rules and Regulations of ASOSAI were approved.



Regional Disparity In Development

Context:

A working paper "Relative Economic Performance of Indian States: 1960-61 to 2023-24" by Economic Advisory Council to the Prime Minister (EAC-PM) highlights the uneven growth across Indian states.

Key trends highlighted in working paper

- **Disparity in Relative Per Capita Income**
 - **Western and Southern regions are outperforming:** Delhi, Telangana, Karnataka, and Haryana have the highest per capita income.
 - Delhi's per capita income is 250.8% of the national average (2.5 times higher).
 - **Decline of West Bengal:** Once 27% above the national average (3rd highest in 1960-61), West Bengal now stands at 83.7% of the national average.
 - **Improvement in Odisha:** Odisha has improved its relative per capita income from 55.8% (2000-01) to 88.5% in 2023-24 of the national average.
- **Dominance of Southern States in GDP Contribution:** Karnataka, Andhra Pradesh, Telangana, Kerala, and Tamil Nadu contributed over 30% of India's GDP in 2023-24.
 - West Bengal's share has dropped from 10.5% (3rd largest) in 1960-61 to just 5.6% in 2023-24.
- **Better Performance of Maritime States** Overall, maritime states have clearly outperformed the other states, with the exception of West Bengal.
- **Diverging Paths of Punjab and Haryana:** Punjab's per capita income (PCI) fell from 119.6% in 1960-61 to 106.7% in 2023-24. Whereas Haryana's relative PCI has risen from 106.9% (1960-61) to 176.8% (2023-24).
 - This divergence raises a question **whether Punjab's focus on agriculture contributed to a form of 'Dutch disease,'** hindering its transition to industrialization.
- **Eastern states remain a concern:** Over several decades, West Bengal's relative economic performance has weakened. While Bihar's relative position has stabilized in the last two decades, it still lags significantly behind other states.

Factors responsible for regional disparity

- **Historical:** British policies favoured resource-rich areas (like Kolkata, Mumbai and Chennai), creating economic disparities and regional imbalances that persist in India today.
 - Historically, developed states have efficient governance systems, which cannot be easily transferred across regions.
- **Geographical:** Difficult terrain (e.g., North-Eastern states) raises administration and project costs. Adverse climates, like frequent floods in Bihar and Assam slows down development
- **Economic:**



- **Dominance of primary economic activities:** States with more people in manufacturing and services sectors have higher income compared to those dependent on agriculture.
 - E.g. States such as Maharashtra and Gujarat have higher per capita income as compared to Bihar and Uttar Pradesh.
- **Infrastructure Deficit:** Poor transportation, banking services etc. limits growth in underdeveloped regions.
- **Governance**
 - **Political Instability:** Unstable governments and law and order issues discourage investment and lead to capital flight.
 - **Failure of Planning Mechanisms:** Industries prefer locations with established resources such as consistent power and water supply, road and railway infrastructure and skilled labour.

Initiatives to eliminate regional disparity in growth

- **Aspirational Districts Programme (ADP):** It aims to quickly transform 112 most underdeveloped districts across the country.
- **Aspirational Block Programme (ABP):** For improving governance to enhance the quality of life of citizens in the most difficult and relatively underdeveloped blocks of India (500 blocks from 27 states and 4 UTs).
- **'Vocal For Local' Initiative Fostering Grassroots Entrepreneurship and Self-reliance:** Launched under ABP for encouraging a spirit of self-reliance among people of Aspirational Blocks, propelling them towards sustainable growth and prosperity.
- **Human Resource Development:** E.g. more incentive incentives is provided to beneficiary and ASHA worker under Janani Suraksha Yojana in Low performing States for institutional delivery.
- **Border Area Development Programme (BADP):** To meet the special developmental needs and wellbeing of the people living in remote and inaccessible areas situated near the international borders

Way Ahead to Reduce Regional Disparity in Growth

- **Tailored Approaches:** E.g. Increased focus on programs such as Hilly Area Development and Drought Prone Area Development with target specific regional needs instead of a one-size-fits-all approach.
- **Performance-Based Funding:** Funding should be tied to meeting development standards, focusing on priority areas based on need and industrial backwardness.
- **Strengthening of Good Governance in backward states:** Effective administration helps states raise revenues, attract investment, and improve resource use, especially in backward regions.
- **Balanced Infrastructure Development:** Improving infrastructure (power, transport, telecom, irrigation) in underdeveloped states is key to boosting investment and quality of life.
- **Sectoral Investment**
 - **Investment in agriculture needs to be stepped up** especially in the lagging regions with a focus on backward and forward linkages.



- **Service sector** has been found to be the new driver of the growth process. Thus there is a need to promote banking and insurance sector, infrastructure to accelerate growth on priority, in backward regions.

Conclusion

For achieving balanced regional development, focus should be on creating an environment that fosters innovation, attracts investment, and ensures efficient utilization of resources. Strengthening governance, improving infrastructure, and promoting healthy competition between states through cooperative and competitive federalism are essential steps.

Middle Income Trap

Context:

World Bank released the report titled the 'World Development Report 2024: The Middle Income' according to which various countries including India runs the risk of falling into the middle-income trap.

About Middle Income Trap

- **Middle Income Countries (MIC):** World Bank classifies Economies having per capita Gross National Income between US\$ 1,135 to US\$13,846 as MIC.
 - **Lower MIC:** Per capita GNI is **US\$1,136 to US\$4,465** (India has a per capita GDP of ~\$2,500)
 - **Upper MIC:** Per capita GNI is **US\$4,466 & US\$13,845**
- **Middle income trap:** In 2007, the term "middle-income trap" was coined by the **World Bank** in its report titled 'An East Asian Renaissance: Ideas for Economic Growth'.
 - It refers to a situation wherein **rapidly growing economies stagnates at middle-income levels and fails to graduate into the ranks of high-income countries.**
- **Trend:** During the **last decade** the prospects of MICs migrating to High Income Countries have worsened.
 - This is due to the **rapidly aging populations and burgeoning debt, fierce geopolitical and trade frictions**, and the growing difficulty of speeding up economic progress without fouling the environment.

What makes India vulnerable to Middle Income Trap?

- **Untapped Human Capital**
 - **Skill Gap:** Only ~51% graduates are employable (Economic Survey 2023-24) and only ~2.3 % of workforce in India has undergone formal skill training in India.
 - **Lack of innovation capability:** India's R&D investment as a percentage of GDP stands at just 0.64% against 2.4% by China and 3.47% by US.
- **Rising Income inequality:** India's **top 1% own 22.6% of income** (World Inequality Lab, 2022-23).



- It may result in **lower tax revenue for government** and may give rise to **social tension and political instability** which have adverse impact on economic growth.
- **Stagnated Industrialization:** India leapfrogged from agricultural to **services sector** and **manufacturing share in output and employment** has generally remained **below 20%**.
 - Inadequate development of manufacturing resulted in **unemployment and disguised unemployment particularly in agriculture**.
- **Contemporary Global Headwinds:**
 - Middle Income Countries find themselves "**caught between** the rapidly changing **advanced technology of rich countries** and competition in **mature products from poor countries with low wages**." (IMF).
 - **Foreign trade and investment are in danger** of becoming constricted by geopolitical tensions, and populism is shrinking the room for governments to act.
 - **Rising external debt** (it rose by 6.4% in March 2024 as compared to the previous year)
 - **Accelerating Climate Action** presents new challenges of accelerating growth without causing environmental damage.

Way Ahead

The World Bank report suggests countries aiming for high-income status should follow the 3i strategy: Investment, Infusion of global technologies, and Innovation. However, to achieve the shift from **1i to 2i to 3i 'Creative Destruction'** would play the crucial role.

Investment (1i) for lower-income countries	Investment + Infusion (2i) for Lower MICs	Investment + Infusion + Innovation (3i) For Upper MICs
Economic success in lower-income countries stems largely from accelerating investment . It requires improving the investment climate to increase domestic and foreign investment.	As lower-income countries move to middle-income status , continued progress requires complementing a good investment climate with measures deliberately designed to bring new ideas from abroad and diffuse them across the economy —so-called infusion.	Once a MIC has begun to exhaust the potential of infusion in the most promising parts of its economy—running out of technologies to learn and adopt—it should expand its efforts to become an innovation economy .

About Creative Destruction

- Creative Destruction concept was introduced by economist **Joseph Schumpeter**.
- It refers to process of innovation and technological change that leads to **the destruction of existing economic structures such as industries, firms, and jobs**.
- This **destruction paves the way for new structures** to emerge, thereby creating long-term economic growth and progress.



Other Initiatives that can be taken

- **Human Capital**

- **Skilled Workforce:** Invest in secondary education and vocational training, focusing on including women and marginalized groups for better social mobility.
 - **Atal Innovation Mission (AIM), National Intellectual Property Rights (IPR) Policy 2016**, etc. will play critical role in this direction.
- **Brain Gain:** Leverage the diaspora's expertise and build partnerships with top universities. Focus research funding on strategic areas like STEM, health, and energy.

- **Market reforms**

- **Avoid Blanket Support for Small Firms:** Avoid over-supporting unproductive small businesses, as it can hinder growth and waste resources.
- **Connect with Global Markets:** Open up to foreign investors and global value chains to help domestic firms access larger markets and advanced technologies.
 - Some key initiatives in this direction include '**Buy (Indian)**' and '**Buy and Make (Indian)**' categories of capital acquisition in Defence, PLI Schemes, 100% FDI is allowed in space sector, etc.
- **Strengthen Competition:** Strong anti-competitive agency and antitrust laws can help prevent abuse of dominance by established incumbents and foster the **development of new technologies**.
- **Deepen Capital:** Equity markets can be instrumental in supporting innovative activities, especially in private firms, which typically face larger financing gaps than publicly listed firms.
- **Leverage Digital Technologies:** Digital technologies such as the internet, mobile phones, social media, and web-based information systems can promote both social mobility and talent development
 - For example, digital footprints (like payment histories) created through Aadhar can help people access credit and prove financial credibility.
- **Tackle global headwind:** For example, Middle-income countries should join global low-carbon supply chains, but success depends on advanced economies reducing protectionist trade policies.

Conclusion

India and other MICs need to adopt a well-sequenced and increasingly sophisticated set of policies tailored to their specific circumstances and developmental stage in order to move up the income ladder successfully and avoid middle income trap.

Financial Inclusion And 10 Years of PMJDY

Context:

Recently, India celebrated the **10th anniversary of the Pradhan Mantri Jan Dhan Yojana (PMJDY)**, launched to promote Financial Inclusion in India.



What is Financial Inclusion?

- It means that individuals and businesses have access to **useful and affordable financial products and services** that meet their needs “**transactions, payments, savings, credit and insurance**” **delivered responsibly and sustainably (World Bank)**
- **Objective:** To extend financial services to the large hitherto **un-served population of the country to unlock its growth potential.**

Significance of Financial Inclusion

- **Plugging the Credit gap:** Access to formal and adequate credit from the formal banking channels can fuel the enterprising spirit of the masses in order to create economic output and enhance income levels at the grassroots.
- It **allows MSMEs to access credit**, which can enhance their capacity to grow, generate jobs, and contribute to national GDP.
- **Encouragement of Saving Habits:** With access to banking services, people are **encouraged to save money regularly.**
 - This can help **increase capital formation in the country** and provide an economic boost.
- **Inclusive growth:** Financial inclusion is **critical for poverty reduction** as this helps in transferring the benefits of economic growth and development to the lowest strata of the population.
- It **creates a multiplier effect** by encouraging investment in education and health, driving long-term economic development.
- **Plug the subsidy gaps:** The Government's push for Direct cash transfers to the recipient's bank accounts instead of providing subsidies inefficiently.
 - Saving through Direct Benefit Transfer (DBT) during FY22-23 crossed **â,163,000 crore.**
- **Key enabler for the Sustainable Development Goals (SDGs):** Financial inclusion has been identified as an enabler for **7 of the 17 Sustainable Development Goals.**
 - **For instance,** of the total accounts created through PMJDY, **55.6% of account holders** are women, reflecting the scheme's significant impact on empowering women.

Challenges for Financial Inclusion

- **Demand Side Factors:** Lower income or asset holdings, lack of awareness about the financial products, **high transaction costs, etc.**
- **Supply side challenges:** Financial institutions' **refusal to serve low-value and non-profitable consumers** with uneven income.
- **Digital and Infrastructure Gaps:** The **digital divide, inadequate mobile connectivity, and frequent power failures** particularly in remote areas.
- **Regulatory Barriers:** Regulatory challenges, such as **stringent Know-Your-Customer (KYC)** requirements, make it difficult for low-income individuals to access financial services.
- **Lack of Financial Literacy:** Many potential users lack the basic financial literacy needed to effectively use formal financial services, which can lead to the exclusion of vulnerable groups.



- **For instance**, due to poor financial literacy, around **20% of the PMJDY Accounts are dormant** and approximately **8.4% of the accounts currently have a zero balance**.
- **Gender and Socio-Economic Barriers:** Women and rural populations still face significant barriers to financial access due to **cultural norms, lower levels of literacy, and geographic isolation**.
- **Cybersecurity Risks:** As financial systems increasingly **rely on digital platforms**, they become more vulnerable to cyberattacks, posing risks to the financial security of users.

Way Forward

- **Foster Public-Private Partnerships:** Collaborations between governments, financial institutions, and telecom companies can accelerate financial inclusion.
 - Public policies should encourage **private sector involvement** in providing mobile money services and digital payment platforms.
- **Promote Financial Literacy:** RBI, in coordination with other banks and educational institutions, can ensure financial inclusion as a subject from school to higher levels of education.
- **Leverage Fintech Innovations:** Fintech solutions like mobile banking, digital payments, and alternative credit scoring models can cater to unbanked populations by providing low-cost, scalable financial services.
- **Tailored Financial Products:** Financial institutions can offer customized products suited to the needs of low-income groups, such as microinsurance and pension schemes. **E.g. PM Atal Pension Yojana.**

About PMJDY

- **Genesis: Launched in August 2014**
- PMJDY is a **National Mission for Financial Inclusion (NMFI)** and it is the **world's largest financial inclusion scheme**.
- **Aim: For every Indian, ensure access to financial services**, namely, Basic Savings Bank Deposit Account (BSBDA), remittance, credit, insurance, pension in an affordable manner.
- **Ministry: Ministry of Finance** (Department of Financial Services)
- **Basic Tenets of the Scheme**
 - **PMJDY is made up of six pillars (Refer Infographics)**
 - **Banking the unbanked: Focus on every unbanked adult.**
 - **Opening of BSBDA** with minimal paperwork, relaxed KYC, e-KYC, account opening in camp mode, zero balance and zero charges.
 - BSBDA account can be opened in any bank branch or **Business Correspondent** (Bank Mitra) outlet, by persons not having any other account.
 - PMJDY allows individuals to open small bank accounts, known as **Small Accounts** or **Chota Khata**, without needing to present legal documents.

- **Securing the unsecured:** Issuance of indigenous debit cards for cash withdrawals and payments at merchant locations.
 - **Free accidental insurance cover on RuPay cards** increased from Rs. 1 lakh to **Rs. 2 lakhs for PMJDY accounts** after 28th August 2018.
- **Funding the unfunded:** Other financial products like micro-insurance, overdraft for consumption, micro-pension & micro-credit.
 - **Rs 10,000 Overdraft (OD) facilities** and upper age limit for OD is 65 years.
- **Eligibility for Additional Government Schemes:** PMJDY accounts are eligible for Direct Benefit Transfer (DBT), PM Jeevan Jyoti Bima Yojana (PMJJBY), PM Suraksha Bima Yojana (PMSBY), Atal Pension Yojana (APY) and MUDRA scheme.

Key-achievements under PMJDY

- **Large number of New Accounts:** By August 2024, **53.13 crore Jan Dhan accounts** were opened, whereas by March 2015, it was 14.72 crore accounts only.
- **Boost to digital economy:** 36.14 crore RuPay cards have been issued to **PMJDY account holders**, facilitating cashless transactions and providing access to the inbuilt accident insurance cover.
- **Bridging Financial gaps in rural areas:** Almost 100% of villages are covered with banking outlets within 5 km mapped as per Jan Dhan Darshak App.
- **Average Deposit in PMJDY accounts increased:** By 4.12 times between 2015- 2024, with total deposits exceeding **â,12.3 lakh crore**.
- **Number of zero balance accounts decreased:** To 4.26 crores as against 8.52 crores in 2015.

National Industrial Corridor Development Programme

Context:

The union Cabinet has recently **approved 12 new Industrial nodes/cities** under National Industrial Corridor Development Programme.

More on the news

- The projects are strategically planned **along six major corridors and across 10 states**.
- These industrial areas will be located in **Khurpia in Uttarakhand, Rajpura-Patiala in Punjab, Dighi in Maharashtra, Palakkad in Kerala, Agra and Prayagraj in UP, Gaya in Bihar, Zaheerabad in Telangana, Orvakal and Kopparthi in AP and Jodhpur-Pali in Rajasthan**.
- The new industrial cities will be developed as Greenfield smart cities of global standards, built "**ahead of demand**" on the '**plug-n-play**' and '**walk-to-work**' concepts.

National Industrial Corridor Development Programme (NICDP)

- The National Industrial Corridor Development Programme began with the launch of Delhi-Mumbai Industrial Corridor (DMIC) in **2007**.
- Seeks to create new industrial cities as "Smart Cities"**, where next-generation technologies seamlessly integrate across various infrastructure sectors.
- The industrial corridors will be designed to **accelerate growth** in the manufacturing sector and promote **systematic urbanisation**.
- These corridors will be supported by **robust multi-modal connectivity** and developed in collaboration with State Governments.
- Currently, the National Industrial Corridor Development Corporation (NICDC) oversees **11 industrial corridors** in various stages of development.

Importance/Significance of Industrial Cities

- Attract Investments:** NICDP aims to **cultivate a dynamic industrial ecosystem** and attract investments from domestic and foreign large anchor industries and MSMEs.
- Smart Cities and Modern Infrastructure:** NICDP plans to develop greenfield smart cities, **built ahead of demand**, with advanced infrastructure for sustainable and efficient industrial operations, incorporating 'plug-n-play' and 'walk-to-work' concepts.
- Improving connectivity and transportation:** Projects align with PM GatiShakti National Master Plan, integrating **multi-modal connectivity** infrastructure for seamless movement of people, goods, and services, with industrial cities serving as growth centers.
- Developing India as a key player in Global Value Chains (GVC):** NICDP will offer **developed land parcels ready for immediate allotment**, facilitating domestic and international investors' establishment of manufacturing units.
- Employment Generation:** NICDP is projected to generate significant employment opportunities, potentially **creating 1 million direct and 3 million indirect jobs**.
- Sustainable Development:** The NICDP projects prioritize sustainability, **utilizing ICT and green technologies to minimize environmental impact**, aiming to **create industrial cities that serve as models of environmental stewardship**.

National Industrial Corridor Development Programme (NICDP)



Industrial Corridors

- 1 Delhi-Mumbai Industrial Corridor (DMIC)
- 2 Amritsar Kolkata Industrial Corridor (AKIC)
- 3 Chennai-Bengaluru Industrial Corridor (CBIC)
- 4 Vizag-Chennai Industrial Corridor (VCIC)
- 5 Odisha Economic Corridor (OEC)
- 6 Hyderabad-Nagpur Industrial Corridor (HNIC)
- 7 Hyderabad-Warangal Industrial Corridor (HWIC)
- 8 Hyderabad-Bengaluru Industrial Corridor (HBIC)
- 9 Bengaluru Mumbai Industrial Corridor (BMIC)
- 10 Extension of CBIC to Kochi via Coimbatore
- 11 Delhi-Nagpur Industrial Corridor (DNIC)

Challenges in development of Industrial corridors



- **Disjointed economic/industrial planning and urban planning:** Existing cities are unprepared for potential impacts of industrial corridors, and local governments are largely excluded from the planning process.
 - Eg: Limited involvement of city planning authorities in Delhi-Mumbai Industrial Corridor planning.
- **Governance: Special Purpose Vehicles (SPVs) operate independently of local governing bodies** leading to the **absence of clear demarcation of jurisdiction or responsibilities** between the involved institutions.
 - E.g. **Tumakuru Industrial Township Limited**, a SPV operates independently of local panchayats, municipal corporations, or town planning departments.
- **Institutional Capacity: Long gestation period** for new cities to emerge and become fully functional.
 - **Insufficient capacity and training among staff** to manage upcoming urban transformation.
- **Land Acquisition:** The **India Infrastructure Report 2009** highlighted that **70 per cent of delays** in infrastructure and other development were caused **due to issues related to land acquisition**.
- **Conversion of land from agriculture to non-agricultural use:** It is **important to preserve fertile agricultural land**, as once farm land is converted for urban industrial use, it is irreversible the **land cannot be reconverted for farming**.
- **Environmental Concerns:** Potential **strain on existing water resources**, particularly in water-scarce regions.

Way forward

- **Involve local authorities and communities in planning processes** to address site-specific challenges.
- **Coordinate efforts** among multiple state and non-state actors, including SPVs and industrial stakeholders.
- To faster land acquisition, farmers should be included in benefits from the projects by **allotting small parcels of land around the projects** and paying **higher compensation rates than market rates**.
- Need for a **robust system to assess long-term implications of land conversion** and more **scattered spatial small clusters** of industrial landscapes **to reduce loss of fertile land**.
- **Establishing a robust framework for cooperation** between central and state governments will facilitate better planning and execution of industrial corridors.
- **Utilizing advanced technologies for project management** and monitoring can improve efficiency, reduce costs, and enhance transparency in execution

Other initiatives related to infrastructure development

- **Special Economic Zones (SEZ):** The Special Economic Zones (SEZs) policy, launched in 2000, envisages a **duty-free enclave, with no import license requirements, tax and other benefits**.
- **National Investment Manufacturing Zones (NIMZ):** NIMZs are envisaged as **large areas of developed land with the requisite eco-system** for promoting world class manufacturing activity.



- **Industrial parks:** An industrial park is a **designated, planned, and zoned area within a city for industrial development.**

Vadhvan Port

Context:

Prime Minister Narendra Modi laid the foundation stone for Vadhvan Port in Maharashtra's Palghar.

About Vadhvan Port

- Located near **Dahanu town in Palghar district in Maharashtra.**
- It will be established as the **13th Major port** in the country.
- It will be the **country's largest container port** and one of India's largest deep-water ports.
- The Project will be constructed by **Vadhavan Port Project Limited (VPPL), a Special Purpose Vehicle.**
 - VPPL is formed by **Jawaharlal Nehru Port Authority (JNPA)** and **Maharashtra Maritime Board (MMB)** with a **shareholding of 74% and 26%, respectively.**
- The initiative aims to establish a **global maritime hub** that will boost the country's trade and economic growth by accommodating large container vessels and ultra-large cargo ships.

Significance of Vadhvan Port

- **Large Capacity:** It is expected to handle 254 million tonnes of cargo annually, making it one of India's largest container port.
- **Can accommodate very large container ships:** The port, with a natural draft of approximately 20 meters, will accommodate large container ships that are currently unable to dock at most Indian ports.
- **Modern port infrastructure:** Equipped with state-of-the-art technology and infrastructure like deep berths and advanced cargo handling systems.
- **Expected to generate employment opportunities and stimulate local businesses:** Due to its proximity to the Western Freight Corridor and the Delhi-Mumbai Expressway it will create new business opportunities and warehousing opportunities.
- **Aid trade flow and enhance India's maritime connectivity and global trade hub status:** As it would act as a gateway for the IMEEC (India Middle East Europe Economic Corridor) and INSTC (International North South Transportation Corridor).
- **Reducing transit times and costs:** By providing direct connectivity to international shipping routes.
- **Priority to sustainability:** It incorporates sustainable development practices and stringent ecological standards, aiming to minimize environmental impact.

India's Port sector

- India is the **16th largest maritime country** in the world.

Download Our Application



Freedom UPSC with **Dhananjay Gautam**

Page No

46



- Indian Maritime Sector contributes to **95% of India's trade by volume and 70% by value**.
- According to **World Bank's Logistics Performance Index**, India **ranks 22nd** in the International Shipment category, with a better "Turn Around Time" of 0.9 days compared to the USA, Australia, and Singapore.
- The Indian port sector is divided into two segments: major ports and non-major ports.
 - India has 12 major ports (13th Vadhvan and 14th Galathea) and 200+ non-major ports.
- The **Ministry of Ports, Shipping & Waterways** controls major ports in India:
 - Chennai, Cochin, Deendayal (Kandla), Jawaharlal Nehru (Nhava Sheva), Kolkata, Mormugao, Mumbai, New Mangalore, Paradip, Visakhapatnam, VO Chidambaranar (Tuticorin), and Kamarajar Port Ltd.

Major Ports	Minor Ports
<ul style="list-style-type: none"> Major ports are administered directly by central government. The Major Port Authorities Act, 2021 provides for regulation, operation and planning of major Ports in India. Major ports are run by respective port authorities on a landlord model. Private Sector participation in Major Ports <ul style="list-style-type: none"> Allowed for specific projects through concession agreement. Asset is handed over to Port Authority after concession period expiry. 	<ul style="list-style-type: none"> Non-major ports fall under the jurisdiction of state governments. Non-major ports are governed under the Indian Ports Act, 1908. These ports come under the purview of the respective state governments and regulated by state departments, or the state maritime boards. The State Maritime Boards/State Government enters into a concession agreement with the private operator to develop and operate the minor port in Public Private Partnership (PPP).

Persistent Issues in India's Port Sector

- Financial Challenges:** Difficulty in accessing financing from banks and financial institutions, deterring private sector participation.
- Regulatory and Approval Issues:** Delays in obtaining government approvals and environmental clearances
- Infrastructure and Connectivity Problems:** Inadequate-road networks within port areas and poor hinterland connectivity and Lack of basic infrastructure in **remote locations** for greenfield projects
- Labor and Productivity Issues:** Overstaffing with **unskilled and untrained labor** in major ports and Frequent **labor strikes**
- Operational Inefficiencies:** Outdated port designs inadequate to meet needs for quick turnaround and increased cargo volumes



- **Existing Port Upgradation:** High costs associated with upgrading older, government-owned ports and there is resistance to change in government-controlled port operations.
- **Dredging issues:** The dredging sector in India faces operational challenges such as lack of standardization, outdated equipment, inefficient soil investigation, and a shortage of trained personnel.
 - Dredging is a routine necessity in waterways around the world because sedimentation is the natural process of sand and silt washing downstream, gradually fills channels and harbors.

Way forward

- **Port Modernisation:** Increase cargo handling capacity by:
 - **Enhancing the minimum draft** (minimum depth of water needed by a vessel for safe navigation) of Indian ports through dredging
 - By implementing **modern cargo handling techniques**.
- **Enhancing connectivity by:** Conducting environmental impact assessment before releasing funds for connectivity projects to avoid project delays.
 - **Linking private ports with major and minor ports.**
- **Encouraging Public Private Partnership (PPP) Projects by:**
 - **Rationalising taxes** to attract foreign shipping companies
 - **Providing financing to private sector** for modernisation of non-major ports
 - **Creating a specialised maritime fund** for supporting inland waterway operations and vessel financing through PPP mode
- **Clearances:** Fixing timeframe for timely regulatory clearances and setting up a single window approval system for PPP projects.
 - **Rationalise documentation**, process all documents through a common digital platform proposed as "National Portal for Cargo Facilitation".

Initiative taken for port sector in India

- **Sagarmala Programme:** Launched in March 2015, aims to reduce logistics costs for foreign and domestic trade, optimize container movement, and enhance export competitiveness.
- **Maritime Amrit Kaal Vision 2047:** Developed by the Ministry of Ports, Shipping & Waterways, it aims to develop world-class ports, promote inland water transport, coastal shipping, and a sustainable maritime sector.
 - It includes over 300 actionable initiatives to enhance ports, shipping, and waterways by 2047, based on over 150 consultations and international benchmarks.
- **National Logistics Portal (Marine):** It is an IT platform that enhances efficiency, transparency, and reduces costs and delays by connecting stakeholders in the logistics sector.
- **Sagar Manthan:** It is a digital platform providing real-time performance monitoring dashboard for the Ministry and its organizations, enabling the tracking of projects, KPIs, and financial parameters.



- **SAGAR-SETU:** It is a mobile app that enhances the Ease of Doing Business by providing real-time port operations, monitoring, and access to vessel, cargo, container, finance, and regulatory authority data.

Related News: Galathea Port

The Central Government notified the Galathea Port in exercise of the powers conferred by **section 5 of the Indian Ports Act, 1908**.

- It is being developed as an **International Container Transshipment Port (ICTP)** and will be the **14th Major Port of India**.
 - A **transshipment port** is a hub or location where **cargo is transferred from one vessel to another** for further **transportation to its final destination**.

Significance of ICTP at Galathea Bay in Andaman & Nicobar

- **Economic:**
 - ICTP at Galathea Bay would facilitate **EXIM trade as it lies on an International shipping route**.
 - Presently, nearly **75% of India's transshipped cargo is handled at ports outside India**. E.g., Colombo, Singapore and Klang.
 - The project will ensure **forex savings, foreign direct investment, increased economic activity at other Indian Ports**, etc.
- **Strategic:** The transshipment port will be close to the **choke points like Malacca Strait** and the **East-West shipping route** connecting **Europe, Africa, and Asia**.

PM E-DRIVE Scheme

Context:

Ministry of Heavy Industries has notified PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) Scheme.

More about the News

- PM E-DRIVE Scheme builds upon previous initiatives such as the **Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME-I)**, 2015 and **FAME-II** (2019) programs.
- **Electric Mobility Promotion Scheme 2024 (EMPS-2024)** has been also subsumed under it.
 - EMPS 2024 was launched in July 2024 for faster adoption of electric two-wheeler (e-2W) and three-wheeler (e-3W).

About PM E-DRIVE Scheme

Download Our Application



Freedom UPSC with **Dhananjay Gautam**



- **Objective:** Expedite the adoption of Electric Vehicles (EVs) by providing upfront incentives for their purchase, as well as by facilitating the establishment of essential charging infrastructure for EVs.
 - Also, it aims to promote EVs to reduce the environmental impact of transportation and improve air quality.
- **Fund Allocation:** Rs 10,900 crore
- **Time Period:** 2024-26
- **Targets:**
 - Support e-2Ws, e-3Ws, and e-buses
 - Installation of 22,100 fast chargers for e-4Ws, 1800 fast chargers for e-buses and 48,400 fast chargers for e-2W/3Ws.
- **Nodal Ministry:** Ministry of Heavy Industries
 - **Project Implementation and Sanctioning Committee (PISC)**, an Inter-ministerial empowered committee, headed by Secretary (Heavy Industries) is constituted for overall monitoring, sanctioning and implementation.

Key Features of the scheme

- **Subsidies:** Demand incentives for consumers (buyers/end users) to purchase certain categories of EVs (refer to the infographic).
 - **Aadhaar authenticated e-Vouchers** for EV buyers will be generated through PM E-DRIVE app/portal to reduce the upfront purchase price of EVs.
 - The amount will be reimbursed to the original equipment manufacturer (OEM) by the Government of India.
 - **Proposed incentive** (based on battery capacity i.e. energy content measured in kWh): **5,000 per kWh in FY 2024-25** and **â,¹2,500 per kWh in FY 2025-26** for e-2W and e-3W categories (both capped at 15% of ex-factory price).
- **Grants for creation of capital assets:** Includes **e-buses**, establishment of a network of **Electric vehicle public charging stations (EVPCS)** & upgradation of **identified testing agencies**.
 - Support for e-buses will be provided through **State/ city transport undertakings (STUs)** on operational expenditure (OPEX)/ gross cost contract (GCC) model.
 - e-buses with **ex-factory price less than â,¹2 crore** will be incentivised.
 - EVPCS shall be installed in the **selected cities (9 cities initially like Mumbai, Delhi, Bangalore, etc) with high EV penetration** and also on selected highways.
 - Charging infrastructures will be established as per Ministry of Power (MoP) "**Guidelines for Installation and Operation of Electric Vehicle Charging Infrastructure-2024**" and further amendments (refer box).



- **Project management agency (PMA):** The Scheme shall be implemented through a PMA, which shall be responsible for providing secretarial, managerial and implementation support.
- **Other important Features:**
 - **Phased Manufacturing Programme (PMP)** has to be followed by OEMs and EV charging infrastructure/ public charging stations to be eligible for support.
 - Incentive/ grant payable under the Scheme are independent of and in addition to incentives given under **production linked incentive (PLI) scheme for automobile and auto components industry** (PLI-Auto) and PLI scheme for advanced chemistry cell (PLI-ACC).
 - Encourages **states to offer fiscal and non-fiscal incentives**, such as road tax concessions, toll exemptions, and parking fee reductions to further promote EV adoption.

About Guidelines for Installation and Operation of Electric Vehicle Charging Infrastructure-2024

- **Objective:** To drive EV adoption by making charging stations safe, reliable and accessible; etc.
- **Key features of the 2024 guidelines:**
 - **Implementation Mechanism:** Bureau of Energy Efficiency (BEE) will act as the Central Nodal Authority to monitor the implementation.
 - **Coverage:** These guidelines shall be applicable to
 - **Public spaces:** Commercial complexes, railway stations, petrol pumps, airports, metro stations, etc.
 - **Private Space:** Office buildings, educational institutions, hospitals, etc.
 - **Provision of public land for Public Charging Stations (PCS)**
 - Government/Public entities shall offer land for the installation of PCS at a subsidized rate to the Government/Public /Private Entity.
 - This will be based on a **revenue-sharing model** where the **land-owning agency** receives 1 per kWh of electricity used for charging at the station.
 - **Location of PCS:**
 - By 2030, there should be at least one charging station within a 1 km x 1 km grid in urban areas.
 - Along highways, charging stations will be placed every 20 km for regular EVs and every 100 km for long-range and heavy-duty vehicles like buses and trucks.
 - **Centralized Platform:** BEE, in collaboration with **State Nodal Agencies (SNAs)**, will maintain a national database of PCS nationwide.
 - **Other:**
 - All EV Supply Equipment shall comply with **Bureau of Indian Standards (BIS)** standards.
 - Tariffs will be lower during **solar hours**, promoting the use of renewable energy for EV charging.



- Also, the cost of electricity at charging stations will not exceed the 'Average Cost of Supply' until March 2028.

Related News: PM-eBus Sewa-Payment Security Mechanism (PSM) scheme

- Cabinet has approved **PM-eBus Sewa-Payment Security Mechanism (PSM)** scheme for procurement and operation of e-buses by **Public Transport Authorities (PTAs)**.
- **Key features of the scheme-**
 - Supports deployment of more than **38,000 e-Buses from 2024-25 to 2028-29**.
 - Operation of such buses will be supported for a period of up to **12 years from the date of deployment**.
 - **Public Private Partnership on Gross Cost Contract (GCC) model**.
 - PTAs are not required to pay the upfront cost of the bus
 - Original equipment manufacturer (**OEM**)/operators procure and operate e-buses for PTAs with monthly payments.
 - Timely payments to OEMs/operators to be ensured through a dedicated fund.
 - **Implementing agency:** Convergence Energy Services Limited (**CESL**)

Voluntary Vehicle Modernization Program

Context:

Recently, Union Ministry of Road Transport and Highways (MoRTH) launched the **Voluntary Vehicle Modernization Program** or **Vehicle Scrapping Policy**.

More on the News

- Program aims to **create an ecosystem for phasing out unfit polluting vehicles** across the country through a network of Registered Vehicle Scrapping Facilities (RVSFs) and Automated Testing Stations (ATSS).
- Under this, multiple commercial and passenger vehicle manufacturers would offer **discounts for a period of two years and one year respectively against a Scrappage Certificate**.
- Previously, **Union Government announced Vehicle Scrapping Policy in 2021** to gradually phase out the vehicles which are more than 15-20 years old to reduce air pollution, improve road safety, and boost vehicle sales.

Key Highlights of the Voluntary Vehicle Modernization Program

- **Circular Economy:** It aims to create a **circular economy** in the automotive sector by promoting recycling and reducing raw material consumption.



- Vehicles that fail the fitness test will be scrapped, and owners will receive a **Certificate of Deposit (Scrappage Certificate)** as proof, which can be used to avail of discounts on purchasing new vehicles.
- **Incentives for Scrapping:**
 - Manufacturers have announced various incentives to encourage vehicle scrapping:
 - **Commercial Vehicle Manufacturers** offer **discounts up to 3%** of the ex-showroom price.
 - **Passenger Vehicle Manufacturers** offer **discounts of 1.5% of the ex-showroom price**.
 - These discounts are over and above the **scrap value** provided by RVSFs and government incentives like **Motor Vehicle Tax** concessions and **waivers on registration fees**.

Significance of Scrapping of Old Vehicles

- **Environmental:** Older vehicles typically have outdated technology and poor fuel efficiency, which leads to higher emissions of pollutants like carbon dioxide (CO₂), nitrogen oxides (NO_x), and particulate matter (PM).
 - Scrapping them reduces air pollution, helping to **combat climate change and improve urban air quality**.
- **Economic:** It will also encourage people to purchase new vehicles, thereby stimulating demand in the automobile industry.
- **Circular economy:** Scrapping of old vehicles allows for the recovery of valuable materials like steel, aluminum, copper, rubber, etc., reducing the need for mining and manufacturing raw materials.
- **Road safety:** Removing older vehicle, which lack modern safety features, from the roads increases the overall safety of transportation systems by reducing the likelihood of accidents caused by faulty vehicles.
- **Regulatory compliance:** By scrapping older vehicles, India's vehicle fleet can better comply with the revised emission standards under the BS-VI norms.

Challenges for effective Vehicle scrapping in India

- **Inadequate infrastructure:** Absence of a well-established network of authorized recycling centers and dominance of unorganized sector, where scrapping is often carried out in environmentally unsafe conditions, leading to health hazards and improper waste management.
- **Poor integration with circular economy:** Absence of clear recycling supply chains where materials from scrapped vehicles are effectively recycled into the production of new vehicle and other goods result in inefficiencies and hinder effective price-realization.
- **Awareness and participation:** Many vehicle owners are unaware of the environmental and economic benefits of scrapping their old vehicles, sentimental attachment of owners to their old vehicles, etc., restricts voluntary vehicle scrapping.



- **Economic constraints:** Perceived low resale value of older vehicles and high cost of buying new, fuel-efficient vehicle become prohibitive without sufficient financial support.
- **Weak enforcement:** Inadequate checks and corruption at local levels often lead to fake certification for old vehicles, allowing them to bypass regulations and remain on the road.

Way Forward

- **Build scrapping infrastructure:** Encourage PPP in setting up scrapping facilities, build an integrated supply chain for recycled materials from scrapped vehicles, etc.
- **Simplified vehicle scrapping process:** Enable scrapping centers to offer a one-stop service for vehicle owners, handling processes from deregistration of the vehicle to recycling the materials to reduce bureaucratic hurdles and makes the process more efficient.
- **Strengthened enforcement:** Implement regular and strict emission testing for older vehicles, centralized system for tracking vehicles that have exceeded their permissible age, etc.
 - Integrate management of **Electric End-of-Life Vehicles (ELVs) and batteries** from the outset to ensure sustainability, safety, and environmental responsibility.
- **Public awareness:** Collaborate with local communities, NGOs, and vehicle associations to spread awareness and facilitate the scrapping process.

Minerals Security Partnership Finance Network

Context:

Recently, **India joined the US-led Minerals Security Partnership (MSP) Finance Network** to secure sustainable supply chains for critical minerals.

More on the News

- India's participation in MSP Finance Network is part of its broader effort to **diversify and secure its supply of critical minerals**.
- It also aims to **reduce dependency on China**, which currently dominates global critical mineral supply chains.

What is MSP Finance Network?

About Mineral Security Partnership

- **Genesis:** Launched in 2022.
- **Objective:** To facilitate **public and private sector investments** in strategic critical minerals projects to help build more **secure, diverse, and sustainable critical mineral supply chains**.
- **Members:** It includes **14 countries** and the **European Union**, which **collectively account for over 50% of Global GDP**.
 - **India joined in 2023.**



- Investments by MSP are not limited to projects in MSP partner countries.

- An initiative of the **Minerals Security Partnership**, it is a **joint financing body** designed to **fund critical minerals projects across the globe**.
- **Objectives:** To unite institutions from the Indo-Pacific region and Europe to **strengthen cooperation, promote information exchange and co-financing** among participating institutions, with the aim of advancing **diverse, secure, and sustainable supply chains for critical minerals**.
 - It will also drive **sustainable investment in global critical mineral supply chains**, including by **mobilizing private sector capital**, in production, extraction, processing, recycling, and recovery projects.
- **Members: 14 countries including India** and the **European Commission**.
 - It also includes the US International Development Finance Corporation (DFC), European Investment Bank (EIB), Japan International Cooperation Agency (JICA), among others.

What are Critical Minerals?

- These minerals are **building blocks of essential modern-day technologies** and are **at risk of supply chain disruptions** due to limited global production and geopolitical factors.
 - **e.g., Lithium, cobalt, nickel, copper, rare earth elements, etc.**
- Government of India has released a **list of 30 critical minerals** for India.
 - These minerals are - Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium, and Cadmium.

What are the challenges in securing Critical Minerals for India?

- **Limited domestic reserves:** India lacks significant deposits of many critical minerals within its territory necessitating heavy reliance on imports and exposing to supply chain vulnerabilities.
 - **Low private investment, limited technological expertise, and evolving regulations** further hinder domestic production of critical minerals.
- **Geopolitical complexities:** **e.g.,** Democratic Republic of Congo supplies ~70% of the world's cobalt, but political instability there has led to supply disruptions affecting industries relying on cobalt for batteries and alloys.
- **Global competition and supply chain vulnerabilities:** **e.g.,** China controls ~85% of global rare earth element processing capacity and ~60% of critical minerals production, resulting in a virtual monopoly over critical minerals for high-tech manufacturing.
- **Environmental Concerns:** Mining and processing of critical minerals often have significant environmental footprint resulting in protests from local population and environmental groups.
- **Inadequate recycling infrastructure:** Recycling of critical minerals from e-waste and spent technologies is underdeveloped, with the sector remaining largely unorganized and inefficient.



Way Forward

- **Establish a National Institute/Centre of Excellence on Critical Minerals:** Set up a Centre of Excellence for Critical Minerals (CECM) under the Ministry of Mines to focus on critical mineral research, discovery, and innovation, modeled after Australia's CSIRO.
- **Boost domestic processing capabilities:** Establish **Special Economic Zones (SEZs) focused on critical mineral processing** and value addition.
 - Implement a **"Green Channel"** for quick approvals of critical mineral projects, with stringent but efficient environmental and social impact assessments, etc.
- **Promote Circular Economy in critical mineral recovery:** Setting up state-of-the-art e-waste recycling facilities in urban centres, introducing a nationwide "Recycle for Resources" campaign to increase public awareness and participation in e-waste recycling, urban mining, etc.
- **Public-Private Partnerships:** Establish joint ventures with global Original Equipment Manufacturers (OEMs) and mining companies to build resilient value chains and achieve India's green energy goals.

Steel Sector in India

Context:

Recently, the Government set a target of **500 million tonnes of steel production by 2034**.

About the Steel Sector in India

- Steel has traditionally occupied a **top spot among metals** and one of the **primary forces behind industrialization**.
- Steel is an alloy of iron and carbon containing less than 2% carbon and 1% manganese and small amounts of silicon, phosphorus, sulphur and oxygen. (with higher carbon content, it is known as **cast iron**)
- **Growth of the sector is driven by domestic availability of raw materials such as iron ore** (fifth-highest reserves of iron ore), **cost-effective labour** (e.g. Durgapur in West Bengal), and **increased infrastructure construction** and the thriving automobile and railways sectors.
- **Other Location Factors of Steel Industry in India:** **Access to water** (e.g. Tata Steel in Jamshedpur near the Subarnarekha River), **Proximity to Markets** (e.g. Bhilai plant in Chhattisgarh) and **Transportation** (e.g. Vizag Steel Plant in Andhra Pradesh near Visakhapatnam Port).

What are the major challenges faced in the Steel sector in India?

- **Lack of Capital:** Steel is a **capital-intensive sector**. Nearly INR 7,000 crore is required to set up 1 tonne of steel-making capacity through the greenfield route.
- **Steel demand is cyclical.** So, during a downturn, the **return on investments gets eroded**.
- **High Logistics Costs:** NITI Aayog estimates the freight cost from Jamshedpur to Mumbai can be as high as USD 50/tonne in comparison with USD 34/tonne from Rotterdam to Mumbai.



- **Lack of Raw Material:** Although India has abundant reserves of iron ore and coal, it has **negligible reserves of coking coal**.
 - India largely fulfils its coking coal requirements through costly **imports from Australia**.
- **Low per capita consumption:** Per capita finished steel consumption in 2023 was 219.3 kg for the world and 628.3 kg for China. The same for India was **97.7 kg in 2023-24**
- **Extremely energy-intensive industry:** Steel in the world is the largest carbon-emitting manufacturing sector. Hence, it has a **high level of carbon footprint**.
- **Challenges in export:** E.g., India's major iron and steel exports to the European Union (EU) will face threat due to **the imposition of carbon tax** ranging from **19.8% to 52.7%**.

What are the initiatives taken by the government to promote the steel sector?

- **National Steel Policy, 2017** envisages **300 million tonnes (MT) steel-making capacity** and **160 kg per capita steel consumption by 2030-31**.
- **'Make in India' initiative, supported by the PM Gati-Shakti National Master Plan:** To intensify engagement with key sectors including Railways, Defence, Housing, etc. to **boost steel usage**.
- **Production-linked incentive (PLI) scheme for speciality steel:** to stimulate the production of specialty steel within India and to reduce imports by attracting significant capital investment.
- **Mission Purvodaya:** Accelerated development of eastern India (Odisha, Jharkhand, Chhattisgarh, West Bengal, and Andhra Pradesh) through the establishment of integrated steel hub in Kolkata.
- **Revamped Steel Import Monitoring System (SIMS) 2.0:** intended to more effectively monitor steel imports and address concerns affecting the domestic steel industry.

Way Ahead

- **Policies needed to decarbonise the sector:** Need for **investment in cleaner technologies** such as **electric arc furnaces and green hydrogen** to reduce the steel industry's carbon footprint.
- **Technological Advancements: Investment in R&D** is crucial for improving efficiency and product quality.
 - Industry 4.0 technologies such as **Automation, AI, and machine learning** can enhance productivity and enable the Indian steel industry to meet domestic and global demands.
- **Product Diversification:** Such as **advanced structural steels for construction, specialized alloys for automotive and aerospace applications**, etc.

Related Article

Decarbonising the steel sector

- Minister of Steel and Heavy Industries released a Report **"Greening the Steel Sector in India: Roadmap and Action Plan"**
 - The report was prepared on the basis of 14 Task Forces constituted by Ministry.
- **Green Steel:** Although the Indian government has not clearly defined "green steel", **it can be understood that Green steel is the manufacturing of steel without the use of fossil fuels**.

Download Our Application



Freedom UPSC with **Dhananjay Gautam**

Page No

57



- **CO₂ emission intensity of the Indian steel sector** has been reduced from around 3.1 tonnes of CO₂ per tonne of crude steel in 2005 to around 2.5 tonnes of CO₂ per tonne of crude steel in 2022

Initiatives to decarbonise steel sector

- **Perform, Achieve and Trade (PAT) scheme:** Part of the National Mission for Enhanced Energy Efficiency, it incentivizes the steel industry to reduce energy consumption.
- **Steel Scrap Recycling Policy 2019:** provides a framework to **facilitate and promote establishment of metal scrapping centres** for scientific processing and recycling of ferrous scrap.
- **National Green Hydrogen Mission (NGHM),** under which the Ministry of Steel has been allocated 30% of the pilot project budget to promote the use of **green hydrogen in steelmaking.**
- **The Carbon Credit Trading Scheme (CCTS):** to reduce or avoid greenhouse gases emissions from various sectors of Indian economy by **pricing the emissions through a carbon credit certificate trading mechanism** including the steel sector.

India's Dairy Cooperative Sector

Context:

In a major push to transform India's dairy cooperative sector, Ministry of Cooperation launched Standard Operating Procedure for 'White Revolution 2.0.'

Key Objectives of White Revolution 2.0

- **Increase milk procurement by dairy cooperative societies:** Aim is to increase the procurement by 50% over the next five years increasing the milk procurement to **1,000 lakh kilograms per day by 2029.**
- **Strengthen women Farmer:** To make women **self-reliant and empowered** in rural areas through **employment, and fight against malnutrition etc.**
- **Strengthen Dairy Infrastructure:** The targets of White Revolution 2.0 have been subsumed under the Central Sector Scheme **National Programme for Dairy Development (NPDD) 2.0.**
 - Financial assistance under **NPDD** is provided for setting up of **village level milk procurement system, milk chilling facilities for quality milk procurement to strengthen dairy infrastructure**
- **Boost Dairy Exports:** Through indigenous production of testing equipment, bulk milk collection and dairy infrastructure.
- **Financial Inclusion:** Announcement of nationwide expansion of the '**Cooperation among Cooperatives**' Initiative, was also done which has been successfully piloted in Gujarat.



- The programme will provide **interest-free cash credit** to dairy farmers through **RuPay-Kisan Credit Cards** and **distribute micro-ATMs to dairy cooperative societies**, bringing banking services to farmers' doorsteps.

About White Revolution

- "White Revolution" in India refers to the successful implementation of operation flood, a dairy development program launched in 1970 to make India **self-dependent in milk production**.
- Spearheaded by **India's National Dairy Development Board (NDDB)**, It is the **most extensive dairy development initiative globally**.
- The movement was led by visionary **Dr. Verghese Kurien**, father of India's White Revolution.
 - Every year, **on November 26th**, India observes **National Milk Day** in commemoration of the birth anniversary of Dr. Verghese Kurien.
- **Operation Flood was implemented in three phases:**
 - **Phase I (1970-80):** Linked 18 milksheds to 4 major cities (Delhi, Mumbai, Kolkata, Chennai).
 - **Phase II (1981-1985):** Established 43,000 village cooperatives, boosting milk powder production from 22,000 to 140,000 tons.
 - **Phase III (1985-1996):** Added 30,000 new cooperatives emphasised on research and development in animal health etc.

Importance of Cooperatives in Dairy Sector

- **Promoting Economic Empowerment of Farmers:** Cooperative societies like Amul and Nandini have provided equitable wealth distribution, reducing economic inequality among farmers.
- **Market Access:** Cooperatives facilitate market access for small farmers, enhancing their **collective bargaining power** and enabling them to reach consumers more effectively.
- **Supporting Women's Empowerment:** By increasing women's representation in the dairy sector, cooperatives contribute to their economic independence. **35% of participants in dairy cooperatives are women.**
- **Facilitating Financial Inclusion:** Cooperative banks offer low-interest loans, improving access to credit for farmers and members.
- **Crisis resilience and risk mitigation:** Cooperatives offer crisis resilience and risk mitigation by **providing a support network during economic downturns and reducing vulnerability** to market fluctuations.

Challenges Faced by India's Dairy Cooperatives

Successful cooperative models are primarily found in Maharashtra, Gujarat, and parts of Kerala. Other regions have struggled to replicate this success. Some of the key reasons for this are as follows

- **Financing:** Huge constraints are faced by cooperatives in alluring investments since cooperatives rely upon member contributions or loan capital, unlike firms/corporations that primarily rely on equity capital.

- **Hurdles in creating milk grid:** Domestic milk production units are scattered and partitioned by uneven terrain, constraining the development of a grand superstructure for a milk grid. The procurement price received by rural producers is further eroded by inefficiencies and diseconomies of scale. The cost of transportation and processing too is higher
- **Challenges faced by dairy farmers:** low milk prices, high feed costs, unstable markets, inadequate veterinary services, equipment for milking, cow dung management, and tracking and storing of records.
 - Farmers who have tracts of irrigated land possessed greater comparative advantages, to the many disadvantages of the landless.
- **Consumer preference and market dynamics:** Changing consumer needs, increased regulation, competition in the market, and volatile weather are some other challenges faced by milk cooperatives.

Initiatives taken to strengthen Dairy Sector

- **Rashtriya Gokul Mission:** It is being implemented for development and conservation of indigenous bovine breeds
- **National Programme for Dairy Development:** It aims to enhance quality of milk and milk products and increase share of organized milk procurement by strengthening of infrastructure.
- **Livestock Health & Disease Control Programme (LHDCP):** To improve the animal health sector by way of implementation of prophylactic vaccination programmes
- **Animal Husbandry Infrastructure Development Fund:** It incentivizes investments by entrepreneurs, private companies etc. to establish dairy processing and value addition infrastructure.
- **Kisan Credit Cards (KCC):** Available to livestock and dairy farmers for enabling easy and increased access of institutionalized credit facility.

Way ahead

Following initiatives could make India's dairy cooperatives more efficient and competitive

- **Technological Integration:** Milk cooperatives should integrate with information and communication technologies (ICT) for smoother operations.
 - **Establish cyber stores** at key locations and create customer databases to segment the market and improve sales targeting.
 - Introduce a **web-based business-to-business system for rural cooperatives**, enabling easier transactions with dealers and stockists.
- **Efficient Milk Processing**
 - **Focus on Quality & Safety:** Ensure quality milk procurement while maintaining high food safety and quality standards.
 - **Cold Chain Infrastructure:** Develop a robust cold chain infrastructure to maintain milk quality and ensure smooth transportation.



- **Brand Building & Promotion:** Improve brand recognition through online promotion strategies, interactive websites, and creative marketing, such as food preparation guides or quizzes to capture consumer interest.
- **Boosting Exports**
 - **Competitiveness:** Build confidence in domestic dairy brands by improving their competitiveness against international brands.
 - **Business Approach:** Farmers should manage dairy cooperatives with a business mindset, focusing on profitability and sustainability.
 - **Exclusion from FTAs:** Advocate for the exclusion of dairy from free trade agreements (FTAs) to protect domestic producers from international competition.

Conclusion

By leveraging the cooperative model, India's dairy sector can transform its potential into reality, positioning the nation as a leading exporter of dairy products on the global stage.

Other Short News

Perpetual Bonds

India's first additional Tier I (AT-1) perpetual bond was issued after recent rule changes to make them more appealing.

Perpetual bonds:

- They are **fund-raising instruments** that do **not carry any maturity date** as bonds usually do.
- Instead, they offer to **pay their buyers a coupon or interest at a fixed date for perpetuity**.
- Investors can **get the principal back by selling** the bond in the **secondary market**, or when the issuer decides to **redeem** the bonds.
- These bonds have an **obligation only to pay interest** and are not required to repay the debt.

Windfall Tax

The Centre has reduced the windfall tax on domestically produced crude oil.

About Windfall Tax

- A windfall tax is a tax **imposed by governments on certain industries that experience significantly above-average profits** due to favorable economic conditions.
- The purpose is to **redistribute excess profits in one area to raise funds** for the greater social good.
- Governments **justify** the tax by asserting that these **profits are not solely due to the taxed entity's efforts but also due to external factors**.



Agriculture Infrastructure Fund

Union Cabinet approved **progressive expansion in Central Sector Scheme** of financing facility under 'Agriculture Infrastructure Fund (AIF)' to make it more **attractive, impactful, and inclusive**.

Key highlights of the recent expansion of AIF

- **Viable Farming Assets:** To allow all eligible beneficiaries of scheme for creation of infrastructure covered under 'viable projects for building community farming assets'.
- **Integrated Processing projects:** To include integrated primary and secondary processing projects in list of eligible activities under AIF.
- **PM KUSUM Component-A:** To allow convergence of Component-A of PM-KUSUM with AIF for farmer/group of farmers/ Farmer Producer Organizations/ Cooperatives/ Panchayats.
- In addition to **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE)**, now **NABSanrakshan (wholly owned subsidiary of NABARD)** has also been proposed to **extend AIF credit guarantee coverage of FPOs**.

About Agriculture Infrastructure Fund (AIF)

- It is a **medium - long term debt financing facility** for investment in viable projects for **post-harvest management infrastructure** and **community farming assets** through **interest subvention and credit guarantee support**.
- **₹ 1 Lakh Crore** will be provided by banks and financial institutions as loans with **interest subvention of 3% per annum** and credit guarantee coverage under CGTMSE for loans up to **₹ 2 Crores**.

SPICED Scheme

The Union Ministry of Commerce and Industry recently approved SPICED Scheme.

About SPICED Scheme

'Sustainability in spice sector through progressive, innovative and collaborative interventions for export development' (SPICED) is a Spices board scheme.

- **Aim:** To **expand the area under cardamom** and increase productivity of **small and large cardamom**, export promotion, capacity building & skill development of stakeholders, etc.
- **Major components of the scheme:** Improving productivity, post-harvest quality upgradation, market expansion efforts, trade promotion, technology interventions, research and capacity building, and skill development.
- **Implementation** during the remaining term of the 15th Finance Commission (from 2023-24 to 2025-26).

About Cardamom

- Cardamom is commercially cultivated for its dried fruits (capsules)
- **Small Cardamom:**



- **Native:** Indigenous to the **evergreen forests of Western Ghats of South India.**
- **Major producers of small cardamom:** Kerala, Karnataka and Tamil Nadu
- **Favorable conditions for Small Cardamom**
 - **Thick shady areas with loamy soil** which are usually acidic are ideal.
 - **Elevation:** 600 to 1500 m.
 - **Adequate drainage** must be provided
- **Large Cardamom**
 - **Distribution:** **Sub-Himalayan region** of North Eastern India, Nepal and Bhutan.
 - **Favorable conditions for Large Cardamom:** average **precipitation of 3000-3500 mm** spread over about 200 days.
 - Temperature ranging from **6-30 degree C.**

Delhi Declaration on Civil Aviation

2nd Asia Pacific Ministerial Conference on Civil Aviation (APMC) concluded with unanimous adoption of **Delhi Declaration.**

- APMC which also celebrates **80 years of International Civil Aviation Organization (ICAO)** has been organized by **Ministry of Civil Aviation and ICAO.**

Key commitments under Delhi Declaration:

- **Reaffirming Asia and Pacific Ministerial Declaration on Civil Aviation (Beijing):** Pursue implementation of State Safety Programme, Asia/Pacific Seamless Air Navigation Service Plan
- **Aviation Safety & Security:** Achieve aspirational goal of Global Aviation Security Plan
- **Gender Equality:** Take necessary measures to strengthen gender equality
- **Aviation Environment Protection:** Reduce emissions and other environmental impacts of aviation
- **Ratification of International Air Law Treaties:** Encourage Asia & Pacific States to ratify Amendments to Convention on International Civil Aviation

Civil Aviation Sector in India

- **India is fastest growing aviation market** in world and is currently **3rd largest in domestic segment.**
 - **Number of aircraft** in India is more than **800** and **airports** have exponentially grown to **157.**
- **Gender Equality:** 15% of the pilots in India are women (**global average is 5%**).
- **Schemes for Aviation Sectors:** Regional Connectivity Scheme (RCS) –Ude Desh ka Aam Nagrik (UDAN), Digi Yatra & Greenfield Airports Policy, 2008(**To prioritize carbon neutrality**).



Financialisation

Chief Economic Advisor raised concerns about excessive 'financialisation' in India.

- Financialization is a **process whereby financial markets**, financial institutions, and financial elites **gain greater influence over economic policy** and economic outcomes.
- Thus, **financial intermediaries** and technologies gain **unprecedented influence over our daily lives**.
- It also describes **moving investments away from traditional, 'physical' asset** (like real estate, gold) **towards 'financial assets'** (like mutual funds).

Factors Driving Financialisation				
Rising middle class with higher disposable income	Inflation due to which households are seeking higher returns beyond fixed deposits	Government incentives on these instruments	Increasing digitisation and financial inclusion	

Why is excessive financialisation a concern?

- Increased Inequality:** Financial income is funneled to top 1% of population through equity ownership.
- Distorts functioning of economy:** Profits flow increasingly from financial investments, rather than trade in goods and services.
 - Thus, **movements of stock market primarily determines functioning of economy** instead of production of employment or rising standards of living.
- Rising Household debts:** Stagnation of real wages may increase Households' reliance on loans (as seen in U.S economy).
- Adverse impacts on policies:** Financialisation may push for policies favouring **predatory lending, higher risk-taking and erosion of worker protections**.

Developing countries often face debilitating crises when financial market 'innovations' and growth run ahead of economic growth for e.g the Asian crisis of 1997-98. Therefore, India needs to have an orderly and gradual evolution of the financial market.

Average household spending on food falls below half since 1947: EAC-PM Paper

It was **highlighted by Economic Advisory Council to the Prime Minister (EAC-PM)** in paper titled "**Changes in India's Food Consumption and Policy Implications: A Comprehensive Analysis of Household Consumption Expenditure Survey 2022-23 and 2011-12**".

Other Key Highlights

- Regional Variations:** Household spending has increased across India, though the extent varies by state and region. E.g. West Bengal saw a 151% rise and Tamil Nadu 214%, between 2011-12 and 2022-23.

Download Our Application



Freedom UPSC with **Dhananjay Gautam**

Page No

64



- **Rural vs. Urban Spending:** Consumption expenditure growth for rural households (164%) was higher than that for urban households (146%).
- **Nutrients and Dietary Diversity:** Shift from cereal-based consumption towards a diet that includes fruits, milk & milk products, eggs, fish & meat.
- **Processed Foods:** Household **spending on served and packaged processed foods has increased** across all income groups. But it's most noticeable among top 20% of households and is significantly higher in urban areas.

Policy Implications due to changing consumption patterns

- Government should focus on **policies promoting production of diverse food items**, mainly fruits, vegetables, and animal-source foods etc.
- Policy addressing **micronutrient deficiency must be well-targeted** due to variation in micronutrient intake across region.
- Agricultural policies should **focus beyond cereals, as their consumption is dropping**. Support measures like MSP, which target cereals, will only have limited benefits for farmers.

BHASKAR Initiative for India's Startup Ecosystem

DPIIT will launch Bharat Startup Knowledge Access Registry (BHASKAR) initiative for India's Startup Ecosystem

About BHASKAR Initiative

BHASKAR initiative (of Ministry of Commerce and Industry) is a **platform designed to centralize, streamline, and enhance collaboration** among key stakeholders within entrepreneurial ecosystem, including startups, investors, etc.

- Its primary goal is to **build world's largest digital registry for stakeholders within startup ecosystem**.
- It is under **Startup India program**, which aims to build a strong ecosystem for nurturing innovation and encouraging investments.

Key Features of BHASKAR

- **Networking:** It will **bridge gap** between startups and other stakeholders, allowing for seamless interaction across sectors.
- **Centralized Access to Resources:** By providing startups immediate access to critical tools and knowledge, it will **enable faster decision-making and more efficient scaling**.
- **Creating Personalized Identification:** Every stakeholder will be assigned **unique BHASKAR ID**, ensuring personalized interactions and tailored experiences across platform.
- **Enhancing Discoverability:** Through powerful **search features**, users can easily locate relevant resources, collaborators, and opportunities, ensuring faster decision-making and action.



- **Supporting India's Global Brand:** It will promote India's global reputation as a hub for innovation, making cross-border collaborations more accessible to startups and investors alike.

India's Startup Ecosystem

- India has **3rd largest startup ecosystem** in world and has over 1,46,000 DPIIT-recognized startups.
- Department for Promotion of Industry and Internal Trade (DPIIT) recognize business as a startup.

Priority Sector Lending

RBI study titled "Priority Sector Lending (PSL): The Indian Experience" released

PSL was formalized in 1972 to facilitate flow of credit to such sectors, which though creditworthy, are unable to access credit from formal financial institutions.

Key findings of the study

- **Improved asset quality:** PSL is responsive to asset quality, with higher PSL growth enhancing overall bank asset quality.
- **Developing niche in specific PSL segments:** Since introduction of Priority Sector Lending Certificates (PSLCs), share of PSL in total bank credit has increased, enabling certain banks to specialize in specific PSL segments.
- **Achieving PSL Targets:** Lending to the priority sector has consistently exceeded 40% across various periods and bank categories, influenced by individual banks' strategies.
 - PSBs have frequently met **their 18% agricultural lending target**.

About PSL

- **Objective:** To ensure that vulnerable sections of society and underdeveloped areas get access to credit.
- **PSL Targets:** Banks have to mandatorily allocate a portion of their **Adjusted Net Bank Credit (ANBC) or Credit Equivalent of Off-Balance Sheet Exposure (CEOBE)**, whichever is higher, towards PSL.
 - **Mandated target differs for different banks** and is 40% for Scheduled commercial banks and foreign banks (with 20 or more branches) while it is 75% for Regional Rural Banks and Small Finance Banks.
 - **Urban Cooperative banks** have to allocate **65% to PSL** in FY 2024-25 but will have to increase to 75% in FY 2025-26.

Unified Lending Interface (ULI)

About ULI

- It is a technology platform which would **enable frictionless credit**.
- It will facilitate a **seamless and consent-based flow of digital information**, including **land records of various states**, from multiple data service providers to lenders. **Consent**

Download Our Application



Freedom UPSC with **Dhananjay Gautam**

Page No

66



- It will have a **common and standardised Application Programming Interface** designed for a **'plug and play'** approach.

Benefits of ULI

- Enables borrowers to get **benefit of seamless delivery of credit, quicker turnaround time** without **requiring extensive documentation**.
- Addresses credit **demand gaps** for **agriculture and MSME sectors**.

National Bank for Financing Infrastructure and Development (NaBFID)

Central Government, under Companies Act, 2013, notified NaBFID as a **Public Financial Institution (PFI)**.

- Only institutions established under any **Central or State Act** or whose at least **51% paid up share capital is held by central or state government** can be notified as PFI.

National Bank for Financing Infrastructure and Development (NaBFID)

- NaBFID was established as an infrastructure focused **Development Financial Institution (DFI)** under the **National Bank for Financing Infrastructure and Development Act, 2021**.
- It was established to support the development of **long-term non-recourse infrastructure financing** in India including development of bonds and derivatives markets.

freedom UPSC
TOGETHER WE SCALE HEIGHTS



Drones and Internal Security

Context:

The Assam Rifles and CRPF have deployed anti-drone systems in Manipur to counter rogue drones.

More on the News

- In Manipur, **armed militia groups are using "impact explosives" attached to drones** that can fly at higher altitude to drop the bombs.
- To counter such attacks, **security personnel are deploying anti-drone systems in vulnerable areas.**
 - Anti-drone systems are capable of performing real time search, detection, tracking and neutralization (Soft/ Hard Kill) of the flying drones
- Additionally, **Manipur Director General of Police (DGP)** is also reported to have set up a **committee** of five top officials to **study drones used by militants**, gather evidence, and suggest ways to counter them.

Role of Drones in Security Management

- **Border Security:** They monitor large areas, enhancing border surveillance and reconnaissance even in difficult areas where deploying human intelligence is not possible (e.g. rugged terrain).
 - It can also be used for military logistics and striking the enemy or its infrastructure in deep, inhospitable locations.
- **Real-time Intelligence Gathering:** Drones with advanced sensors provide real-time data for better situational awareness in conflict zones.
- **Tool for 'Psychological Warfare':** Constant presence of UAVs in conflict zones creates a sense of unease and helplessness among enemies creating psychological pressure. Moreover, fear of sudden strikes adds another layer of deterrence.
- **Replacing manned aircrafts:** It helps in achieving military goals without the risk posed to pilot's life during security operations.
- **Maintaining law and order:** Drones can be used by Police to monitor large crowds, surveillance of illegal activities, search and rescue operations etc.
- **Precision targeting:** UAVs, equipped with laser-guided missiles enables militaries to conduct surgical strikes against high-value targets **reducing collateral damage and civilian casualties**
- **Cost Efficiency and Scalability:** Drones offer cost-effective surveillance capabilities without significant investments. Moreover. It requires less maintenance, fewer resources, and can be easily and quickly deployed.

Initiatives by India to tackle drone threats



- **Counter Drone System (D4 System):** Developed by DRDO and produced by Bharat Electronics Limited, it is capable of performing real time search, detection, tracking and neutralization (Soft/Hard Kill) of the flying drones (Micro/Small UAVs)
- **Anti-Rogue Drone Technology Committee (ARDTC):** Established by Ministry of Home Affairs to evaluate the technology available to counter rogue drone and certify its effectiveness in dealing with rouge drones.
- **Public Sensitization on UAV/Drone Activities:** The public in border areas has been sensitised about potential security risks associated with drone activities and are encouraged to report any incidents to BSF and local police.
- **Deployment of Anti-drone systems:** Anti-drone systems have been deployed in border areas of Punjab to counter drone threats, and an anti-rogue drone SOP has been formulated and implemented in field units.
- **Detailed vulnerability mapping:** It has been carried out along borders such as **Indo-Pak border** by deploying vehicles and additional special surveillance equipment equipped with Cameras, sensors and infrared alarm.

Way ahead to prevent misuse of drones

- **Comprehensive National Action:** A national action should be developed to prevent, protect and respond to and recover from use of UAV by non-State armed groups, including for terrorism-related purposes.
 - In 2019, Ministry of Civil Aviation released 'National Counter Rogue Drone Guidelines' to lay out guidelines assessing drone threat.
- **Supply chain security measures:** Ensure thorough record-keeping for UAV transfers, and promote codes of conduct, due diligence, and compliance activities.
- **Raise awareness:** Highlight regulatory requirements for the safe and legal use of drones, and prepare the public for potential incidents involving UAVs.
- **Private Sector:** Encourage collaboration with the private sector, industry, and academia for early detection and precautionary measures against threats from non-state actors.
- **Vulnerability Assessments:** Regular assessments should be conducted to identify protection gaps in critical infrastructure and public targets. Enhanced training and equip teams to ensure that they can safely and effectively respond to incidents.
- **Adoption of robust Cyber security measures:** Defence strategies such as **honey drones (HDs)** can be used to lure cyber attackers away from critical UAVs missions by using lightweight virtual machines to redirect attacks. It can help in ensuring a mission's operational and secure.
- **Strengthening the operational framework:**
 - **Licensing:** Every drone should be registered and licensed. It will ease authorities in identification of the owner of any harmful drone.
 - **Flying Permit:** A flying permit similar to a driving license should be issued with a registered drone



- **Multi-factor authentication:** Rigid authentication methods can help in stopping several common security threats.
- **Declaration of Restricted zones:** Map-based public applications should also indicate areas that are no-fly zones for UAV/drones

Conclusion

As drone technology continues to evolve with advent of emerging technologies such as AI and machine learning, India should adopt a proactive and multi-faceted approach to create robust regulatory framework and invest in counter drone industry to focus on its research and development activities so that it can support law enforcement agencies

FATF Mutual Evaluation Report 2024

Context:

Financial Action Task Force (FATF) in its recent **Mutual Evaluation Report for India** titled 'Anti-Money laundering and Counter Terrorist Financing (AML/CTF) Measures' lauded India's efforts to implement measures to tackle illicit finance including money laundering and terror funding.

Key Highlights of the Report

- It emphasizes that India has achieved a **high-level of technical compliance** across the **FATF Recommendations**.
- India has been placed in "**regular follow-up**" which is the **highest rating category** by FATF.
 - **UK, France, and Italy** are among the only G20 countries which have been placed in this category.
- **India** has made significant progress in financial inclusion, more than **doubling the proportion** of the population with bank accounts, encouraging greater reliance on **digital payment systems**.
- India also achieved positive results in **international co-operation, asset recovery and implementing targeted financial sanctions for proliferation financing**.

About Financial Action Task Force (FATF)

- **Genesis:** Established in **1989**.
- **Objective:** To protect financial systems and the broader economy from threats of money laundering and financing of terrorism and proliferation, thereby strengthening financial sector integrity and contributing to safety and security.
- **Secretariat:** Paris (France)
- **Members:** There are currently **40 members** of the FATF; **38 jurisdictions** and **2 regional organisations** (the **Gulf Cooperation Council** and the **European Commission**).
 - **India** became member in **2010**.
- **Functions:**

- **Methods and Trends:** It carries out research into **evolving methods and trends** to assist countries in identifying, assessing and understanding their money laundering and terrorist financing risks.
- **Setting the Standards:** FATF Recommendations ensure a **co-ordinated** global response to prevent organised crime, corruption and terrorism.
- **Assessing implementation:** It monitors countries to ensure they implement the **FATF Standards** fully and effectively.
- **FATF classification of high-risk jurisdictions**
 - **High-Risk Jurisdictions subject to a Call for Action (Black List):** countries or jurisdictions with serious strategic deficiencies to counter money laundering, terrorist financing, and financing of proliferation.
 - Currently, **includes only 3 countries** – Democratic People's Republic of Korea, Iran, and Myanmar.
 - **Jurisdictions under Increased Monitoring (Grey List):** Countries actively working with FATF to address strategic deficiencies in their regimes to counter money laundering, terrorist financing, and proliferation financing.

What is Money Laundering and Terrorist Financing (ML/TF)?

Money Laundering (ML)

- It is the processing of criminal proceeds to **disguise their illegal origin**. It enables the criminal to enjoy these profits without jeopardizing their source.

Terrorist Financing (TF)

- It encompasses the **means and methods** used by terrorist organizations to finance activities that pose a threat to national and international security.
- It can come from both **legitimate** (i.e. profits from businesses and charitable organizations) and **criminal sources** (i.e. Drug trade, weapon smuggling, kidnapping for ransom).

Concerns highlighted in report related to ML/TF in India

- **Main sources of ML:** Illegal activities committed within country including cyber-enabled fraud, corruption, and drug trafficking.
- **Security Threats:** Islamic State in Iraq and the Levant (**ISIL**) and Al-Qaeda linked groups are active in and around Jammu and Kashmir.
 - Also, regional insurgencies in the **Northeast and North of India; and left-wing extremist groups, etc.**
- **Legal systems and operational issue:** Number of ML convictions has been significantly impacted by a series of constitutional challenges (settled in 2022) with many cases pending trial and the saturation of the court system.
 - There have been only **28 ML** convictions over the last five years.



- **Lack of supervision:** For the Designated Non-Financial Businesses and Professions (DNFBPs) sector, supervision is less developed or yet to commence, including in high-risk sectors.
 - The ML/TF risks of the **Dealers in Precious Metals and Stones (DPMS) sector** are not sufficiently mitigated by a prohibition on cash transactions under tax law.
- **Politically exposed persons (PEPs):** Prevention of Money Laundering Act (PMLA), PML Rules, directions/guidelines issued by financial sector Regulators (RBI, SEBI, IRDAI and PFRDA) have **no specific provisions dealing with domestic PEPs**.
 - **PEP** is an individual holding a prominent position (heads of States or Governments, senior politicians, senior government or judicial or military officers etc.) which may be **vulnerable to misuse** for laundering illicit funds or committing offences like corruption or bribery.

Policies implemented on identified risks in India

Risks identified	Measures taken
Risks from cash-based economy	Financial inclusion programme - unique bio-metric identification number to each resident (Aadhar), access to zero-balance accounts at no charge (Jandhan).
Non-visibility of business supply chains	Introduction of the Goods and Services Tax (GST) in 2017 requiring e-invoices and e-bills and a central data collecting agency allowing transparency of the supply chain.
Risks from bank fraud	Access to Central Fraud Registry (CFR) , a web based searchable database of frauds established in 2016.
Corruption risks	Amendments of the Prevention of Corruption Act in 2018 clarifying liability of senior management in commercial organisations and enhancing punishments for accepting bribes.
Risks from undisclosed foreign assets	Mutual Legal Assistance Treaty (MLAT) Portal , a digital case management system for formal international cooperation, launched in 2022.
Misuse of legal persons	Task Force on Shell Companies set up in 2017 that compiled a database to identify shell companies found to be used in illegal activities, common directorships in shell companies.
Risks from emerging technologies	Establishment by RBI of a FinTech Department in 2022 to foster innovative initiatives such as the Central Bank Digital Currency .
Improving capacity of ML/TF agencies to reduce overall	Development of Financial Intelligence Unit “India (FIU-IND) FINNET system in 2022 for collection, analytics, and dissemination of financial intelligence using sophisticated risk scoring based on multiple data sources.



vulnerabilities

Way Forward (Key Recommendations of report)

- **Risk analysis:** Undertake more comprehensive financial network analysis especially on ML techniques associated with trafficking in human beings and migrant smuggling.
- **Legal:** Reduce the number of pending trials in ML cases – both for new trials and for the backlog, by making major changes to increase the capacity of the court system, and potentially the capacity of the ED.
- **PEPs:** Reporting entities should improve identification of domestic PEPs and take risk-based enhanced measures in relation to them.
- **Supervision:** DNFBPs should improve detection of suspicious transactions when suspicious activity is detected.
- **Legal Persons and arrangements:** Enhance monitoring of the Ministry of Corporate Affairs (MCA) registry to ensure the availability of adequate, accurate and up-to-date basic and Beneficial Ownership (BO) information on legal persons.
- **Terror financing prevention:** Improve framework for implementing Targeted Financial Sanctions (TFS) so that it is clear that all natural and legal persons are obliged to freeze funds and assets without delay.

Other Short News

Blueprint for Action on Responsible AI in Military

REAIM (Responsible AI in the Military Domain) Summit 2024 held in Seoul (South Korea) announced a legally non-binding "Blueprint for Action" to govern responsible use of AI in the military.

- REAIM, with its inaugural summit held in 2023, is a platform for global discussion with all stakeholders on ways to ensure responsible military application of AI.

Key highlights of the 'Blueprint for Action'

- **Impact of AI on international peace and security:** AI applications in military domain should be developed, deployed and used in a way that maintains and does not undermine international peace, security and stability.
 - Recognize that AI applications can present both foreseeable and unforeseeable risks including risks of an arms race, miscalculation, escalation, and lowering threshold of conflict.
 - Stresses the need to maintain human control and involvement for all actions critical to informing and executing sovereign decisions concerning nuclear weapons employment, without prejudice to ultimate goal of a world free of nuclear weapons.



- **Implementing responsible AI in the military domain:** AI applications should be **ethical and human-centric**, applied in accordance with applicable **national and international law**, promote dialogue on **rigorous testing and evaluation (T&E) protocols**, etc.
- **Future governance of AI in military domain:** Discussion on Governance should take place in an **open and inclusive manner** to fully reflect wide- ranging views, strengthen **international cooperation on capacity-building** to reduce knowledge gap on responsible development and deployment, etc.

Operation Chakra III

Central Bureau of Investigation (CBI) successfully dismantled a virtual asset and bullion-supported cybercrime network through Operation Chakra III (phase 3).

- This operation was executed in close **coordination with Federal Bureau of Investigation (FBI) of US**.

About Operation Chakra

- **Initiated by CBI in 2022** it is an INTERPOL assisted Global Action to **combat and dismantle organized cyber enabled financial crime networks**.
- Its phase 2 was launched in 2023 and phase 1 in 2022.

Second Arihant-Class submarine 'INS Arighaat' commissioned into Indian Navy

With this Addition, Indian navy now have two SSBN (Ship, Submersible, Ballistic, Nuclear) submarines (**INS Arihant and INS Arighat**).

India's Nuclear Powered Submarines:

- **Arihant-class submarines** are being developed and built indigenously under the Advanced Technology Vessel (ATV) Project.
 - **INS Arihant**, India's **first indigenous nuclear submarine** under **ATV project**, was **commissioned in 2016**.
 - **INS Arihant** carried out a successful launch of a **Submarine Launched Ballistic Missile (SLBM)** in 2022.
 - It can carry up to four **nuclear-capable K-4 SLBMs** (Range exceeding 3,500 km) or twelve **K-15 SLBMs** (Range of around 750 km).
- In 2019, **India signed a \$3 billion deal with Russia** to lease an Akula-class nuclear-powered attack submarine for 10 years.

Significance:

- **Nuclear Deterrence capability:**
 - **Strengthening nuclear triad** (consisting of Land-based intercontinental ballistic missiles, Submarine-launched ballistic missiles, and Strategic bombers).



- **Credible second-strike capability:** In line with India's 'no first-use policy'.
- **Strategic Significance:** SSBN will help maintain strategic stability in South Asia, particularly in context of India's nuclear-armed neighbors, China and Pakistan.
- **Increased India's naval prowess:** By building towards blue water naval capability (Navy that operates into deep oceans).
- **Other Significance:** Contributing towards **Atmanirbhar Bharat**, enabling critical defense and attack capabilities etc.

Vertical Launch Short Range Surface-to-Air Missile (VL-SRSAM)

Recently, the flight test of VL-SRSAM has been successfully conducted by **Defence Research & Development Organisation (DRDO) & Indian Navy** from the Integrated Test Range (ITR) in Chandipur, off the coast of Odisha.

- Flight test was carried out from a **land-based vertical launcher**.

About VL-SRSAM

- It is a vertically launched surface to air missile with **all-weather capability** for use by Indian Navy.
- It is a **ship borne weapon system** designed to neutralise **various aerial threats** at close ranges, including sea-skimming targets.
- **Features:** Indigenous Radio Frequency (RF) seeker
- **Developed by:** DRDO

Jal Sanchay Jan Bhagidari

Context:

Recently, Jal Sanchay Jan Bhagidari initiative was launched from Surat, Gujarat.

About Jal Sanchay Jan Bhagidari initiative

- This initiative seeks to **conserve water with a strong emphasis on community partnership and ownership**,
- It aims to **construct around 24,800 rainwater harvesting structures** through community participation, ensuring long-term water sustainability across state.
- It is based on **the success of the Jal Sanchay initiative of Gujarat Government** that dealt with the mobilization of citizens, local bodies, industries and other stakeholders.
- **Ministry:** Ministry of Jal Shakti

Significance of Community Participation in Water Conservation

- **Foster Behavioural response:** Propelling actual action in contrast to latent policy-driven reaction.
 - **Ex. Jal Sahelis** in the **Pani-Panchayats of Bundelkhand** have sparked a cultural shift towards Conservation.
- **Utilization of Local Knowledge and Insights:** Understanding of area-specific water needs and challenges lies with them.
 - **Ex. Bari Farming System (Assam)** involves co-existence of fruit trees, vegetable cultivations, and the pond.
- **Instilling a sense of ownership:** Shared stewardship for adopting water-efficient practices and preserving resources for future generations.
 - **Ex. Pani Panchayat, Odisha** involves the voluntary farmers' participation in harvesting and distribution of surface and ground water.
- **Promotes Inclusivity and Equity:** Addressing concerns of vulnerable communities and bridging social disparities.
- **Bringing innovative experiences:** Based on the life experiences of the involved communities leading to development of locally relevant water conservation initiatives.

Some Examples of Community Participation in Water Conservation

- **Local Jal Samitis under Jal-Jeevan Mission:** Involves the participation of atleast 50% local village women.
- **Neeru-Chettu (Andhra Pradesh):** Rejuvenating and revitalising natural resources.
- **Jal Jeevan Hariyali (Bihar):** Identification, restoration, and renovation of all public water storage structures.

- **Jal Hi Jeevan Hai (Haryana):** Encouraging crop diversification and encouraging cultivation of lesser water intensive crops like Maize, Arhar, etc.
- **Mission Kakatiya (Telangana):** Reclamation of water tanks by restoring minor irrigation sources.

Traditional water storage systems in India

- **Jal Mandir** (Gujarat);
- **Khatri, Kuhl** (Himachal Pradesh);
- **Zabo** (Nagaland);
- **Eri, Ooranis** (Tamil Nadu);
- **Dongs** (Assam);
- **Katas, Bandhas** (Odisha and Madhya Pradesh);
- **Paar, Johad** (Rajasthan);
- **Pat** (Madhya Pradesh)

Challenges with the community participation in Water Conservation

- **Limited Information and Capacity:** Due to lack of accessibility and complexity of the water resources data, limited technical knowledge required for water conservation.
- **Policy processes perpetuate Inequality:** Dominance of specialists having technical and scientific knowledge.
- **Mere Ceremonial Involvement:** At times legal requirements call for the participation of the communities, but their proposals are seldom considered.
- **Limited association with Outsiders:** Prevents the communities from participating networking that help in reaching a consensus and promotes future consultations.

Way forward on promoting Participative Water Conservation

- **Creating an accessible baseline data:** Governments should facilitate wide and comprehensive communication process on water policy related matters.
- **Tapping Corporate Social Responsibility:** Approximately 10, 000 bore well recharge structures in various districts of Gujarat have been completed through it.
- **Promoting Sustainable practices:** Through initiatives like LiFe (Lifestyle for Environment), promoting Reduce, Reuse, Recharge, and Recycle of water.
- **Innovative approaches and Modern Technologies:** Including Solar- Powered Water Filtration; Desalination systems, use of Nanotechnology, etc.
- **Policy Support:** To lesser water intensive crops like Maize, oilseeds, pulses, millets, etc. by incentivising farmers, fostering capacity building, etc.

Other Government Initiatives fostering Community Participation in Water Conservation



- **Jal Jeevan Mission (JJM):** Decentralized, demand-driven, community-managed programme to maintain village water infrastructure.
- **Various Components of Prime Minister Krishi Sinchayee Yojana:**
 - **Har Khet ko Pani** (New water sources through micro-irrigation);
 - **Watershed Development** (water harvesting structures like dams, ponds, etc.);
 - **Per Drop More Crop** (precision water application devices like drips, sprinklers for better agriculture efficiency)
- **Atal Bhujal Yojana:** Sustainable management of Ground water through community participation.

Mission Mausam

Context:

Recently, Union Cabinet approved Mission Mausam with a budget outlay of 2,000 crores.

About Mission Mausam

- Mission Mausam is envisaged to be a **multi-faceted initiative to tremendously boost India's weather and climate-related science, research, and services**
- **Key Features:**
 - Establish a **wide network** of radars and satellites, wind profilers, radiometers, High-Performance Computers (HPC) and Artificial Intelligence/Machine Learning (AI/ML) based models for **multi-faceted weather observation and prediction**.
 - Setting up a '**cloud-simulation chamber**' at the **Indian Institute of Tropical Meteorology (IITM)** to be used for testing weather interventions like cloud seeding.
- **Implementing Ministry:** Ministry of Earth Sciences (MoES)
 - Three Institutes under MoES- **Indian Meteorological Department (IMD)**, **National Centre for Medium-Range Weather Forecasting (NCMRWF)**, and **Indian Institute of Tropical Meteorology (IITM)** would primarily implement the mission.

Significance of Mission Mausam

- **Make India Weather Ready and Climate Smart:** Expand understanding on the **physical processes and science of weather forecasting** at spatial and temporal scales.
- **Timely Updates and Services:** Offer **regular updates on the changing parameters** like wind speeds, pressure, etc. ensuring capacity building and community resilience.
- **Benefit different sectors:** Like agriculture, disaster management, tourism, health, etc. along with **data-driven decision making** in urban planning, road and rail transport, etc.
- **Empowers Stakeholders:** It will help to better equip stakeholders, including citizens and last-mile users, in tackling extreme weather events and the impacts of climate change.



- **New Approach to Forecasting:** Offering umbrella model, with improved accuracy of forecasts including providing hyper local forecasts.
- **Last Mile Prediction:** Up to the **Panchayat level** with a lead time of **10 to 15 days** and improves the **Nowcast frequency** from 3 to 1 hour.
 - Nowcast provides **very short-term prediction**, usually for next few hours and is useful for tracking fast-changing weather events such as thunderstorms, etc.

Challenges with Weather Forecasting in India

- **Complexity of Atmospheric Processes:** Tropical location and unpredictability of Monsoon has made forecast trickier in India.
- **Low Local Forecast Capability:** IMD is currently able to forecast weather events over a 12 km x 12 km area, providing forecast for a city but not for a specialised location within the city.
- **Inadequate Forecasting Equipment:** Currently, IMD has installed 39 Doppler radars and no wind profiler compared to China (217 radars, 128 wind profilers).
- **Poor Interpretation of forecast:** Recurrent misses in the forecast is attributed to poor interpretation of satellite images, radars and other data by weathermen.
- **Role of Climate Change:** Makes the weather patterns erratic causing isolated and localized instances of heavy rainfall and droughts.
 - Phenomenon like cloudbursts, thunderstorms, etc. is not well-understood currently.

Other Initiatives taken for improving Weather Forecasts in India

- **Monsoon Mission (2012):** Umbrella framework to predict weather on multiple timescales, improve long-range monsoon forecast for better economic planning.
- **Weather Information Network and Data System (WINDS):** By Ministry of Agriculture to generate long-term, hyper-local weather data helping farmers.
- **PRITHvi Vigyan (PRITHVI) Scheme:** By MoES. It encompasses five on-going sub-schemes:
 - **Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)**
 - **Ocean Services, Modelling Application, Resources and Technology (O-SMART)**
 - **Polar Science and Cryosphere Research (PACER)**
 - **Seismology and Geosciences (SAGE) and**
 - **Research, Education, Training and Outreach (REACHOUT).**
- **Earth Observation Satellites:** INSAT-3D (2013), INSAT-3DR (2016) and INSAT-3DS (2024).
- **Initiatives by IMD:** Offers Current Weather, Nowcast, City Forecast, Rainfall Information, All India Multi-hazard Winter Warning Bulletin, etc.
- **Mobile Applications:** MAUSAM (weather forecasting) Meghdoot (Agromet advisory dissemination), Damini (lightning alert), etc.
- **MoES operationalised Pratyush and Mihir** for weather forecasting in 2018.



Way Forward

- **Investing in Research & Development:** To understand the complexities posed by climate change and harnessing the potential of AI that offers better prediction at lower cost.
- **Coordination between agencies and experts:** Including urban and infrastructure planners to take into account the local ecology and socio-economic conditions.
- **Continuous upgradation of weather forecasting infrastructure:** Along with installation of ocean observation systems and high-resolution Earth Observation satellites.
- **Addressing regional disparities:** Optimum coverage of Eastern and North-eastern regions with Doppler radars.
- **Partnership between Public and Private Sector:** To complement the work of IMD in providing advanced technological breakthroughs, developing forecasting equipment, etc.

Human-Animal Conflict

Context:

Recently, Wolf attacks were reported from few villages in Uttar Pradesh bringing the issue of Human-Wildlife Conflict (HWC) to light.

About Human-Wildlife Conflict

- It refers to the struggles that emerge when **the presence or behaviour of wildlife poses a threat to human interests** leading to negative impacts on people and/or wildlife.
- It usually occurs in areas where **wildlife and human populations overlap**.
- Management of HWC is the primary responsibility of the respective **State/ UT Government**.
 - Recently, Kerala has also declared HWC as a **state-specific disaster**, shifting the responsibility to the **State Disaster Management Authority**.

Impact of the Human Wildlife Conflict

- **Impact on Wildlife:** It threatens the **survival of various terrestrial and marine species** as retaliation or pre-emptive killings may drive the species to extinction.
- **Impact on Ecosystems:** It may cause **damage to crops and livestock population**, further disturbing the predator-prey balance.
- **Impact on Social Dynamics:** Discord among stakeholders as farmers blame government for species' protection and conservationists blame farmers and industries for clearing habitats.
- **Impact on Local Communities:** Resulting loss of lives, livestock, crops, property, is more pronounced on vulnerable, poor and marginalised communities.
- **Impact on Commodity Production:** Negatively affect businesses dealing with agricultural produce cause decrease in their productivity and profitability.

- **Other Impacts:** Livelihood insecurity; food insecurity; translocation of animals; etc.

Initiatives taken for mitigation of HWC

- **Creation of Protected Areas Networks:** Including National Parks, Sanctuaries, Conservation Reserves and Community Reserves all over the country under the **Wildlife (Protection) Act, 1972** to conserve wild animals and their habitats.
- **Species specific Guidelines:** Released by Ministry of Environment, Forests, and Climate Change covering 10 species like Elephant, Gaur, Leopard, Crocodile, etc.
- **Centrally Sponsored Schemes:** Like 'Development of Wildlife Habitats', 'Project Tiger' and 'Project Elephant' where financial assistance to State/UTs is provided.
- **National Wildlife Action Plan 2017-2035 (NWAP):** Includes a dedicated chapter on managing HWC.
- **National Human-Wildlife Conflict Mitigation Strategy and Action Plan (2021-26):** Ensures harmonious co-existence and overall well-being of humans and wildlife.

Way Forward on preventing Human Wildlife Conflict

- **Shifting focus from Conflict to Coexistence:** It incorporates holistic and integrated approach of managing HWC.
 - **Ex. The Wild Life (Protection) Act of India, 1972,** empowers the **Chief Wildlife Wardens** of the States to take measures for peaceful coexistence of humans and wildlife inside and outside national parks and sanctuaries
- **Understanding the conflict:** Adequate Research to understand the context of conflict, mapping hotspot, spatial and temporal characteristics, etc.
- **Building Barriers:** Including activities like **construction/erection of physical barriers** such as barbed wire fence, solar powered electric fence, bio-fencing, etc.
- **Enabling Policy Frameworks:** By incorporating suitable principles, protocols and provisions for effective HWC management plans in international, national laws and conventions.
 - **Ex. WWF** suggested for inclusion of HWC management plan within the Sustainable Development Goals or UN Convention for Biological Diversity.
- **Role of Community:** Community-based volunteers or rapid response teams like the existing 'friends of wild animals' should be encouraged.

About Wolf (Canis lupus)

- **Fast Runners:** Run at a **very high speed up to 45 km/hour.**
- **Natural Predators:** Prey mainly on rodents, hares, and livestock.
- **Extremely Social:** Live in a **pack of 6-8 individuals** and require a **home range of about 180-200 sq. km.**
- **Social System:** **Monogamous** and **exhibit male dominance hierarchy.**
- **Communication:** Using different vocalizations and scent marking.



There are **two species of Wolf** found in India: **Gray Wolf** and **Himalayan Wolf**.

Gray or Indian Wolf (*Canis lupus pallipes*)

- **Habitat:** Thorn forests, scrub-lands, arid and semi-arid grassland habitats, found in the **agro-pastoral regions of semi-arid India**.
 - Majority of them survives **outside of protected areas** in **close proximity** with people.
- **Conservation Status**
 - **Wildlife Protection Act, 1972:** Schedule I
 - **IUCN:** Least Concern

Himalayan or Tibetan wolf (*Canis lupus chanco*)

- **Habitat:** Wastelands of the upper-trans Himalayan range including Himachal Pradesh, Jammu, Kashmir, Uttarakhand, and Sikkim.
- **Conservation Status**
 - **Wildlife Protection Act, 1972:** Schedule I
 - **IUCN:** Vulnerable

Other Short News

Air Quality Management Exchange Platform (AQMx)

Climate and Clean Air Coalition (CCAC) launched an AQMX in the **backdrop of International Day of Clean Air for Blue Skies** (7 September).

- **Led by UN Environment Programme (UNEP)**, this year's theme focuses on 'Invest in Clean Air Now'.

About Air Quality Management Exchange Platform (AQMx)

- It is a **one-stop-shop** that provides the latest air quality management guidance and tools proposed to meet WHO Air Quality Guidelines interim targets.
- It is a component of **CCAC Clean Air Flagship** and contributes to implementation of **UNEA-6 Resolution** to increase regional cooperation and action on improving air quality globally.

Need of AQMx

- **Menace of air pollution:** Causes more than **8 million premature deaths annually**, particularly affecting poor and vulnerable.
- **Capacity gaps:** AQMx helps to address air quality management capacity gaps with curated guidance on air quality monitoring, health impact assessments etc.
- **Knowledge sharing:** Allow regional and sub-regional communities to exchange knowledge about air quality management best practices.

About CCAC

- **Founded in 2012, and convened within UNEP**, CCAC is a **voluntary partnership** of more than 160 governments, intergovernmental organizations, and NGOs. **India joined CCAC in 2019.**
- It works to **reduce powerful but short-lived climate pollutants**– methane, black carbon, hydrofluorocarbons (HFCs), and tropospheric ozone – that drive both climate change and air pollution.

Pollutant	Averaging Time	2005 AQGs	2021 AQGs
PM _{2.5} , µg/m ³	Annual	10	5
	24-hour	25	15
PM ₁₀ , µg/m ³	Annual	20	15
	24-hour	50	45
O ₃ , µg/m ³	Peak season	–	60
	8-hour	100	100
NO ₂ , µg/m ³	Annual	40	10
	24-hour	–	25
SO ₂ , µg/m ³	24-hour	20	40
CO, mg/m ³	24-hour	–	4

WHO Air Quality Guidelines (AQG)

- They are a set of **evidence-based recommendations of limit values for specific air pollutants.**
- They recommend levels and interim targets for common air pollutants: PM, O₃, NO₂, SO₂, and CO.
 - For instance, **24-hour mean of PM_{2.5} should not exceed 15 µg/m³** and **annual mean of PM_{2.5} should not exceed 5 µg/m³.** (refer image)

Air Quality and Climate Bulletin

This annual bulletin, released by United Nations' **World Meteorological Organization (WMO)**, reports on **the state of air quality** and its **connections to climate change**.

Key findings

- **Global PM_{2.5} concentrations:** Europe and China show lower PM_{2.5} pollution, while North America and India see increased emissions from anthropogenic activities.
 - **Particulate Matter smaller than 2.5 micrometers in diameter is referred to as PM_{2.5}.**



- **Global PM hotspots:** Include agricultural areas in Central Africa, Pakistan, India, China and South-East Asia.
- **Impacts of PM on crops:** Reduces crop yields by 15% as it reduces sunlight reaching leaf surfaces.
- **Aerobiology Advancements:** New technologies have enabled real-time bioaerosol monitoring.

About Aerobiology

- **Aerobiology** is the study of the **movement and impact of airborne biological particles, or bioaerosols, on human, animal, and plant health. Bioaerosols include:**
 - Bacteria, fungal spores, pollen grains, viruses, etc.
- **Bioaerosols** reflect changes in **biodiversity, plant flowering patterns, and distribution, all sensitive to climate shifts.**
 - Hence, **new technologies are needed** to improve understanding of **Bioaerosols** which would further **enhance forecasting and climate change impact assessments.**
- **New observational techniques:** Such as high-resolution image analysis, holography, multi-band scatterometry, fluorescence spectrometry and nanotechnology for DNA sequencing.

Teal Carbon

India's first 'teal carbon' study undertaken at **Keoladeo National Park (KNP).**

- The study depicted the **potential of teal carbon as a tool to mitigate climate change**, if the anthropogenic pollution in the wetlands can be controlled.
- Study also reveals **elevated methane emissions can be reduced by use of a specialized type of biochar**, which is a form of charcoal.

About Teal Carbon

- Teal carbon refers to **carbon stored in non-tidal freshwater wetlands**, encompassing carbon sequestered in vegetation, microbial biomass, and dissolved and particulate organic matter.
- Teal carbon, being a **color-based terminology (refer infographics)**, reflects the classification of the organic carbon **based on its functions and location** rather than its physical properties.
- In contrast, **black and brown carbon** are produced by incomplete combustion of organic matter and contribute to global warming.
- **Significance:** It contributes to an increase in the ground water level, flood mitigation and heat island reduction, supporting a sustainable urban adaptation.

About Keoladeo National Park (Bharatpur, Rajasthan)

- Declared a **national park in 1982** and a **UNESCO World Heritage Site in 1985.**
- Home to over **370 species of birds and animals** like pythons, Siberian cranes etc.



- Placed on the **Montreux Record** (Ramsar Convention) in 1990 due to "water shortage and an unbalanced grazing regime".

Scheme for Hydro Electric Projects (HEP)

Union Cabinet approved modification of scheme of budgetary support for the cost of enabling infrastructure for Hydro Electric Projects.

- Union Cabinet modified the scheme for **faster development of Hydro Electric Projects (HEP)** and **improvement of infrastructure** in remote and hilly project locations.
- Scheme of Budgetary support for cost of enabling infrastructure for HEP was launched by **Ministry of Power in 2019**, along with other measures to promote hydropower sector in India.
 - It provided budgetary support for **constructing roads and bridges** connecting major dam, power house and other project infrastructure with nearest state/national highway.

Modified Scheme

- Funding:** Total outlay of **Rs.12,461 crore** for cumulative generation capacity of about 31,350 MW.
- Implementation Period:** FY 2024-25 to FY 2031-32.
- Expansion:** Scheme expanded to **include costs for constructing transmission lines, ropeways, railway sidings, and communication infrastructure**, in addition to **roads and bridges**.
- Eligibility:** HEPs **>25 MW capacity** including private sector projects and all **Pumped Storage Projects (PSPs)**.

Other Measures for Development of HEP

- Declaring **Large Hydro Power projects (> 25 MW projects)** as **Renewable Energy sources**.
- Hydro Power Purchase Obligations (HPOs)** requiring entities to purchase electricity from HEPs.
- Tariff rationalization measures** for bringing down hydropower tariff
- Budgetary support for flood moderation / Storage HEPs.**

Environmental Compensation Guidelines for Battery Waste Management

Guidelines, issued by the **Central Pollution Control Board (CPCB)** under the **Battery Waste Management Rules 2022**, aim to **promote proper battery waste management practices** and enhance **environmental sustainability** across the country.

What is Environmental Compensation (EC)?

- 2022 Rules** empower the **CPCB** to **impose and collect EC** from **producers and entities** involved in **refurbishment and recycling of waste battery**, in case of noncompliance of the rules.
- It can also be levied to entities carrying out **activities without registration**, providing **false information / wilful concealment of material facts** by the registered entities, etc., based on the **polluter pays principle**.



- It shall also be levied on **Producer operating with respect to non-fulfilment of their Extended Producer Responsibility (EPR) targets**, responsibilities and obligations set out in these rules.
 - **EPR means responsibility of any Producer of Battery for Environmentally sound management of Waste Battery.**
- Payment of EC, however, **shall not absolve Producer of EPR obligation** set out under the rules. For instance, **unfulfilled EPR obligation for a particular year will be carried forward** to the next year.

Key Highlights of the Guidelines issued

- EC to be levied is divided in to **two regimes**:
 - **EC Regime 1** – EC will be levied to the Producers for non-fulfilment of metal-wise (For Lead Acid Batteries and For Lithium-ion and Other Batteries) EPR Targets.
 - **EC regime 2** – EC will be levied to any entity for non-compliances of BWM Rules, 2022 based on application fees.

Atacama Salt Flat

A study by Researchers at the University of Chile found that Chile's Atacama salt flat is sinking due to lithium brine extraction.

About Atacama Salt Flat

- Also known as **Salar de Atacama**, it is the **biggest salt deposit in Chile**.
- It has a **rough white surface** below which there is a **large salt lake**.
 - Lake under the salt flat has one of the largest **lithium reserves** in the world.
- It lies in **Chile's Atacama Desert**, probably the driest place on the planet.
- The northern part of the basin is the **San Pedro River delta**.

Exercise AIKYA

National Disaster Management Authority and Southern Command of the **Indian Army** are set to host the Exercise AIKYA in Chennai (Tamil Nadu).

- The exercise's **primary objective** is to **improve disaster preparedness and foster strong collaboration** among key stakeholders.
- The exercise will incorporate **simulations, technology discussions, and expert insights** into various disaster management roles.
- Since 1900, India has suffered an economic loss of \$150 billion with largest loss from floods and storms (SBI Ecowrap 2023).



Water Spinach

Water spinach now reached the door of the farmers with the technology developed by the Indian Institute of Vegetable Research (IIVR).

About Water spinach

- Native to **tropics and subtropics**, this **semi-aquatic perennial plant** is believed to have been the **first domesticated in Southeast Asia**.
- **Benefits**
 - Rich in **folic acid (vitamin B9)**; Contains medium levels of **beta carotene, calcium, vitamin E and C**.
 - Helps prevent **neural tube defects in unborn children**.
 - Being **rich in iron**, it's beneficial for people with **anemia**.
 - Has great **potential as a purifier of aquatic habitats**.

Phrynarachne Decipiens

Phrynarachne decipiens has been **recorded for the first time in the country** from Assam's Kamrup district and Kokrajhar district.

About Phrynarachne decipiens

- Popularly known as the **bird dung or bird-dropping crab spider**.
 - Spiders of the genus Phrynarachne resemble a **blob of bird dropping**, and even smell like feces or urine.
 - This may help it **attract and ambush prey, and avoid the notice of predators**
- Generally found in **Malaysia and Indonesia's Java and Sumatra**.

Tardigrades

Recently, a **study of the first tardigrade fossil** has enabled Scientist to classify them and **retrace their evolutionary history**.

About Tardigrades (Water Bears or Moss Piglets)

- They are **tiny eight-legged aquatic animals** found in almost **all habitats** on Earth.
- They comprise of two main classes: **Heterotardigrada** and **Eutardigrada**.
- They can **survive extreme environmental conditions** like punishing heat, freezing cold, ultraviolet radiation and even outer space.
 - They are able to survive harsh conditions, as they are capable of **almost stopping their metabolism (known as cryptobiosis)**, reviving only when conditions are better.

India-Germany Platform for Investments In Renewable Energies Worldwide

India-Germany Platform for Investments in Renewable Energies Worldwide launched at 4th Global Renewable Energy Investor's Meet and Expo (RE-INVEST).

- RE-INVEST is organized by **Ministry of New and Renewable Energy**.

About India-Germany Platform

- Aims to develop concrete & sustainable solutions for accelerated **expansion of renewable energy** in India and Globally.
- It will serve as an **international forum** for stakeholders from across globe to develop solutions to **support India in attaining goal of 500 GW non-fossil energy capacity by 2030**.
- It is an initiative under **Green and Sustainable Development Partnership (GSDP)**, signed in 2022 between India & Germany.

Energy Transition Principles By UN

“Resourcing the Energy Transition: Principles to Guide Critical Energy Transition Minerals Towards Equity and Justice” report released by **UN Secretary-General’s Panel on Critical Energy Transition Minerals (CETMs)**.

- Panel on CETM was established to develop **guiding principles for energy transition**.
- **CETMs are** minerals necessary to construct, produce, distribute and store renewable energy.
 - They include Rare Earth Elements, copper, cobalt, nickel, lithium, graphite, cadmium, selenium etc.
 - **Demand for CETMs expected to triple by 2030** as the world **transitions from fossil fuels to renewable energy**.

About the Report

- Report outlines **seven Guiding Principles (see infographic)** and **five Actionable Recommendations** to ground the renewables revolution in **justice and equity**.
 - Guiding principles are required as increasing demand for CETMs risks **perpetuating commodity dependence**, exacerbating **geopolitical tensions** and **environmental and social challenges**, and undermining efforts towards the energy transition.

Actionable Recommendations include establishment of:

- A **high-level expert advisory group** to accelerate greater benefit-sharing, value addition and economic diversification in CETMs value chains.
- **Global traceability, transparency, and accountability framework** along entire mineral value chain.
- **Global Mining Legacy Fund** for strengthening financial assurance mechanisms for mine closure and rehabilitation.



- Initiative that **empowers artisanal and small-scale miners** for responsible mining.
- **Material efficiency and Circularity targets** to balance consumption and reduce environmental impacts.

International Rhino Foundation (IRF) Released State of The Rhino 2024 Report

IRF, initially called International Black Rhino Foundation in 1991, is dedicated to **survival of world's rhino species**.

Key findings of report

- With **all five species combined**, there are just **under 28,000 rhinos left in world**.
- **Rhino poaching in Africa increased by 4%** from 2022 to 2023.
- **Number of white rhinos increased** but greater one-horned rhino (Indian Rhino) number remained same.
- **White rhino populations in South Africa are on rise** despite poaching.

About Rhino

- **Five species of rhino:** 2 African (White Rhino, Black Rhino) and 3 Asian (Indian rhino, Sumatran Rhino, and Javan Rhino).
- **Rhino conservation initiatives:** National Rhino Conservation Strategy 2019 to conserve Indian rhino; New Delhi Declaration on Asian Rhinos 2019; Indian Rhino Vision 2020 etc.

Difference between African Rhino and Asian Rhino

Features	African Rhino	Asian Rhino
Size	White Rhino is second-largest land mammals after elephants.	Indian Rhino is largest of all Asian rhino species.
Appearance and Behaviour	Less armoured look More aggressive 2 horns Poor swimmers and they can drown in deep water (so they wallow in mud) Fights with their horns Feed low to the ground	More armoured look Less aggressive 2 horns (Sumatran rhino) and 1 horn (Indian Rhino and Javan rhinos) Good swimmers Fights with its bottom teeth Graze on tall grasses, shrubs, leaves.
Habitat	Grasslands, savannas and shrublands; deserts	Tropical and subtropical grasslands and savannahs, Tropical moist forests
Conservation status (IUCN)	White Rhino: Near threatened Black Rhino: Critically Endangered	Indian Rhino: Vulnerable; Schedule I (Wildlife Protection Act, 1972)



		Sumatran Rhino: Critically Endangered Javan Rhino: Critically Endangered
--	--	---

Integrated Development of Wildlife Habitats

Recently, Union Cabinet approved continuation of **Centrally Sponsored Scheme of Integrated Development of Wildlife Habitats (IDWH)** for the **15th Finance Commission cycle**.

- While strengthening existing fundamental & core components of scheme, the scheme envisages boosting technological interventions in different thematic areas in tiger and wildlife-bearing forests.

About IDWH

- Objective:** It is a **centrally sponsored umbrella scheme** launched by Ministry of Environment for development of wildlife habitat in India.
- Components of IDWH**
 - Support to protected areas** (national parks, wildlife sanctuaries, conservation reserves, and community reserves).
 - Protection of **wildlife outside protected areas**.
 - Recovery programs** for saving critically endangered species and habitats.
 - So far, **22 species** have been identified under the Species recovery program.
- Sub-schemes Under IDWH**
 - Project Tiger (1973):** It benefits a total of **55 Tiger Reserves** spread across **18 tiger range states**, distributed in 5 landscapes of the country.
 - It also supports the ambitious **Project Cheetah** in the country.
 - Development of Wildlife Habitats:** **Project Dolphin** and **Project Lion** are implemented under this sub-scheme.
 - Project Elephant (1992):** To protect elephants, their habitat, & corridors to **address issues of human-animal conflict and welfare of captive elephants**.
 - It is being implemented in **22 elephant range states/UTs**.

Note: Project Tiger and Project Elephant schemes have been merged w.e.f. FY 2023-24 and now known as **Project Tiger & Elephant**.

Coalition For Disaster Resilient Infrastructure (CDRI) Marks Its Fifth Anniversary

On this occasion, **CDRI** announced a **\$2.5 million fund** under Urban Infrastructure Resilience Programme (**UIRP**) to enhance **climate resilience** of cities in **30 low and middle-income countries** including India.

Significance of CDRI

Download Our Application



Freedom UPSC with **Dhananjay Gautam**



- **Funding:** Provide a global mechanism for financing and coordination of the effective implementation of the aims of the CDRI.
- **Technical Support and Capacity-building:** This includes disaster response and recovery support; innovation etc.

Initiatives Taken by CDRI

- **Infrastructure for Resilient Island States (IRIS):** To promote resilient, sustainable and inclusive infrastructure in Small Island Developing States (SIDS).
- **DRI Connect platform:** Knowledge exchange, learning and collaborative platform
- **International Conference on Disaster Resilient Infrastructure (ICDRI):** Annual conference bringing together experts, decision-makers etc. to discuss challenges and identify good practices.
- **Infrastructure Resilience Accelerator Fund (IRAF):** Established with support of UNDP and UNDRR, to support global action on disaster resilience of infrastructure systems

freedom UPSC
TOGETHER WE SCALE HEIGHTS

Dharti Aaba Janjatiya Gram Utkarsh Abhiyan

Context:

The Prime Minister launched the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan, also known as **Pradhan Mantri Janjatiya Unnat Gram Abhiyan (PM-JUGA)**, for improving socio-economic conditions of tribal communities.

Socio-Economic Conditions of Tribals in India

Demographic Profile	Human Capital Profile
<ul style="list-style-type: none"> Population: 10.45 crore (8.6%) as per 2011 census including 75 Particularly Vulnerable Tribal Groups (PVTGs), living mostly in remote and hard-to-reach areas. Socio-Economic Status: Over two-thirds of tribals are working in primary sector. <ul style="list-style-type: none"> Overall, 40.6% ST population is below poverty line. Access to Amenities: 44% of rural households in ST areas are yet to get tap water connection. Demography: Almost 90% lives in rural, hilly and forested areas. <ul style="list-style-type: none"> Fertility: Fertility rate is declining. <ul style="list-style-type: none"> Total Fertility Rate: 2.5, close to replacement level of 2.1. Sex Ratio: At 990 per 1000 males, sex ratio 	<ul style="list-style-type: none"> Education: Periodic Labour Force Survey (PLFS) report (2021-2022) reveals that literacy rate for STs increased to 72.1%. <ul style="list-style-type: none"> While 35% tribal people had attained primary education, less than 2% had received higher education. Gross Enrolment Ratio (GER): <ul style="list-style-type: none"> Upper Primary level: Increased 91.3 (2013-14) to 98 (2021-22) Higher education level: Increased from 13.7 (2014-15) to 18.9 (2020-21). Health: Life Expectancy at birth: 63.9 years, as against 67 years for general population. <ul style="list-style-type: none"> Percentage of Underweight: Under age five years has declined from 54.5 in 2005-06 to 45.3 in 2015-16. Institutional Delivery: Increased from 17.7% (2005-06) to 82.3 % (2019-21). Infant Mortality Rate: Declined from 62.1 (2005-06) to 41.6 in 2019-21. Face Triple Burden of Diseases: Malnutrition and communicable diseases like malaria and tuberculosis, non-communicable diseases like cancer, hypertension and diabetes, and mental illnesses, especially addiction. <ul style="list-style-type: none"> Malnutrition: The prevalence of stunting, wasting and underweight has reduced from 43.8%, 27.4% and 45.3% respectively in NFHS-

<p>among STs is better than all India average of 933.</p> <ul style="list-style-type: none"> ▪ Child Sex Ratio: Declined from 972 in 2001 to 957 in 2011. 	<p>4 to 40.9%, 23.2% and 39.5% respectively under NFHS-5.</p> <ul style="list-style-type: none"> ▪ Estimated prevalence of TB (per 100,000) was 703 cases against 256 in non-tribal population. ○ Genetic Disorders: The prevalence of Sickle Cell Disease (SCD) is prevalent in 1 in 86 births. Other prevalent genetic disorders include thalassemia and G6PD deficiency. • Infrastructure: At an all-India level, there is a shortfall of 6,796 Sub Centres, 1267 Primary Health Centres and 309 Community Health Centres in tribal areas as on March 31, 2015.
---	--

Key Features of the Scheme

- **Objective:** Improving the **socio-economic condition of tribal communities**, by adopting saturation coverage for tribal families in tribal-majority villages and aspirational districts.
 - It envisions **saturation of critical gaps** in social infrastructure, health, education, livelihood, **through different schemes** by convergence and outreach.
 - It aims to ensure **holistic and sustainable development of tribal areas** and communities based on learnings and success of PMJANMAN (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan).
- **Funding:** Total outlay of Rs.79,156 crore (Central Share: Rs.56,333 crore and State Share: Rs. 22,823 crore).
- **Coverage:** This will cover around **63,000 villages** benefitting more than **5 crore tribal people**.
 - It will cover **549 districts** and 2,740 blocks spread across all tribal majority villages across **30 States/UTs**.
- **Mission Components:** It comprises of **25 interventions** which will be implemented by **17-line ministries**.
 - Funds will be allocated to them under **Development Action Plan for Scheduled Tribes (DAPST)** in next 5 years.
 - It encompasses over 200 schemes relating to literacy, health, skill development, education, livelihood, agriculture etc.
- **Mapping and Monitoring:** Tribal villages covered under the Abhiyan would be **mapped and monitored** on PM Gati Shakti Portal.

Goals under the Mission	
Goal-1: Developing	<ul style="list-style-type: none"> • Pucca house for eligible Households with other entitlements:

Enabling Infrastructure	<ul style="list-style-type: none"> Eligible ST household shall have access to pucca housing under the PM Awaas Yojana (Gramin) with availability of tapped water (Jal Jeevan Mission) and electricity supply (RDSS). Eligible ST household shall also have access to Ayushman Bharat Card (PM Jan Arogya Yojana). Improving Village infrastructure: <ul style="list-style-type: none"> Ensuring all weather road connectivity to ST majority villages (PM Gram Sadak Yojana), Provide access to mobile connectivity (Bharat Net) and internet, Infrastructure for improving health, nutrition, and education (National Health Mission, Samagra Shiksha and Poshan).
Goal-2: Promotion of Economic Empowerment	<ul style="list-style-type: none"> Skill Development, Entrepreneurship promotion and Enhanced Livelihood (self-employment) â€œ <ul style="list-style-type: none"> 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. Marketing support through Tribal Multipurpose Marketing Centre (TMMC), Tourist Home Stays, and Agriculture, Animal Husbandry and Fishery support for FRA (Forest Rights Act) Patta holders.
Goal-3: Universalization of Access to Good Education	<ul style="list-style-type: none"> To increase Gross Enrolment Ratio (GER) to the national levels in school and higher education, 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	<ul style="list-style-type: none"> To ensure enhanced access to quality health facilities to ST households, To reach towards the national standards in Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR), 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).

Innovative Schemes under PM-JUGA

- Tribal Home Stay:** To tap the tourist potential of tribal areas, **1000 Home stays** will be promoted under **Swadesh Darshan** through Ministry of Tourism.



- 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 lakhs** for the construction of two new rooms and upto **Rs. 3 lakhs for renovation** of existing rooms and **Rs 5 lakh for village community requirement.**
- **Sustainable Livelihood Forest Right Holders (FRA):** Mission has special focus on **22 lakh FRA patta holders** and benefits of different schemes of different ministries will be converged & provided.
 - The interventions are aimed to expedite the process of **recognizing and securing forest rights.**
- **Improving infrastructure of Government residential Schools and Hostels:** 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 (SCD): Centre of Competence (CoC)** would be set up in AIIMS and premier Institutes in the States where the SCD is prevalent.
 - A **Centre of Competence (CoC)** shall be equipped with the facilities, technology, personnel and research capabilities **for pre-natal diagnosis** at a cost of Rs 6 crore/CoC.
- **Tribal Multipurpose Marketing Centre (TMMC): 100 TMMCs will be set up** to enable the tribal producers to get right price for their produce and facilitate the consumers in buying tribal produce.
 - The platform will also help in **minimizing post-harvest and post-production losses** and retention of product value.

Other Initiatives for Socio-Economic Development of Tribals

- **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA):** Enacted to recognize and vest forest rights in the Forest Dwelling Scheduled Tribes.
- **Education: Eklavya Model Residential Schools (EMRS)** have been set up to provide quality education to ST students (Class VI-XII) in remote areas through residential schooling facilities.
 - Presently, **more than 1.2 lakh students** are enrolled in **401 EMRS.**
- **Economic Empowerment: Minimum Support Price (MSP)** is ensured for Minor Forest Produce, and marketing support for tribal products is provided through the **Pradhan Mantri Jan Jatiya Vikas Mission.**
 - Under the **Pradhan Mantri Vanbandhu Vikas Yojana**, a **venture capital fund** has been set up to promote entrepreneurship/start-up projects by ST youth.
 - Under this, **3,958 Van Dhan Vikas Kendra (VDVK)** have been sanctioned.
- **Infrastructure: Pradhan Mantri Adi Adarsh Gram Yojana (PMAAGY)** aims to provide basic infrastructure in villages with a significant tribal population.
- **Health Outcomes: National Health Mission** has prepared a comprehensive guideline to control and prevent Haemoglobinopathies, including Sickle Cell Disease, affecting tribal population.



Conclusion

With a comprehensive approach that focuses on infrastructure development, economic empowerment, and access to quality education and healthcare, this initiative aims to bridge the critical gaps faced by tribal populations. As these efforts unfold, the commitment to uplift and empower tribal communities will be pivotal in achieving inclusive growth in the country.

Swachh Bharat Mission

Context:

Swachh Bharat Mission (SBM) has completed 10 years of its launch.

More about the News

- Swachh Bharat Diwas 2024 was celebrated to commemorate 10 years with theme 'Swabhav Swachhata, Sanskaar Swachhata' built around three core pillars:
 - Swachhata Ki Bhaagidari:** Public participation, awareness, and advocacy for Swachh Bharat.
 - Sampoorna Swachhata:** Mega cleanliness drives targeting difficult and dirty spots (Cleanliness Target Units).
 - SafaiMitra Suraksha Shivir:** Single-window service, safety, and recognition camps for sanitation workers' welfare and health

About SBM

- Genesis:** Launched on 2nd October, 2014 (birthday of Mahatma Gandhi) as a national movement.
- Objective:** Accelerate the efforts to achieve universal sanitation coverage and to put the focus on sanitation.
- Sub-missions:** It has 2 Sub-missions (Both are Centrally Sponsored Scheme)
 - Swachh Bharat Mission (Gramin):** Under Ministry of Jal Shakti
 - SBM (G) Phase-II (2020-21 to 2024-25) is under implementation.
 - Swachh Bharat Mission (Urban):** Under Ministry of Housing and Urban Affairs (MoHUA)
 - SBM-U 2.0 Phase II is under implementation till 2026.
- Adopts a '**Whole of Government Approach**' (see infographic)
- Significance of SBM:** The scheme has improved **Water, sanitation and hygiene (WASH)** in India and played a role in **improving Health, Social and Environmental Outcomes**.

Transformative role of SBM in improving Health, Social and Environmental Outcomes

- Maternal and Newborn health:** As per a research, districts with > 30% toilets constructed under SBM corresponds with 5.3 **lower Infant Mortality Rate (IMR)** and 6.8 **lower Under-five Mortality Rate (U5MR)**.



- SBM saved the lives of 60 to 70 thousand children every year by curbing **Open defecation** which is a source of water and food contamination.
- **Diseases:** 300,000 fewer diarrheal deaths in 2019 compared to 2014. (WHO report)
 - **Cases of wasting among children are 58% higher** in non-Open Defecation Free areas (The Bill & Melinda Gates Foundation).
- **Student enrolment:** Poor WASH facilities act as a barrier to student attendance and enrolment, especially girls.
- **Violence against women:** With better access to sanitation facilities, 93% of women reported feeling safer at home. (UNICEF)
- **Savings in health expenditure:** Due to cleanliness, an average of 50,000 rupees was being saved every year by families in villages, earlier being spent as out of pocket expenditure to cure diseases. (UNICEF)
- **Livelihood Opportunities:** About 1.25 crore people were employed in one form or another. (UNICEF)
- **Environmental:** 12.70 times less likelihood of **groundwater contamination** reported traceable to humans. (UNICEF)

Why has SBM been successful in improving health, social and Environmental Outcomes?

The success of SBM lies in its new approach of combining toilet construction with **community engagement and substantial investments** in IEC (Information, Education and Communication) to bring **behavioural change**.

- **Invested in capacity building and training programs** for government officials, frontline workers, volunteers, and communities.
- **Established waste segregation**, collection, transportation, and disposal systems, along with treatment plants and recycling centers for effective waste management.
- Introduced **mobile and web applications** for citizen engagement and monitoring.
- **Assessment of progress** through the National Annual Rural Sanitation Survey (NARSS).

Major issues with SBM

- **Behavioural change:** During surveys, in many households it has been found that toilets are being used as storage of cow dung etc.
- **Infrastructure:** Inadequate waste management systems, and sewage treatment plants etc.
 - Low quality of raw materials being used in the construction of toilets under SBM-G.
- **Availability of water:** States with poor access to water in toilets have a higher share of households contributing to open defecation.
- **Funding:** Allocation of budget declined from ~16000 crore in 2017-18 to ~7000 crore in 2024-25.
 - Also, fund utilisation for **IEC** activities has also declined.



- **Solid and Liquid Waste Management (SLWM):** Lack of waste segregation and dispersed population further creates roadblocks in bringing economically viable market-based solutions.

Way Forward

- **Behavioural change:** This should be done through mechanisms such as extensive awareness campaigns.
 - **IEC interventions** under the Mission must be utilised effectively for creating awareness about SLWM.
- **Standard Infrastructure:** For effective Sanitation, nodal agencies need to ensure that the standard quality raw materials are used.
- **Water availability:** Provision of water availability should be prioritised along with construction of toilets to attain ODF status across all villages.
- **Reliable Data:** Information on ODF declared villages/cities must be collected accurately on a continuous basis, either through an institutional mechanism or through resurveys.
- **Utilising Unspent balances:** In case the State Implementing Agencies are not utilising the normal allocation, the government may frame state specific action plans to liquidate the unspent balances.
- **Release of central share:** Installments of central share should be released strictly only after-ascertaining the veracity of **Utilisation Certificates (UCs)** received by the central government from states.

AB PM-JAY

Context:

Union Cabinet approved health cover for senior citizens under the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY).

Details of expansion of Scheme

- **Eligibility Criteria:** All senior citizens **aged 70 and above** regardless of their income.
 - The scheme is set to benefit **about 6 crore** senior citizens.
- **Benefits offered:** Senior citizens will receive a family-based **cover of Rs. 5 lakh annually**.
 - Those already covered by AB PM-JAY will receive an **additional top-up of Rs. 5 lakhs annually**, separate from their family's existing cover.
- **Ease of Access:** Eligible senior citizens will be issued a **distinct card**.
- **Other Key features:**
 - **Senior citizens** already availing benefits of **other public health insurance schemes** may either choose their existing scheme or AB PM-JAY.



- Senior citizens under **private health insurance or Employees' State Insurance schemes** are also eligible for AB PM-JAY benefits.

About AB PM-JAY (2018)

- **Ministry:** Ministry of Health & Family Welfare
- **Type:** **Centrally Sponsored Scheme** under Ayushman Bharat Mission
- **Background:** PM-JAY was earlier known as the **National Health Protection Scheme (NHPS)**.
 - It subsumed the then-existing **Rashtriya Swasthya Bima Yojana (RSBY)**, 2008.
- **Purpose:** To reduce the financial burden on poor and vulnerable groups arising out of catastrophic hospital episodes and ensure their access to quality health services.
 - It aims to achieve the agenda of **Universal Health Coverage (UHC)**.
- **Target:** 12 crore families (approximately 55 crore beneficiaries), prioritising the **poorest 40% of the population**.
- **Funding:** Fully funded by the Government.
 - **Share of Centre and State is 60:40** (90:10 for North Eastern States and the two Himalayan States (Himachal Pradesh and Uttarakhand) and Jammu and Kashmir)
 - Central share is **100% for UTs** without legislature, while the ratio of contribution is **60:40 for those with legislature**.
- **Implementing Agencies:** National Health Authority (NHA) an autonomous body chaired by the Union Minister of Health & Family Welfare.
 - **State:** State HA headed by CEO appointed by the state government.
 - **District:** District Implementing Unit (DIU) chaired by DC/DM/Collector of the district.
- **Beneficiaries:** Identified through Socio-Economic Caste Census-2011 (SECC-2011).
 - Also, families that were covered under RSBY but did not form part of the SECC-2011.

Key Components of AB PM-JAY

- **Ayushman Arogya Mandirs (AAMs):** Creation of 1,50,000 AAMs, erstwhile Ayushman Bharat Health and Wellness Centres (AB-HWCs), to deliver Comprehensive Primary Health Care, that is universal and free to users.
 - They are envisaged to deliver **expanded range services, beyond Maternal and child health care** services, to include care for non -communicable diseases, palliative and rehabilitative care, Oral, Eye and ENT care, mental health etc.
- **Pradhan Mantri Jan Arogya Yojana (PMJAY):** Provides **Health cover of Rs. 5 lakh/family/year** for **secondary and tertiary care hospitalization**.
 - Covers up to **3 days of pre-hospitalization** and **15 days post-hospitalization** expenses.
 - **Cashless and paperless healthcare services** at the point of care.
 - **No restriction on the family size, age or gender**.



- All **pre-existing** medical conditions covered from **day one of enrolment**.
- **Nationwide Portability** through empanelled public or private hospital across India.

Concerns/Challenges associated with AB PM-JAY (as per CAG Report, 2023)

- **Errors:** Due to the absence of adequate validation controls, several errors were noticed in the beneficiary database such as **invalid names, unrealistic date of birth, duplicate PMJAY IDs, unrealistic size of family members** in a household etc.
 - E.g., in Tamil Nadu, 4761 registrations were made against seven Aadhaar numbers
- **Poor infrastructure:** Some of the Empanelled Health Care Providers (EHCPs) did not fulfil minimum criteria of support system and infrastructure and were not conformed to the prescribed quality standards and criteria.
- **Financial irregularities:**
 - **Inadequate validation checks** such as admission before preauthorization, transaction before inception of the Scheme, surgery after discharge of patient, payment prior to submission of claims, non-availability/invalid dates and other entries etc.
 - **Revenue** received from PMJAY was **not utilised** by Public/Government Hospitals **for the purpose defined** under PMJAY scheme.
- **Delays across implementation:** Such as in submission of claims by hospitals, approval of pre-authorisation, resolution of grievances etc.
- **Absence of the master data:** Due to lack of common format for maintaining the data.

Conclusion

AB PM-JAY has significantly transformed the healthcare landscape, providing essential coverage to millions and reducing financial burdens associated with medical expenses. NHA needs to take more proactive measures to ensure the implementation of initiatives in letter and spirit such as efficient validation process, improved infrastructure, geo-tagging of hospitals, regular verification, etc.

Child Sexual Exploitative and Abuse Material

Context:

Supreme Court penalised the possession and storage of Child Sexual Exploitation and Abuse Material (CSEAM) under the Protection of Children from Sexual Offences (POCSO) Act, 2012.

Judgement of Supreme Court

- **Overtured High Court Ruling:** Supreme Court **overtured** a **Madras High Court** ruling that held that **mere possession** of child pornographic material **does not violate the law** unless the individual had actively used a child or children for pornographic purposes.
- **Criminalized CSEAM Possession:** Supreme Court concluded that **not only physical possession but also "constructive possession** (power to control combined with knowledge of that control)" would



fall under **Section 15 of POCSO Act**, even if the person did not actively produce or distribute the content.

- Section 15 of POCSO Act penalizes the storage or possession of pornographic material involving children.
- **Common Malevolent Intent:** Though practically different, both the **acts of viewing CSEAM and engaging in child sexual abuse share a "common, malevolent intent:** the exploitation and degradation of a child for the sexual gratification of the abuser."
- **Violation of Fundamental Rights:** Supreme Court held CSEAM to be **violative of the fundamental rights of children**, especially right to live with dignity.
- **Change in Terminology:** Supreme Court has directed Courts across the country to abstain from using the term "child pornography" and instead use **"Child Sexual Exploitative and Abuse Material" (CSEAM)**.
 - Court suggested to the **Parliament to amend the POCSO Act** to replace the term and asked Union Government to **issue an ordinance** in the meantime.

Impact of CSEAM

- **Psychological Trauma** that can manifest as depression, anxiety and post-traumatic stress disorder
- **Victimization Cycle** exacerbating feelings of shame, guilt and worthlessness
- **Dehumanization** where child is treated as a commodity to be consumed
- **Social Impact** including intense social stigmatization and isolation
- **Economic Impact** such as academic underachievement, difficulty in securing employment and economic hardships

Suggestions of the Supreme Court

- **Sex Education:** Implementing comprehensive sex education programs that include information about the legal and ethical ramifications of child pornography.
 - These programs should provide young people with a clear understanding of consent and the impact of exploitation.
 - Court stressed on successful sex education programs like **Udaan program in Jharkhand**.
- **Constitution of Committee:** Union of India may consider **constituting an Expert Committee** tasked with devising a comprehensive program for health and sex education, as well as raising awareness about the POCSO among children.
- **Support and Rehabilitation:** Providing support services to the victims and rehabilitation programs for the offenders.
 - These services should include **psychological counselling, therapeutic interventions, and educational support** to address the underlying issues and promote healthy development.
- **Early Identification of At-Risk Youth:** Identifying at-risk individuals early and implementing intervention strategies for youth with problematic sexual behaviours (PSB).



- **Obligation of Government:** POCSO obligates Central and State Governments to undertake measures and ensure that its provisions are given wide publicity through media including the television, radio and print media.
- **Compassionate Society:** Society needs to adapt sensitive approach towards victims of POCSO Act offences by behavioral change, improving legal frameworks to protect them and ensuring that perpetrators are held accountable.

POCSO Act 2012

- **Objective:** POCSO is a self-contained comprehensive legislation for the purpose of **enforcing the rights of all children to safety, security and protection from sexual abuse and exploitation.**
 - It gives due regard for **safeguarding the interest and well-being of the child** at every stage of judicial process, incorporating child friendly procedures for reporting, recording of evidence, investigation and trial of offences.
- **Offences:** There are **three broad categories of sexual offences punishable** under POCSO: Sexual Assault, Sexual Harassment, and using a child for pornography.
 - POCSO defines 'child' as someone below 18 years of age.
- **2019 Amendment:** It introduced more stringent punishment including the **death penalty for committing sexual crimes** on children.
- **Special Court:** POCSO Rules provides that special court may pass an order for interim compensation to meet the needs of the child for relief or rehabilitation.
 - According to a report by India Child Protection, **Fast-Track Special Courts are much more efficient** than other courts in handling POCSO cases (For more detail on Fast-Track Special Courts, refer to box at the end of the article).

Other Measures to protect Children

- **Information Technology (IT) Act:** Amendments in 2008 widens the scope of the IT Act, 2000 by identifying offences to which children are most vulnerable.
 - **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021** aims to curb the circulation of CSEAM on social media platforms.
 - Rules make it mandatory for social media intermediaries to develop tools to identify CSEAM and block user access to such content.
- **Juvenile Justice (Care and Protection of Children) Act 2015:** Defines a child in need of care and protection as one who has been, is being, or is likely to be abused, tortured, or exploited for sexual or illegal purposes.
- **Bharatiya Nyaya Sanhita:** Chapter V deals with offences against woman and child, especially sexual offences.
- **National Action Plan for Children 2016:** It focuses efforts on preventing crimes against children, especially sexual offences.



- **Ratification of UN Convention on the Rights of the Child (CRC) 1990:** India also acceded to the CRC which further strengthens the CRC's provisions for online and offline offences against children.

Conclusion

The Supreme Court's decision marks a significant shift in the legal landscape concerning child sexual exploitation in India. By criminalizing mere possession of CSEAM and expanding legal protections for children, the Court has set the stage for stronger enforcement of child protection laws.

Related News: Fast Track Special Courts (FTSCs)

According to a report by India Child Protection, **FTSCs are much more efficient than other courts in handling rape cases and those related to POCSO Act.**

- Government created the **FTSC scheme in 2019** to set up FTSCs across the country, along with special POCSO courts, for expeditious disposal of rape and POSCO act cases.
 - **Ministry of Law and Justice** is implementing the scheme through State/UT governments and High Courts in close coordination.
 - It is a **Centrally Sponsored Scheme**, extended till March 2026.
 - **Members of FSTC:** Each court comprises of 1 Judicial Officer and 7 Staff Members.

Key highlights of Report:

- With an 83% disposal rate in 2022, and a **94% disposal rate in 2023**, FTSCs demonstrated **higher efficiency**.
 - In contrast, disposal rates of rape and POCSO cases across all courts were alarmingly low, with **only 10% of cases disposed in 2022**.
- As of August 2024, **total 755 FTSCs**, including 410 exclusive POCSO courts, are functional **out of 1023 earmarked courts**.
- India would need to include **at least 1,000 more FTSCs** in the scheme to clear all pending rape and POCSO cases across the country.
 - **24% of Nirbhaya Fund remain unutilized and unallocated**, through which additional FTSCs can easily operate for at least 2 years.

Sexual Harassment of Women at Workplace

Context:

Recently the Justice Hema Committee report revealed exploitation and sexual harassment of women and gender inequality in the Malayalam film industry.

Sexual Harassment at Workplace



- **Definition:** It refers to any **unwelcome sexual advance, demand for sexual favors**, or other verbal or physical conduct of a sexual nature that occurs at workplace.
 - **Over 419 cases, or about 35 per month, were reported in the country in 2022** (National Crime Records Bureau data).
- **Types:** Sexual Harassment has traditionally been divided into two well-known forms.
 - **Quid Pro Quo:** Involves seeking sexual favors or advances in exchange for work benefits such as promises of promotion, higher pay, etc.
 - **Hostile Work Environment:** Involves subjecting employees to pervasive or severe unwanted sexual behavior that creates an offensive, intimidating, or abusive workplace.
 - E.g., sexual jokes, inappropriate touching etc.

Impact of Sexual Harassment at Workplace

On Individuals

- **Career Disruption:** It creates an unsafe and hostile work environment, impeding women's professional growth and affecting their overall well-being.
- **Health Impact:** Victims of sexual harassment often experience heightened levels of stress and anxiety and suffer from diminished self-worth and confidence.
- **Violation of Fundamental rights of women:** Sexual harassment of Women at workplace is a form of **gender discrimination**. It violates women's right to equality under **Article 14** and **15** and right to life and live with dignity under **Article 21** of the Constitution.

On Workplace

- **Toxic Work Culture:** Sexual harassment can **entrench toxic workplace cultures that normalize discrimination, bullying, and inappropriate behavior, making the environment unsafe and non-inclusive for women**.
- **Decline in Productivity:** Sexual harassment often impact **organizational efficiency and financial performance**.

On Society

- **Perpetuation of gender Inequality:** Sexual harassment disproportionately affects women, reinforcing gender inequality by discouraging women's career growth and professional development.
- **Lower women workforce participation:** When women leave their jobs or careers due to harassment it lowers their representation in total workforce.
 - Harassment-related job changes or career disruptions also contribute to the gender pay gap.

Initiatives Undertaken

- **Vishaka Guidelines (1997):** These guidelines were laid down by the **Supreme Court of India** in response to the **Vishaka vs. State of Rajasthan case**.
 - Prior to the POSH Act, the Vishaka Guidelines were the **first significant step toward addressing workplace sexual harassment in India**.



- **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act):** Aims to prevent and address incidents of sexual harassment of women at their place of work and provide a mechanism for redressal of complaints related to such harassment.
 - It provides for **Internal Complaints Committee (ICC) and Local Complaints Committees** to handle complaints of sexual harassment.
- **Sexual Harassment electronic -Box (She-Box):** Online complaint management system for registering complaints related to Sexual Harassment at workplace launched by Ministry of Women & Child Development in 2017.
- **Convention on the Elimination of All Forms of Discrimination against Women:** International convention which recognizes protection against sexual harassment and right to work with dignity as universal human rights.
 - **India ratified the convention in 1993.**

Way Forward

- **Strengthening Implementation of the POSH Act:** By conducting **random audits** to ensure that companies have set up ICCs and introducing **stricter penalties** on organizations that fail to comply.
 - **Local Complaints Committees** should be made more accessible to women in informal sector.
- **Promoting Gender Equality in the Workplace:** Gender diversity in senior positions helps **dismantle patriarchal structures** and reduces the occurrence of harassment.
- **Collaboration with Civil Society groups:** In educating and supporting women, especially in informal sector, such as agriculture and domestic work.
- **Recommendations of Hema Committee:**
 - **Femininity to be divorced from passiveness and silent suffering.**
 - **Characterisation of Women in cinema:** Depicting as holders of powerful positions like Civil Servants, Ambassadors, leaders, etc.
 - **Gender Awareness Training Program:** Challenging the monopoly of power enjoyed by men; projecting women equal to men.
 - **Redefining Masculinity and Femininity:** Masculinity to be equated to justice, equality, and compassion instead of violence and aggression.
 - **Creation of a Welfare Fund:** For the support of women in job break due to childbearing, health or other responsibilities.

Lakhpati Didi

Context:

Recently, Prime Minister felicitated 11 lakh new 'Lakhpati Didis' in a function organised at Jalgaon in Maharashtra.

Download Our Application



Freedom UPSC with **Dhananjay Gautam**

Page No

105



More on the news

- The PM also released a **Revolving Fund of ₹ 2,500 crore**, benefiting about 48 lakh members of 4.3 lakh Self-Help Groups (SHG).
 - The Revolving Fund is a mechanism to **accelerate the process of internal lending** and increase the size of the corpus in the development of Self-Help Groups.
 - The main purpose of providing Revolving Fund to SHG is to **inculcate the habit of thrift and credit among the SHG members** and build their institutional capacities on the management of external funds.
 - It is a permanent fund of the SHG.
- He also **disbursed bank loans of Rs 5,000 crore** which will benefit 25.8 lakh members of 2.35 lakh SHGs.

About Lakhpati Didi Initiative

- Lakhpati Didi is not a scheme but an **output of the Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM) scheme** of the Ministry of Rural Development (MoRD).
 - DAY-NRLM aims to bring **at least one woman member** from **each rural poor household** into the fold of **SHGs** and to support them to take **economic activities**.
 - DAY-NRLM is being implemented since 2011 in a mission mode.
- A Lakhpati Didi is a SHG member **who earns an annual household income of Rupees One Lakh or more**.
 - This income is calculated for **at least four agricultural seasons and/or business cycles**, with an **average monthly income exceeding Rs. 10,000**, so that it is sustainable.
 - Launched in 2023
 - **Target:** Enabling three crore Lakhpati Didis
- It focuses on **diversified livelihood activities, district-level planning, household support, Government department convergence, and capacity building of staff and community members**.

Criteria for identifying potential Lakhpati Didis

- A SHG member who has completed a minimum of two years and has **availed of the Community Investment Fund (CIF)**.
- A beneficiary of livelihood intervention through the mission and **practising at least two livelihood activities**.

Financial support available to Self Help Groups and its members

- **Capitalization Support:**
 - **Revolving Fund: Rs. 20,000 to Rs. 30,000 per eligible SHG** to catalyze the process of internal lending and to enable them to meet the immediate credit needs of the members.



- **Community Investment Fund (CIF):** This financial support is provided **only to SHGs and their federations** to advance loans to enable members to undertake socio-economic activities as per micro-credit/ investment plans.
 - The maximum amount admissible for **Community Investment Fund** is **Rs. 2.50 lakh per SHG**.
- **Bank Loan**
 - **Collateral-free bank loan** up to Rs. 20 lakh for SHGs.
 - **Interest Subvention:** Interest subvention, to cover the difference between the **Lending Rate of the banks and 7%, on all credit from the banks/ financial institutions** availed by women Self Help Groups, for a **maximum of Rs. 3,00,000 per Self Help Group**.
 - **Overdraft Facility:** Every **SHG women member** having a Jan-Dhan Account is eligible for an **Overdraft (OD) limit of Rs. 5,000**.
- **Aajeevika Grameen Express Yojana (AGEY):** Loans are provided at subsidised rates as an incentive for **entrepreneurs to provide rural transport services for people and goods**.
 - For Individuals, loans up to Rs. 6.5 lakhs and for Groups (SHG/VO/CLF/PG/PE) Loans up to Rs. 8.5 lakhs are provisioned.
- **Vulnerability Reduction Fund (VRF):** It is a fund **given to the Village Organisations (VOs) as a Revolving Fund** given by the Cluster Level Federations.
 - The provision of fund is **Rs. 1,50,000/- to each VO**.
 - Vulnerability Reduction Fund is a fund (corpus fund) **given to address the vulnerabilities** like food insecurity, health risk, sudden sickness/hospitalization, natural calamity, etc., faced by the household(s) or community.
- **Women Enterprise Acceleration Fund:**
 - **For individual enterprises**
 - **Credit Guarantee Support:** Credit guarantees to individual women entrepreneurs for **loans up to Rs. 5 lakh for a maximum period of 5 years**.
 - **Interest Subvention on prompt payment:** **2% interest subvention** to incentivise good repayment behaviour for **loans up to Rs. 1.5 lakh for a maximum duration of 3 years**.
 - **For enterprise collectives/ FPOs**
 - **Collateral Support to Enterprise Collectives/ FPOs:** The fund will be used to provide **collateral up to 50% of the total credit extended (or up to Rs. 2 crore, whichever is less)** to lending institutions.

Significance of Women-led SHGs: Lakhpati Didi

- **Shifting focus:** There is a **shifting focus from SHGs being mere channels of social and financial inclusion to empowering them to pursue entrepreneurial ventures** and move towards **higher income brackets**.



- **Increasing Bargaining power of Women:** Through increased involvement in **financial decision-making**, strengthened **social connections**, **ownership** of assets, and **diversification of livelihoods**.
- **Economic development:** Women-SHGs are pioneering the **growth of micro enterprise** and **creating jobs** especially in rural areas.
- **Credit Quality:** The gross **Non-Performing Assets (NPAs)** for the loans taken by women Self-Help Groups (SHGs) is 1.6%.
- **Access to public service delivery:** SHGs act as a **medium of delivering benefits** of various **government schemes** like DAY-NRLM, MGNREGA, ICDS etc.
 - **E.g. Tribal women SHGs in Gumla, Jharkhand** handled the supply chain from procurement to marketing under **Mission Ragi**. It helped tackle **anaemia and malnutrition** with improving **farmers' income**.
- **Poverty alleviation and Social mobility:** **65%** of rural SHG members have **moved upwards** in terms of **relative income** in between FY19 and FY24 (SBI report).
- **Pressure Groups and Political participation:** Their **participation in governance** process enables them to **highlight issues** such as **dowry, alcoholism, open defecation, primary healthcare** etc. and impact policy decision.

Challenges faced by Women-led SHGs

- **Socio-cultural rigidities:** **Patriarchy, caste dynamics, lack of exposure and literacy** etc. limit participation and growth of women-led SHGs.
- **Lack of digital empowerment:** Women SHGs lack the knowledge and skills related to **digitization** with **low access to technology and internet**.
- **Lack of quality training and skilling:** It hinders the growth of Women SHGs-led micro-enterprises due to **poor marketing strategies, product quality issues** etc.
- **Regional disparities:** The Status of Microfinance Report (2019-20) published by the National Bank for Agriculture and Rural Development (NABARD) reports that around 68.56% of total SHGs are located in south.
- **Lack of awareness:** The poor women have **limited access to knowledge and guidance** about benefits of SHGs and often, **elite capture** of SHGs is prevalent, undermining the original purpose.

Way Forward

- **Training and skilling:** Quality training and skill development are essential for empowering SHG members as agents of social change.
- **Technological advancement:** Promote the use of technology in SHG operations by enhancing digital literacy and access. E.g., Project EShakti by NABARD.
- **Regional focus:** Target initiatives like the scheme for promoting Women SHGs (WSHGs) in backward and LWE-affected districts.
- **Monitoring, Evaluation, and Learning (MEL):** Implement a robust system to assess internal processes and effectiveness, ensuring transparency and accountability.



- **Coordination with stakeholders:** Link SHGs with corporates and civil society organizations to provide support and scale up their enterprises.

Other Short News

Subtle Gender Discrimination in Society

Vice-President emphasized on paying attention to pervasive subtle gender discrimination in society.

- **Gender discrimination in overt forms (e.g. Lack of gender sensitive infrastructure)** has ostensibly vanished but it has **assumed subtle forms**.
- **Subtle gender discrimination** manifests through **attitudes** and behaviors that seem **supportive** but **reinforce traditional gender roles** and perpetuate **inequality**.

Subtle forms of Gender Discrimination:

- **Reinforce Stereotyping:** Positive comments that reinforce traditional gender roles and undermine women's capabilities.
- **Hiring, Promotion, and Evaluation:** Unconscious bias towards male candidates for roles traditionally perceived as requiring physical strength or leadership.
- **Microaggressions:** For instance, implying that women are less committed to their careers due to family reasons.
- **Work-Life Balance Assumptions:** Assumptions about work-life balance needs might affect women more due to **societal expectations around caregiving and family responsibilities**.

Addressing Subtle Forms of Gender Discrimination

- **Blind evaluation:** E.g. Hiding a job applicants' physical attributes
- **Creating a Culture of Inclusivity:** Promoting workplace that respects input from everyone regardless of gender.
- **Assess unconscious gender bias at workplace:** Through a variety of methods, including perceptions surveys, language analysis, analysis of gender gaps in pay and career advancement.
- **Need to Change male mindset:** Through wider gender sensitization

NPS Vatsalya Scheme

National Pension System Vatsalya (NPS Vatsalya) scheme, a pension scheme for minors, has been launched.

NPS Vatsalya Scheme

- **Eligibility:** All minor citizens (age below 18 years).
 - On attaining the age of majority, plan can be converted seamlessly into a normal NPS account.
- **Regulation and Administration:** Pension Fund Regulatory and Development Authority (PFRDA).



- **Objective:** Promoting long-term financial planning and security, inculcate habit of savings and dignified life in old age.
- **Subscriber Contribution:**
 - **Minimum:** Rs 1000/- per annum.
 - **Maximum:** No limit.
- PFRDA will provide **multiple investment choices** to subscribers such as government securities, corporate debt, equity etc.

New India Literacy Programme (NILP)

Ministry of Education (MoE) defined **Literacy and Full Literacy under New India Literacy Programme (NILP)**.

To support adult education/literacy as emphasized in **NEP 2020 and SDG 4.6** (ensuring all youth and adults achieve literacy and numeracy by 2030), it is essential to define both Literacy and Full Literacy.

- **Literacy:** Ability to **read, write, and compute with comprehension**, i.e. to identify, understand, interpret and create along with critical life skills like digital and financial literacy etc.
- **Full Literacy (to be considered equivalent to 100% literacy):** Achieving 95% literacy in a State/UT that may be considered as equivalent to fully literate.

About New India Literacy Programme (NILP)

- Also known as **ULLAS (Understanding of Lifelong Learning for All in Society)**.
- **Launched by MoE**, it is a **Centrally Sponsored Scheme**.
- **Tenure:** FYs 2022-27 (5 years).
- **Objective:**
 - **Targets all non-literates of age 15 years and above**, with more **focus on females and educationally backward states**.
 - **Target 5 crore learners (1.00 crore per year)** by using “**Online Teaching, Learning and Assessment System (OTLAS)**” in collaboration with National Informatics Centre, NCERT and NIOS.
- **Implemented through volunteer teachers**, students of schools and Higher Education Institutions and Teacher Education Institution.
- It is **in alignment** with recommendations of **NEP 2020**.
- **Need:** Absolute number of non-literates in 15 years and above age group is 25.76 crore (Census 2011).



Bharatiya Antariksh Station (BAS)

Context:

Union cabinet has approved the **building of first unit of the Bharatiya Antariksh Station** by extending the scope of Gaganyaan program.

About Gaganyaan Programme

- **Genesis:** Gaganyaan Programme '**India's first Human Space Flight**' mission was approved in December 2018.
- **Objective:** The programme envisages to-
 - **Transport a team of astronauts to an orbit 400 km** above Earth for a **three-day expedition** before safely returning them in the short term.
 - Lay the **foundation for a sustained Indian human space exploration programme** in the long run.
- **Technological development:** The pre-requisites for Gaganyaan mission include development of many critical technologies including:
 - Human rated launch vehicle (LVM 3) for carrying crew safely to space,
 - Life Support System to provide an earth like environment to crew in space,
 - Crew emergency escape provision and;
 - Evolving crew management aspects for training, recovery and rehabilitation of crew.

More on the News:

- **Revised Gaganyaan Programme include:**
 - Development of **first module of BAS** and four missions for **demonstration & validation of various technologies for BAS** by December, 2028.
 - **Four missions** under **ongoing** Gaganyaan Programme by 2026
- The total funding for Gaganyaan Programme with the revised scope has been enhanced to **over ₹120000 Crore** from around ₹12000 Crore.

About Bharatiya Antariksh Station

- BAS is India's **planned space station for scientific research** which will orbit around **400 to 450km** above the Earth's surface
 - It will have **five modules** and will be built in phases.
- **Targets:** The **first module** (the Base Module) **will be launch in 2028** and BAS will be operationalized by 2035.
- **Current Status:** BAS is **currently in conceptualization phase**, under which overall architecture, number and types of modules, docking ports etc. are being studied.

Significance of BAS

Download Our Application





- **Spaceflight and human habitation:** BAS will serve as a testing ground to study how to keep astronauts safe and healthy on long-duration missions. It will also **support India's other long-term space goals**
- **Earth observation:** Space Station can provide better spatial resolution and variable lighting conditions. It can **assist in dealing with natural disasters**.
- **Microgravity research:** For example, muscles and bones react differently in space than on Earth. Thus, on BAS controlled experiments can be fast-tracked to study health conditions such as **muscle atrophy and bone density loss**.
- **Fostering innovations:** Small entrepreneurs can test their technology in space. This can generate increased employment opportunities in high-technology sectors related to space and allied industries.
 - Current size of the **global Space economy is \$ 546 billion** and India's share is **only 2%**. (2023 report by **NASSCOM and Indian Space Association**)
 - India has a vision of increasing its share to **10%**.
- **Technological spin-offs: Spin-off products** are spacebased innovations and technologies that find application in other sectors like **use of:**
 - Space-derived data **processing algorithm** for **environmental monitoring or**
 - **Advanced materials** developed for, **automotive, construction and spacecraft for aerospace**.
- **International Prestige:** By building a space station, India joins a select group of countries, elevating its global standing and potentially fostering international collaborations.

Challenges regarding Indian space station:

- **Project Development Related Challenges:**
 - **Low R&D budget:** India's expenditure on **research and development (R&D)** as a percentage of GDP is relatively low, **standing at just 0.7%**.
 - Financial constraints could limit the pace and scope of the project and the experiments it can host.
 - **Developing new technology:** India has proved its capabilities in satellite development. But a space station requires a separate set of skills and systems.
 - It involves **life support, radiation protection, structural integrity and orbital maintenance**.
 - **Managing geopolitical issues:** A space station is not only a scientific endeavour, but also a strategic asset.
 - The country will have to deal with potential competition from, and build cooperation with, other space-faring nations, such as the US, Russia, China and the European Union.
- **Space Related Challenges:**
 - **Hazards to astronaut health:** The space environment can be lethal without the correct protection equipment and precautions. The greatest threats are



- a lack of oxygen and pressure in closed environments;
 - expansion of the **cerebral ventricles** (spaces in the middle of the brain that contain cerebrospinal fluid which protects the brain by providing it a cushion in case of a sudden force or a jolt);
 - **altered gravity fields**;
 - **radiation and the psychological effects** of isolation and confinement.
- **Space debris:** Increase in space debris pose significant challenges in space operations and require technological sophistication to avoid collisions.

Way Ahead

- **Securing adequate funding:** India will have to seek international collaborations and private-sector involvement to ensure sufficient funding.
- **Capacity development:** Upgradation needed in ISRO's technological infrastructure for components like life support, radiation protection, structural integrity and orbital maintenance, etc.
- **Long-Term Sustainability:** India must develop a clear plan for regular maintenance, resupply missions, and upgrades to ensure its space station remains operational.
- **Managing geopolitical issues:** India will have to **balance its national interests and international obligations** while pursuing its space station project.
 - India will also have to adhere to the existing norms and regulations of space law and governance.
- **International Cooperation:** Collaboration with nations possessing space station (US, Russia) experience can provide valuable insights and reduce costs.

Other Space stations:

- **Inoperative**
 - **Salyut 1:** It was **world's first space station** launched by the **Soviet Union in April 1971**.
 - **Skylab:** It was USA's first space station, launched by NASA in 1973.
- **Operative**
 - **International Space Station (ISS):** It is a large space station that was assembled in 1998 and operational since 2000.
 - It is maintained in low Earth orbit by a collaboration of **five space agencies** and their contractors: **NASA (United States), Roscosmos (Russia), ESA (Europe), JAXA (Japan), and CSA (Canada)**.
 - **China:** Tiangong 1 launched in 2011, Tiangong -2 launched in 2016 were test space labs and Tiangong space station was launched in 2021 (fully operational since late 2022).
- **Upcoming:**



- **Gateway Space Station:** NASA-led Gateway Program is an international collaboration to establish **humanity's first space station around the Moon** as a vital **component of the Artemis campaign**.
- **Axiom Station:** It is a commercial space station being developed by Axiom Space to operate in low-Earth orbit. It will be the **first commercial space station** in the world.

Brain Computer Interfaces (BCIs)

Context:

Recently **Neuralink's 'Blindsight'**, a Brain-Computer Interface (BCI) implant, received **"breakthrough device" status** by US Food and Drug Administration (FDA).

More on the News

- The 'Blindsight Chip' is aimed at **helping blind patients** (who have lost their both eyes and optic nerves) or those who have been **blind from birth** to regain their sight
 - However, regaining of sight will **only be possible if the visual cortex is intact**.
- FDA's **Breakthrough Device Designation (BDD)** program helps **speed up the development, review, and assessment of medical devices** that can help diagnose or treat life-threatening or debilitating diseases.

About Brain-Computer Interface (BCI) implant

- A BCI is a **computer-based system** that **acquires brain signals, analyzes them, and translates them into commands** that are **relayed to an output device** to carry out a desired action (refer to the infographic below).
- Thus, a **BCI has three main parts**:
 - **Device to measure brain activity**, It is usually in form of a headset that has specialized sensors
 - **A computer to process and analyze** the recorded **brain activity**.
 - **Application/device** to carry out command.
 - Once the computer has 'determined' what the user wants to do, it will send a signal to application/device to carry out command.
- **Another important part of BCI is feedback**: Providing feedback helps user **adapt to BCI system**
- **User and BCI work together**: User, often after a period of training, generates brain signals that encode intention,
 - And BCI, also after training, decodes the signals and translates them into commands to an output device that accomplishes the user's intention.
- Thus, **BCIs do not use** the brain's normal output pathways of **peripheral nerves and muscles**.



- This definition strictly limits the term *BCI* to **systems that measure and use signals produced by the central nervous system (CNS)**.
- **BCI do not read minds** in the sense of extracting information from unsuspecting or unwilling users **but enable users to act** on the world by **using brain signals rather than muscles**.

Types of BCIs

- **Invasive BCI (Brain Implants):** Invasive BCIs are **implanted** directly into **grey matter of brain** during neurosurgery. **Recorded brain activity** is much **stronger**.
 - E.g., **Neuralink's Implant**.
- **Non-invasive BCI (Surface Detectors):** Set of electrodes, known as an **electroencephalograph (EEG)** attached to scalp. **Electrodes** can read brain signals.
 - E.g., **Electroencephalography (EEG)**, Functional Magnetic Resonance Imaging (fMRI) etc
- **Partially Invasive BCIs (Dura Mater Implant):** Partially invasive BCI devices are **implanted inside the skull but rest outside the brain** rather than within the grey matter. They produce better resolution signals than non-invasive BCIs.
 - E.g., **Electrocorticography (ECoG)**, It records brain activity by placing electrodes in direct contact with cerebral cortex or surface of the brain.

Challenges in Brain Computer Interfaces:

- **Technical Challenges:** Inability to interpret complex neural patterns, weak brain signals & environmental interference etc.
 - Invasive BCI **can damage nerve cells and blood vessels**, hence increasing risk of infection.
- **Brain Tapping:** Intercepting brain signals can **compromise privacy**, revealing emotions, preferences, and beliefs.
- **Misleading Stimuli Attacks:** Manipulating signals or feedback could lead to **brain hijacking**, potentially influencing behavior.
- **Legal Barriers:** Currently, **no comprehensive legal framework governs the use of BCIs**, particularly in terms of safety, efficacy, and data protection.
- **Ethical concerns:**
 - Question of **Informed consent, potential for stigma and discrimination, research ethics, compromised autonomy** etc.
 - Direct interaction between brains and machines brings may result in **of cyborgization**.
 - Cyborgs can have a **variety of enhanced abilities**, including: Greater strength, improved senses, Computer-assisted brains, and Built-in weaponry.

Way- forward

- **Transparency & Consent:** BCI applications must adhere to privacy regulations ensuring informed user consent.
- **Regulatory Oversight:** Legal frameworks should restrict harmful BCI practices.



- **Enhanced Security:** Research is needed for advanced security measures, including cryptographic protection.
- **Public Awareness:** Educating the public about the risks and safety measures for BCIs is essential.

Key Concepts

- **Neuron, Control and co-ordination:**
 - Brain is made up of millions of cells called **neurons**. These neurons work together in large **networks** to coordinate processes in body (**Hearing, taste, heart rate etc.**) and execute movements.
 - Neurons communicate using **electrochemical** signals. When a neuron is **activated**, it generates electrical signal that is transferred to next neuron in network, which will transfer it to next, and so on.
 - In this way, **information can rapidly travel throughout brain**, connecting different areas responsible for different processes and body parts.
- **Brain Activity and Its Measurement:**
 - Brain activity **refers to the electrical signals** and chemical processes **that occur in brain**, which are responsible for various cognitive functions, emotions, sensations, and behaviors.
 - A single neuron on its own **doesn't generate much electrical activity**, but collective activity of neurons produce enough electrical activity for detection.
 - This electrical brain activity can be **measured by placing special sensors onto/into head**.
- **Electroencephalography (EEG) based BCI:** EEG has become possible due to work and discovery by Hans Berger who discovered in 1924 that **electrical signals of the human brain** could be measured from scalp. Measuring brain activity by **external detectors or electrodes** is called **Electroencephalography (EEG)**.

Organ-On-Chip (OOC) Technology

Context:

Organ-on-chip technology, expected to be worth around \$1.4 billion by 2032, could boost BioE3 (Biotechnology for Economy, Environment, and Employment) goal to personalize medicine.

Organ-on-Chip (OoC) Technology

Other New Approach Methods:

- **Organoids:** They are **created by growing cells from a tissue**, embryonic stem cells, or induced pluripotent stem cells in a defined environment.



- **Spheroids:** Believed to **mimic tumor behavior** more effectively than regular **two dimensional (2D) cell cultures**.
 - **Bio printing:** Also known as 3D bio printing or **additive manufacturing**, is a technology that **uses 3D printing** to create living tissues and organs.
- OoC is one of the **human-relevant 3D culture models** which, also known as 'New Approach Methods' (NAMs).
 - 3D culture system allows researchers to recreate human organs and diseases in one dish.
 - It holds great promise for many applications such as **regenerative medicine, drug discovery, precision medicine, and cancer research, and gene expression studies.**
 - OoC is a **micro-scale system** used for **mimicking the human body environment**. They use **microfluidics, along with cells**, to imitate the physiological and mechanical conditions experienced in the body.
 - They can **control the movement and behaviour of materials and cells** by using channels, chambers, membranes, etc. The goal for organ-on-a-chip is to **develop human tissue models for disease modelling and drug testing**.
 - Researchers first reported the usefulness of an organ-on-chip model in a 2010 study.

Organ-on-a-Chip device has four key components

- **Microfluidics:** This **uses tiny channels to deliver cells** to specific locations and **manage fluid flow** during the culture process.
 - It is known for being small, integrated, and automated.
- **Living Cell Tissues:** This part involves arranging specific cell types in the right places to mimic tissue functions.
- **Stimulation or Drug Delivery:** Certain tissues need signals, like electrical or chemical stimuli, to create a realistic environment for tissue growth.
 - These signals can also be used in drug testing.
- **Sensing:** Sensors in the device track and measure data, either through built-in sensors or visual monitoring systems to evaluate the chip's function.

How does organ-on-a-chip technology work?

- **Cells** are placed on chip and allowed to grow into **3D structures with help of a polymer** that resemble real tissue in human body.
- It uses tiny fluid channels that **simulate blood flow**, oxygen delivery, nutrient transport etc. to create **miniature models of biological organs (lung, heart etc.)** on a chip-sized device.
- To create a more **realistic organ model**, different types of cells can be combined in layers, forming a 3D structure that better **represents complexity of real organs**.

Advantages of OoC technology



- **Precision Therapeutics:** By simulating a patient's unique tissue environment, researchers can test how specific drugs will affect that individual/Group, leading to more precise treatment plans.
 - **Precision Medicine** takes into account **individual variability in genes, environment, and lifestyle** for each person.
 - Earlier it was known as **Personalized medicine** However, there was concern that word "**personalized**" could be misinterpreted to imply that treatments and preventions are being developed uniquely for each individual
- **Drug efficacy testing:** OoC provide more accurate predictions compared to traditional methods such as animal testing or in vitro cell cultures. E.g. **Liver-on-Chip for Hepatitis Treatment.**
- **Accurate Human Physiology Simulation:** OOC models replicate the structure and function of human organs more accurately than traditional 2D cell cultures.
- **Ethical Alternative to Animal Testing:** Since OOC devices use human cells and tissues, they can reduce the need for animal testing.
- **Complex Organ Interactions:** OOC systems can link multiple organ models together, simulating how different organs interact within body.
- **Research on disease mechanisms:** By mimicking human organ functions and creating disease models on these chips, researchers can gain a **better understanding of disease progression**, cellular behavior, and potential therapeutic targets.
 - In COVID-19 research, lung-on-chip systems were used to study how **SARS-CoV-2 virus** infects **human lung tissue**.

Challenges with Organ on Chip Technology

- **Technical Complexity and Standardization:** Reproducing Complex Organ Functions and lack of universally accepted protocols and materials for creating OOC devices.
- **Integration of Multi-Organ Systems:** Accurately scaling different organ systems and ensuring proper communication between them is technically difficult.
- **Ethical and Legal Issues:** Particularly related to data privacy, intellectual property, and use of patient-derived cells.
- **Other challenges:** Lack of Regulatory Framework, Limited Immune System Modelling, High Cost etc.

Steps taken for development of Precision Medicine and Organ on chip technology:

- **At Indian Level:**
 - **BioE3 policy:** To drive innovation in the biotechnology sector, Key focus area of the policy is precision therapeutics.
 - **Amendment of New Drugs and Clinical Trials Rules 2019:** To permit the use of human organs-on-chips and other NAMs prior to and in conjunction with animal testing when evaluating new drugs.



- **Genome India Project (GIP):** Government-led initiative to create a genetic map of India. GIP aims to **develop personalized medicine** based on patients' genomes to anticipate and modulate diseases.
- **Phenome India Project:** By CSIR for generating a comprehensive phenome database tailored to the Indian population for advancing precision medicine.
- **Indian Cancer Genome Atlas (ICGA):** ICGA's mission is to create a database of cancer data specific to India to help researchers and clinicians develop personalized cancer treatments.
- **At Global Level:**
 - **FDA Modernization Act 2.0:** Passes in 2022 by USA, It allowed researchers to use **organs-on-chips** as alternatives for drug testing in **preclinical stages** of development.
 - **International pharmaceutical companies:** Bayer is collaborating with Tissue for a liver and multi-organ-on-a-chip model.

Conclusion

While organ-on-chip technology holds great promise for advancing drug discovery, disease research, and personalized medicine, several challenges must be overcome before it can achieve widespread adoption. With continued investment and innovation, organ-on-chip systems could play a transformative role in future healthcare solutions.

Vishvasya: National Blockchain Technology Stack

Context:

Recently, Union **Ministry of Electronics and Information Technology (MeitY)** has launched the '**Vishvasya: National Blockchain Technology Stack**'.

More on the News

Additionally, **MeitY** has also launched:

- **NBFLite:** A Blockchain sandbox platform, developed especially for startups/academia for rapid prototyping of applications, carrying out research and capacity building.
- **Praamaanik:** A solution that harnesses Blockchain technology to verify mobile app origins and is powered by the National Blockchain Framework.
- **National Blockchain Portal:** It is developed on the theme based on Content Management System to manage the contents related to the National Blockchain Framework initiative.

About Vishvasya: National Blockchain Technology Stack

- It offers **Blockchain-as-a-Service (BaaS)** with a geographically distributed infrastructure designed to support various permissioned Blockchain based applications.



- **BaaS** is third party **cloud-based infrastructure** and management that organizations and businesses use for developing and managing blockchain applications.
- It is a part of the broader **National Blockchain Framework (NBF)** provided under the **National Strategy on Blockchain**.
 - **NBF** is meant for effectively utilize the **Blockchain technology in different domains** such as health, agriculture, education, finance, etc.
- **Significance of BaaS**
 - Facilitates in **enabling trust** by developing new types of distributed software architectures, capable of finding consensus on their shared states and providing a **single source of truth**.
 - Addresses the **challenges of Blockchain adoption** across various stakeholders including Infrastructure Providers, Smart Contract Developers and Application Developers.
 - **Provides security** assurance of various Blockchain components across the stack.

What is Blockchain technology?

- **Blockchain** is an innovative **distributed ledger technology**, first introduced in the design and development of cryptocurrency, Bitcoin, in 2009, by **Satoshi Nakamoto**.
- It is an **amalgamation** of various technologies such as distributed systems, cryptography, etc.
- It is an **exchange process**, which works on **data blocks**. In this, one block is connected to another block.

Working Mechanism

- **Data and transactions** executed over the network are stored in the **ledger in a decentralized** manner over peer-to-peer network.
- **Transactions** are **validated and verified** through consensus protocols across nodes of the Blockchain network.

Properties of Blockchain

- **Smart Contracts:** Auto execution of digital contracts.
- **Distributed:** All Trusted participants have a copy of the ledger for complete transparency.
- **Immutable:** Any validated records are irreversible and cannot be changed.
- **Time-stamped:** A transaction timestamp is recorded on a block.
- **Consensus:** All network participants agree to the validity of each of the records.
- **Trusted Data:** It is decentralized and managed by multiple participants.
- **Secured:** All records are individually encrypted

Types of Blockchain

- **Public Blockchain:** Operates in a decentralised open environment where there are no restrictions on the number of people joining the network (as peers or validators).



- e.g., Bitcoin and Ethereum.

- **Consortium Blockchain:** Operates in an environment where the rights to control who participates and what can be transcribed to the ledger is determined by a collection of known entities.
- **Private Blockchain:** It is a network with a single controlling entity, who has the power to determine who the participating entities in the network would be and their rights to append information to the ledger.

Potential applications of Blockchain Technology

- **Cryptocurrencies:** Cryptocurrencies (e.g., Bitcoin, Ethereum, Litecoin, Ripple, etc.) uses blockchain to record and verify transactions, which makes them secure and transparent.
- **Supply Chain Management:** It enables more efficient communication and collaboration between suppliers, manufacturers, distributors, and customers.
- **Voting Systems:** It can include features such as voter identification, eligibility checks, and ballot tracking, all of which can Identity Verification.
- **Intellectual Property Protection:** For e.g., **companies** can use blockchain technology to manage their trademarks and patents, ensuring that their intellectual property is protected and not used without their permission.
- **Records Management:** For e.g., Blockchain-based healthcare record management can also help improve data accuracy and integrity by providing a single source of truth for patient data.
- **Others:** Law Enforcement, banking, Internet of Things, crowd funding, etc.

Challenges in Blockchain Technology implementation

- **Performance:** Replication of data on each node leads to performance issues and slows down the performance as compared to traditional centralized systems.
- **Scalability:** Poor scalability due to factors such as complex architecture and configuration of the Blockchain platform, variable requirements for processing power, network bandwidth, etc.
- **Storage:** Demands heavy storage as data stored is replicated at all the nodes and becomes perpetual.
- **Energy Consumption:** Blockchain networks often require significant computational power, leading to high energy consumption.
- **Interoperability:** Interoperability between different blockchain platforms can be a challenge, especially in environments where multiple networks coexist.
- **Legal:** Section 43A of the **Information Technology Act, 2000** currently does not have safeguards mentioned from the perspective of Privacy when applied to Blockchain.
 - **Localization requirements:** Since public Blockchain automatically store data redundancies across all nodes on a network, it may hit a hurdle with localization requirements.

Other Initiatives taken to promote Blockchain Technology

India

- **National Strategy on Blockchain** by MeitY.

Download Our Application



Freedom UPSC with **Dhananjay Gautam**



- **Centre of Excellence in Blockchain Technology**
- **Future Skills PRIME:** For upskilling and reskilling in emerging technologies including Blockchain by NASSCOM and MeitY

Global

- **World Economic Forum's Presidio Principles:** A Blockchain Bill of Rights issued by World Economic Forum's Global Blockchain Council.
- **IBM's Blockchain World Wire:** A global payment network using blockchain to facilitate cross-border transactions.
- **Global Blockchain Business Council (GBBC):** An industry association promoting blockchain technology adoption across various sectors.

Conclusion

India's path to blockchain adoption requires a balanced approach that combines skill development, regulatory clarity to provide enabling, practical implementation through identification of specific use-cases, and robust security measures. By addressing these key areas simultaneously, India can create an environment conducive to blockchain innovation and adoption, positioning itself as a global leader in this transformative technology.

India's R&D Ecosystem

Context:

Union Cabinet has approved continuation of three umbrella schemes, into a unified scheme 'Vigyan Dhara' to enhance India's R&D ecosystem.

About Vigyan Dhara Scheme

- **Nodal Ministry:** Ministry of Science and Technology
- **Key objective:** To promote **S&T capacity building** as well as **research, innovation and technology development** towards strengthening the Science, Technology and Innovation ecosystem in the country.
- **Type:** Central Sector Scheme
- **Tenure:** From 2021-22 to 2025-26 (15th finance Commission period)
- **Potential benefits:**
 - **Building critical human resource pool** to strengthen the science and technology landscape
 - **Expand the R&D base of the country** towards improving the Full-Time Equivalent (FTE) researcher count.
 - Focused **interventions** to **enhance the participation of women** in the field of Science and Technology (S&T) for bringing **gender parity**.



About India's R&D ecosystem

R&D activities can be defined as any systematic and creative work undertaken in order to increase the stock of knowledge and use of this knowledge to devise new applications.

- Presently, India ranks **third worldwide in number of scientific publications** and Scholarly Output (2020).
- India ranks **6th in number of patents filed** (2022).
- India has achieved a significant milestone in **Global Innovation Index (GII) 2024**, securing **39th position among 133 global economies**.

Challenges of India's R&D ecosystem

- **Low budget:** Percentage of GDP devoted to R&D in India is among the lowest in the world (0.6% - 0.7%)
 - It is well below that in major nations such as the US (2.8), China (2.1), Israel (4.3) and Korea (4.2).
- **Large scale Brain drain:** A substantial number of India's best scientists and researchers migrate abroad for better opportunities leading to shortage of **qualified human resource**.
 - In 2020, researchers per million inhabitants in India was only 260, in comparison to 1,602 in China (**Budget 2024-25 analysis by PRS**).
- **Lack of inclusivity:** Socio cultural norms and hurdles deter many sections of the society including women from actively participating in R&D activities, shrinking the talent pool.
- **Challenges in translating research into successful technologies:** Due to factors like Skewed focus towards basic research in comparison to application-oriented R&D, **Weak Industry-Academia Collaboration** etc.
- **Persistent issues in India's educational system:**
 - **Low student enrollment in advanced programs** (total enrolment in Ph.D. stood at 2.12 lakh in 2021-22- as per All India Survey on Higher Education).
 - **Shortage of institutions offering research opportunities:** Only 2.7% Colleges run Ph.D. programme and 35.04% Colleges run Post Graduate Level programmes.
 - **Inadequate monitoring or evaluation of R&D projects** in educational institutes.

Way-forward for improving R&D ecosystem in India

It requires a multi-faceted approach addressing various aspects such as funding, infrastructure, policies and collaboration.

- **Finance**
 - **Increased funding:** India as a nation should invest at least 2% of GDP in R&D by 2030.
 - **Private sector investments:** Through joint investments by industry and government, establishment of PPP based incubators, Provision of incentives such as tax concessions with a sunset clause patent related incentive, etc.



- **Infrastructure and collaboration:** Establishing state-of-the-art laboratories and research centres is a crucial investment for advancing research infrastructure and driving progress.
- **Innovation**
 - **Intellectual Property Rights (IPR) protection:** Although India granted over 100,000 patents in the financial year 2023-2024, many patents remain underutilized.
 - This gap alludes to need for **collaborative efforts between research institutions, industry associations and government agencies.**
 - **Boost R&D culture in universities:** Financial and decision-making autonomy to universities; aligning thrust areas of research with global/regional challenges; etc.
 - **R&D committee/cell** can be established in universities; universities/institutes can be given **special status in distinctive geographical regions**; etc.
- **Collaboration for translation of research into technologies:** Strategic partnerships and innovation clusters can be developed with multiple stakeholders including industry players, research organizations, institutions, associations, NGOs, government bodies.
- **Investment in education and skill development:** Reallocation of government funds with a greater share for basic and applied research in the premier educational institutions from the present 10%.
- Proper implementation of **National Education Policy (NEP) 2020** which aims at creating a conducive ecosystem to **catalyse and energize research and innovation in Higher Education Institutions** would also improve R&D ecosystem

Graphene

Context:

Recently, Union Ministry of Electronics and Information Technology (MeitY) launched **India Graphene Engineering and Innovation Centre (IGEIC)** under the vision of **Viksit Bharat@2047**.

About India Graphene Engineering and Innovation Centre (IGEIC)

- **About:** It is the not-for-profit company (registered under **Section 8** of the **Companies Act, 2013**).
- **Purpose:** It is exclusively incorporated to **create a hub of excellence in Graphene technology commercialization**.
- **Focus:** On a range of applications such as electronics, energy storage, healthcare, material coating, conveyance systems, and sustainable material development.
- **R&D setup** in Trivandrum (Kerala).
- **Corporate & Business Development hub** in Bangalore (Karnataka).

What is Graphene?



- Discovered in **2004** by **Andre Geim** and **Konstantin Novoselov**, who received the Nobel Prize in Physics for this in **2010**, it is an **allotrope of Carbon** and **building-block** of Graphite (which is used in pencil tips).
- It is a **single layer (2D-dimensional)** of carbon atoms, tightly bound in a **hexagonal honeycomb lattice**.
- **Methods for the synthesis of Graphene sheets:** Chemical vapour deposition (CVD), cleavage of natural graphite, mechanical exfoliation, hydrogen arc discharge, etc.
- It is often referred to as a **wonder material** for its **extraordinary electrical and electronic properties**.

Properties of Graphene

- **Mechanical Strength:** It is **200 times** stronger than steel, yet **6 times** lighter.
- **Optical Transparency:** In the optical region it absorbs only **2.3% of the light**. Making it suitable for transparent touchscreens, solar cells, and display technologies.
- **High Thermal Conductivity:** Graphene has a thermal conductivity of up to **5000 W/m/K** at room temperature, which is much higher than most other materials.
- **Impermeability:** It is **impermeable** to gases, even those as light as hydrogen and helium.
- **Quantum Properties:** **Quantum Hall effect** in Graphene could also possibly contribute standard in metrology, quantum computing and advanced electronics.

Potential Applications of Graphene

- **Electronics Industry:** Due to superior speed and energy efficiency compared to silicon, it can be used to develop Graphene-based semiconductors.
- **Energy Storage:** Graphene has an extremely **high surface area** ($2630 \text{ m}^2/\text{g}$), which makes it useful for energy storage devices like batteries and supercapacitors.
- **Water filtration technology:** Depending on the pore size and the applied pressure, Graphene nanoporous membranes have an efficiency range of **33% to 100%** for desalination and filtering of water.
- **Environmental:** It has been demonstrated that Graphene can absorb liquids 600 times heavier than itself.
 - Additionally, ethanol, olive oil, nitrobenzene, acetone, and dimethyl sulfoxide may all be adsorbed by Graphene.
- **Biomedical:** Its oxidised form, called Graphene Oxide (GO), offers **low cytotoxicity**, making it suitable for medical applications.
 - e.g., Tissue engineering, drug/gene delivery, phototherapy, cellular growth and differentiation, biosensors, bio-imaging, cancer or disease detection, etc.
- **Defence and Security:** Graphene exceptional strength makes it promising material for armour and ballistic protection.

Challenges in Graphene

Download Our Application





- **Human Health Risk:** A study has proved that **Graphene oxide and Graphene** toxicity destroy the lipid membrane after coming in direct contact with the human cell membrane, which comes out to be very dangerous.
- **High Production Costs:** The customer base is narrowed and market growth is impeded by these costs, which limit extensive adoption, particularly in price-sensitive sectors.
- **Band gap problem:** Graphene lacked a band gap, preventing its use in electronics, as the band gap is essential for semiconductors to **switch on and off**.
- **Limited production:** Graphene production is severely limited and for years, it was only produced in small amounts. Although there is a way to mass-produce Graphene, the quality of the end product is typically worse.

Global Scenario

- Leading countries in Graphene research are **China, U.S., U.K., Japan, South Korea, Russia, and Singapore**.
- **China and Brazil** are global leaders in the **commercial production** of Graphene.
- India produces only about **one-twentieth** Graphene as compared to China.

India's Initiatives to promote Graphene

- **Graphene-Aurora program:** To fill the gap between R&D and commercialization by providing a complete facility to startup and industry.
- **India Innovation Centre for Graphene (IICG):** Set up in Kerala, it is a joint venture of the Digital University of Kerala, Centre for Materials for Electronics Technology (C-MET) and Tata Steel Limited funded by MeitY.
- **Research Institution:** IIT Roorkee-incubated **Log 9** has patented a technology for Graphene-based ultracapacitors and **Centre for Nano and Soft Matter Sciences (CeNS)** is actively involved in Graphene research.

Conclusion

Ongoing research is driving innovations in Graphene composites, hybrid materials, and scalable processing techniques. As these efforts mature, Graphene could become a cornerstone material, enabling breakthroughs in high-performance devices, energy efficiency, and sustainable technologies across multiple sectors.

Other Short News

Square Kilometer Array

Square Kilometer Array (SKA), **world's largest radio telescope in making**, has carried out its **first observations** and became partially functional.

About SKA



- SKA project aims at building world's largest radio telescope, with eventually over a square kilometre of collecting area.
- SKA will consist of one global observatory, operating two large telescopes (South Africa and Australia).
- **Objectives of SKA Telescopes:**
 - Understand about the birth of Universe.
 - Detect Gravitational Waves.
 - Understand evolution of Galaxies, Dark matter and Cosmic Magnetism.
- India **joined SKA Organization in 2012 as an Associate Member** and has actively participated in the pre-construction phase of the SKA telescopes.

Quasars

Astronomers have discovered the **brightest quasar** ever observed, named **J0529-4351**, using European Southern Observatory's (ESO) Very Large Telescope (VLT).

About Quasars

- The word quasar is short for "**Quasi-Stellar Radio Source**".
- Quasars are the active galactic nuclei (**bright cores of distant galaxies**) and they are **powered by supermassive black holes**.
- They are among the **most luminous objects** in the known Universe.
- Despite their brightness, due to their **great distance from Earth**, no quasars can be seen with an unaided eye.
- They emit **radio waves, visible light, UV rays, infrared waves, X-rays, and gamma-rays**.

Saturn's Rings

Saturn's rings will briefly 'disappear' from view in 2025.

- The reason for this temporary disappearance has to do with **Saturn's tilt and an optical illusion**.

About Saturn's rings

- The rings are generally about **30 feet thick**.
- Almost completely composed of **chunks of water ice**, ranging in size from smaller than a grain of sand to the size of a mountain.
- They're named **alphabetically in the order they were discovered**. E.g., The main rings are A, B, and C
- **Other planets with rings:** Jupiter and Uranus.



NITI Aayog Released Expert Group Report on Future Pandemic Preparedness

Report reflects on **challenges faced during COVID-19 pandemic** and proposes a comprehensive strategy for future pandemic preparedness.

- It emphasizes **"One Health" approach** to address **growing threat of zoonotic diseases**.

Issues faced during COVID-19

- **Legislative:** Provisions of NDMA & Epidemic Diseases Act (EDA) are not entirely suited for a public health emergency.
- **Surveillance and Data Management:** Multiple data sources were not well-integrated, affecting decision-making.
- **Research and Innovation:** Research bodies are not linked with industries for rapid development of diagnostics & vaccines.

Key Recommendations

- **Governance**
 - Enacting **Public Health Emergency Management Act (PHEMA)** to address aspects beyond epidemics, including non-communicable diseases, disasters, and bioterrorism.
 - Creation of an **Empowered Group of Secretaries** on Pandemic Preparedness and Emergency Response (PPER) chaired by Cabinet Secretary.
 - Setting up of a **special PPER fund**.
- **Data Management, Surveillance and Early Predictive Warning**
 - Creating a well-connected/**integrated robust surveillance network**.
 - Building a **solid modeling and forecasting network** for early prediction.
- **Research and Innovation**
 - Setting up an **Institute of Innovation** for New Platform technologies and vaccine development.
 - Creating **Centers of Excellence** for Skilling Human Resources in identified gap areas.

Vishanu Yuddh Abhyas

Vishanu Yuddh Abhyas, a mock drill on Pandemic Preparedness conducted under **National One Health Mission (NOHM)**.

- **NOHM emphasizes on the "One Health" approach**, aims to achieve integrated disease control and pandemic preparedness.

Vishanu Yuddh Abhyas (Virus War Exercise)

- **Purpose:** To assess the **readiness and response of the National Joint Outbreak Response Team (NJORT)** involving experts from human health, animal husbandry, and wildlife sectors.



- A **mock zoonotic disease outbreak scenario** was created to simulate a real-world outbreak.
- **Stakeholders:** Involved multiple national and state agencies including ICMR, AIIMS Jodhpur BSL-3 Lab, state administrations etc.

News Treatment Regimen for Multi-Drug Resistant Tuberculosis (MDR-TB)

Ministry of Health and Family Welfare approved **new BPaLM regimen** consisting of four drugs — Bedaquiline, Pretomanid, Linezolid and Moxifloxacin — has proven to be a **safe, more effective and quicker treatment** option than previous procedures.

- Earlier, **Pretomanid has been approved & licensed for use in India** by CDSCO.
- It **brings down treatment time to 6 months** from earlier duration of 20 months.
- BPaLM regimen was introduced **under National TB Elimination Programme** and expected to **boost the country's progress to achieve its national goal of ending TB** in India by 2025.

About Tuberculosis

- An infectious disease that most often **affects lungs** and is caused by **bacillus Mycobacterium tuberculosis bacteria**.
- **Bacille Calmette-Guerin (BCG) vaccine provides immunity** against TB.
- As per **India TB Report 2024**, there were **25.52 lakh notified TB patients** in 2023.

Challenges in Tuberculosis Eradication

- Social Stigma leads to delayed diagnosis; High Treatment Costs, Comorbidities with HIV, diabetes; Lack of diagnostics facility in rural areas etc.

Sonoluminescence

Pistol shrimp (family Alpheidae) exhibit Sonoluminescence by rapidly **snapping their claws**.

About Sonoluminescence:

- It refers to the phenomenon of **producing light through the irradiation of liquids with ultrasonic waves**.
 - It is formed when **bubbles formed by cavitation** in liquids **interact with powerful sound waves**.
- The **alternating high and low pressure of sound waves** leads to **rapid expansion and contraction of bubbles**.
- This results in **intense temperature rise, ionization of gases within the bubble and release of light energy**.



Circumnutations

New study highlights the role **circumnutations** could play in plant growth patterns.

About Circumnutation

- It refers to small, continuous movements made by plants to **explore their environments**.
 - These movements appear as **spirals or zigzags**.
- **Significance:** It is an **inherent behavior across plant species**, allowing them to **adapt to environmental conditions** and maximize their growth potential.
 - **E.g., Self-organization of Sunflower:** Sunflowers form a zigzag pattern when grown in dense rows, allowing sunflowers to **lean away from one another**, avoiding shade and maximizing sunlight exposure.
 - Researchers found that **circumnutation often seems random**, with plants moving in unpredictable ways.

Wood Wide Web

Just like we use the internet to communicate with each other and order supplies, **trees and other plants have their own network: fungi**.

- Scientists refer to this network as **“the Wood Wide Web.”**
- These are **underground fungal threads known as mycelium** which connect the roots of plants, allowing them to share nutrients and communicate through chemical signals.

AVGC-XR Sector

Union Cabinet approved the establishment of **National Centre of Excellence (NCoE)** for Animation, Visual Effects, Gaming, Comics, and Extended Reality (AVGC-XR).

- NCoE will be set up in Mumbai as a **Section 8 Company (Non-Profit Organization)** under the Companies Act, 2013.
- NCoE will offer **specialized training-cum-learning programs**, foster **R&D** and function as an incubation centre.

About AVGC-XR sector

- Industry currently employs **2.6 lakh people** and is expected to create **23 lakh direct jobs by 2032**.
- Revenues are expected to cross **\$26 billion by 2030**, up from **\$3 billion currently**.
- **Challenges:** Lack of standardization, lack of skilling and vocational training centres, etc.

Quantum Natural Language Processing (QNLP)



QNLP has emerged as a field of research with **potentially profound implications** for large language modeling (LLM).

About QNLP

- It is the application of quantum computing to **natural language processing (NLP)**.
 - NLP gives computers ability to **interpret, manipulate, and comprehend human language**.
- **Need for QNLP:** Traditional LLMs excel at processing semantic (meaning-related) aspects of natural language but **struggle with syntax**.
 - Syntax is **structural arrangement of words** and phrases in a sentence.
- QNLP focuses on **grammar (syntax) and meaning (semantics)** together, rather than separately as conventional systems do.
- **Advantages:** Lower energy costs than conventional LLMs, Requiring fewer parameters than their classical counterparts etc.

Silicon Carbide

India's 1st **silicon Carbide manufacturing facility** to be set up in Odisha

Silicon Carbide (SiC)

- Also known as **carborundum**, it is an exceedingly **hard, synthetically produced crystalline compound of silicon and carbon**.
- **Properties:** Excellent thermomechanical characteristics, including high thermal conductivity, excellent mechanical properties, excellent resistance to wear and oxidation.
- **Applications:** semiconductor devices, mechanical seals, structural ceramics, heat exchangers, optical mirrors, ballistic armor, etc.

Polaris Dawn Mission Successfully Completes World's First Private Spacewalk

Polaris Dawn Mission is a **privately funded and operated** mission planned by Jared Isaacman with SpaceX.

- Recently, Polaris Dawn has **travelled through Earth's regions of high radiation**, i.e., **South Atlantic Anomaly** and **Van Allen Radiation Belt**, to study space radiation's impact on human health.

Van Allen Radiation Belt

- Earth's **magnetosphere traps the high energy radiation particles and shields the Earth** from solar storms and solar winds that can damage technology as well as people living on Earth.
 - These **trapped particles form two belts of radiation (inner and outer)**, known as **Van Allen Belts**, that surround the Earth.
 - **Inner belt** results from interactions of cosmic rays with Earth's atmosphere and **Outer belt** is made up of billions of **high-energy particles** that originate from Sun.



- It was **discovered in 1958** by astrophysicist **James Van Allen**.
- Astronauts and **spacecraft must fly through Van Allen Belts to reach outer space**, so it is important to fly through this region quickly to **limit their radiation exposure**.
- NASA plans to use its upcoming **Artemis missions** to send astronauts beyond **Van Allen Radiation Belt** to land on **South Pole of Moon** by end of 2025, and eventually on to **Mars**.

South Atlantic Anomaly

- It is a geographical region over **South Atlantic Ocean** where **inner Van Allen radiation belt** extends down particularly close to Earth.
- This leads to highly increased levels of **ionizing radiation** and related impacts on spacecraft in Low Earth Orbits, e.g., correspondingly **increased radiation exposure of astronauts** and **electronic components** on International Space Station.

Venus Orbiter Mission (VOM)

Union Cabinet has approved the development of Venus Orbiter Mission (VOM).

- VOM, to be accomplished by **Department of Space**, is envisaged to **orbit a scientific spacecraft** in the orbit of planet Venus.
- **ISRO will be responsible** for development of spacecraft and its launch, which is scheduled in **March, 2028**.
- **Budget: Rs. 1,236 Crore**, out of which Rs 824 Crore will be spent on the spacecraft.
- **Significance:**
 - Better **understanding of Venusian surface** and subsurface, atmospheric processes and influence of Sun on Venusian atmosphere.
 - **Understand evolution of sister planets**, both Venus and Earth.
 - **Enable India for future planetary missions** with larger payloads, optimal orbit insertion approaches.
 - **Large employment potential and technology spin-off** to other sectors of economy.

About Venus

- Venus is **Earth's nearest** planetary neighbour and is **considered as 'Earth's-twin'** due to similar size and shape.
 - It has a **radius of 6,052 km**, an **orbital period of 224.7 Earth days**, and is located 108.2 million km (0.72 AU) from the Sun.
- Venus' thick atmosphere traps heat creating a **runaway greenhouse effect** – making it the **hottest planet** in our solar system.
- Venus is permanently shrouded in **thick, toxic clouds of sulfuric acid**.

- **Phosphine**, a possible indicator of microbial life, has been observed in the clouds.
- **Venus, along with Uranus**, rotates from east to west, while all other planets rotate west to east.

Missions to Venus		
	Mission (Year)	Highlights
Past Missions	Mariner 2 (1962, USA)	First spacecraft at Venus. Detected no magnetic field.
	Venera 7 (1970, Soviet Union)	First successful soft landing on another planet (Venus).
	Magellan 1990, USA)	First near-global radar mapping of Venus' surface.
	Akatsuki (2015, Japan)	Studying Venus' atmosphere.
Future Missions	NASA's DAVINCI - Venus Flyby and Probe (2029) and VERITAS - Orbiter (2031), EnVision - ESA's Venus Orbiter (2031).	

Chandrayaan-4

Union Cabinet gave approval for Chandrayaan-4 Mission, a **successor to Chandrayaan-3** which demonstrated soft landing on Moon.

About Chandrayaan 4

- It aims to develop and demonstrate key technologies for **landing on the Moon, collecting lunar samples, and returning to Earth safely**.
- It will achieve the **foundational technologies capabilities** eventually for an **Indian landing on the moon** (planned by year 2040) and return safely back to Earth.
- ISRO will be responsible for the development of spacecraft and launch.
- **Timeline:** Expected to be **completed within 36 months**.
- **Budget:** ₹2104.06 crore.



100 years of Discovery of Harappan Civilisation

Context:

It has been 100 years since John Marshall, then director general of the Archaeological Society of India, announced the discovery of "Harappa civilization" on September 20, 1924.

About Harappa Civilization

- **Background:** Harappa civilization also known as '**Indus Valley Civilisation**'. It was **discovered first at Harappa** in modern day Punjab province of Pakistan in **1921** by **Daya Ram Sahni**.
 - It is **identified as a Bronze-age civilization** because many objects have been found that are made up of copper-based alloys.
- **Location: North-western regions of Indian subcontinent.** It spans across 2,000 sites in **India, Pakistan, and Afghanistan**. Most of the sites are found located **between Indus and Saraswati River basins**.
- **Extent of Civilization:** Daimabad in Maharashtra (Southernmost), Alamgirpur in UP (Easternmost), Sutgahkendor in Pakistan (Westernmost), and Manda in Jammu (Northernmost).
- **Time-Period:** It flourished from **6000 BCE to 1300 BCE**. The archaeological findings reveal the **gradual development** of the Harappan culture.
 - **Early Harappan (6000 BCE-2600 BCE)** is a formative phase of the civilisation.
 - **Mature Harappan (2600 BCE-1900 BCE)**, the urban phase of the civilization, represents its most prosperous period.
 - **This decadent phase (1900 BCE-1300 BCE)** is termed as Late Harappan.

Key Features of Harappa Civilization

	Key Features
Town planning and Architecture	<ul style="list-style-type: none">• Town Planning<ul style="list-style-type: none">○ Grid Pattern: Towns were in a rectangular grid pattern with roads at right angles.○ Use of Burnt Bricks: Used burnt mud bricks joined with gypsum mortar (In contemporary Egypt dried bricks were used).○ Underground drainage system connecting all houses to the street drains.• Architecture<ul style="list-style-type: none">○ Included large citadels, granaries, the famous Great Bath at Mohenjo-daro, and multi-story buildings that showcased their architectural prowess.



Agriculture	<ul style="list-style-type: none"> • Agriculture: Fields were ploughed using a wooden ploughshare. <ul style="list-style-type: none"> ◦ Main crops: Wheat, Rice, millets, barley, lentil, chickpea and sesame etc. They were earliest to produce cotton in the world (Greeks called it Sindon). • Domestication of Animals: Oxen, buffaloes, goats, sheep, pigs, dogs, cats, asses, humped bulls camels were domesticated. • Elephants & Rhinoceros were well known to them.
Craft	<ul style="list-style-type: none"> • They were skilled in spinning, boat-making, seal making, terracotta manufacturing (potter's wheel), goldsmiths, bead making. <ul style="list-style-type: none"> ◦ The variety of materials used to make beads is remarkable: stones like carnelian (of a beautiful red colour), jasper, crystal, quartz and steatite; metals like copper, bronze and gold; and shell, faience and terracotta or burnt clay. ◦ Seals made mostly from Steatite primarily used for commercial purposes, as amulets, as form of identification, for educational purposes as well. ◦ Iron was not known to the people.
Arts	<ul style="list-style-type: none"> • Bronze Casting: Harappa used 'lost wax' technique or Cire Perdue for bronze casting. E.g., 'Dancing Girl' standing in a 'tribhanga' dancing posture. • Stone Statues: Bearded man (made of Steatite) found in Mohenjo-daro interpreted as a priest. Red sandstone figure of a male torso (found in Harappa). • Terracotta Figures: E.g., Mother Goddess, mask of horned deity, toys, etc
Trade and Commerce	<ul style="list-style-type: none"> • Internal and foreign trade: The use of standardized weights and measures facilitated trade and commerce. • Foreign trade was mainly conducted with Mesopotamia, Afghanistan and Iran. <ul style="list-style-type: none"> ◦ Mesopotamian records called Indus region as Meluha and mentions two intermediate trading stations i.e., Dilmun (Bahrain) & Makan (Makran coast). ◦ They exported grain, jewellery and pottery and imported thin copper and precious stones.



Religion & Culture	<ul style="list-style-type: none"> • Deities: They worshiped male deity Pasupati (proto-Siva) represented in seals as sitting in a yogic posture and female deity Mother Goddess represented in terracotta figurines. Phallus (Linga) worship was also prevalent. <ul style="list-style-type: none"> ◦ No temples have been found from any of the Harappan sites. • Nature Worship: Trees (e.g., pipal) and animals were also worshipped by Harappans.
Writing System	<ul style="list-style-type: none"> • Pictographic script: Written in boustrophedon style i.e., writing in right to left in one line & then left to right in next line. <ul style="list-style-type: none"> ◦ However it has been not deciphered yet.

Significance of Discovery of Harappa Civilization

Provides earliest evidence of settled life in South Asia.	Advanced urban planning influenced later urban development concepts.	Provides earliest evidence of extensive trade networks & cultural exchanges in ancient world.	Addressing Climate change Mitigation as it is believed IVC declined due to environmental changes.
---	--	---	---

Challenges Regarding Harappa Civilization

- **Undeciphered Writing System:** Limits our understanding of the language, culture, and beliefs of the **Harappa Civilization**.

New Evidences for Harappa Civilization

- New Archaeological excavation reveals 5,200-year-old Harappan settlement at **Padta Bet** in Kachchh, Gujarat.
- DNA analysis of skeletons from **Rakhigarhi** revealed that DNA of the Harappans has continued till today and a majority of South Asian population appears to be their descendants.
 - Due to trade and cultural contacts of the Harappans with distant regions, there is a mixture of genes in small quantities.
- **Lack of Clear Hierarchies:** While the Harappa Civilization had cities and residential segregation, there is **no definitive evidence of a centralized political authority or a clear social hierarchy**.
- **Role of Women:** While there are some depictions of women in art and seals, their exact status and rights remain unclear.
- **Decline of Harappa Civilization:** Many factors such as **decline in soil fertility, earthquake, climate change, and invasion by Aryan etc.** are attributed decline of Harappa civilization however exact reason is unknown.

Challenges About Excavation

- **Limited Excavation:** Political and geographic factors, such as the India-Pakistan border and local development, have hindered more extensive archaeological work.
- **Recovering and Classifying Artifacts:** Valuable artefacts that are found intact were either lost in the past or hoarded and never retrieved.
- **Destruction of sites:** The sites of the Indus Valley Civilization were buried for thousands of years, and many have been subject to damage due to flooding, erosion, or modern development.

Conclusion

The Harappa Civilization, one of the earliest and most advanced urban societies of the ancient world declined by 1300 BCE. However, it **left its mark in urban planning, craftsmanship, and metallurgy** etc. Despite the mysteries surrounding its undeciphered script and sudden decline, the Harappans **contributed significantly to the cultural and historical foundation of South Asia.**

Major Cities/Sites & Findings			
Site/city	Location	Discovered/Excavated by	Major Findings
Harappa	Pakistan	Daya Ram Sahni in 1921	Red sandstone Male torso, Stone symbols of Lingam, Granaries, Mother Goddess etc.
Mohenjo-Daro	Pakistan	R D Banerjee in 1922	Town Planning, Citadels, Drainage system, Great Bath
Ganweriwala	Cholistan area of Pakistan	Rafique Mughal in 1973	Terracotta unicorn figurines, Twisted clay tablet with Indus script etc.
Rakhigarhi	Haryana in India	First discovered in the 1960s by Archeological Survey of India.	Granary, cemetery, drains, terracotta bricks.
Dholavira	Rann of Kachchh (Gujarat)	Jagat Pati Joshi in 1968	Unique water harnessing system and its storm water drainage system, only site divided in 3 parts, Megalithic stone circle.
Lothal	Gujrat	S Rao in 1955	Dockyard, fire altars

Port Blair Renamed as Sri Vijaya Puram

Context:

Port Blair, the capital of the Union Territory Andaman and Nicobar (A&N) Islands, is **renamed as Sri Vijaya Puram**.

More on the news

- **Ministry of Home Affairs (MHA) has announced renaming** of Port Blair as Sri Vijaya Puram.
 - However, for renaming villages, towns/cities, railway stations etc. of **states**, **MHA has issued guidelines**.
 - If any **proposal is received from any State fulfilling these guidelines**, this Ministry accords its **'No Objection' to such change of name**. Thereafter, the **state government issues gazette notification** regarding name change.
- **Purpose of renaming:** The decision has been taken to **free the nation from colonial imprints**
 - While the name 'Port Blair' has a colonial legacy, **Sri Vijaya Puram** symbolises the **victory achieved in India's freedom struggle** and the **A&N Islands' unique role in it**.

Sri Vijaya Puram and its cultural importance

- Srivijaya was the **ancient name of an empire** that had its **base in Sumatra**, with influence across South East Asia.
- It was also **instrumental in the expansion of Buddhism**.
- The empire was supposed to have **declined around the 11 century AD** after a series of **naval raids by the Cholas on its ports**.
 - **Chola invasion of Srivijaya was a unique event** in the history of India and "its otherwise peaceful relations with the states of Southeast Asia which had come under India's strong cultural influence for about a millennium."

Colonial legacy of Port Blair

The city of Port Blair, **named after Archibald Blair**, a naval surveyor and lieutenant in the Bombay Marine, is the entry point of the A&N Islands.

Nationalist Movement at cellular jail in Port Blair.

At present, the cellular jail has been transformed into a **national memorial and museum** that showcases the stories of the incarcerated heroes and the hardships they endured. Some of its important key events are as follows:

- **Saga of the heroic freedom struggle:** Freedom Fighters including **Batukeshwar Dutt, Barindra Kumar Ghosh, Sachindra Nath Sanyal, and Vinayak Damodar Savarkar**, were imprisoned in cellular jail.
 - **Vinayak Damodar Savarkar** wrote '**The Indian War of Independence, 1857**' in cellular jail.



- **Mahavir Singh, Mohan Kishore Namadas and Mohit Moitra**, led a hunger strike within the prison in 1933 to address the abysmal living conditions within the jail
- **Assassination of Lord Mayo:** **Sher Ali** assassinated Viceroy Lord Mayo in 1872. For this, Sher Ali was **hanged to death** at the Viper Gallows.
- **Hoisting of national tricolor by Netaji:** **Japanese occupation** of Port Blair took place during the **Second World War** (1942 to 1945). They gave it to Provisional **Indian Government** under **Subhas Chandra Bose**.
 - On 30th December 1943, **Netaji Subhas Chandra Bose hoisted the Indian tricolor** for the first time on Indian soil, near the Cellular Jail, to proclaim independence.

Andaman and Nicobar Islands

- **Home to indigenous tribes:** It is home to Particularly Vulnerable Tribal Group (PVTG) named - **Great Andamanese, Onge, Jarawa, Sentinelese, Nicobarese and Shompen**.
- **Evolution of its Name**
 - **Handuman:** It is believed that **Malays** sailed west to capture aboriginals for the slave trade from nearby islands. They named the islands '**Handuman**' after the **Indian deity Hanuman**.
 - **Ma-Nakkavaram:** In early **11th century**, the **Chola Dynasty** used the southern islands as a strategic naval base. The Cholas called the islands '**Ma-Nakkavaram**,' meaning '**open land**' in Tamil.
 - **Necuverann:** 13th Centuries Venetian explorer **Marco Polo** referred to the islands as '**Necuverann**.'
 - **A&N Islands:** This name was given by the British rule with the British also using one island as a naval base.
- **Renaming of Ross, Neil and Havelock Islands:** In **2018**, 3 islands of A&N were renamed. the **Ross Island** was renamed as **Netaji Subhas Chandra Bose Dweep**, the **Neil Island** as **Shaheed Dweep** and the **Havelock Island** as **Swaraj Dweep**.

Once a Chola Empire naval base, these islands are now key to India's strategic and developmental future, reflecting their unique historical and contemporary importance.

Other Short News

Mankidia Tribes

The habitat rights are formally provided to Mankidia of Odisha under the **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**.

About Mankidia Tribes

- They are one of the seventy-five Particularly Vulnerable Tribes

Download Our Application



Freedom UPSC with **Dhananjay Gautam**



- They are a semi-nomadic **section of the Birhor tribe**.
- The community is famed for its **skill in catching monkeys and trapping small birds and animals**.
- They live in dome shaped leaf huts, known as **Kumbha**.
- Speak a language of their own that belongs to the **Munda branch of Austro-Asiatic language group**.

Anubhav Awards

7th Anubhav Awards Ceremony is to be held in Vigyan Bhawan, New Delhi.

About Anubhav Awards

- **Given by:** Department of Pension & Pensioners' Welfare
- **Based on:** **Anubhav Write ups**, i.e., sharing of experiences by retiring central government employees/pensioners on **Anubhav Portal**.
- **Aim:** to foster good governance and administrative reforms in future on the basis of the experience shared by retiring employees.

FIDE Chess Olympiad

Recently, Indian contingent won Gold in both open and women's category at the 45th International Chess Federation (FIDE) Olympiad.

About 45th FIDE Chess Olympiad

- **Organized in:** Budapest, Hungary.
 - **44th Chess Olympiad** took place for the **first time in India (Chennai)**.
- Trophy for the winning team in the **open section** is the **Hamilton-Russell Cup**.
- Trophy for the winning team in the **women's section** is the **Vera Menchik Cup**.

About FIDE

- It's the governing body of **the sport of chess**, and it regulates all **international chess competitions**.
- Constituted as a **non-governmental institution**, it was recognized by **International Olympic Committee** as a **Global Sporting Organization** in 1999.

Retired Sportsperson Empowerment Training (RESET) Programme

The Ministry of Youth Affairs & Sports has launched **RESET Programme**.

About RESET Programme

- It aims to **empower retired sports persons with knowledge and skills for career development** and increased employability.



- Retired athletes **aged 20-50** who have participated or received medals in international or national events.
- **Key Features:**
 - **Two levels based on educational qualifications**—Class 12th and above, and Class 11th and below.
 - **Mode:** Hybrid, including self-paced learning and on-ground training with internships.
 - **Placement assistance** and guidance for entrepreneurial ventures.

Odisha Famine of 1866

This famine severely affected people of Odisha (Killing Around one-third of Odisha's total population).

- Also known as '**Na-Anka Famine**' because it occurred during **Gajapati Divyasinghadeva's ninth regnal year**.
- **Causes:** Carelessness of British administrators, natural and economic disasters.
- Occurred during tenure of **Thomas Edward Ravenshaw** (Commissioner of Odisha division).
- **Aftermath:**
 - **Puri Canal or Coast Canal** connecting Hooghly River (West Bengal) to River Matai (Odisha) was built after Famine.
 - Thomas Edward Ravenshaw established number of **vernacular schools** in rural areas with an **emphasis on Odia language**, converted Cuttack Zilla School into **Ravenshaw College**.

TOGETHER WE SCALE HEIGHTS

Corruption

Introduction

Recently, Central Vigilance Commission released its 60th annual report. According to the report, as many as **74,203 corruption complaints** were received against all categories of officers/employees in 2023, of which 66,373 were disposed of and 7,830 were pending.

Also, to probe graft cases against public servants, The Lokpal of India has established an **inquiry wing under Section 11 of Lokpal and Lokayukta Act 2013**.

In a related development, the Lokayukta of Karnataka has also questioned various accused in the alleged Mysore Urban Development Authority (MUDA) scam owing to certain irregularities in the process.

Inquiry Wing of Lokpal

It conducts a preliminary inquiry into any offense alleged to have been committed by a public servant punishable under **Prevention of Corruption Act (PCA), 1988**.

- It submits inquiry report to Lokpal **within 60 days**.
- It is headed by **Director of Inquiry** under Lokpal chairperson.
 - **Director will be assisted by 3 Superintendents of Police (SPs)** - SP (general), SP (economic and banking) and SP (cyber).
 - Each SP will be further assisted by **inquiry officers** and other staff.
- It shall have **all powers of civil court**, under Code of Civil Procedure, 1908.

Corruption

- **Definition:** Corruption is commonly defined as **"the abuse of public office for personal gain"**.
 - Its expanded definition includes **abuse of power and influence** vested in a person as a result of holding a political office, of holding an influential role in a corporation, of having personal wealth or access to significant resources, or of having elevated social standing.
- **Gains from Corruption:** Gains include both financial (bribery) and non-financial (patronage, nepotism, embezzlement, increase in position of power etc.).

Stakeholders	Roles/Ethical Concerns
Public Officials	<ul style="list-style-type: none"> • Hold positions of authority and can misuse power for personal gain. • Personal enrichment by accepting bribes or embezzling public funds. • Control over resources and unequal distribution of these resources.
Citizens	<ul style="list-style-type: none"> • Restricted access to public services. • Bribing for cutting through red tape or getting undue gains. • Fostering corruption culture.
Civil Society	<ul style="list-style-type: none"> • Anti-corruption advocacy.

Download Our Application



Freedom UPSC with **Dhananjay Gautam**

Page No
142

	<ul style="list-style-type: none"> • Demand for good governance and transparency. • Embezzlements in international fundings of NGOs.
Judiciary	<ul style="list-style-type: none"> • Upholding the law and ensuring justice. • Maintaining judicial integrity. • Selective application of law through intrusion of corruption.
Media	<ul style="list-style-type: none"> • Exposing corruption and holding power to account. • Promoting false narrative or misinformation to protect corrupt entities.

Ethical Systems and Corruption

Ethical System	Key Principle	View on Corruption
Deontology	An act is moral if there is a universal sense of duty or obligation attached to it.	Going by the Kantian moral philosophy on which this ethical system is built, corruption is seen as an immoral or morally bad action because it goes against the supreme moral principle and the natural sense of duty that goes with it.
Utilitarianism	An agent performs a morally right action if such an action will maximize good and minimize evil, in terms of the number of people who benefit from that particular action or the degree of pleasure the particular action causes on people.	Corruption has bad effects on society, jeopardises the common good and inflicts pain on very large number of people.
Contractarianism	Our actions are good as long as they respect the right of others and maintain the cohesiveness of the social contract on which society is based.	Corruption does not, in any way, promote social cohesion or the social contract that binds people together, but rather threatens it.

Ethical Implications of Corruption

- **Inequality:** At its core, corruption creates unequal access to resources and opportunities. It leads to preferential treatment of those who can afford to pay bribes or offer favors, thus violating the ethical principle of justice, which demands fair treatment for all.
 - John Rawls, in his theory of justice, argued that fairness should be the cornerstone of social institutions.
- **Breach of Trust:** Public office holders have a fiduciary **duty to act in the interest of the citizens**, which encourages trust in public institutions. Corruption **erodes that public trust** in institutions, which is essential for the proper functioning of society.



- **Conflict of Interest:** Through corruption, individuals in positions of power prioritize their own benefits over their duty to the public.
 - Corruption **adopts a consequentialist view**, where individuals justify their actions based on the personal gains they will derive, neglecting their ethical obligations.
- **Harm to Social Justice:** Corruption diminishes the quality of public services and harms the most vulnerable sections of society. Funds meant for development projects, healthcare, or education are siphoned off, depriving citizens of essential services.
- **Undermining Integrity:** When corruption becomes normalized, it can foster a culture where dishonesty, bribery, and manipulation are accepted as part of the system.
- **Moral Decay:** Attitude of moral relativism weakens the ethical fabric of society, as individuals rationalize corrupt actions based on circumstances rather than adhering to absolute ethical standards.
- **Undermining Rule of Law:** When public officials are corrupt, the enforcement of laws becomes selective or arbitrary. This can lead to a breakdown of legal systems, where laws are applied inconsistently.

Second Administrative Reforms Commission on Combating Corruption

- **Collusive Bribery:** Prevention of Corruption Act should be amended to provide for a special offence of collusive bribery, which is an offence whose outcome leads to a loss to the state, public or public interest.
 - Punishment for collusive bribery should be double that of other cases of bribery.
- **Sanctions for Prosecution:** Prior sanction should not be necessary for prosecuting a public servant who has been trapped red-handed or in cases of possessing assets disproportionate to the known sources of income.
- **Liability of Corrupt Public Servants to Pay Damages:** Law should provide that public servants who cause loss to the state or citizens by their corrupt acts should be made liable to make good the loss caused and, in addition, be liable for damages.
- **Speeding up Trials:** A legal provision needs to be introduced fixing a time limit for various stages of trial.
- **Protection to Whistleblowers:** Whistleblowers exposing false claims, fraud or corruption should be protected by ensuring confidentiality and anonymity and given protection from victimization in career.
- **Immunity to Legislators:** Suitable amendments be effected to Article 105(2) of the Constitution to provide that the immunity enjoyed by Members of Parliament does not cover corrupt acts committed by them in connection with their duties in the House or otherwise.
 - Similar amendments may be made in Article 194(2) in respect of members of state legislatures.

Measures for Combating Corruption suggested by Kautilya's Arthashastra



- **Information Organization:** There should be 'Information Organization', which should inform the king about corruption in any department.
 - Institutions such as **Central Vigilance Commission, Lokpal, Lokayuktas** etc. can be said to be such information organizations.
- **Regular Transfer:** The public servants should be **transferred continuously** from one department to another so that they should not get a chance to make corruption boldly in any new department.
- **Supervision:** Working procedure of the officers should be supervised regularly. For that purpose, a special supervisory officer should be appointed.
- **Public Disclosure:** A corrupt person and his crime should be disclosed publicly so that no another person would make a shameful deed.
- **Strict Punishment:** Kautilya suggested **strict punishment**, both material and corporal, to the corrupt. It also suggested that supporter of corruption should be given similar punishment.

Conclusion

Corruption remains a significant challenge, undermining governance, social justice, and public trust. Fostering a culture of transparency, integrity, and public participation is critical for reducing corruption and promoting good governance.

freedom UPSC
TOGETHER WE SCALE HEIGHTS

Pradhan Mantri Annadata Aay SanraksHan Abhiyan (PM-AASHA)

Context:

Recently, Union Cabinet has converged the Price Support Scheme (PSS) & Price Stabilization Fund (PSF) schemes in PM AASHA to serve the farmers and consumers more efficiently.

Objectives	Salient features
To provide remunerative prices to farmers and to control price volatility of essential commodities for consumers.	<ul style="list-style-type: none"> • Ministry: Ministry of Agriculture & Farmers Welfare. • Type: Central Sector Schemes • Fund allocated: Rs. 35,000 crore during 15th Finance Commission Cycle up to 2025-26. • Background: It's an umbrella scheme and launched in 2018. • Central Nodal Agencies (CNA): Central Government provide Government Guarantee to lender banks for extending cash credit facilities by CNA like National Agricultural Co-operative Marketing Federation of India Limited (NAFED), National Co-operative Consumer's Federation of India Limited (NCCF) etc. for undertaking procurement operations at MSP under PSS. • Components: <ul style="list-style-type: none"> ◦ Price Support scheme (PSS): Procurement of these commodities are undertaken directly from pre-registered farmers at MSP as and when prices fall below MSP. • The procurement of notified pulses, oilseeds & copra at MSP under PSS will be on 25% of national production of these notified crops from 2024-25 season onwards. • However, the ceiling won't apply to Tur, Urad & Masur in 2024-25, as 100% procurement was previously decided for these crops. • It is implemented at the request of the State Government concerned which agrees to exempt the procured commodities of pulses, oilseeds and copra from levy of mandi tax and assist central nodal agencies, in logistic arrangements. <ul style="list-style-type: none"> ◦ Price Stabilization Fund (PSF): The scheme provides working capital and other incidental expenses for procurement, storage and distribution of the identified agri-horticultural commodities. • Department of Consumer Affairs (DoCA) will procure pulses at market price from pre-registered farmers on eSamridhi portal of NAFED and eSamyukti portal of NCCF when prices exceed MSP.



- The interventions under PSF scheme have been undertaken in other crops such as **Tomato and in subsidized retail sale of Bharat Dals, Bharat Atta and Bharat Rice.**
 - **Price Deficit Payment Scheme (PDPS):** It envisages direct payment of the **difference between the MSP and the selling/modal price to pre-registered farmers** selling oilseeds.
- Fair Average Quality (FAQ) norms shall be decided/ approved by the DAC for each crop.
- In order to encourage the states to come forward for implementation of PDPS as an option for **Notified oilseeds**, the coverage has been enhanced from **existing 25% of state production of oilseeds to 40%.**
- Enhanced the implementation period **from 3 months to 4 months for the benefits of farmers.**
- The **compensation** of difference between **MSP and Sale/Modal price to be borne by Central Government** is limited to 15% of MSP.
 - **Market Intervention Scheme (MIS):** MIS entails **procurement of agricultural and horticultural commodities which are perishable in nature and for which MSP is not announced**, in order to protect growers from distress sales during bumper crops when prices fall below production costs.
- Government increased coverage from 20% to 25% of production and added **direct differential payment option to farmers' accounts under MIS.**
- For TOP crops, government will **cover transportation and storage costs for NAFED & NCCF operations**, ensuring fair prices for farmers and lower consumer prices.
- **Note:** For oilseeds, States/UTs have options to choose either PSS or PDPS in a given procurement season with respect to a particular oilseed crop for the entire State.

e-Samridhi Portal: Since 2017, e-Samridhi has been the cornerstone in NAFED's pursuit of India's self-sufficiency in oilseeds and pulses through a nationwide MSP procurement program; symbolizes progress and efficiency