



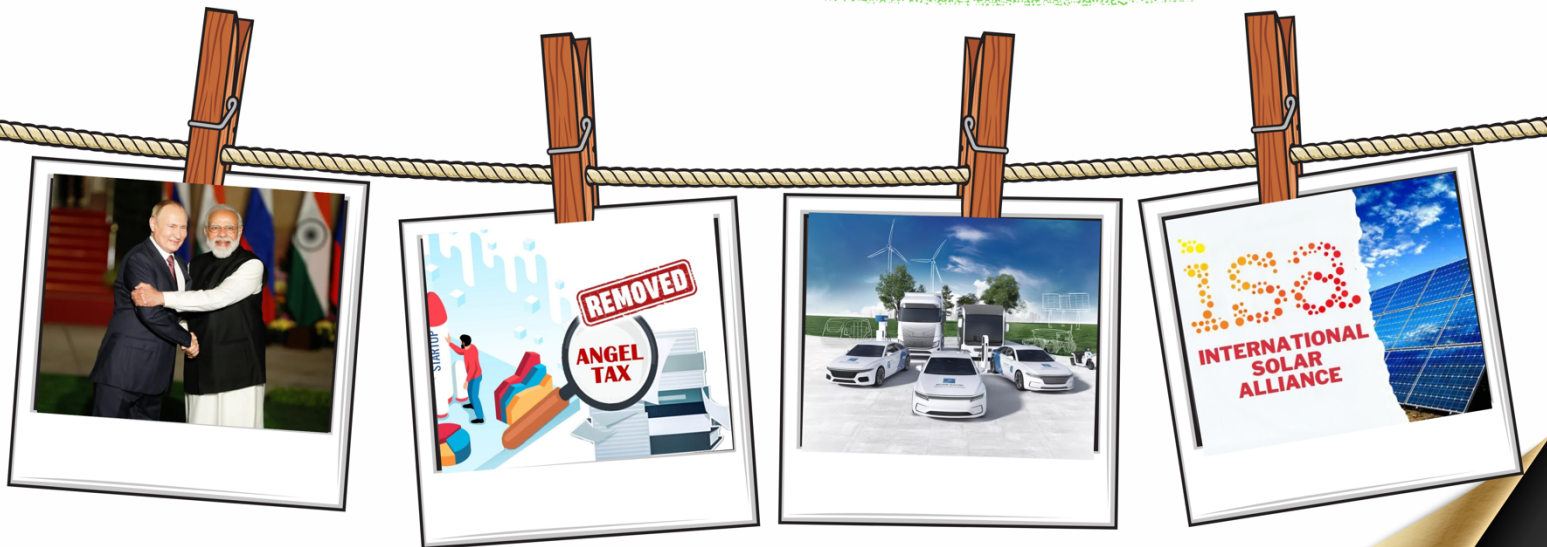
Monthly Current Affairs



To The Point

by Dhananjay Gautam

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TOGETHER WE SCALE HEIGHTS

Instability In India's Neighbourhood

Context:

Bangladesh's Prime Minister has resigned amid mass protests.

More on the News

- **An interim government** has been sworn and it's led by **Bangladesh's only Nobel Laureate and economist** who is known for **founding the Grameen Bank** and pioneering the concepts of **microcredit** and **microfinance**.
- **South Asia's recent political upheavals**, including **unrest in Bangladesh** and **instability in neighbouring countries**, have **significant implications for India's strategic interests** and **regional stability**.

Possible implications of recent development in Bangladesh

- **Disruption in India-Bangladesh partnership:** Erstwhile Bangladesh PM ouster means that India has lost a trusted partner in the region.
 - **Previous govt was friendly to India**, and both worked closely on **countering terrorist groups** operating out of Bangladesh.
- **Increase in illegal migration and forced displacement:** The rise of extremism in Bangladesh, threatening, minority population, could lead to their migration to India straining India resources, particularly in border states.
- **Incursion of foreign power in Bangladesh internal politics** which may create a security threat to India.
- **Economic and investment threats:** Since **2016**, India has provided **\$8 billion in credit** for the development of road, rail, shipping, and port infrastructure in Bangladesh.
 - **Threat to key projects** that include the **Akhaura-Agartala rail link** and the **Khulna-Mongla Port rail line**.

Neighbourhood instability impact on India

- **Myanmar:** Its instability is particularly concerning due to its shared border and the potential for increased insurgency and refugee flows.
 - Already, more than **32,000 ethnic Chin** have **sought refuge in India Mizoram state**, and thousands more have **fled to the state of Manipur**, where their arrival has **stoked violent ethnic conflict**.
- **Afghanistan:** India concerns range from the safety of its investments in Afghanistan to the security implications of a Taliban-ruled state.
 - The situation poses a direct threat to India's national security, as extremist groups could gain a foothold in the region, potentially leading to cross-border terrorism.
- **Sri Lanka:** For India, the situation in Sri Lanka is significant due to the close geographical and cultural ties between the two nations.
 - India confronts **potential refugee influx**, **economic spillover effects**, and **strategic concerns** over Chinese influence.



- **Maldives:** India challenges include **countering radicalization, maintaining influence against Chinese inroads, protecting Indian Ocean security, and balancing diplomatic ties** amidst Maldives' **volatile internal politics**.
- **Nepal:** Frequent leadership turnover and growing Chinese influence complicates India's regional interests and relationships.
 - Nepal recently swore in its 14th government in 16 years.

Way forward

- India, **being a voice of reason and a votary of international law**, has always advocated **dialogue, consultation and fairness** in her approach to **global issues in general and regional issues in particular**.
- In this regard India has **adopted the 5S principled approach**.

International Humanitarian Law

Context:

2024 marks the **75th anniversary of the Geneva Conventions of 1949** which is the **cornerstone of International Humanitarian Law (IHL)**.

More on the News

- **Geneva Conventions** are a series of treaties on the treatment of civilians, Prisoners of War (PoWs), and soldiers who are otherwise rendered **hors de combat** ("outside the fight") or **incapable of fighting**.
- The ongoing conflict between Russia and Ukraine and the conflict in Gaza displayed tragic violations of humanitarian laws exposing the inadequacies of IHL in restraining atrocities.

About International Humanitarian Law

- **IHL**, also known as **the law of war or law of armed conflict**, is a set of rules that seek for humanitarian reasons to limit the effects of armed conflict and protect persons who are not or who are no longer participating in hostilities.
- **4 Geneva Conventions of 1949** (GC I, II, III and IV) and its 3 Additional Protocols form the foundation of the modern IHL.
 - These have been **universally acceded to or ratified** by all the nations in the world.
 - It applies in **all cases of declared war**, or in any other **armed conflict between nations**. They also **apply in cases where a nation is partially or totally occupied by soldiers of another nation**, even when **there is no armed resistance to that occupation**.
- **Other treaties concerning IHL include:**
 - **1954 Hague Convention** for the Protection of Cultural Property.
 - **1972 Biological Weapons Convention**.
 - **1993 Chemical Weapons Convention**.
 - **1998 Rome Statute** for International Criminal Court.



Challenges in effective enforcement of IHLs

Political

- **State Interests vs. Humanitarian Concerns:** States often prioritize national security and political interests over humanitarian obligations, resulting in selective compliance with IHL.
- **Non-State Actors:** Rise of **non-state armed groups** pose significant challenge to implementation of IHLs which often do not recognize or adhere to them.

Legal

- **Lack of effective enforcement mechanisms:** Violations often go unpunished due to the lack of central enforcement authority.
 - **e.g.,** In the Syrian Civil War, despite numerous documented violations of IHL, including the use of chemical weapons, enforcement has been inconsistent.
- **Jurisdictional Issues:** Principle of **state sovereignty can limit international jurisdiction**, complicating efforts to hold violators accountable, particularly in **non-international armed conflicts** such as Rohingya conflict in Myanmar.

Global Governance

- **Veto power in UN Security Council (UNSC):** UNSC often faces gridlock due to veto power held by its five permanent members (P5) preventing decisive action against instances of IHL violations.
 - **e.g.,** During the Syrian Civil War, Russia and China repeatedly used their veto power to block resolutions aimed at addressing war crimes.
- **Weak mandate and resources:** Peacekeeping missions often have limited mandates and resources, which restrict their ability to protect civilians and enforce IHL.
 - **e.g.,** UN Mission in Darfur (UNAMID) struggled with inadequate resources and restrictions imposed by the Sudanese government.

Technological

- **Autonomous and remote weapons:** Use of autonomous weapons systems such as lethal autonomous drones, raises ethical and legal questions about accountability and compliance with IHL.
- **Cyber Warfare:** Application of IHL in cyberspace is still underdeveloped, and there is uncertainty about how existing laws apply to cyber conflicts.

Way Forward

Global Governance

- **Reforms in UNSC:** To make it more representative and restrict the use of veto power in situations involving mass atrocities and serious violations of IHL as have recently been asserted by G4 Nations.
- **Enhanced role of regional organizations:** Institutions such as International Committee of the Red Cross, etc., should encourage regional organizations like the African Union (AU), European Union (EU), and ASEAN to take more active roles in enforcing IHL.

Political

- **Strengthen national legal systems:** Encourage states to incorporate IHL into their domestic legal systems, making it easier to prosecute violators at the national level.

- **Engaging non-state actors:** Encourage non-state actors to sign “Deeds of Commitment” to ensure respect for humanitarian norms by them.
 - **Deeds of Commitment** is a formal humanitarian commitment that armed non-State actors sign to formally express their agreement to abide by humanitarian norms.
- **Mandating IHL compliance in Peace agreements:** Ensure that peace agreements explicitly include commitments to adhere to IHL, with clear mechanisms for monitoring and enforcement.

Technological adaptation

- **Cybersecurity in IHL:** Develop specific guidelines and protocols for applying IHL in cyber warfare, ensuring clear distinctions between civilian and military targets to protect civilian critical information infrastructure.
- **Regulating autonomous weapons:** Internationally regulate development and deployment of autonomous weapons systems to ensure they comply with IHL principles, particularly those related to distinction and proportionality.

Shanghai Cooperation Organization (SCO)

Context:

The 24th summit of the Council of Heads of State of the Shanghai Cooperation Organization (SCO) held in Astana, Kazakhstan, adopted the Astana Declaration.

More on the News

- **The summit is titled:** Strengthening Multilateral Dialogue Striving Towards a Sustainable Peace and Prosperity.
- **For the first time,** UN Secretary attended the summit.
- **Key outcomes of the summit:**
 - The Program of Cooperation in Countering Terrorism, Separatism and Extremism for 2025-2027.
 - Initiative On World Unity for Just Peace and Harmony, proposed by Kazakhstan.
 - **E.g., Combating Drug Trafficking:** SCO Anti-Drug Strategy for 2024-2029.
- **Belarus becomes the 10th member of SCO.**

Significance/concerns of Belarus inclusion in SCO

SCO: Role in Reshaping Global Multilateral Order

- **SCO's global pivot:** The SCO is “Reshaping Multilateralism” by expanding beyond Central Asia and spreading its geographic and geopolitical reach.
 - **E.g.,** Its members already comprise roughly 23 percent of the world's economic output and 42% of its population, making it useful to Moscow and Beijing's geopolitical aims.
- **SCO's challenging western structures:** SCO's expanding its influence to reshape global power dynamics by promoting alternative multilateral structures.



- E.g., Turkey, a NATO member, is a SCO dialogue partner and is aspiring to become a full member.
- **Filling the Security Void:** SCO addresses Afghanistan's security vacuum left by NATO alliances (led by the US), in 2021.
 - **Afghanistan Contact Group (ACG) was by SCO created in 2005** to maintain regional cooperation with Kabul.
- **Counter-Terrorism:** SCO has established the Regional Anti-Terrorist Structure (RATS) to coordinate counter-terrorism efforts among member states.
- **SCO fulfilling China's strategic design:** China leverages SCO to demonstrate leadership, offering alternatives to US-led institutions and positioning itself as Global South advocate.
 - Even Russia sees SCO as a useful forum for **countering Western narrative**.
- **Central Asia's Connectivity Catalyst:** SCO provides a platform developing corridors and infrastructure in this historically isolated region.
 - E.g., INSTC, Chabahar Project.

SCO's challenges

Challenges in its expanded role

- **Expansion Dilemma:** SCO's enlargement, including Belarus, raises its global profile but dilutes regional focus.
- **Blurs Asia Focus:** SCO was instituted **with the sole focus on Central Asia**. Such expansion, could potentially drive members to seek alternative cooperation formats.
- **Expansion fuels China's rhetoric:** China use the rhetoric of expanding members and their participation as evidence that a large number of countries backed its world view.

Other Challenges

- **Afghanistan Policy Fracture:** SCO members increasingly engage **Taliban bilaterally for individual interests**, potentially undermining SCO's collective approach and effectiveness in addressing Afghanistan's challenges.
 - **Such engagements** go against India's doctrine of, 'an Afghan-led, Afghan-owned and Afghan-controlled process for enduring peace and reconciliation.'
- **China's multilateral power play:** China aims to transform the grouping into a China-led multilateral forum for regional geoeconomic and strategic interests.
 - E.g., Help BRI gain regional prominence.
- **SCO having an 'identity crisis':** This criticism is raised that the decisions of the SCO lack **the necessary executive guarantee** and in result, this organisation, like the **Non-Aligned Movement (NAM)**, has become merely a place to **discuss and announce positions and views**.
- **Diverse Interests:** Member states have diverse interests, making consensus-building challenging.
 - E.g., India declaring, "Pakistan as an epicentre of terrorism".

India and SCO

- India was given observer status in 2005 and in 2017, **India joined the SCO with full membership status.**
- On the sidelines of SCO, 2024, External Affairs Minister met with his Chinese counterpart and reiterated that India-China relationship is best served by observing the three mutuals – **mutual respect, mutual sensitivity and mutual interests.**
- Like the BRICS, SCO is also seeking to expand to **obtain greater heft for the Sino-Russian global view.**
- However, India seeks to **reconfigure the SCO platform** into a development-focused entity rather than one with an anti-Western agenda.
- And in this regard, India strikes a balance and resist SCO becoming a Chinese mouthpiece.

India's Balancing Act and its priorities as SCO member

- Prime Minister of India did not attend the 24th SCO summit in Astana.
- Also, India, under **its first-ever presidency of SCO**, hosted the meeting on virtual format in 2023.
- **Infrastructure:** India strategically utilises and prioritises the SCO forum to improve relations with Central Asian Republics (CARs), countering Chinese dominance in regional connectivity projects.
- **Terrorism:** India's main priority at the SCO is to eradicate terrorism and terrorist groups from its northwest border.
- **India's references incorporated into the declaration.** E.g., G20 themes like One Earth, One Family, and One Future, the startup forum, and the Life for the Environment (LiFE) initiative.
- India's priorities in SCO are shaped by Prime Minister's vision of a **"SECURE" SCO.**
 - **SECURE stands for:** Security; Economic cooperation; Connectivity, Unity, Respect for sovereignty and territorial integrity; Environmental protection

Conclusion

To remain relevant, **SCO must balance expansion with regional focus, foster collective approaches to challenges like Afghanistan, and navigate diverse member interests while moderating China's dominance.** Strengthening **consensus-building mechanisms** and **reaffirming shared goals** are crucial for SCO's future effectiveness.

India-Russia Relations

Context:

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

More about the news

- It marked the resumption of the India-Russia annual summit, as the **last annual summit** took place in **New Delhi in 2021.**
- PM's visit is perceived as a confirmation of India's strategic ability to **pursue a balanced and independent foreign policy** and signalling to the West about its **strategic autonomy.**

Key Outcomes of the Visit

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- **Trade and Economic partnership:** “Enduring and Expanding Partnership” focusing on economics.
- **Military cooperation:** Agreed to boost **joint manufacturing in India of spare parts** and components for maintenance of Russian origin arms and defence equipment under Make-in-India program.
- Set the bilateral trade **target of USD 100 billion by 2030**.
- Promote **bilateral settlement system using national currencies**.
- Signed **Program of India-Russia cooperation** in trade, economic and investment spheres in the **Russian Far East** for the period from 2024 -2029, and **cooperation principles in the Arctic zone of the Russian Federation**.
- **On Ukraine:** Peaceful resolution of the conflict around Ukraine **through dialogue and diplomacy** including engagement between both parties.
- India will open two **new consulates in Kazan and Yekaterinburg** to help facilitate services for the growing community.

Contemporary Significance of India-Russia Relations

For both Countries

- **Strategic:** Both India and Russia have a shared concern about China’s rise in their neighbourhood and to prevent the **rise of China as a regional hegemon**.
- **Shared Vision of World Order:** Both countries advocate for a **multipolar world order**, opposing unilateral actions by any single country.
- **Military collaboration:** It has shifted from a buyer-seller dynamic to joint research, design, and production. E.g. **Joint production of Brahmos cruise missile and Kalashnikov AK-203 assault rifles**.
- **Protecting Strategic autonomy:** Robust ties help India and Russia **balance their increasing dependence on USA and China respectively**, signalling an independent course of foreign policy.
- Russia has **approved the sale of Brahmos missiles to Philippines** which are meant to **deter China in the South China Sea**, even in the backdrop of growing **Russia-China** relations.
- **Combatting terrorism:** Both countries desire expeditious finalization and adoption of the **Comprehensive Convention on International Terrorism in the UN framework**
- **Multilateral:** Both countries cooperate actively in **multilateral forums** like UN, BRICS, NSG, and SCO.
 - E.g., both supported the addition of new member States to the expanded BRICS family.

Significance for Russia	Significance for India
<ul style="list-style-type: none"> • Geopolitical: India may be the only major west-friendly democracy that can encourage Russia on the path to dialogue. 	<ul style="list-style-type: none"> • Political: In the history of post-independent India, Russia has never hurt India’s interests and even maintained position of neutrality in India-China ties.

- E.g., India has not explicitly criticised the Russian invasion of Ukraine and has called for a peaceful resolution of the conflict through dialogue.
- **Economic:** The size of India's market holds promise for defence and crude oil sales amidst Russia's boycott by the West.
 - Russia ranks fourth among all India's trading partners and current trade stands at around \$65.5 billion.
- **India's membership in non-Western organizations** (BRICS and Shanghai Cooperation Organization) promoted by Russia strengthens the credibility of these agencies.
- **Multilateral reforms:** Russia supports India's permanent membership of a reformed and expanded UN Security Council.
- **Defense:** Russia is India's top military supplier accounting for 36% of total defense imports.
 - Russia supplies India platforms like the **S400 air defence system** and **newer frigates** such as "Tushil" frigate.
- **Connectivity:** Russia can enhance India's connectivity with Central Asia and the wider Eurasia through projects like the **International North-South Transport Corridor (INSTC)**, the **Northern Sea Route** and the **Chennai-Vladivostok Eastern Maritime Corridor**.
- **Economic:** The Indian pharmaceutical sector has emerged as a top medicine supplier in Russia, replacing Germany.
- **Energy:** Russia became India's top crude oil supplier. The purchase of Russian oil and fertilizers at **discounted prices** has kept India's inflation in check, thereby contributing to India's growth.
- **Technological cooperation:** E.g., **Kudankulam Nuclear Power Plant** (supplying **2000 MW of energy**, **4000 MW of reactor capacity** in the pipeline), **GAGANYAAN mission**, etc.
- **Partnership for Regional Stability:** E.g., Russia plays a key role in bringing peace and stability in Afghanistan.

Challenges in Indo-Russia relationship

- **Challenges to India's Russia Policy:** PM's visit to Russia has received **criticism from Ukraine and the USA** on its timing and optics.
- **Defense Challenges:** The level of interoperability between the Indian and Russian armed forces is **low**, evidenced by the postponement of **Indra exercises in 2022 and 2023**.
 - **No major military deals** have been concluded since the S-400 deal to avoid **USA sanctions under CAATSA**.
- **Geopolitical Challenges:**
- **Economic Challenges:** **Rising Trade deficit** with Russia enjoying a massive surplus. In 2023-24, India's exports to Russia were \$4.3 billion, while imports stood at \$61.4 billion.



- **India-US convergences:** India is increasingly aligning with the West, particularly the US, to address its **economic modernization needs and the China challenge**. E.g. Security relationship such as Quad.
- **Growing Russia-China ties:** Russia-China has **no limits ties** with bilateral trade **over \$240 billion**.
- **Rapprochement with Pakistan:** Russia is keen to expand and deepen bilateral ties with Pakistan as it also **supplies discounted oil to Pakistan**. Russia also **invited Pakistan to join INSTC**.
- This has complicated the **Rupee-Rouble deal**, as Russia's Indian bank accounts are burdened with surplus Indian Rupees due to stagnated imports.
- **Connectivity Challenges:** Russian Far East and reviving the Chennai-Vladivostok maritime corridor may only yield limited trade gains as it lacks access to **foreign markets restricting trade** due to **sanctions from Japan and South Korea**.
- INSTC has been jeopardized by the recent conflict in **Nagorno-Karabakh**.

Way Forward

- **Enhancing Mutual Trust:** Both countries need to reinforce mutual trust amid growing apprehensions about **Russia-China and India-US convergences**.
- **Diversifying trade:** Indo-Russia trade should expand beyond oil, incorporating products from traditional sectors such as metallurgy, chemical industry, and space.
 - **Involvement of the private business sector** can make the relationship more broad-based.
- **Free Trade Agreement (FTA):** India and Russian led **Eurasian Economic Union-India** negotiations over an FTA should be fast-tracked.
- **Implementing Reciprocal Exchange of Logistics Agreement (RELOS):** It will simplify **military-to-military exchanges for exercises**, training, port calls and Humanitarian Assistance and Disaster Relief (HADR) efforts.
- **Defence dialogue:** Both countries should hold military to military talks to **resolve India's concerns on defence spare parts and maintenance issues**.
- **Broaden collaboration on bilateral and regional issues:** such as collaboration on nuclear power plant in Bangladesh as well as developmental partnerships in Central Asia will add new dimension to ties.
- **Strengthening Tier II diplomacy:** Strengthening contacts with the new generation as well as academia and stationing Indian correspondents in Russia.

Related News

Russian president recently paid an official visit to North Korea and Vietnam.

Key outcomes of Russian President's visits

- **North Korea:** Signed the **Treaty on the Comprehensive Strategic Partnership** between Russia and North Korea
- **Vietnam:** Vietnam and Russia **celebrated the 30th anniversary of the 1994 Treaty** on the Basic Principles of the Vietnam-Russia Relationship but did not sign a new alliance treaty.

Potential Implications of the Visits

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- **Changing reality in Northeast Asia:** Two strategic triangles are emerging with the US, South Korea, and Japan on one hand and Russia, North Korea, and China on the other hand.
- **Paradigm shift in Asia-Pacific security dynamics:** Concerned by the visits, South Korea and Japan, as non-nuclear powers, may deepen their diplomatic and security cooperation with the US, further militarizing the region.
- **Threat to global security:** With security guarantees from Russia and China, North Korea may further pursue its military modernisation plans.
 - India has long been apprehensive about North Korea's proliferation activities, particularly the **transfer of missile technology to Pakistan**.

India-United Kingdom Relations

Context:

Recently, the Foreign Secretary of the United Kingdom (UK) visited India.

More on the News

- **UK-India Technology Security Initiative (TSI)** was launched to expand cooperation in critical and emerging technologies.
 - These include Telecom, Critical minerals, Semiconductors, Artificial intelligence, Quantum, etc.
 - TSI will be coordinated by the **National Security Advisors (NSAs) of both countries**.

The Growing Significance of India-UK relations

- **Deepening of multiple-level ties:** Roadmap 2030 for India-UK future relations launched during India-UK Virtual Summit in 2021 with the aim to elevate the India-UK relationship to a Comprehensive Strategic Partnership (CSP).
 - Also, UK Supports India's permanent seat bid for United Nations Security Councils and entry to Nuclear Suppliers Group.
- **India-UK acting as 'Net Security Provider' across the Indo-Pacific:** UK's "Indo-Pacific tilt" aligns with India's interests in the region.
 - E.g., Share information on grey and dark shipping and also UK joined Indo-Pacific Oceans initiative (IPOI).
- **Indian Ocean Region (IOR) focus:** With QUAD countries more focused on the Pacific, Britain has the potential to fill IOR vacuum, where India's strategic interests lie.
 - E.g., U.K. has at least seven permanent bases in this region.
- **India-UK Defense Synergy:** The 2+2 mechanism is accelerating defense cooperation through high-level diplomatic and military dialogues.
 - E.g., both countries have signed an Electric Propulsion Capability Partnership aimed at equipping Indian naval vessels with electric propulsion.

- **The India-UK economic asymmetry provides an opportunity:** E.g., India's larger economy (\$4 trillion) contrasts with UK's higher per capita income (\$50,000 vs. \$3,000).
 - India can leverage UK's advanced sectors and expertise, while UK gains access to India's vast market and workforce.
- **UK-India trade partnership gains momentum after Brexit:** UK prioritizes strong economic ties with India as part of post-Brexit 'Global Britain' strategy.
 - **India-UK Free Trade Agreement (FTA)** negotiations is also a consequence of Brexit. It's estimated, an FTA could double bilateral trade to US\$100 billion by 2030.
 -

India-UK Free Trade Agreement (FTA)

'Our Free Trade Agreement negotiations is the floor not the ceiling of our ambitions to unlock our shared potential and deliver growth, from Bengaluru to Birmingham.' - Foreign Minister of India remarked on the still negotiated FTA

The India-UK Free Trade Agreement (FTA) is a negotiated bilateral trade deal which started in 2022 to realign 90% of the existing tariff lines for international trade between the two countries.

Potential Benefits of FTA

- **Cut tariffs:** India is seeking lower tariffs for fashion, homeware, furniture, electrical, etc.
- **Import duty exemptions:** Small & Medium Enterprises in textiles, clothing and gems and jewellery will be benefited with the removal of import duty.
- **Avoid double taxation:** India continues to push its Double Taxation Avoidance Agreement.
- **Access to financing:** Give Indian business access to UK financing and expertise in green and sustainable infrastructure projects.
- De coupling from China by allowing shift of companies to India.

Major concerns

- **Liberal Rules of Origin** may result in EU goods falsely labelled as UK products.
- **India's new Bilateral Investment Treaties (BITs)**, mandating exhausting local remedies before resorting to international arbitration, faces resistance in negotiation.
- **UK seeks commitments beyond the WTO's Agreement** on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which India is resisting.
- U.K. is seeking a significant cut in import duties on goods. E.g., scotch whiskey, automobiles, etc. which can affect the trade balance against India.

Challenges in India-UK relations

- **Colonial Hangover:** 'Anti-colonial posturing prevents the establishment from seizing the full range of possibilities with Britain.' C. Raja Mohan.
- **Failure to tackle** vandalization of the Indian flag by protesters.

- Recent rioting where immigrants were targeted.
- **UK's Hyphenating India-Pakistan** goes against India's interests. E.g., raising Kashmir as an issue in UN.
- **Absence of specific deadline** for concluding negotiations on FTA.

Way forward

- Finalisation of **India-UK FTA at the earliest**. Particularly, a date can be set for **targeted completion** of negotiations.
- Promote People-People tie: E.g., **Generation UK-India initiative, India-UK Young Professionals Scheme**
- U.K. must determine the relative importance of India-UK relations against UK- Pakistan relations and **De-hyphenate its relations with both countries**.
- **Prioritize collaboration in counterterrorism, HADR, and maritime security**, especially in the Indo-Pacific region.
 - E.g., Particularly in the Red Sea and the Suez, the main India-UK trade lanes.

Conclusion

India and the UK are forging stronger bonds across multiple sectors, leveraging their historical ties and complementary strengths. This partnership promises mutual economic benefits, strategic alignment, and increased global influence for both nations.

India-Pacific Islands Nations Relations

Context:

Recently, India offered aid to disaster-hit Pacific Island Nation (Papua New Guinea) showcasing India's commitment to Forum for India-Pacific Islands Cooperation (FIPIC) partnership.

More on the News

- Papua New Guinea has been hit by a massive landslide which caused major destruction and loss of life.
 - It is the largest nation by landmass and population among the Pacific Island Nations.
- Pacific Islands Nations are situated in Pacific Ocean and comprised of 3 groupings, i.e., **Melanesia, Micronesia, and Polynesia**.

Significance of Pacific Islands Nations for India

- **Geopolitical:**
 - **Geostrategic Location:** It offers India potential avenues for broader maritime strategies and military alliances as Indo-Pacific becomes the new area of **Great War Game** and **Great Power Rivalry** (E.g. China and USA).
 - **Enhance India's Global South Credibility:** It provides India with opportunities to advocate for the concerns of developing nations in global forums such as the G-20 and G-7, while also **strengthening South-South Cooperation**.
- **Strengthens India's Economic Leverage:**

- **Securing Maritime trade:** Total trade between India and FIPIC was \$571.66 million (2021-22).
- **India's pursuit of Resource Security: Large Exclusive Economic Zones (EEZs)** of pacific island nations offers ground for mutually beneficial partnerships in terms of **Blue Economy**.
- **Reformed Multilateralism:** These nations can play a major role in building collective stance on shared concerns at global level. **E.g. India's permanent seat at UNSC.**
- **Indo-Pacific Strategy:** The Pacific Islands are crucial to India's broader Indo-Pacific strategy, which aims to ensure a free, open, and inclusive Indo-Pacific region.
- **India's International commitment to Climate Change:** E.g. some of these nations have joined International Solar Alliance (ISA) and India has encouraged other nations to join Coalition for Disaster Resilient Infrastructure (CDRI).
- **Strong Diaspora Presence and Historical connections:**
 - Nations such as Papua New Guinea, Solomon Islands, share connection with India as former British colonies.
 - More than 1/3rd of Fiji population are of Indian origin

About FIPIC

- **Founded in 2014.**
- It is a **multinational grouping of Pacific island nations** formed for cooperation between India and 14 Pacific Islands
- It has been **announced as part of India's broader 'Act East' policy.**
- **Members:** Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Samoa, Solomon Islands, Palau, Papua New Guinea, Tonga, Tuvalu and Vanuatu.
- **Summits held:** 1st 2014 (Suva, Fiji), 2nd 2015 (Jaipur, India), 3rd 2023 (Port Moresby, Papua New Guinea).

India's engagement with Pacific Island Nations

- **Indo-Pacific Oceans Initiative (IPOI, 2019):** It is an open, non-treaty based global initiative, which seeks to manage, conserve, sustain, and secure the maritime domain in the region.
- **Grant-in-aids and Concessional Line of Credits:** For renewable energy and climate projects.
- **Humanitarian Assistance and Disaster Relief (HADR):** E.g. Supply of Vaccines during COVID-19.
- **Facilitation in Election Processes:** E.g. supply of indelible ink to Papua New Guinea
- **Indian Technical and Economic Cooperation (ITEC):** E.g. Sagar Amrut Scholarship Scheme for 1000 training opportunities in FIPIC.
- **India-UN Development Partnership Fund (2017):** It provides assistance to Least Developed Countries (LDCs) and Small Island Developing States (SIDS)
- **Community Development:**
 - E.g. Memorandum of Understanding (MoU) signed between India and Marshall Island to fund community development projects in the Marshall Islands.

- **12-Step Action Plan by India** for healthcare support. E.g. **Super Specialty Cardiology Hospital (Fiji).**

Challenges in Cooperation

- **Geopolitical Competition:** Increased China's strategic foothold poses a challenge to India's influence in the region.
 - **E.g. China signed security pact with Solomon Islands (2022)**
- **Resource Constraints:** India's need for domestic investment may restrict its ability to provide substantial international aid and deep global engagement.
- **Large Geographical Distance:** The vast geographical distance between India and the PINs makes regular diplomatic engagements and the implementation of joint projects difficult.
- **Heightened Vulnerabilities:** These nations face disproportionate impact in terms of vulnerability of coastal and commercial centres due to natural disasters, supply chain disruptions etc.
- **Exclusion from policy discussions at global level:** Although, crucial to great power competition these nations are frequently excluded from global policy discussions about the region. (E.g. QUAD, AUKUS)

Way forward

- **Strengthening Diplomatic Engagement:** Regular high-level dialogues and consistent outreach policies to increase diplomatic presence and ensure sustained engagement.
- **Collaboration on Climate Resilience Projects:** India can demonstrate its leadership in addressing climate change issues by offering technology and expertise.
- **Maritime Cooperation:** India can collaborate on issues like illegal fishing, piracy, and marine pollution, contributing to regional and global stability.
- **Enhanced Economic Partnerships:** Strategic resource allocation in infrastructure and sustainable development, along with a regular review mechanism, can strengthen economic ties and ensure progress.
- **Cultural Diplomacy:** Fostering people-to-people exchanges can deepen historical and cultural ties, building long-term relationships.
- **Demand driven cooperation model:** India can focus on demand-driven projects in IT, cyber security, desalination, and digital public goods, ensuring they meet the specific needs of Pacific Island nations.

Western Indian Ocean

Context:

Western Indian Ocean is emerging as a key region for US-India Indo-Pacific cooperation.

About Western Indian Ocean Region (WIOR)

- It stretches from the east coast of Africa to the western shores of India.

- It comprises **Kenya, Mozambique, Somalia, South Africa, Tanzania** (Eastern African coastal states), **Comoros, Madagascar, Mauritius, Seychelles** (island states) and **French territories** (Mayotte and Reunion).

Significance of Western Indian Ocean

- **Trade and Transportation:** WIOR comprises major trade routes and choke points such as **Cape of Good Hope, Mozambique Channel** etc.
 - E.g., Mozambique Channel carries about 30% of the global oil trade.
- **Cornerstone of Indo-Pacific Cooperation:** The real-time information exchange through the Information Fusion Centre - Indian Ocean Region (**IFC-IOR**), multilateral frameworks like Quad, etc. make the WIO a critical area for Indo-Pacific Cooperation.
- **Ocean assets:** The region offers economic prospects such as offshore oil and gas reservoirs and fisheries.
 - The economic value of ocean-related activities in the Western Indian Ocean, the '**gross marine product**', is estimated at US\$20.8 billion annually.

Significance of WIOR for India

- **Strategic Location:** The WIOR's strategic location can bridge the gap between the Indo-Pacific and the Middle East, fostering cooperation through initiatives like **India-Middle East-Europe Economic Corridor (IMEEC)**.
- **Countering Chinese influence:** India has a military base in Madagascar & is working with Mauritius to set up a military base on Agalega Island, which are critical to neutralize growing Chinese advances in WIOR.
- **Blue Economy:** WIO with its immense natural resources can contribute to the success of India's Deep Ocean Mission and Blue Economy 2.0 Initiatives.
- **Energy Security:** WIO provides connectivity to key trade routes like the Suez Canal which are essential for India's energy security.
 - **90 % of the energy trade** happens through Indian Ocean mainly through Suez Canal.
- **Net security provider:** India's engagement in the WIO region can help enhance India's image and influence as a regional power.

India-WIO Region Engagement

- **Security and Growth for All in the Region (SAGAR):** Under Mission SAGAR, India has delivered Covid-19-related assistance to **WIOR countries**, including food aid, medicines, and deployment of medical assistance teams etc.
- **Capacity Building:** India offers **training and equipment** to coastal guards and navies of WIO countries to enhance their maritime capabilities.
 - E.g., **Indian Air Force Training Team deployed in Mauritius** provides training assistance to police.
- **Joint military Exercises:** E.g., **Africa India Field Training Exercise (AFINDEX-19)** was conducted in Pune, 2019, drawing participants from 17 African countries.

- **Operation Sankalp:** Indian Navy conducted maritime security operations in areas like Gulf of Aden and adjoining areas, Arabian Sea and off the East Coast of Somalia.
- **Information Fusion Centre - Indian Ocean Region (IFC-IOR):** It is a principal hub for enabling information exchange in IOR.
- **Memberships in common multilateral forums:** E.g. Indian Ocean Rim Association (IORA), Indian Ocean Naval Symposium (IONS) etc.

Challenges in WIOR

- **Emerging Maritime Threats:** Like maritime **piracy**, **smuggling** of exotic flora and fauna, illegal carrying of weapons, **drug trafficking**, **unauthorized fishing**, human trafficking etc.
 - E.g., the recent rise in pirate attacks **off Somalia's coast**.
- **Climate Change Impacts:** The region is vulnerable to the effects of climate change, such as **rising sea levels**, **ocean acidification**, and **extreme weather events**.
- **Chinese Debt Trap:** High debts have put several fragile economies in East Africa like Kenya at an increased risk of default, raising concerns about undue Chinese influence.
- **Militarization:** The presence of external powers in WIOR may undermine **regional stability**, ferment tensions, and undermine collective efforts to provide security at sea.
 - E.g., US, and China both have military base at **Diego Garcia**, and **Djibouti** respectively.

Conclusion

The Western Indian Ocean region is rapidly emerging as a critical nexus of geopolitical and economic activity. However, there is a need to enhance Maritime Security through measures such as joint naval exercises, information sharing, capacity building etc. Further joint research can be conducted on the impacts of climate change on the WIO region and develop adaptation strategies. India can utilize multilateral forums like the Indian IORA and Quad to promote regional cooperation and further strengthen bilateral relations with WIO countries.

Other Short News

India Joins UN Led Conference on Afghanistan in Doha

India is **one of 25 countries** participating in this **third conference**, which aims to find ways to improve the lives of **Afghan people** under **Taliban rule**.

- It will supplement previous efforts such as Delhi Regional Security Dialogue on Afghanistan, **Moscow Format consultations**, etc.

Conference allowed the Taliban to position themselves as the **sole representative** of **Afghanistan**.

- **Taliban** returned to power in 2021 after waging an insurgency against the U.S.-backed government since 2001.
 - **Regional connectivity:** Afghanistan is considered as a gateway to **Central Asian Region**.

Peaceful and Stable Afghanistan is significant for Region as well as for India:

- **Security:** Reduced insurgency and cross-border terrorism can lead to a more secure environment for India's northern and western borders.
 - Unstable Afghanistan may become safe shelter for terrorists.
- **Energy and resources:** Stability in Afghanistan could pave the way for the **Turkmenistan–Afghanistan–Pakistan–India (TAPI) pipeline**.
- **Curbing Drug trafficking:** Stable government in Afghanistan can better tackle drug trafficking.
 - Afghanistan is part of the **Death Crescent** along with Pakistan and Iran.
 - States like Punjab are highly affected by it.

India - Afghan relations Post-Taliban Take-over

- **India has not officially recognized Taliban**, however, it is helping Afghans through different means:
 - **Humanitarian Aid:** Supplied several shipments of humanitarian assistance consisting of wheat, medical aid and earthquake relief aid.
 - **Education:** Continued its Indian Council for Cultural Relations (ICCR) scholarship scheme for Afghan students.
- Trade and commerce between both countries is ongoing, including through the **Chabahar port**.
- India's **technical team in Kabul is monitoring the status and functioning** of projects built by it.

Colombo Security Conclave (CSC)

Recently, CSC officially included **Bangladesh** as its **fifth member**.

About CSC

- A **regional security grouping**.
- **Aim:** To make **maritime security**, marine pollution response and maritime search & rescue priorities for the **Indian Ocean Region (IOR)**.
- **Genesis:** Formed in **2011** as a **trilateral maritime security grouping** of **India, Sri Lanka and the Maldives**. Later joined by **Mauritius**.
 - It was re-branding as the CSC in 2020.
- **Seychelles** is an observer member.

Colombo Process

India chaired its first meeting as Chair of the Colombo Process.

About Colombo Process

- Regional Consultative Process that provides platform for consultations on the management of **overseas employment** and **contractual labour**.
- Comprises of 12 Member States of Asia such as Bangladesh, Sri Lanka etc.
 - India is one of the **founding members**.



- **Thematic priority areas** are: Skills and Qualification Recognition Processes; Fostering Ethical Recruitment Practices, etc.
- UN's **International Organization for Migration** provides technical and administrative support to the Colombo Process.

MERCOSUR

Bolivia became a full member of **MERCOSUR**.

About MERCOSUR

- It is **Southern Common Market** (MERCOSUR for its Spanish initials) in latin america.
- It was established by **Argentina, Brazil, Paraguay and Uruguay in 1991**, and subsequently joined by Venezuela and Bolivia.
 - **Venezuela** has been suspended since December 1, 2016.
- **Objective:** facilitating the free movement of goods, services, capital and people among the four member countries.
- India has a **Preferential Trade Agreement** with MERCOSUR.

Role of Education/Research in the Rise of Global Powers

According to **WIPO Patent Landscape Report on GenAI**, China ranks **1st with 70.3%** of all Generative AI patents published (2014-2023) while **India ranked 5th with 2.5%** of Gen AI patents published.

- There is intensified competition in **high-end research-based education**, especially in applied sciences and technologies crucial to **global politics**.

Importance of education and research in global competitiveness

- **Comprehensive National Power (CNP):** Education, innovation, research and technology are vital components of **soft power** towards making a country a **CNP**.
 - CNP is an evolved concept which is the **comprehensive capability of a country to pursue its strategic objectives by taking the necessary actions internationally**.
- **Economic Growth:** **Human capital** development through education is vital for **labour force participation and productivity**.
- **Technological dominance:** Education and innovation are a vital with **evolving nature of strategic aspects** like AI, cyberspace etc.

Issues with development in research and higher education for India

- **Low investment in R&D:** India spent **0.64% of its GDP** on R&D in 2020–21. While, most of the developed countries spent more than **2%** of their GDP on R&D.
- **Lower Private participation:** Private sector contributes to only **36.4%** of the total national R&D expenditure. Private sector contributes **more than 50%** in most developed countries.
- **Lack of skilled researchers:** Number of researchers per million population in India is 262 (2020) [Consistently increasing] but **inadequate** compared to other countries like USA, China.

- **Low quality of research with limited translation into application by industry.** This leads to high 'brain drain' from India.

Way Ahead

- **More innovation** is required which is critical to **geopolitical, economic, and military dominance** in the modern world.
- **Research and education** are the determinant factors in the rise and fall of the great powers.
- **International collaborations** on R&D with focus on **investments, infrastructure and human capital** can enhance **India's global standing**.

Tibet-China Dispute

US Congress passed '**Promoting a Resolution to the Tibet-China Dispute Act**'.

- It states that it is US policy that the **dispute between Tibet and China** must be **resolved in accordance with international law**, including the UN Charter, **by peaceful means** through dialogue without preconditions.
- It also supports the **Dalai Lama's "Middle Way Approach"** under which **Tibet would remain part of the People's Republic of China**, but Tibetans would have **meaningful autonomy**.

About Tibet-China Dispute

- Following a brief military conflict between China and Tibet at the start of 20th century, **Tibet declared itself as an independent nation in 1912** and **functioned as an autonomous region until 1950**.
- **In 1951**, the Dalai Lama's representatives signed a seventeen-point agreement that granted China sovereignty over Tibet for the first time.
 - Chinese claim this document is **proof of Chinese sovereignty over Tibet** while **Tibet says that it was coerced into signing this document**.

India's stand on Tibet

- In **1959**, India granted asylum to Dalai Lama after a failed uprising.
- **Since 2003, Government of India recognizes Tibet Autonomous Region as part of the People's Republic of China** following the signing of the Declaration on Principles for Relations and Comprehensive Cooperation between India and China.

Jan Aushadhi Kendra Inaugurated in Mauritius

India's first overseas Jan Aushadhi Kendra (JAK) inaugurated in Mauritius.

- This initiative **exemplifies deepening relations** between **India and Littoral and island nations** of the Indian ocean region (IOR).
 - The Indian Ocean countries comprise of **36 littoral and 11 hinterland states**.

Importance of IOR's littoral and Island nations for India

- **Strategic Location:** Their proximity to sea lines of communications like Malacca strait is crucial for **global trade, preventing privacy & ensuring maritime security**.



- **80% of India's external trade and 90% of energy trade** happens through IOR.
- **Vision of regional Leadership:** IOR is emerging as new theatre for geo-political competition between global powers e.g., USA, France etc.
 - Hence, it is crucial for pursuing India's vision of a **net security provider**, while also **containing the rising footprint of China**.
- **Blue Economy:** Marine fisheries in IOR supplies about **15% of world fish catch** (FAO, 2020). IOR is also important for sustainable **deep-sea mining**.
- **Climate Security:** Indian Ocean has warmed faster than any other **ocean since 1950s** (IPCC report 2021).
 - Rapid population growth & rising climate disasters requires collective action for **preventing human vulnerability** and **regional insecurity**.

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TOGETHER WE SCALE HEIGHTS

Special Packages

Context:

Recently, the Chief Ministers of Bihar and Andhra Pradesh had demanded special financial packages for their respective States.

More about News

- Special Packages for both states Bihar and Andhra Pradesh were **announced in Union Budget 2024-25**.
- **Announcements made:**
 - **Irrigation and Flood Mitigation:** Financial support of **Rs. 11,500 crore** to projects such as the **Kosi-Mechi intra-state link** and other schemes in **Bihar**.
 - **Purvodaya: Vikas bhi Virasat bhi:** Plan for endowment rich states in the Eastern parts covering **Bihar**, Jharkhand, West Bengal, Odisha and **Andhra Pradesh** for generation of economic opportunities to attain Viksit Bharat.
 - **Update on Andhra Pradesh Reorganization Act 2014:**
 - **Financial support** of $\text{Rs. } 15,000$ crores will be arranged in FY 24- 25.
 - **Completion of Polavaram Irrigation Project** ensuring food security of the nation.
 - **Essential infrastructure** such as water, power, railways and roads in Koppaerthy node on the **Vishakhapatnam-Chennai Industrial Corridor** and **Orvakal node** on **Hyderabad-Bengaluru Industrial Corridor**.

About Special Packages to States

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

Implications of giving Special Packages to States

- **Fiscal prudence:** Providing special packages would potentially **increase fiscal burden** on the Centre and also on other States.
- **Governance issues:** Effective utilization of special packages depends on state's administrative capacity. However, poor governance can lead to **mismanagement, under-utilization and leakages of funds**, undermining the utility of granting additional resources.

- **Dependency:** Short-term gains from special packages may **discourage structural reforms to ensure long-term self-reliant growth**, and may lead states to become dependent on central assistance.
- **Federal issues:** Unequal or **politically motivated distribution of special packages can strain relationship** between central and state governments.
- **Social Unrest:** Perception of uneven or unfair distribution of benefits might lead to social unrest and dissatisfaction among the different communities in the state.
- Further, states not receiving special packages might feel neglected leading to inter-state and centre-state conflicts.

Way ahead

- **Framework:** Develop clear, objective framework for allocation of special packages based on measurable criteria like poverty levels, infrastructure deficits, disaster impact etc. and to reduce influence of political lobbying.
- **Customized development plans:** Create customized initiatives to meet each state's specific needs, focusing on areas like infrastructure and employment.
- **Public-Private Partnerships:** Engaging private sector to mobilise additional funding, expertise and to reduce fiscal burden on centre.
- **Monitoring:** Implement **strict monitoring and evaluation mechanisms**, enhance state's administrative efficacy to plug leakages, address misuse of funds and ensure efficient utilisation of state's revenue and central grants.
- **Decentralization:** By providing greater fiscal autonomy, decision-making authority, and prioritizing spending as per local needs, it can reduce demand for special packages.
 - E.g. 14th Finance Commission recommended that Centre should intervene in schemes where there are large externalities or national priorities involved.

Auditing of Local Bodies

Context:

Recently, International Centre for Audit of Local Governance (iCAL) was inaugurated in Rajkot, Gujarat.

More on news

- It is the first in country and aims to **set global standards for auditing local governance bodies**.
- **About iCAL**
 - It is a collaborative platform for **policymakers and auditors** and would **serve as a centre of excellence** for capacity building of auditors.
 - It enhances **independence of local government auditors** to ensure improved financial performance assessment, and service delivery.
 - It acts as a **knowledge centre and think-tank** for addressing governance issues at grassroot levels.

About Local Self Governance and its Audit

- **73rd and 74th Constitutional Amendment Act, 1992** added Part IX (Eleventh Schedule) and IX-A (Twelfth Schedule) respectively which contains provisions on local self-governance.
 - It mandated that State governments **constitute panchayats** (at village, block and district levels) and **municipalities** (in form of municipal corporations, municipal councils and nagar panchayats) in every region.
 - In 2020, **Ministry of Panchayati Raj developed AuditOnline application** to conduct online audit of panchayat accounts, ensure accountability in utilisation of funds at ground level.
 - It has been **awarded the World Summit on Information Society Prizes 2023** at International Telecommunication Union (ITU), Geneva
- **Current Auditing Mechanism of Local Bodies**
 - CAG's mandate for audit of Local Bodies flows from **CAG's (Duties, Powers and Conditions of Service) Act, 1971**.
 - CAG exercises **control and supervision** over proper **maintenance of accounts and auditing** for all three levels of Panchayati Raj Institution (PRIs)/Urban Local Bodies (ULBs).
 - ELFA/DLFA work under technical guidance and supervision of CAG.
 - It is done through **Examiner of Local Fund Accounts (ELFA) or Director of Local Fund Accounts (DLFA)** in most states. It **audits utilization of funds** granted by state government to local bodies.

Importance of Auditing of Local Bodies

- **Financial accountability:** Audits **safeguard public funds by detecting and preventing fraud, corruption**, and financial mismanagement through rigorous scrutiny of expenditures and adherence to financial regulations.
- **Performance evaluation:** Audits serve as a **critical performance evaluation tool for local bodies** in examining operations and comparing results against established benchmarks.
- **Service delivery:** Audit reports findings, recommendation have potential of creating tangible difference in public service delivery, strengthen local bodies and foster grassroots democracy.
- **Democratic participation:** Auditing activity **strengthens governance by increasing citizens engagement** e.g. social auditing under Mid-Day Meal Scheme.
- **Public trust:** Auditors help government organizations **achieve accountability and integrity, improve operations, and instil confidence** among citizens and stakeholders.
- **Decentralisation:** Audit observations/findings w.r.t. to status of devolution of functions, funds and functionaries aids in identifying issues, further strengthening decentralisation.

Decentralisation & Inclusive Development

- **Participation:** Decentralization allows local communities, including marginalized groups, to have a say in decision-making processes, ensuring their participation in decision making process.

- E.g. **Back to Village Programme (J&K)** aimed at energizing Panchayats and directing development efforts through community participation.
- **Tailored Solutions:** Local governments are better positioned to understand and respond to specific challenges faced by community.
 - E.g. Development of road to enhance access to ambulance and hospitals for pregnant women in district Vyara (Gujarat).
- **Political Representation:** Decentralisation aids in empowering marginalised and vulnerable sections of society by providing them representation.
 - Elected women representatives constitute 46% of total PRI representatives.
- **Development:** Decentralization promotes development at local level by effective devolution of powers, leading to tangible outcomes.
 - E.g. As of December 2022, more than 5.17 crore assets have been constructed and geo-tagged under MGNREGA.
- **Equity in healthcare:** E.g. **WHO Alma Ata Declaration on Primary Health Care** of 1978 promoted decentralization of services among communities to achieve greater equity in access to health care.
- **Water Management:** Decentralisation brings government closer to people, aids in tapping traditional knowledge/practices to sustainably manage resources.
 - E.g. **Atal Bhujal Yojana** aim to community led sustainable ground water management.

Thus, by empowering local bodies, augmenting their resources, capacity building of functionaries, monitoring and engaging stakeholders such as minorities, civil society organisation etc., local bodies can foster inclusive development.

Issues associated with Auditing of Local Bodies

- **Poor Record Keeping:** Many local bodies' financial records are incomplete, inconsistent, and further **lack uniform auditing standards across different states and local bodies**, leads to variations in the quality of audits.
- **Lack of Skilled Personnel:** Local bodies often face a **shortage of qualified auditors** for maintaining accounts. This can lead to inadequate or superficial audits, missing critical issues.
- **Overlapping Jurisdictions:** The division of auditing responsibilities between different agencies, such as state audit departments, local government auditors, and CAG can create confusion and inefficiencies.
- **Out-dated procedures:** In many States, the **formats and procedures** for maintenance of accounts by local bodies were **framed decades ago**, and are **continued without any improvements** despite manifold increase in their powers, resources and responsibilities. (Eleventh Finance Commission)
- **Low Awareness:** General public and local community members often lack awareness of the audit processes and their significance, leading to reduced public scrutiny and accountability.

Way ahead (2nd ARC Recommendations)

- It should be ensured that **audit and accounting standards and formats for Panchayats** are prepared in a way which is simple and comprehensible to the elected representatives of PRIs.
- The **independence of DLFA or any other agency** responsible for audit of accounts of local bodies should be **institutionalised by making the office independent of the State administration**.
 - The head of this body should be appointed by State Government from a panel approved by CAG.
- **Audit reports on local bodies should be placed before State Legislature** and these reports should be discussed by separate committee of State Legislature on the same lines as the Public Accounts Committee.
- **Access to relevant information/records** to DLFA/designated authority for conducting audit or CAG should be ensured by incorporating suitable provisions in the State Laws governing local bodies.
- Each State may **ensure that the local bodies have adequate capacity** to match with standards of accounting and auditing.

Central Bureau of Investigation (CBI)

Context:

Recently, Supreme Court in **State of West Bengal v. Union of India case (2024)** upheld the maintainability of West Bengal government's suit against the Union over registration and investigation of cases by CBI despite revocation of its general consent in 2018.

More on news

- In suit (filed under **Article 131**), State **accused the Union of constitutional overreach and violation of federalism** by **unilaterally employing CBI without State's prior consent**.
- Article 131 deals with **Supreme Court's original jurisdiction** in a **dispute between Centre and one or more states**.

Central Bureau of Investigation (CBI)

- **Genesis:** Established in 1963 on recommendation of **Santhanam Committee on Prevention of Corruption (1962-64)**.
- **Ministry:** Ministry of Personnel, Pension & Public Grievances.
- **Status:** **Non-statutory and Non-constitutional body**. It is governed by **Delhi Special Police Establishment (DSPE) Act, 1946**.
- **About:** **Premier investigating police agency** in India, which coordinates investigation on behalf of Interpol Member countries.
- **Motto:** Industry, Impartiality and Integrity.
- **Vision:** **Combating corruption** in public life, curbing economic and violent crimes through meticulous investigation and prosecution; **fight cyber and high technology crime** etc.
- **Composition:** Headed by **Director** (assisted by special director or an additional director), joint directors, deputy inspector generals, superintendents of police and all other usual ranks of police personnel.

- In 2021, President promulgated two ordinances to extend the tenures of Directors of CBI and Enforcement Directorate (ED) for up to five years, from fixed tenure of two years.
- **Types of cases investigated by CBI:** Anti-corruption, Economic offences, Special crimes and Suo-moto.
- **Consent of State for CBI**
 - **General:** CBI is not required to seek fresh permission every time it enters that state in connection with investigation or for every case.
 - **Section 6 of DSPE Act** empowers state government to **give or deny consent to CBI officer.**
 - Apart from West Bengal, other states like Punjab, Telangana etc. have also withdrawn their general consent.
 - **Specific:** CBI would have to apply to the state government in every case.

Important Judicial Pronouncement related to CBI

- **Common Cause vs Union of India, 2019:** SC held that Central Government shall appoint CBI Director on recommendation of Committee consisting of
 - Prime Minister (Chairperson).
 - Leader of Opposition recognized as such in Lok Sabha or where there is no such Leader of Opposition, then, Leader of single largest Opposition Party in that House (Member).
 - Chief Justice of India (CJI) or Judge of SC nominated by CJI (Member).
- **CBI v. Dr RR Kishore, 2023:** SC declared that its 2014 judgment in “Subramanian Swamy versus Director, CBI and another” case, which declared Section 6A of DSPE Act 1946 as unconstitutional, will have retrospective effect. This means that Section 6A is held to not be in force right from the date of its insertion.
- **CPIO CBI versus Sanjiv Chaturvedi, 2024:** Delhi High Court held that Section 24 permits disclosure of information regarding allegations of human rights violations and corruption and exemption provided to scheduled organisations does not totally exempt CBI from purview of RTI Act.
- **Vineet Narain v Union of India (1997):** Commonly called the Jain Hawala Case SC had struck down the 1969 ‘Single Directive’ of the Union Government, a consolidated set of instructions issued to the CBI by various ministers on the modalities of initiating and registering cases.

Concerns associated with CBI

- **Vacant posts:** Vacancies in executive ranks, law officers etc. of CBI are not being filled up at the required pace, thereby increasing pendency of cases, **hindering operational efficiency and investigative capabilities.**
 - For instance, **total of 1709 posts are vacant in CBI** against its sanctioned strength of 7295 as of March 2023. (Parliamentary Standing Committee on Personnel, Public Grievances, Law And Justice report)



- **Lack of transparency:** Details of cases registered with CBI, progress made in their investigation and related final outcome are **not available in public domain**.
- **Withdrawal of Consent:** Considering provisions of DSPE Act (Section 6), consent of State government is a prerequisite for any investigation making its investigation dependent upon states approval.
 - **Nine States have withdrawn the general consent**, hampering investigation of cases.
- **Loss of credibility:** CBI has been criticised for its mismanagement of several cases involving prominent politicians and mishandling of several sensitive cases like **Bofors scandal, Hawala scandal**, etc.
- **Administrative hurdles:** For conducting inquiry or investigation on Central Government employees (Joint Secretary level and above), prior approval of Central Government is required, hindering its capacity to combat corruption at higher levels of bureaucracy.
- **Funding issues:** Inadequate investment in personal, training, equipment or other support structures, and underutilisation of funds, adversely hampers effectiveness of CBI.
- **Lack of autonomy:** CBI operates under the **administrative control of Department of Personnel and Training** and government's significant role in appointing senior officials, raises concerns about agency's independence.

Way ahead

- **Recommendations of Parliamentary Standing Committee on Personnel, Public Grievances, Law And Justice**
 - **Director of CBI should monitor the progress made in filling up of vacancies** on quarterly basis.
 - **Maintain a case management system** which would be a centralised database (accessible to the general public) containing details of cases registered with it and the progress made in their disposal.
 - **Need to enact a new law and define the status, functions and powers of CBI** and lay down safeguards to ensure objectivity and impartiality in its functioning.
 - **Percentage of officers inducted through deputation** at level of Inspector of Police be **restricted to 10%** and **40% officers** may be recruited through **Direct Recruitment/Limited Departmental Competitive Examination**.
 - Publish **case statistics** and **annual reports** on its website.
 - State's consent clause' should be removed only in such cases that are considered to be a threat to nation's security and integrity.

Constitution of India And France

Context:

French President formally accepted the resignation of Prime Minister and asked him to continue running the caretaker government until the appointment of the next government.

Similarities between the Constitution of India and France

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- **France became a republic from a monarchy following the French Revolution.**
 - India was inspired by the French revolution. **Tipu Sultan**, the ruler of Mysore in the late eighteenth century, **planted the Tree of Liberty** in his capital **Seringapatam** and **called himself "Citizen Tipoo"**.
- Since then, France has had numerous constitutions over the last two centuries, and the **current one is the Fifth Republic, adopted in 1958.**
 - The First Republic came into existence in 1793 following the French Revolution, the Second in 1848, the Third in 1875, and the Fourth in 1946.
- **Both the countries have a written constitution** which is based on the **Ideals liberty, equality and fraternity outlined in French Revolution.**
- Both the countries have popular sovereignty wherein citizens enjoy 'universals adult franchise'.
- Both the Countries have a **Bicameral Parliament.**
 - **In France, Members of Lower House** (National Assembly) are **elected by direct universal suffrage for five years** whereas **Members of Upper House** (Senate) are elected through **indirect universal suffrage** and **renewable by half every three years.**
- **Provision of emergency** is also enshrined in the Constitution of both the countries.

Contrasting Features of Constitution of India and France

Specification	India	France
Mechanism of expressing Popular Sovereignty	People exercise their sovereignty through their representatives	People exercise their sovereignty through their representatives and by means of referendum.
President is the Head of the State	The President is elected indirectly for a period of five years. There is no limit on the number of terms of the President.	The President is elected for a term of five years by direct universal suffrage. No one may carry out more than two consecutive terms of office
System of Government	Parliamentary: Parliamentary form of government which is federal in structure with certain unitary features.	Semi-Presidential System: system features both a President (elected by universal direct suffrage) and a Prime minister , with the President having substantial powers.
Prime Minister is Head of the Government	<ul style="list-style-type: none"> • The Constitution provides for the Council of Ministers Headed by the Prime Minister to aid and advise the President. 	<ul style="list-style-type: none"> • The President appoints the Prime Minister and the members of the government (on the recommendation of the Prime Minister).

	<ul style="list-style-type: none"> Strength, roles and Responsibilities of Council of Ministers is provided in the Constitution. 	<ul style="list-style-type: none"> The purview, competences, responsibilities and tasks of each minister are not fixed. They are freely determined by the Prime Minister and the President.
Justice system	<ul style="list-style-type: none"> Integrated judicial system, meaning that the decisions made by higher courts are binding on the lower courts. Also, the appellate system exists in India. 	Judicial authorities are divided into distinct entities between the legal jurisdictions responsible for settling disputes between individuals, and the administrative jurisdictions for disputes between citizens and the public authorities.
Involvement of Civil Society	No provision	Constitution provides for Economic, Social and Environmental Council (CESE), a consultative assembly, whose primary purpose is to get civil society involved in the government's economic, social and environmental policies.

Election of Prime Minister in Nepal

Context:

Recently, **Shri K. P. Sharma Oli** was sworn in as **Nepal's Prime Minister** for the fourth time to lead a new coalition government.

More about the News

- Since the monarchy's abolition in 2008, Nepal has experienced 14 governments, highlighting its instability.
- Unlike Quasi-Federal republic of India, Nepal's 2015 constitution established it as a **federal democratic republic**. However, Constitution of both the countries have **many similar features**.

Constitutional Similarities Between India and Nepal

- Secular State:** Both protect religious freedom.
- Fundamental Rights:** Comprehensive fundamental rights, including socio-economic rights to the Citizens.
- Bicameral Parliament:** The executive branch is accountable to the legislature.
- Head of the Government:** The **President** is the **ceremonial head**, while the **Prime Minister** is the **real head of government**.

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- **Affirmative Action:** Includes provisions for marginalized groups to promote inclusivity.
- **Other Features:** Every adult citizen has the right to vote, multi-party-political system, constitutional supremacy and an independent judiciary, with the Supreme Court as the ultimate interpreter of the Constitution.

Reasons for Political instability in Nepal

- **Multiparty system:** Many parties representing different ethnic, regional, and ideological interests, make it hard for any single party to secure a majority, leading to fragile coalition governments.
- **Mixed electoral system:** Unlike India which follows first past the post system (FPPS) for election of Members of House of representative, Nepal follows both of **first past the post system and proportional representation (PR)**.
 - **PR** not only ensures broader representation and **inclusivity**, but it also contributes to the **proliferation of smaller parties** which may hold **significant sway in coalition governments**, leading to instability.
 - Sometimes, it becomes more **complicated when the size of the Council of Ministers is fixed**.

Other Short News

Cabinet Committees

The Union government constituted eight Cabinet committees.

About Cabinet committees

- These are constituted under the **Transaction of Business Rules, 1961**.
- The cabinet makes use of the committee system to **facilitate decision-making in specific areas**.
- **These include cabinet committees on:**
 - Appointments
 - Accommodation
 - Economic Affairs
 - Parliamentary Affairs
 - Political Affairs
 - Security
 - Investment and Growth
 - Skill employment and livelihood
- The **Political Affairs Committee**, **Economic Affairs Committee**, **Appointments Committee** are chaired by the **Prime Minister** and **Parliamentary Affairs Committee** by the **Home Minister**.

Constitutional Morality

Recently the CJI said that 'Constitutional Morality' is essential to India's diversity.

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- Constitutional morality entails **adherence to constitutional norms** that enable the **practice of the Constitution not only in letters but also in spirit**.
 - It goes beyond the literal interpretation to **encompass a commitment to constitutional values** such as sovereignty, social justice, and equality.
- British historian **George Grote** first coined the term.
 - He emphasised the **balance between freedom and restraint**, where citizens obey constitutional authorities but also have the freedom to criticize them.
- According to the **Dr. B.R. Ambedkar**:
 - Constitutional morality is **necessary for the peaceful working of a democratic Constitution**. However, it is **not a natural** sentiment. It has to be **cultivated**.
 - A **strong nexus** exists between the form of **administration** and the form of the **Constitution**.
 - Thus, it is **possible to undermine the Constitution, without changing its form** by merely changing the form of the administration and making it inconsistent with the spirit of the Constitution.
 - Therefore, he **favoured prescribing forms of administration in the Constitution itself**.

Some constitutional provisions related to Constitutional Morality

- **Fundamental Rights:** Individuals' rights against the arbitrary use of state power.
- **Fundamental Duties:** Citizens have responsibilities to the nation.
- **Separation of power:** **Judicial review** of legislative and executive actions, **legislative oversight** of the executive, etc.

Reconstitution of NITI Aayog

Since the **term of the Aayog, barring Chief Executive Officer (CEO), is co-terminus with the term of the Union Government**, reconstitution was due since the formation of new government in June earlier this year.

About National Institution for Transforming India (NITI) Aayog

- It is a **government think-tank** formed in **2015** via a **resolution of the Union Cabinet**, replacing the **erstwhile Planning Commission**.
- **Composition:**
 - **Chairperson:** Prime Minister of India
 - **Governing Council:** Prime Minister; CMs of all the States and UTs with legislature; Lt. Governors of other UTs, Ex-Officio Members; Vice Chairperson, NITI Aayog; Full-Time Members, NITI Aayog; and Special Invitees.
 - **Ex-officio Members** include maximum 4 members of Union Council of Ministers nominated by the PM
 - **Special Invitees** include experts, specialists and practitioners with relevant domain knowledge nominated by the PM



- **Regional Councils:** To address specific issues and contingencies impacting more than one state or a region
- **CEO:** Appointed by the PM for a fixed tenure, in the rank of Secretary to the Government of India.
- **Twin mandate:**
 - To oversee the **adoption and monitoring of the SDGs** in the country, and
 - Promote **competitive and cooperative federalism** among States and UTs.

Article 341

Supreme Court stated that the State Can't Alter the **Schedule Caste (SC) List Published Under Article 341.**

- The Court struck down Bihar govt resolution to merge Economically Backward Class Community in SC List.

About Article 341

- President can officially designate certain groups as Scheduled Castes for specific States or Union Territories.
 - For States, this is done after consulting the Governor. The designation may include entire castes, races, tribes, or subgroups within these categories.
 - **Parliament** may by **law** include in or exclude from the list of Scheduled Castes.

President Returns Bill Passed By Punjab Legislative Assembly

The **Punjab Universities Laws (Amendment) Bill, 2023** was reserved for the President's assent by Punjab Governor.

- The bill proposed to replace the governor with the chief minister as the chancellor of state universities.

Reservation of State Bills for President's Consideration

- **Article 200** of the Constitution outlines **Governor's power regarding bills passed by the state legislature.**
 - It provides that **Governor may reserve such a bill** for President's consideration.
- Enactment of reserved bill then depends upon President's assent or refusal of assent and **Governor has no role in it.**
- If President directs the Governor to return the bill to state legislature for reconsideration, state legislature shall **reconsider it within 6 months** and **present it again to President.**
 - However, it is **not obligatory for President to give his assent** to reconsidered bill.

Other powers of Governor on State Bills

- Once a bill is passed by the state Legislative Assembly, it is presented to Governor who is vested with four options:
 - **Grant Assent:** Makes the bill a law.



- **Withhold Assent:** Effectively rejects the bill.
- **Return Bill for Reconsideration:** If legislative assembly passes the bill again with or without amendment, the Governor shall give his assent.
- **Reserve the Bill for the President's Consideration.**

Supreme Court's Judgment On Mineral Taxation

Supreme Court's Constitution Bench said that **states have power to levy tax on mineral rights.**

- Supreme Court in an **8:1 ruling** held that power of state legislatures to tax mining lands is not limited by Parliament's **Mines and Minerals (Development and Regulation) or MMDRA, 1957.**
- One **dissenting judgment** cautioned about **adverse consequences of giving mineral taxation rights to states.**

Key Observations by Court

- Power to tax mineral rights is enumerated in **Entry 50 of List II (State List)** and **Parliament cannot use** its residuary power with respect to that subject matter.
 - Parliament **can impose limitations on states' mineral taxation via laws**, but the **MMDRA** has no specific provision imposing such limitation.
 - **Entry 54 of List I (Union list)**, pertaining to the Union's power over minerals, is regulatory and **does not include taxing authority.**
- Also, the **term "land" in Entry 49 of List II includes mineral-bearing lands**, granting states the competence to tax such lands.
- Court overruled its 1989 judgement and held that **royalty is not within the nature of a tax** and did **not come under MMDRA.**

About MMDRA 1957

- Regulates the mining sector in India and provides for **following types of licences:**
 - Reconnaissance permit,
 - Prospecting licence (for exploring and proving deposits),
 - Mining lease (for mineral extraction) and
 - Composite licence (both exploration and extraction).

2023 Amendments in MMDRA

- Amendment added **Exploration Licence for deep-seated and critical minerals**, which permits reconnaissance and prospecting operations.
- Empowers Central Government to exclusively **auction mining lease and composite licence for certain critical minerals.**
 - Auction would be conducted by the Central government, but **mining lease or composite licence will be granted by State governments only.**



- Removes certain minerals from the list of atomic minerals such as lithium, beryllium, titanium, etc.

Foreigners Tribunals

Supreme Court recently overturned the decision of Assam Foreigners' Tribunal and declared a resident of the State as Indian citizen.

Foreigners Tribunals

- **Establishment:** These are **quasi-judicial bodies** established under the Foreigners (Tribunals) Order, 1964 by the Central Government, according to Section 3 of The Foreigners Act, 1946.
- **Authority:** Only Foreigners Tribunals have the power to declare a person as a foreigner.
 - Thus, being **excluded** from the **National Register of Citizens (NRC)** in Assam **does not automatically classify** a person as a **foreigner**.
- **Power:** Powers of a **civil court** under the Code of Civil Procedure, 1908.

Central Information Commission (CIC)

Supreme Court has asserted that the Central Information Commission has powers to constitute benches & frame regulations.

About CIC

- **Genesis:** Statutory body under **Right to Information Act, 2005** to ensure **greater access to information to Indian citizens**.
- **Functions:** To receive and **inquire into complaints** from any citizen regarding RTI act, etc.
- **Members:** Commission consists of **one chief Information commissioner(CIC)** and **information commissioner(IC)** (**Not exceeding 10**)
- **Appointment:** CICs And ICs are **appointed by President on recommendation of a committee** consisting of
 - **PM** (Chairperson of committee)
 - **Leader of Opposition** in Lok Sabha
 - **Union Cabinet Minister** nominated by PM.
- **Tenure:** CICs and ICs shall hold office for a period of three years.

Common Service Centres

Centres Special Purpose Vehicle (CSC SPV), which oversees implementation of CSC scheme, celebrated 15 years of its establishment.

About CSC SPV

- Set up by the **Ministry of Electronics & IT** under the **Companies Act, 1956**.

- Provides a **centralized collaborative framework** for delivery of services to citizens through CSCs.
- **Vision:** To develop CSCs as a reliable and ubiquitous IT-enabled network of citizen service points.

About Common Service Centres (CSCs)

- It is **one of the three pillars** of the **National e-Governance Plan (NeGP)** approved in 2006.
 - Other two pillars of NeGP include **Connectivity** and **National Data Bank/ State Data Centres**.
- CSCs are **front-end delivery points** for **Government, private and social sector services** to rural citizens of India, in an **integrated manner**.
- It is a **pan-India network** catering to regional, geographic, linguistic, and cultural diversity of the country.
- **Services offered by CSCs** include **G2C** (Aadhar Seervices, ITR filing, etc.), **B2C** (Bharat Bill Pay System, Mobile and DTH recharge, etc.), **Financial services** (banking, insurance, pension, etc.), among others.

Significance of CSCs

- **Digital inclusion:** CSCs bridge the digital divide by providing access to online services in remote areas.
- **Employment generation:** CSCs provide training programs to enhance digital literacy, employability and promotes entrepreneurship.
- **Others:** Financial inclusion, rural business support, e-Commerce integration, etc.

Sampoornata Abhiyan

NITI Aayog launched 'Sampoornata Abhiyan' which is a **3-month campaign** to achieve saturation of 6 key indicators in Aspirational Districts and **6 key indicators** in Aspirational Blocks.

- Districts and blocks are under the **Aspirational Districts Programme** and **Aspirational Blocks Programme** respectively.
- **Key indicators across aspirational districts include** number of Soil Health Cards distributed, percentage of schools with functional electricity at the secondary level, percentage of children fully immunized, etc.
- **Key indicators across aspirational blocks include** percentage of persons screened for Diabetes and hypertension, Percentage of SHGs that have received a Revolving Fund, etc.

About Aspirational Districts and Aspirational Blocks Programme

Aspirational Districts Programme	Aspirational Blocks Programme
Launched in 2018 under NITI Aayog.	Launched in 2023 under NITI Aayog.
Aims to quickly and effectively transform 112 districts across the country.	Aims for saturation of essential government services in 500 Blocks (329 Districts) across the country



Focuses on five themes:

- Health & Nutrition
- Education
- Agriculture & Water Resources
- Financial Inclusion & Skill Development
- Infrastructure

Progress is measured on **81 indicators** of development.

Focuses on five themes:

- Health & Nutrition
- Education
- Agriculture and Allied Services
- Basic Infrastructure
- Social Development

Progress is measured on **40 indicators** of development.

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TOGETHER WE SCALE HEIGHTS

Digital Public Infrastructure (DPI)

Context:

The 'Report of India's G20 Task Force on DPI' was released by 'India's G20 Task Force on Digital Public Infrastructure for Economic Transformation, Financial Inclusion and Development'.

About the Report

- The Task force was established in 2023 under India's G20 Presidency to **facilitate priorities on DPI and Financial Inclusion**, and supplement efforts towards the adoption of DPI globally.
- The report **defines DPI** and outlines a three-part framework for global DPI advancement.

What is Digital Public Infrastructure (DPI)?

- It is a set of **shared digital systems** that-
 - Should be **secure and interoperable**,
 - can be built on **open standards and specifications** to deliver and provide equitable access to public and / or private services at societal scale ,
 - are **governed by applicable legal frameworks and enabling rules** to drive development, inclusion, innovation, trust, and competition and respect human rights and fundamental freedoms.
- **What is 'Not' DPI?**
 - **Interventions which are complementary to DPI:** E.g., **connectivity infrastructure** that improves individuals' access to mobile & internet via physical infrastructure.
 - **Digital processes that may not enable private innovation:** E.g., digitizing existing physical processes or workflows to create a government portal.

Significance of DPI

- **Accelerate Development:** It has a high multiplier on economic growth.
 - E.g., with its DPI India achieved in less than a decade financial inclusion levels that would have otherwise taken 5 decades.
- **Spurs Innovation:** By reducing transaction costs, maintaining competition through interoperability, and attracting private capital.
 - E.g., **PhonePe's** (fintech company) growth of \$12 Billion is largely due to DPI.
- **Inclusive development:** DPI inclusively enables vulnerable groups (such as physically remote populations, women, SMEs etc/) to access services, helping close inter- group disparities.
 - E.g., **Number of Bank accounts opened in India tripled** from 147.2 million in 2015 to 508.7 million in 2023 in which **women own 55 % of these accounts**
- **Effective Public Service Delivery:** E.g., DPI enabled effective direct benefit transfer across several Central Government Schemes leading to \$ 41 billion savings in India.
- **Resilient:** E.g., During the COVID-19 pandemic, countries worldwide were able to leverage digital vaccination certificates.

- **Empowers Individuals:** By protecting individuals with economic mobility and key digital rights such as control over their money and data.
- **Other factors that highlight DPI's significance:**
 - **Fiscally prudent** as it uses a mix of public & private financing.
 - Enables maintaining control over critical national infrastructure.

About India's DPI

- **India Stack:** It is India's own foundational DPI, consists of 3 interconnected layers:
 - **Identity Layer** - (e.g, Aadhar, e-KYC etc),
 - **Payment layer** (e.g., UPI, Aadhar Payment Bridge etc.) and
 - **Data governance layer** (e.g, DigiLocker, Account Aggregator etc.).

Global efforts for DPI

- **Digital Economy Working Group (DEWG):** First consensus on DPI approach was formally accepted by countries on any international forum.
- **One Future Alliance:** It's a voluntary initiative proposed by G20 India Presidency, aimed to build capacity, and provide technical assistance and adequate funding support for implementing DPI in Low and Middle-Income Countries.
- **Global DPI Repository (GDPIR):** Announced the launch at the G20 virtual leaders' summit in 2023 to establish a focused institution working on DPI.
 - **Social Impact Fund (SIF)** was also announced for accelerating DPI implementation across global south nations.
- **EU Trade and Technology Council (TTC):** India and the European Union agreed to take steps to accelerate the development and deployment of DPI in other countries.

Way Forward

- **Adopting 3 pillared DPI Approach** suggested by the report.
- **Comprehensive and Phased Approach** informed by in-depth research and analysis of the global digital infrastructure landscape.
- **Supporting open & reusable technology frameworks.**
 - **For instance, reusable managed services models** can be explored to allow countries to plug and play in order to deploy certain DPI, whilst ensuring countries' sovereignty and data ownership.
- **Creating Dialogue and Alignment** through an **annual DPI forum** to share their experiences with deploying DPI.
 - Countries of the Global South may come together to establish **Global South Forum** to discuss and deliberate matters on DPI particularly to their needs and requirements.
- **Bilateral or Multilateral Engagement among countries** to jointly offer to deploy DPI within the recipient country.



- **Focused Institution** to work on policy dimensions, formulation and implementation of strategies with appropriate technical and academic expertise.
- **Leveraging AI for making DPIs more effective and efficient.**
 - E.g., AI can help overcome the challenge of limited data availability in Indian languages by enabling language localization using India's Bhasini, a Natural Language Processing (NLP) model

Angel Tax

Context:

In Budget 2024-25, government has announced to abolish the **angel tax for all classes of investors'** to boost the entrepreneurial spirit and support innovation.

More on the News

- The **Department for Promotion of Industry and Internal Trade (DPIIT)** under the **Ministry of Commerce and Industry** had recommended ahead of budget to abolish Angel Tax.
 - Also, a similar recommendation was made by **Confederation of Indian Industry (CII)**.

What is Angel Tax?

- **Definition:** Refers to the income tax that the government imposes on funding raised by **unlisted companies, or startups**, if their valuation exceeds the company's **fair market value**.
 - For instance, if the fair market value of a start-up share is Rs 10 a piece, and in a subsequent funding round they offer it to an investor for Rs 20, then the difference of Rs 10 would be taxed as income.
- **Objective:** It was introduced in 2012 to curb money laundering and tax evasion.
- **Legal Provision:** It was levied under Section 56 (II) (viib) of the **Income Tax Act, 1961**.
- **Coverage:** Earlier it applied only to local investors but the Budget 2023-24 widened its ambit to include foreign investments (with some exceptions).

Key Sources of Funding for Start-ups

- Venture Capital/ Private Equity/ Angel Funds invest in young and fledging startups.
 - Venture capital Fund (including Angel Fund) is considered as Alternative Investment Funds (AIFs).
 - AIFs pool private funds for investment in startups and other companies. They have been categorised into three classes:
 - **Category I:** Includes Venture capital funds (Including Angel Funds), Social Venture Funds, Infrastructure funds etc.
 - **Category II:** Includes funds which does not fall in category I and category III and does not undertake leverage. This includes debt funds, etc.
 - **Category III:** Employ diverse or complex trading strategies and are allowed to employ leverage. This category includes hedge funds etc.



- **Venture Capitalists:** They manage pooled funds from institutional investors and invest in large sums.
 - They typically invest in startups that have already demonstrated market traction, have a validated business model, and are ready to scale.
 - They seek larger ownership stakes which would in turn give them more influence over strategic decisions.
- **Angel investors:** They typically invest their personal funds in smaller amounts at an earlier stage when the founder is trying to get his or her venture off the ground.
 - There may be more uncertainty and higher risk in investments done by Angel Investors.

Why Angel Tax has been abolished?

- **Improves Ease of Doing Business:** Angel tax imposed an additional financial and compliance burden on Start-ups thus affecting their growth potential as well as Ease of doing business.
 - It will promote **Reverse Flipping** of start-ups.
- **Streamlining Investment:** Indian start-ups witnessed over 60 % decline in funding in terms of value in 2023.
 - Also, imposition of Angel tax on foreign investors reduced opportunity for Funding. Foreign investor played key role in increasing the valuation of start-ups.
- For instance, Tiger Global (foreign investors in India) has invested in over a third of the start-ups that have turned **unicorn**, with a valuation of at least \$1 billion.

Concerns related with abolishing Angel tax

Abolition will primarily affect the revenue of the government. Additionally, there is an issue that start-ups can be used to launder money or shell start-ups can be created.

What more can be done to improve the financial ecosystem of startups?

Standing Committee on Finance in its report "Financing the Startup Ecosystem" recommended following:

- **Scaling up unicorns:** Expanding the **Small Industries Development Bank of India (SIDBI) Fund-of-Funds** to help disburse more funds to startups.
 - SIDBI Fund-of-Funds is a fund that invests in other funds such as AIFs.
- **Listing of AIFs:** AIFs should be allowed to list on capital markets to access a permanent source of capital.
- **Expansion of sectors for FVCI:** Foreign venture capital investors (FVCI) shall be allowed to invest in all the sectors where foreign direct investment (FDI) is allowed.
- **Mobilisation of domestic institutional funds:** Major banks should be allowed to **float fund-of-funds** and be allowed to invest in Category-III AIFs.

Conclusion

Abolition of Angel Tax will promote fund availability for entrepreneurs. In order to ensure that money laundering and tax evasion do not take place government can emphasise on registration of angel investors and disclosure of beneficial ownership of Private Equity/Venture capitalist/angel funds. This will help in plugging the potential abuse.

Gig Economy

Context:

Recently Karnataka government published **draft Karnataka Platform-based Gig Workers (Social Security and Welfare) Bill**.

More about the Bill

- **Welfare Board:** Provides for establishment of '**Welfare Board**' at state-level, for securing welfare of Gig-Workers.
- **Establishment of a welfare fund:** Consists of **welfare fee** (Levied on transactions b/w worker & aggregator or on overall turnover of company) & **contributions from Union and State** governments.
- **Rights-based bill:** It seeks to protect the rights of gig workers and places obligations on aggregators in relation to social security, occupational health and safety of workers.
- **Other Features:** Provides **safeguards against unfair dismissals, two-level grievance redressal mechanism**, and more transparency with regards to automated monitoring and decision-making systems deployed by platforms.
- Currently, **Rajasthan** is **only state** to have **legislation for welfare of gig workers**.

Issues with Bill

- Disclosure of algorithmic monitoring and providing reasons for terminations **can impact ease of doing business**.
- Bill does not address **issue of minimum wages** or **working hours** for gig workers.
- **Welfare board model** provides some welfare schemes for gig workers, but it does not replace institutional social security benefits e.g. provident fund, gratuity, or maternity benefits.
- **Unlike Code on Social Security, 2020 ('COSS')** which defines and regulates both 'gig workers' and 'platform workers' separately, Bill regulates **only subset of platform-based gig-workers**.

Gig Workers

- As per **Code on Social Security, 2020**, it means a person who performs work or participates in a work arrangement and earns from such activities outside of **traditional employer-employee relationship**.
- **Broadly classified into 2 categories:**
 - **Platform based:** Whose work is based on online software apps or digital platforms. E.g., delivery workers of Zomato.
 - **Non-platform based:** Casual wage workers in conventional sectors, working part-time or full-time. E.g., domestic workers.
- **Drivers of Growth:** Technological advancements, urbanization, rising middle-class consumption demands, shifts in consumer preferences towards on-demand services, and desire for greater work-life balance among workers.

Challenges for Gig Workers



- **Digital Divide:** Access to internet services and digital technology can be a restrictive factor for workers.
- **Data protection:** Opaque decisions made by platform companies on how to collect; store and share personal data of workers impact Right to privacy of workers.
- **Lacking 'employee' status:** Has resulted in several consequences e.g. inability to form unions to represent their interests, exploitative contracts, etc.
- **Uncertain Nature of Job:** Lack of job security, irregularity of wages, and uncertain employment status for workers.
- **Lack of social Protection:** workers lack safeguards such as Health Insurance, Employees Provident Fund etc.
- **Algorithmic management:** Workers face stress due to pressures resulting from algorithmic management practices and performance evaluation on the basis of ratings.

Steps taken for Gig Economy in India

- **Code on Social Security, 2020:** Provides for extension of social security benefits to gig workers as well.
- **Code on Wages, 2019:** provides for universal minimum wage and floor wage across organized and unorganized sector which include gig workers.
- **e-SHRAM Portal:** which is a National Database of Unorganised Workers including gig workers.
- **Pradhan Mantri Suraksha Bima Yojana (PMSBY):** All eligible registered unorganised workers including gig workers are entitled to get benefit of an accidental insurance cover of Rs. 2.0 Lakh for a year.
- The Centre for Labour Studies, National Law School of India University (NLSUI), Bangalore has been engaged for assistance in framing of a new Scheme for the Gig & Platform workers as well as workers in the unorganized Sector.
 - **Memorandum of Understanding (MoU) has been signed by Employees Provident Fund Organisation (EPFO) with NLSUI.**

Way Forward

- **Proper Estimation of Gig Workers:** By having separate enumeration exercises.
- **Catalyze Platformization:** Introducing Platform India initiative (similar to Startup India).
 - This platform can help self-employed individuals to sell their produce to wider markets in towns and cities; Ferrying of passengers for hire etc.
- **Accelerate Financial Inclusion:** Institutional credit to vulnerable section through financial products specifically designed for platform workers by leveraging FinTech industry.
- **Enhancing Social Inclusion in Digital Economy:** By enabling different sections of workers e.g. **women workers and PwDs to take up employment opportunities** in platform sector through skill development, access to finance etc.
- **Skill Development for Platform Jobs:** Pursue outcome-based, platform-led models of skilling and job creation.

- Integrate employment and skill development portals such as E-shram and National Career Services Portals or Udyam portal with ASEEM portal.
- **Universal Social Security Coverage:** By extending social security measures in partnership mode as envisaged in Code on Social Security 2020.
 - Social Security includes **paid sick leave**, Occupational Disease and **work accident Insurance**, Retirement/Pension Plans and Other Contingency Benefits etc.
- **Tripartite dialogue:** Between governments, platform unions and EBMOs on labour issues & worker well-being in platform economy.

Transshipment Port

Context:

India welcomed its first cargo ship at its newly built semi-automated transshipment port in **Vizhinjam International Transshipment Deepwater Multipurpose Seaport**, Kerala.

More on the News

- The port is owned by **Government of Kerala**.
- It is designed primarily to cater to **container transshipment** besides multi-purpose and break-bulk cargo.
- Port has been developed in **landlord Port model** with a Public Private Partnership component on a **Design, Build, Finance, Operate and Transfer ('DBFOT')** basis.
 - **Under landlord model**, port authority acts as regulatory body, while port operations are carried out by private companies.

Transshipment Port

- It is a **transit hub where cargo from one ship is transferred to another** on the way to its final destination. (includes rails, roads, etc.)
 - **Smaller parcels of cargo are loaded on a bigger ship** which is able to travel to distant ports in other countries.

Significance of India as a Transshipment Hub

- **Revenue Generation:** Transshipment hub has potential to **curb revenue losses for Major ports (\$200-220 Million)** in transshipment handling.
 - Currently, nearly **75% of India's Transshipment cargo** is handled at ports outside India.
- **Reduced Logistic Costs:** It will help in **lowering logistic and shipping costs** by increasing efficiency.
 - Average turnaround time for Indian ports declined from **4.3 days (2012-13) to 2.1 days (2022-23)** which still need improvement (Global median ship turnaround time was 1.04 days in 2022).
- **Stimulating Economic Growth:** Port will significantly result in savings of foreign exchange reserves, attracting foreign direct investment & increased trade.



- Growth of allied businesses will take place around port E.g. **Ship repair, warehousing, bunkering etc.**
- **Self-Reliance:** With **increasing Chinese influence** in port infrastructure in Indian Ocean as part of Belt and Road Initiative, dependence on foreign ports is a **potential national security challenge**.
- **Integration with Global Value Chain:** Poor shipping connectivity has hindered India's integration in global value chain. **(India's share in world trade is about 2%)**

Issues in development of Transshipment Port

- **Insufficient Natural Depth:** Major Indian ports like Mumbai, Chennai, Mangalore and Tuticorin have natural depths of only 10-14 meters.
 - A good transshipment **hub requires 20-meter depth**.
- **Distance from international shipping lines:** E.g. Our major ports in eastern and western coast are at a distance from major international shipping lines.
- **Labor issues:** Major Indian ports are bogged with frequent labor strikes, congestions, inefficiency and lower productivity at their respective ports.
 - There is often a **disparity in skill levels required** for advanced **port operations** versus available workforce.
- **Other Issues:** Securing Funding, Land Acquisition Delays, Logistics and Connectivity Inefficiencies, **Competition from foreign ports (E.g. Colombo, Dubai, Singapore, Jabel Ali, Port Kelang, etc.)**

Steps Taken

- **Maritime AmritKaal Vision 2047:** Outlines a comprehensive plan to transform India's maritime sector. The key initiatives include:
 - **Deeper Drafts:** Increasing draft depths to 18-23 meters to accommodate larger vessels and improve handling capabilities
 - **Transshipment Hub:** Developing a major transshipment hub to capture a larger share of global shipping traffic.
 - **Reducing Vessel Charges:** Implementing measures to lower vessel-related charges to make port operations more cost-effective.
 - **Private Sector Participation:** Boosting private sector involvement through projects under PM Gati Shakti - NMP and the Asset Monetization Plan
- **New international Container Transshipment Terminal development** at Galathea bay in Great Nicobar (Island of Andaman & Nicobar) and Vallarpadam in Cochin (See map).
- **Tariff Guidelines, 2021 provide flexibility of fixing market determined tariff** to PPP Operators thereby creating a healthy competition leading to rationalization of logistics costs.

Way-Forward

- **Infrastructure Investment:** By implementing **modern cargo handling techniques** for increased capacity at existing ports (**especially for dry cargo**).
- **Public Private Partnership (PPP) Projects:** Taxes should be **rationalized to attract foreign shipping companies** and a single window system should be set up **for approving PPP projects**.

- **Skill Development Initiatives:** Launch targeted training programs to upskill local workforce.
 - Establishing **Centers for Coastal and Inland Maritime Technology** in collaboration with IITs/ NITs/ IIMs to provide opportunities in applied research and development.
- **Competing with International Ports:** Identify key areas for differentiation, such as cost efficiency, turnaround time, and customer service, to position Indian ports favorably.
- **Prepare Coastal Zone management Plan (CZMP):** Ports may be permitted to **prepare CZMP** taking into consideration future construction requirements based on earlier environment clearances issued.

India's Structural Transformation

Context:

IMF released a Working Paper titled 'Advancing India's Structural Transformation and Catch-up to the Technology Frontier'.

More on News:

- Paper takes stock of **India's growth** and **suggests structural reforms** that can help accelerate growth in India.
- India experienced robust economic growth over the past few decades, averaging over 6% real GDP growth since 2000. However, this **growth has not translated evenly across all sectors**.

Structural Transformation: Transition of an economy from low productivity and labour-intensive economic activities to higher productivity and skill-intensive activities.

Indicators of Structural Transformation

- **Shift from agriculture:** Resources (**Labour, Capital, and Technology**) in the economy are shifted out of low-productivity primary activities (E.g., Agriculture) into modern, higher-productivity sectors (E.g. Services).
- **Sectorial distribution:** It means a higher share of manufacturing and service sectors in an economy.
 - It is typically **measured through employment distribution, value-added distribution** and final consumption expenditure distribution.
- **Capital accumulation:** Accumulation of physical and human capital, and changes in composition of demand, production, employment and trade.
- **Migration:** Rural-to-urban migration underpinned by rural and urban development.
- **Demographic transition:** From high rates of births and deaths (**common in underdeveloped and rural areas**) to low rates of births and deaths (**Common in developed and urban areas**).

Status of India's Structural Transformation:

- **Structural change in output:**
 - **Share of agriculture** and allied activities in output declined from 42% in 1972-73 to 15% in 2019-20.

- **Share of industry** (consisting of mining, construction, manufacturing and utilities) rose from 24% in 1972-73 to 25.9% in 2020-21.
- **Share of services** in output rose significantly from 34.5 in 1970 to 55.3% in FY 2020.
- **Structural change in Employment:**
 - **Share of agriculture** in employment declined from 73.9% in 1972-73 to 42 % in 2018-19.
 - **Share of industry** in employment rose from 11.3% (1972-73) to 24% (2019-20) in five decades.
 - **Share of services** in employment increased significantly from 14.8% in 1972-73 to 30.7% in 2019-20
- **Presence of informal sector:** Between 1983 and 2019, the share of the non-farm sector in employment rose 20%, but the majority of such jobs were of the informal variety.
- **Urbanization:** India is urbanizing rapidly. By 2036, its towns and cities will be home to 600 million people, or 40 percent of the population, up from 31 percent in 2011 & 20 % in 1971.

Key Issues Highlighted by paper in India's structural Transformation:

- **Sectorial Imbalance:** Aggregate output of agriculture has declined from over 40% in 1980 to 15% in 2019, it still accounts for 42% of employment.
- **Uneven tech-adoption by industries:** Services outperformed manufacturing in catch-up to technological frontier.
- **Rise of low skill jobs:** Construction has also become an important employer, with about 12 percent of workers in 2019.
- **Low Productivity:** Manufacturing sector growth has remained sluggish and over half of all workers remain in low productivity jobs in agriculture, construction, and trade
 - Labour in 2019-20 in manufacturing and services was over **4.5 times more productive than in agriculture.**
- Paper estimates that India needs **at least 143-324 million jobs** for its growing population by 2050.

Key Policy Recommendations:

- **Strengthening Education and Skilling:** Improving quality of education and providing vocational training can help workers transition to higher productivity sectors.
 - **India's labor force** still has **fewer years of formal education** than peers and quality of its education remains low (**ASER, 2023**).
- **Advancing Labor Market Reforms:** Working with states to loosen restrictive employment protection legislation would be essential to further **enhance labor market flexibility.**
- **Fostering Trade Integration:** Enhancing trade policies e.g. **Signing bilateral trade agreements, removing tariff and non-tariff restrictions** to integrate with global markets.

- **Removing Red Tape:** Simplifying regulations and reducing bureaucratic hurdles can spur private sector growth, leading to more job creation.
- **Continued Public investment Push:** Stronger physical public infrastructure, together with India's world class digital public infrastructure, will help increase productivity of private sector.
- **Others: Strengthening Social Safety Net, Facilitating Access to Credit** for small and medium enterprises, etc.

Space Economy

Context:

In Budget 2024-25, it has been announced that a venture capital fund of Rs. 1,000 crore will be set up to promote space economy in the country.

More on the News

- This **venture capital fund** will provide finance to the Space tech startups and small- to medium-sized enterprises at different stages of its life cycle according to requirements.
- It will supplement initiatives like **Seed fund scheme**, launched by the **Indian National Space Promotion and Authorization Centre (IN-SPACE)** in 2023.

Need of Promoting Space tech Start-ups and Private Sector in Space Sector

- **Reducing import dependency:** India's import costs in the space technology sector are **12 times** higher than the **earnings from exports (2021-22)**.
 - The major imported items include **electronic and electrical engineering components**, high-strength **carbon fibres**, **space-qualified solar cells**, etc.
- **Freeing up the ISRO from ancillary activities:** Space entrepreneurship could free up ISRO to focus on the **core areas of research and development** such as interplanetary exploration and strategic launches.
- **Shift from supply driven model to demand driven model:** Almost every major sector of the economy would benefit from integration of space technology. For example, satellite data uses in urban development.
- **Global Competitiveness:** Foreign private companies like SpaceX, Blue Origin, Arianespace, etc. have transformed the global space industry by **cutting costs** and **turnaround times**.
 - However, India's private space players have mainly served as **vendors or suppliers to the government's space program**.
 - Therefore, to provide them a **level playing field**, Centre allowed them to **carry out end-to-end activities** in the space domain.
- **Connected socio-economic benefits:** By finding innovative solutions to pressing challenges in areas such as **agriculture, disaster management, or communication**.
 - Also, Indian space sector is projected to **increase at a ~48% CAGR over the next five years to reach US\$ 50 billion**.

Private sector participation in Space

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- There are **more than 200 space-based start-ups in India**.
- In 2022, Vikram-S, India's **first privately built rocket was launched under 'Mission Prarambh'**. It was developed by Hyderabad-based Skyroot Aerospace.
- **NSIL and Hindustan Aeronautics Limited (HAL) exchanged the MoU** for producing PSLVs. L&T is partnering with HAL in the consortium.
- **IIT Madras-incubated startup Agnikul Cosmos** test launched the indigenously designed and developed world's first rocket with a **single-piece 3D printed engine**.
- **OneWeb India** recently became the first company to receive **approval from Indian space regulator IN-SPaCe** for providing satellite broadband services.

Challenges in Promoting Start-ups and Private participation in Space Sector

- **Regulation Issues:**
 - **Multiplicity of regulations.** E.g. approvals needed from DoS, ISRO, Antrix corporation etc.
 - **Absence of a dedicated and independent regulator.** ISRO acts both as a regulator and operator in the sector.
- **Risky Nature of Industry:** Absence of assured market and long incubation periods lead to a cautious approach by private organizations.
- **Funding Constraints:** Indian investors prefer safe investments like 5G rather than long-term, high-risk investments in space technology.
 - Lack of indigenous materials and high reliance on imports **increases costs and causes production delays**.
- **Security and strategic concern:** Rising private sector participation increases security concerns like potential interference of foreign entities etc.
- **Other:** Limited Talent Pool, increase in space debris with growing space economy, etc.

India's Initiatives to promote space-tech entrepreneurship

- **Key organisations**
 - **IN-SPaCe:** An autonomous agency under the Department of Space (DoS).
 - Its role includes regulating, promoting, guiding, monitoring, and supervising the space activities of Non-Governmental Private Entities (NGPEs) in India.
 - **Antrix Corporation Limited (ACL):** A commercial arm of ISRO, was setup in 1992 and is a wholly owned Government of India Company.
 - **New Space India Limited (NSIL):** Schedule 'A' Category Company under DoS. It was set up in 2019, to handle the commercial activities of ISRO.
 - **Indian Space Association (ISpA):** Established in 2020, ISpA is an apex non-profit industry body, setup for development of the private space industry in India.
- **Key Initiatives**
 - **Indian Space Policy 2023:** Enables end-to-end participation of Non-Government Entities (NGEs) in all domain of space activities.



- **Foreign Direct Investment (FDI):** Recent amendment in FDI policy allowed 74% FDI for satellite manufacturing and operation, up to 49% FDI for launch vehicles, spaceports and associated systems etc.
- **SpaceTech Innovation Network (SpIN),** public-private collaboration for start-ups and small and medium- enterprises in space industry.
- **Tax benefits:** Satellite launches are exempted from GST.
- **Atal Innovation Mission (AIM)**
 - **ATL Space Challenge:** AIM in collaboration with the ISRO and CBSE launched the Atal Tinkering Lab (ATL) Space Challenge. The challenge encourages students to find efficient and innovative solutions for specific, real-world challenges in the Space sector.
 - **Atal Incubation Centre (AIC) Scheme:** AIM has supported more than 15 startups working in Space Tech and related industry across India. The focus areas for these startups are in UAV, Drone and Surveillance Equipment, Aero tech, Air Taxi, Space debris tracking and monitoring service, space education among others.
- **Mentoring:** List of retired ISRO subject experts is published on IN-SPACe Digital Platform (IDP). NGEs can approach these mentors directly for expert advice etc.

Way Forward

- **Enact Space Activities Act:** It will further provide clarity, focus, and propulsion for the industry.
- **Mapping of current value chain of the sub-segments:** Identification of challenges (technology, business and adoption), trends and global benchmarking to define the problem for market creation.
 - Also, facilitating government contracts for private start-ups to foster market demand.
- **Capacity building:** It includes emphasizing on academic programs for systemic development. For instance, investing in training programs to enhance skills in systems engineering.
- **Building synergy in the sector:** Ensure partnerships between start-ups, ISRO, and foreign companies to access expertise and markets.
- **Other measures:** Augmenting Technology Development Fund Corpus, viability gap funding, etc.

E-Mobility

Context:

The 'e-mobility R&D Roadmap for India' report has been released by the Principal Scientific Adviser to the Government of India to achieve net-zero targets.

More on the News

Report highlighted the **technical areas** and **research projects** that require **immediate action** over the next five years to become Atmanirbhar and emerge as a global leader in innovative mobility solutions.

Proposed R&D Roadmap	
Sphere	Measures Required
Energy Storage Cell	Accelerate the process of finding more Lithium reserves, implement globally available, established extraction technologies for lithium, utilize existing supply-chain strategies in Li-battery/ cell production etc.
EV Aggregates	Emphasis on Hybrid Energy Storage Systems (HESS), combining different energy storage technologies such as batteries and supercapacitors etc.
Material and Recycling	Economic analysis of recycling value-chain, implement methods for monitoring and reporting the environmental impact etc.
Charging and Refuelling	Proper road infrastructure for installation of a transmitting pad underneath the road, design scalable systems for dynamic wireless charging technology, design and development of adaptive charging techniques etc.

Need/Requirement of the E-mobility in the Country

- **Environment Sustainability:** Transport sector contributes estimated 142 Million Tonnes of CO₂ emissions annually, out of which 123 million tonnes is contributed by the road transport segment alone.
 - Also, there will be reduction in emission of **particulate matter** and **NO_x (Nitrogen Oxides)** emission which are a major cause of respiratory ailments.
 - **Alignment with global commitments** such as **Sustainable Development Goals (SDG's)** and **Panchamrit climate action plan**, presented at **COP26 (Glasgow)** to the **United Nations Framework Convention on Climate Change (UNFCCC)**.
- **Reducing Import Dependence:** Transport sector accounts for 18% of total energy consumption in India. This demand is being met mostly through imported crude oil.
 - Transition to EVs will reduce the vulnerability to the volatile International crude oil prices.
- **Export Potential:** India is the world's third-largest Automobile market. This strength and capability can be channelized in the direction of Export of EVs.
- **Other:** Job creation (create 10 million direct jobs and 50 million indirect jobs), lower maintenance cost etc.

Challenges in transitioning to E-mobility

- **Higher Cost:** EVs tend to have a higher upfront cost compared to conventional **Internal Combustion Engine (ICE) vehicles**.
 - Expensive batteries contribute to the higher initial cost of EVs.
- **Charging Infrastructure:** There are around 2000 charging stations in India. (NITI Aayog Report, 2021). The scarcity of charging stations lead to issues like **range anxiety**.



- **Range anxiety** is a term commonly used to explain the anxiety that EV owners or drivers may feel regarding the distance their vehicle may be able to cover with the charging, whether it be full or partial.
- **Lack of Clean Energy:** The transition to EV is not fully sustainable if the electricity used to charge them is generated from fossil fuels.
 - **Coal (including lignite)** contributes about 50% of total electricity generation in India (Ministry of Power).
- **Lack of Standardisation:** Different manufacturers adopt varying battery chemistries, charging connectors, and powertrain configurations.
- **E-Waste Management:** About 90% of used batteries are either processed by unorganized industry or end up in landfills and garbage dumps.
 - India ranks third in **e-waste generation** after **China** and the **USA**. (**Global e-waste monitor, 2024**)
- **Complex/Vulnerable Supply Chain:** E-mobility value chain heavily depend on imports of key elements such as cobalt, lithium, and nickel.
 - Lithium resources are mainly concentrated in the **Lithium Triangle** (encompasses region of Argentina, Bolivia, and Chile)

Government initiatives for promotion of EV Manufacturing Ecosystem

- **Electric Mobility Promotion Scheme 2024 (EMPS 2024):** Launched by the Ministry of Heavy Industries (MHI).
- **PLI Schemes:** Production Linked Incentive (PLI) Scheme for Automobile and Auto Components Industry in India to boost domestic manufacturing of Advanced Automotive Technology products.
 - PLI Scheme for manufacturing of Advanced Chemistry Cell (ACC) to bring down prices of battery in the country.
- **Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles (FAME) India:** Under FAME India Scheme Phase-II, Phased Manufacturing Programme (PMP) has been introduced.
- **Rationalization of Goods and Services Tax (GST):**
 - on electric vehicles from 12% to 5%;
 - on chargers/charging stations for electric vehicles from 18% to 5%.
- **Promoting Charging Infrastructure:** Ministry of Power has issued 'Charging Infrastructure for Electric Vehicles - Guidelines and Standards'.
 - Ministry has also designated BEE as the Central Nodal Agency (CNA) for the National-level rollout of charging infrastructure in the country.
 - **States' Initiative:** Karnataka, Telangana, Maharashtra and Uttar Pradesh have launched their respective state EV Policies.
 - **Other:** National Electric Mobility Mission Plan (NEMMP) 2020, EV30@30 campaign (at least 30% of new vehicle sales to be electric by 2030), National Mission on Transformative Mobility and Storage etc.

- **Formulating Battery Technology swapping Policy:** Battery swapping involves switching out a depleted battery for a fully charged one at a swapping station within the battery swapping operator's (BSO) network.

Way Forward

The **Standing Committee on Industry** in its report on '**Promotion of Electric Vehicles in the Country**' recommended following ways

- **Standardisation:** All stakeholder shall come together to adopt common standard in the sphere of charging port, etc. to ensure interoperability.
- **Focus on Infrastructure:**
 - Setting up of charging stations should be incentivised for **individual investors, women self-help groups** and **cooperative societies** by offering an assured return.
 - Setting up **dedicated manufacturing hubs** and **industrial parks** for manufacturing batteries, cells, and EV auto components.
- **Finance Availability:** EVs should be bought under the **priority sector lending**.
- **Public Transport:** Allocate more funds towards developing such public transport system which rely on e-buses.
- **Vibrant Supply Chain Mechanism:** Government should take initiatives to accelerate the extraction of lithium.

City Gas Distribution (CGD) Network

Context:

Recently, FICCI in collaboration with PWC released a report titled 'Charting the path forward in city gas distribution: Emerging trends and insights'

About CGD

- **Pipeline Network:** CGD network is an interconnected system of underground natural gas pipelines for supplying Piped Natural Gas (PNG) and Compressed Natural Gas (CNG).
 - Natural gas is a **relatively clean-burning fossil fuel** which mainly comprises **Methane (CH₄)** with a **small percentage of other higher hydrocarbons**
- **4 distinct segments:** CNG is predominantly used as **auto-fuel**, and PNG is used in **domestic, commercial and Industrial segments**.
- **Regulation:** Under the PNGRB Act 2006, **PNGRB** grants authorization to the entities for developing a CGD network in **specified geographical areas (GAs)**.
- **Coverage:** Over 33,753 Kms of natural gas trunk pipelines are authorized in the country out of which around **24,623 Kms of pipeline are currently operational**
 - After the latest (12th) bidding rounds, coverage is expected to **nearly reach 100% soon**, excluding only the Andaman and Nicobar and Lakshadweep Islands.

- **Growth:** The Government of India plans to raise the **share of natural gas in the energy basket from around 7% at present to 15% by 2030.**

Relevance of CGD Network

- **Clean Energy Transition:** Transitioning to a gas-based economy is expected to support India's climate action commitment of
 - net zero emissions by 2070,
 - reducing emissions intensity by 45% and
 - cutting total carbon emissions by 1 billion metric tonnes by 2030
- **Natural Gas as Transition Fuel:** Natural gas serves as a bridge between traditional and renewable energy sources in India.
 - It acts as a **critical energy source during the transition period**, complements renewables and helps meet growing energy demands.
- **Equitable Energy Access:** It will ensure adequate availability and equitable distribution of natural gas across the country.
- **Economical and Safe:** The natural gas pipeline infrastructure provides an economical and safe method for transporting natural gas from production sources to consumption markets.
 - **Benefits of CNG:** Very low levels of emissions, unlikely to ignite due to high ignition temperature, lowest injury and death rate per vehicle mile etc.
 - **Benefits of PNG:** Safe and assured supply, convenient to use, no wastage, no hassle for replacement of cylinder or cylinder booking etc.

Challenges in the CGD Sector

- **Complex Policy Framework:** Companies in the CGD sector face challenges like navigating complex regulations and balancing innovation with safety norms.
 - **e.g.,** Involvement of multiple agencies such as Directorate General of Hydrocarbons, Oil Industry Safety Directorate, etc., in Supervision of safety standards.
- **Infrastructure:** High costs, complex technology integration, and regulatory delays hinder development.
- **Competition:** Gas, making up only 2% of power generation, faces strong competition from cheaper, cleaner alternatives like renewables.
- **Import Dependence:** With 48% of LNG imported, reliance on costly imports hampers growth, especially since domestic production is sluggish.
 - It also makes the sector sensitive to **price volatility**.
- **Technological and digitalisation Lag:** The gas infrastructure lacks modern technologies for extraction, transport, and storage. Also, managing large volumes of data requires significant storage and processing capabilities.

Initiatives Taken to Promote CGD Network

- **Market Exclusivity to CGD companies:** Market exclusivity for a period of 8 years, extendable up to 10 years is given to companies selected in bidding for developing CGD network.

- **Infrastructure Status to Gas pipelines:** The status accorded by RBI facilitate financing from commercial banks and other financial institutions.
- **Priority for Gas Sourcing:** The government prioritizes domestic gas supply for households (PNG) and transport (CNG).
- **Unified Tariff Reform:** It will help achieve the objective of 'One Nation, One Grid and One Tariff'.
- **Financing:** Government has set an objective to invest \$67 Billion in the natural gas sector in the next six years.

Way Forward for Promoting CGD Networks

- **Government and Regulators:** Developing a unified regulatory strategy is crucial to streamline the CGD sector.
 - Addressing issues like **skilled personnel shortages, slow approvals, and volatile gas prices** can build trust and improve processes.
- **CGD Companies:** Companies need to shift towards **customer-led strategies** to meet market demands and build loyalty.
 - Preparing for market changes, including the **rise of EVs and alternative energy sources**, will help manage future demand fluctuations.
- **Technology Companies:** Tech firms should focus on **developing advanced solutions** like smart meters and GIS mapping.
 - Collaboration with CGD companies is essential to integrate these technologies, improving efficiency and safety standards.
- **Financial Institutions and Investors:** Investors must **identify promising CGD projects** and develop strategies to mitigate risks from volatile market dynamics.
 - **Prioritizing investments in infrastructure expansion and technologies** like SCADA, cloud computing, ML, and AI is crucial.
 - All initiatives should align with the UN's 17 sustainable development goals.

Coal Sector in India

Context:

Ministry of Coal has informed that Compound Annual Growth Rate (CAGR) of imported coal share fell from 13.94% (2004-05 to 2013-14) to -2.29% (2014-15 to 2023-24).

Key Reforms/Initiatives in Coal Sector which helped decrease imports

- **Enactment of Coal Mines (Special Provisions) CMSP Act- 2015:** The Act permitted auction of coal mines for commercial mining by private entities.
 - In 2020, first commercial coal mining auctions were launched.
- **Mines and Minerals (Development and Regulation) Amendment Act, 2021:** It emphasized on enhancing transparency and efficiency in the allocation of mining licenses. Allowed **Composite Prospecting Licence-cum-Mining Lease (PL-cum-ML)** specifically for coal.

- Composite **PL-cum-ML** is a two-stage concession granted for the purpose of undertaking prospecting operations followed by mining operations in a seamless manner.
- Also, it relaxed the end use restriction of coal by the captive miners.
- **National Coal Index (NCI):** NCI is a **price index combining the prices of coal from all the sales channels**- Notified Prices, Auction Prices and Import Prices. It serves as a reliable indicator of market dynamics, providing valuable insights of price fluctuation.
- **FDI and Technological Advancement:** Allowing 100% FDI in coal mining has attracted global expertise and advanced technologies.
- **Amendment to NCDP:** New Coal Distribution Policy, 2007, has been amended to allow transparent and objective sales of coal from closed/abandoned/discontinued mines.

Recent Initiatives which will Further promote domestic production

- **Integrated Coal Logistic Policy and Plan, 2024:** Formulated by the Ministry of Coal with the objective of developing resilient and cost -effective coal evacuation logistic system.
- **Investment in Coal Gasification:** Cabinet approved a comprehensive scheme with a Rs.8,500 crore outlay, promoting Coal/Lignite Gasification Projects.
- PM Gati Shati-National Master Plan in coal sector.

Persistent Issues/Challenges in Coal Sector

- **High Import Dependence:** It is mainly because there is **less availability of high gross calorific value (GCV) coal** in India. This type of coal has low ash and sulphur content.
 - Major source countries for India's coal imports include - Australia, Russia, South Africa, the US, etc.
 - Sectors like Iron and steel are major importer of coking coal.
- **Coking coal** produced in the country has ash between 28 to 42%. On the other hand, ash percentage in **imported coking coal** is less than 10%.
- **Dominance of Coal India Limited:** **Coal India Limited (CIL)** contributes over 80% of the country's indigenous coal production and supply.
 - Earlier, the **Competition Commission of India in 2017 had contended that Coal India and its subsidiaries operated independently of market forces and enjoyed market dominance** in the relevant market with respect to production and supply of non-coking coal in India.
 - CIL was found to be **supplying lower quality of the essential resource at higher prices and placing opaque conditions** in the contract about supply parameters and quality.
- **Lack of Upgradation:** Technological obsolescence in mining techniques resulting in lower productivity, higher costs, and safety hazards.
- **Logistics Issue:** Higher coal logistics costs owing to limited multi-modal transport approach.
- **Environment Issues:** The damage from **open-cast mining** is irreparable, rendering the land useless.

- **Developing new coal mines:** Land acquisition is key issue in it. Also, some times, requires displacement of the people.
- **Other:**
 - **Non-payment of outstanding dues** by Power sector consumers.
 - Frequent **labour/ Industrial relations issues** in the coal fields.
 - **Un-seasonal** and extended rainfall in the coal bearing areas.

Way Forward

- **Promoting Sustainable Practices: Miyawaki plantation** method can be used on large scale promote green cover near mines.
- **Encouraging Private players:** It will reduce burden on Coal India Limited (CIL). Also, they will promote technological upgradation in mining.
- **For Import Substitution,** the **Inter-Ministerial Committee** in its report has suggested-
 - Promotion of **Rationalization of coal linkage policy.**
 - **Rationalization of coal linkages aims** to reduce the distance in transportation of coal from the coal mines to the consumer.
 - Early operationalization of **Captive/Commercial coal blocks.**
 - Ministry of Power may need to mandate the **Domestic based coal power plants** for using domestic coal instead of imported coal. For this, Coal Ministry needs to adequate supply and no logistic constraint of domestic coal.
 - Enhance **coal gasification** in country to produce synthetic gas for steel sector which is mainly depended on imported coal.

About Coal

- Coal is a readily combustible, black or brownish-black **sedimentary rock**, predominantly made of **carbon**.
 - The precursor to coal is **peat**. Peat is a soft, organic material consisting of partly decayed plant and mineral matter.

Types of coal found in India

- **Anthracite:** It is the highest grade of coal containing a high percentage of fixed carbon.
 - It is hard, brittle, black and lustrous. It is found in smaller quantity in regions of Jammu and Kashmir.
- **Bituminous:** It is a medium grade of coal having high heating capacity. It is the most commonly used type of coal for electricity generation in India.
 - Most of bituminous coal is found in Jharkhand, Odisha, West Bengal, Chhattisgarh, and Madhya Pradesh.
- **Subbituminous:** It is black in colour, dull (not shiny) and has a higher heating value than lignite.

- **Lignite:** It is the lowest grade coal with the least carbon content. It is found in the regions of Rajasthan, Tamil Nadu, and Jammu & Kashmir. The top three states with highest coal reserves in India are **Odisha, Jharkhand, Chhattisgarh**. They account for approximately 69% of the total coal resources.

Sustainable Development Goals

Context:

The Sustainable Development Goals Report 2024 is released by UN Department of Economic and Social Affairs (UN DESA).

Key findings of the report

- Overall progress across targets based on **2015-2024** global aggregate data.
- With less than **one fifth of targets** on track the world is failing to deliver on the SDG promise.

About Sustainable Development Goals (SDGs)

- **Background:** The concept of sustainable development was described by the **1987 Brundtland Commission Report** as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- Subsequently, **United Nations Millennium Development Goals (MDGs)** were signed in 2000 which committed world leaders to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women.
 - **Each MDG has targets set for 2015** and indicators to monitor progress from 1990 levels.
- **SDGs** are the **blueprint** to achieve a better and more sustainable future for all.
 - They address the **global challenges** we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice etc.
- **In 2015**, all the countries in the United Nations adopted the **2030 Agenda for Sustainable Development**, which sets out a 15-year plan to achieve the Goals and their related targets.
 - It sets out **17 Goals**, which include 169 targets to achieve them all by **2030**.

Reasons of lagging in progress of SDG target

- **COVID-19 Pandemic:** It hampered global efforts to eradicate extreme poverty in **SDG-1**, undone nearly 10 years of progress on life expectancy which affected **SDG-3** and **SDG-4** by impacting global education.
 - This has also disrupted international financial flows for clean energy in developing countries affecting **SDG-7**.
- **Escalation of conflicts:** For e.g., in Ukraine, Gaza, Sudan and beyond have left an unprecedented **120 million forcibly displaced people worldwide**.
- **Financial constraints:** UNFCCC estimates that nearly **\$6 trillion** is needed for developing countries' climate action plans by 2030, which will impact **SDG-13**.

- **Environmental challenges** and their underlying drivers including climate change, biodiversity loss, pollution, desertification and deforestation etc.
 - For e.g., IPCC warns that up to **90% of corals** could be lost by **2050 at 1.5°C** of warming and up to **99%** at **2°C** impacting **SDG-14**.
- **Disasters:** Extreme weather events, including heatwaves, major floods, droughts, wildfires and tropical cyclones, have disrupted **the lives of millions of people**.
 - From **2015 to 2022**, this **Least developed countries (LDCs)** accounted for **6.9%** of global reported economic losses from disasters impacting **SDG-1**.

India's status in achieving SDGs

- **Progress:**
 - **SDG-3:** The Maternal Mortality Ratio has declined from **130 per 1,00,000 live births in 2014-16 to 97 per 1,00,000 live births in 2018-20**.
 - **SDG-4:** Gross Enrolment Ratio in higher secondary education has **increased from 48.32 in 2015-16 to 57.60 in 2021-22**.
 - **SDG-6:** Percentage of population using an improved drinking water source in rural areas has **increased from 94.57% in 2015-16 to 99.29% in 2023-24**.
 - **SDG-7:** The installed renewable energy generating capacity has shown a steady increase in value from 63.25 watts per capita in 2014-15 to **136.56 watts per capita in 2023-24**.
 - **SDG-9:** The number of patents issued (granted) has **increased from 6,326 in 2015-16 to 1,03,057 in 2023-24**.
- **Reason for progress:** Targeted interventions such as Pradhan Mantri Awas Yojana, Ujjwala, Swachh Bharat, Jan Dhan, Ayushman Bharat-PMJAY, PM-Mudra Yojana etc.
- **Concerns:**
 - **Average wage gap between male and female casual labourers widened** to Rs 178 (2022-23), compared with Rs 96 (2017-18), hampering SDG 5.
 - **Amount of hazardous waste generated per capita increased** to 9.28 metric tonnes (2022-23) from 7.19 metric tonnes (2017-18), hampering SDG 12.

Way forward

- **Peace:** Resolve ongoing armed conflicts through dialogue and diplomacy, and prevent future conflicts by upholding the principles and values of the **Charter of the United Nations**.
- **Finance:** Need more equitable, representative and effective international financial system.
 - Must deliver concrete changes to the international policies through **Summit of the Future, G20, international financial institutions, COP29** of UNFCCC etc.



- **Climate change:** The upcoming 2025 cycle of nationally determined contributions (NDCs) presents a chance for more ambitious climate action plans.
- **Tailored Approaches:** Countries should prioritize a **subset of SDGs** based on national priorities, capacities, and immediate needs.
- **Create synergies between the different targets:** For e.g., efforts to eradicate poverty must go hand in hand with improving education opportunities and gender equality.

Other Short News

World Bank Group Guarantee Platform (WBG GP)

The WBG GP went **live for business**.

- Initiated in 2024, **WBG Guarantees consolidates** all guarantee products and experts from **across the WBG institutions** at **Multilateral Investment Guarantee Agency (MIGA)**.
- WB guarantees are **provided to private lenders**, for **infrastructure financing**, where the demand for debt funding is **large**, **political and sovereign risks are significant**, and **long-dated financing** critical to a project's viability.
- Previous to the launch of the platform, the WBG offered **20 guarantee solutions** each with **different processes, rules, and standards** that impeded clients access.

WBG GP

- Aims to boost WBG **annual guarantee issuance to \$20 billion by 2030**.
 - The WBG issued approximately **\$10.3 billion in new guarantees** using products from the platform in 2024.
- Provides **three types of coverages**:
 - **Credit guarantees** for loans to the **public or private sector**;
 - **Trade finance guarantees**;
 - **Political risk insurance** against **non-commercial risks** for **private sector projects or public-private partnerships**.

Significance

- Simplified **market-friendly menu of guarantee options** offering **multiple options** to WB clients.
- **Streamlines processes**, **removes redundancies**, and **provides greater accessibility** by **de-risking** investments in developing countries.
- **Prioritizing high-impact projects** and facilitating growth.
- **Drive sustainable development** and **inclusive growth** through innovative financing.

SAARC Currency Swap Arrangement

RBI announced **SAARC currency swap framework for 2024-2027**.



- RBI in concurrence with Union Government revised the Framework under which RBI would enter into bilateral swap agreements with SAARC central banks, who want to avail of swap facility.
- **Currency Swap Arrangement (CSA)** is a **contract** under which **two counterparties agree to exchange two currencies at a set rate** and then to **re-exchange those currencies at an agreed upon rate at a fixed date** in future.
- Previously, in 2012, SAARC countries set up Framework on **Currency Swap mechanism to meet the short-term forex liquidity requirement**.

Key Highlights of the revised Framework

- **Under the Framework for 2024-27, a separate INR Swap Window has been introduced** with various concessions for swap support in Indian Rupee (**Total corpus of the Rupee support is ₹250 billion**).
- RBI will **continue to offer swap arrangement in USD and Euro** under a separate US Dollar/ Euro Swap Window with an **overall corpus of US\$ 2 billion**.

Significance of CSAs

- Helps **maintain financial stability during a crisis** by providing a **backstop line of funding for forex liquidity** requirements.
- Helps in **addressing short-term balance of payments stress**.

Credit-Deposit (CD) Ratio

Reserve Bank of India raised concerns over bank's high CD Ratio and asked them to **bridge the gap** between **credit and deposit growth** and **reduce CD ratio**.

- CD Ratio is a financial metric representing the **percentage of loans a bank has issued relative to its total deposits**.
- According to the **RBI's Financial Stability Report** (refer to the graph):
 - **CD ratio** has been rising **since September 2021 and peaked at 78.8% in December 2023**.
 - **Over 75% of the banks** with C-D ratios **above 75%** are **private sector banks**.

Key Reasons for high CD ratio

Higher credit growth

- **Rising retail credit** (includes vehicle loans, personal loans, etc.).
 - From April 2022 and March 2024, **bank lending to the retail sector** grew at a **CAGR of 25.2%**.
- Increasing loans to **businesses and MSMEs**.

Slower deposit growth

- Banks are facing **stiff competition** with each other.
- Additionally, customers are transitioning from savers to investors and **diverting funds to capital markets**, slowing deposit growth.

Impact of High CD Ratio

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Bank may face

- **Pressure on Net Interest Margins (NIM):** NIM is a measure of the **net return on the bank's earning assets** like investment securities, loans, etc.
- **Liquidity risk:** Banks' may be unable to timely meet payment obligations.
- **Credit risk:** Borrowers could default on their contractual obligations

RBI Directions on Fraud Risk Management

RBI has issued three revised master directions on fraud risk management for Regulated Entities.

Regulated Entities under RBI

- Commercial Banks (including Regional Rural Banks) and All India Financial Institutions;
- Cooperative Banks (Urban Cooperative Banks / State Cooperative Banks / Central Cooperative Banks);
- Non-Banking Finance Companies (including Housing Finance Companies).

Major Points of Master Directions

- In compliance with the Supreme Court judgement in **State Bank of India & Ors. Vs. Rajesh Agarwal & Ors of 2023** REs shall ensure compliance with the **principles of natural justice** in a time-bound manner before classifying Persons / Entities as fraud.
- **The requirement for Data Analytics and Market Intelligence Unit** is mandated to strengthen risk management systems.
- **Framework on Early Warning Signals and Red Flagging of Accounts** has been strengthened for early detection and prevention of frauds in the REs.
 - Also, timely reporting to **law enforcement agencies and supervisors**.

Ways And Means Advances (WMA) Scheme

Reserve Bank of India (RBI) has increased the **Ways and Means Advance (WMA) limit** of States/UT to Rs 60,118 crore from existing Rs 47,010 crore.

- This will enable States/UTs to better manage their **fiscal situation**.
- Apart from WMA, **Special Drawing Facility (SDF)**, and **Overdraft (OD) facility** are important financial accommodation instruments availed by States/UTs.
 - These **instruments are governed by** under the **RBI Act, 1934**.

About Ways and Means Advance (WMA)

- **Advances to States/UTs provided by RBI to meet temporary mismatches in the cash flows of receipts and payments.**
 - Facility is also available for the Union Government.
- **Types: Normal WMA and Special WMA** (now known as **Special Drawing Facility (SDF)**)

- First, a state/UT is provided with a **special WMA** and after its exhaustion, it gets a normal WMA.
- Special WMA has lower interest rate than Normal WMA
- Interest rates are linked to **Repo rate**.
 - Availed by State against the collateral of **Consolidated Sinking Fund (CSF)**, **Guarantee Redemption Fund (GRF)**, Auction Treasury Bills (ATBs), etc.
 - CSF and GRF are reserve funds maintained by some State with the RBI.

About Special Drawing Facility (SDF)

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- CSF and GRF are reserve funds maintained by some State with the RBI.

About Overdraft Facility

- Facility is provided **whenever financial accommodation to a State exceeds its SDF and WMA limits**.
- Generally, State Governments/UTs can avail overdraft on 14 consecutive days (relaxation can be provided by RBI).

Domestic Money Transfer (DMT)

The Reserve Bank of India (RBI) in a review revised framework for domestic money transfer

- 'Framework aims to **regulate money transfer services offered by regulated entities in India**.'
- The framework for **Domestic Money Transfer (DMT)** was introduced in 2011.
- The framework is revised by RBI under the **Payment and Settlement Systems Act, 2007**.
- Review was done as there has been significant increase in the **availability of banking outlets, developments in payment systems for funds transfers, etc.**
- Revised framework **shall come into effect** from November 01, 2024.

Financial Inclusion Index

RBI released Financial Inclusion Index for March 2024

- The value of the Index for March 2024 stands at 64.2 vis-à-vis 60.1 in March 2023

About Financial Inclusion Index

- It is a comprehensive index incorporating details of **banking, investments, insurance, postal as well as the pension sector**.
- It captures the extent of **financial inclusion across the country**.
- Single value index (0 to 100), where **0 is complete exclusion and 100 is full inclusion**.
- It includes three broad parameters viz., **Access (35%), Usage (45%), and Quality (20%)**.



- It is published annually in July.

New SEBI Guidelines for Credit Rating Agencies (CRAS)

Guidelines, issued under **SEBI Act (1992)** and **Regulation 20 of CRA Regulations**, will enhance the **Ease of Doing business** for CRAs and protect investor interests.

Key guidelines

- **Communicating rating to companies:** By CRAs and within one working day of the rating committee meeting.
- **Appeal against rating:** Companies can request a review or appeal of the rating decision have **three working days** of the rating committee meeting.
- **Public disclosure:** CRAs must publish a **press release on their website** and inform the stock exchange/debenture trustee within **seven working days of the rating committee meeting**
- **Record maintenance:** CRAs must keep records of these disclosures for 10 years.

About Credit rating in India

- **Credit ratings:** It represents a CRA's **opinion on the probability of timely repayment of debt** and the **likelihood of default** on interest and principal payments.
- **CRA:** SEBI (Credit Rating Agencies) Regulations, 1999 defines CRA.
 - A CRA is a **corporate body involved** (or proposes to be engaged) **in rating securities** (either listed or to be listed on a SEBI-recognized stock exchange).
- **7 CRA's registered with SEBI:** CRISIL, CARE, ICRA, Acuité, Brickwork Rating, India Ratings (Ind-Ra) And Research Pvt. Ltd, Infomerics Valuation And Rating Pvt. Ltd.

Inverse ETF

SEBI proposed to introduce a **new asset class for investors** which can offer investment strategies including long-short equity funds and **inverse ETFs**.

About Inverse ETF ('Short ETF' or 'Bear ETF')

- It is an **Exchange Traded Fund (ETF)** constructed by using various derivatives to **profit from a decline in the value** of an underlying benchmark.
 - **ETFs are marketable securities** that track an **index, a commodity, bonds, or a basket of assets** like an Index Fund.
- It **gains from a drop in the value of an underlying benchmark**.
- Only intended for **short holding periods**.

SEHER Program

Women Entrepreneurship Platform (WEP) and TransUnion CIBIL has launched SEHER Program.

- WEP is a **public-private partnership platform** incubated at NITI Aayog aiming at empowering women entrepreneurs.

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About SEHER Program

- It is a **credit education program** which will help women entrepreneurs to **access financial tools for business growth** with financial literacy content and business skills.
- Program is **part of WEP's Financing Women Collaborative (FWC)**, a first-of-its-kind initiative aimed at accelerating access to finance for women entrepreneurs.
- Presently, **only 7% of overall outstanding loans to MSMEs are to women-led businesses**, signifying the need for improving credit access to women entrepreneurs.

Survey of Unincorporated Enterprises in India

Annual Survey of Unincorporated Sector Enterprises (ASUSE) results for 2021-22 and 2022-23 was released,

- ASUSE was conducted by **National Sample Survey Office**, Ministry of Statistics and Programme Implementation.
- It covered **unincorporated non-agricultural establishments** pertaining to proprietorship, partnership (excluding Limited Liability Partnerships), Self-Help Groups (SHG), co-operatives, societies/trusts etc.

About Unincorporated Enterprise

- It is a producer unit which is **not incorporated as a legal entity** separate from the owner.
- The fixed and other assets used in unincorporated enterprises **do not belong to the enterprises** but to their owners.
- Enterprises as such **cannot engage in transactions or contractual relationships with other economic units nor incur liabilities** on their own behalf.

Key highlights of Survey (2022-23)

- **Establishments** in the sector **grew by 5.88%** (from 2021-22) to 6.50 crore, out of which about **55% belong to rural areas**.
- Highest number of establishments are in **Uttar Pradesh, West Bengal and Maharashtra**.
- **Gross Value Added (GVA)** showed a **9.83% increase** from 2021-22.
- **Women entrepreneur led 54%** of proprietary establishments in the Manufacturing sector.
- **Rapid rate of digitization** with a 7.2% increase in use of internet for entrepreneurial purpose.
- **Improvement in credit availability** showcased by increase in outstanding loan per establishment to Rs. 50,138 in 2022-23.

Terrorism in J&K

Context:

Recently, Jammu division of the Union Territory of Jammu & Kashmir (J&K) has been witnessing a rise in terrorist incidents.

More on the News

- While terror incidents have been relatively common in Kashmir Valley, **resurgence of militant activity in Jammu region, which remained free of such incidents in past two decades**, raised concerns among the security establishment.
- Terrorist incidents in Jammu remain far fewer than the Kashmir Valley, yet the **frequency and nature of attacks**, targeting pilgrims and security forces, is worrying.

Reasons for recent rise in terrorism in Jammu

- Reactivation of proxy-war:** Pakistan wants to re-establish its relevance, which was severely diminished after abrogation of Article 370 by the Parliament of India on August 5, 2019.
- Thinning of Security Grid in Jammu:** Post-2020 Galwan clashes in eastern Ladakh, large contingent of forces were pulled out of Jammu and deployed along the border with China, making the area vulnerable.
- Security situation in Kashmir:** Heightened state of alert provides little scope state-sponsored terrorism in the Kashmir Valley whereas it is convenient to launch terror attacks in Jammu where the guard is relatively down.
 - This may also provide militants space to **stabilise cadres in the Kashmir Valley**.

Reasons for persistence of terrorism in J&K

External

- State-sponsored terrorism:** Pakistan has been accused of providing logistical support, training, and safe havens to terrorist groups operating in Jammu and Kashmir.
- Porous borders facilitating infiltration:** Challenging terrain along the LoC and international borders makes it difficult to completely seal the border, allowing for movement of militants and weapons.
- Ideological influence from global extremist groups:** International terrorist organizations have influenced local groups, providing them with ideological frameworks and operational tactics.

Internal

- Political instability:** Frequent changes in governance, periods of President's Rule, and absence of democratically-elected popular governments created a power vacuum that terrorist groups exploit.
- Religious and ethnic tensions:** Diverse religious and ethnic makeup of the region, including Muslims, Hindus, and various tribal groups, often provide opportunities to terrorist groups to flare up communal tensions.
- State highhandedness and alienation of people:** State highhandedness marked by imposition of AFSPA, internet shutdowns, arbitrary detentions, etc., resulted in alienation of local population.
- Over Ground Workers (OGWs):** OGWs play significant role in sustaining militancy through fund management, recruitment, propaganda and misinformation, etc.



- **OGWs are individuals/ groups who provide logistical support, intelligence, and other non-combat assistance to militant groups without directly participating in armed activities.**
- **OGWs are difficult to counter** due to **blurring of lines between civilians and combatants**, their **community ties**, **technological adaptation** such as use of encrypted communications, etc.

Way Forward

- **Political:** Ensure **conduct of free and fair elections** to restore faith of local population in the democratic processes.
 - In this regard, **recent announcement of assembly election in J&K** by the Election Commission of India in September and October 2024 is a step in right direction.
 - **Strengthening local governance** by empowering local bodies and Panchayats can improve transparency and accountability of administration resulting in restoration of faith in institutions.
 - e.g., Successful conduct of **District Development Council elections in J&K in 2020.**
- **Security and Intelligence:** Army can leverage its strengths to dominate the heights, increase vigilance along the LoC, and tighten border security.
 - Enhance intelligence gathering and analysis capabilities with strategies to **reinforce HUMINT (Human Intelligence) to complement TECHINT (Technological Intelligence).**
- **Border Management:** Strengthen border infrastructure, strategic deployment of forces, effective use of technology for protection of borders, etc., as per **recommendations of the Madhukar Gupta Committee** to prevent infiltration.
- **Development:** Enhanced investment in infrastructure, education, skill development, and promotion of local entrepreneurship to create jobs and opportunities of locals.
 - e.g., **Jammu & Kashmir Industrial Policy 2021-30** envisions transforming J&K from an aspirational to an industrialized society.
- **Confidence Building Measures (CBMs) and counter-radicalization:** Undertaking CBMs such as civilian-military cooperation, rehabilitation of former militants, effective grievance redress mechanism, etc.
 - **Village Defence Guards in the Jammu region** are good example of effective civilian-military cooperation.
 - **Develop community-based programs with involvement of local religious leader to counter extremist narratives** and proactively monitor and counter **online radicalization.**
- **Diplomatic:** Proactive engagement with the international community to isolate terrorist groups and their sponsor states to seek cooperation in curbing terror financing and cross-border terrorism.
 - e.g., India's diplomatic efforts at FATF to highlight Pakistan's role in supporting cross-border terrorism.



National Security Council Secretariat (NSCS)

Context:

Recently, the government has appointed the **Additional National Security Advisor (NSA)** to the National Security Council Secretariat (NSCS).

About National Security Council Secretariat (NSCS)

- NSCS created in the late 1990s acts as the **secretariat** for the **National Security Council or NSC** (refer the box in the end).
- It is the **apex advisory body on all internal and external security-related matters** and headed by the **National Security Advisor (NSA)** the Secretary of the NSC.
- It aims to provide the **strategy, direction and long-term vision** so that **every ministry** concerned with national security may be **adequately prepared to address all possible threats**.
- The post of **Additional NSA had always existed** but remained vacant until now.
 - The appointment of ANSA is expected to streamline and strengthen the functioning of NSCS.
- **It is comprised of:**
 - **Three deputy NSAs:** Drawn from various services like the Indian Foreign Service, the Indian Police Service, the armed forces etc.
 - **Military Adviser:** Tasked with coordinating with the Ministry of Defence and overseeing the induction of new technologies.
 - **National Maritime Security Coordinator (NMSC):** It is in charge of **liaising with coastal states coast Guard & other maritime security agencies**.
- In 2019, the **allocation of Business Rules was amended to cover NSA and NSCS within its purview**.
 - Thus, **NSA holds the rank of Cabinet Minister** and **NSA and NSCS can generate Cabinet notes, access relevant Cabinet papers, and participate in any Inter-Ministerial consultation**.

Significance of Appointing ANSA

- **Niche Role for NSA:** The ANSA will act as a key link between the NSA and other members of NSCS.
 - The NSA can now concentrate more effectively on overseeing key advisory bodies of NSC including the National Security Advisory Board (NSAB) and Strategic Policy Group (SPG).
- **Ensuring continuity:** The possibility of elevating the ANSA to the role of NSA would ensure continuity in the organisation.
- **Adapting to Emerging Needs:** Continuous institutional reforms are necessary to respond to evolving geopolitical realities.

Way Ahead

- **Strengthening the role of NSA:** Establish objective selection criteria with clear qualifications, define specific duties, and ensure a transparent chain of command within the national security framework.

- **Structural Changes in NSCS:** Recruiting specialists with expertise in emerging security challenges and enhancing interdepartmental coordination to facilitate better anticipation of complex national security issues.
- **Implementing a 'Whole-of-Nation' approach:** Developing partnerships between citizens, government agencies, the private sector, and civil society is essential for information sharing and joint national security initiatives.

National Security Council (NSC)

- Constituted 25 years ago based on the recommendations of a task force headed by **K.C. Pant** (in 1999).
- It is an apex advisory body **headed by the Prime Minister (PM)** and comprising of the **Ministers of Finance, Defense, Home and External Affairs**.
- Its purpose is to promote **integrated thinking and coordinated application** of the resources of the State to protect and promote **national security** goals and objectives.
- **It is a 3-tiered organization**
 - **Strategic Policy Group (SPG):** It is the **principal mechanism for inter-ministerial coordination** and integration of relevant inputs in the formulation of national security policies. It is **headed by NSA**.
 - Other members include **Vice Chairman of NITI Aayog, Cabinet Secretary, three services chiefs, RBI Governor, Secretaries of External Affairs, Home, Defence, Finance, Defence Production, Revenue, Atomic Energy, Space** and NSCS besides **Scientific Advisor** to Defence Minister, Secretary (R) in Cabinet Secretariat and the Intelligence Bureau chief.
 - The **Cabinet Secretary coordinates the implementation of SPG decisions** by the Union Ministries and departments and State governments.
 - **National Security Advisory Board (NSAB):** Its principal function is to **undertake long term analysis and to provide perspectives on the national security issues** to the NSC and to **recommend measures/solutions and policy options on the issues referred to it by the National Security Council**. It is **headed by the NSA**.
 - **Joint Intelligence Committee (JIC):** Its task is to assess intelligence gathered by various intelligence agencies including Intelligence Bureau (IB) and Research and Analysis Wing (RAW). It **functions under the NSCS**.

Security of Indian Dignitaries

Context:

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The recent assassination attempt on the former President of the US during a public rally has raised concerns about the security of **dignitaries who hold positions of power** and hence are generally vulnerable to threats from various quarters.

Security Arrangements for Indian Dignitaries

Special security cover is provided to Indian dignitaries and some other citizens (including private citizens) **based on:**

- **Official Position:** Certain categories of individuals, such as Union Ministers, Chief Ministers, Judges of Supreme Court and High Courts, are provided **positional/statutory security cover**.
 - Such security cover is meant to facilitate **bold and impartial decision making**. Their security is withdrawn after they demit their office.
- **Threat Perception:** Other individuals are provided security based on threat assessment.
 - **The responsibility** for providing security to an individual lies **primarily with the State Government/Union Territory Administration** in whose jurisdiction such individual ordinarily resides and/or happens to be.

Security Provided by The Union Government

- There is **no official nomenclature** like **VVIP or VIP attributed to an individual** to whom special security is provided.
- Security by the Union Government is provided based on the guidelines under the **'Blue Book' and 'Yellow Book'** of the **Union Ministry of Home Affairs**.
 - **Blue Books:** There are special instructions for **security of the President, the Vice President and the Prime Minister**, which are contained in their respective Blue Books.
 - **Yellow Book:** Security arrangements for **other individuals** are made as per the guidelines laid down in the 'Yellow Book' titled **'Security arrangements for the protection of individuals'**.
 - The security arrangements for such individuals are made after **careful assessment of their threat perception by the Central Security Agency**.
 - Depending on the level of threat, security is provided in **Z+, Z, Y+, Y and X categories**. **Private citizens** can also avail this security (some of them have to pay fee for this).

Security Cover to the Prime Minister

- **Special Protection Group (SPG):** Under the Special Protection Group Act (1988), the SPG is an armed force and is mandated to provide **proximate security to the Prime Minister** (both serving and former) **and their immediate family members**.
 - 'Proximate Security' means **protection provided from close quarters**, during journey by road, rail, aircraft, etc. and shall include the places of functions, engagements, residence or halt.
- **Responsibilities of Other Authorities:** Although it is the SPG that takes the final call on how the PM's security is to be arranged, other stakeholders could be involved in ensuring the security of Prime Minister.
 - When the PM is travelling to any state, it is the **responsibility of the state police to ensure overall security**.
 - They have the responsibility of **intelligence gathering, route clearance, venue sanitisation, and crowd management**



- Central intelligence agencies are responsible for providing inputs about any threat to security.

Other Short News

IT Disruptions and Impact on Critical Services

Microsoft – CrowdStrike Outage caused worldwide IT disruption

- Outage was caused by a **logic error in a sensor configuration update** for Microsoft Windows systems which led to a system crash, **affecting critical sectors like healthcare and banking**.
- Later, an **assessment by the RBI** showed that **10 banks and NBFCs** in India had **minor disruptions due to this global outage**.

Impact of IT outages on critical services

- **Economic disruption:** Freezing of financial markets, shutdown of businesses reliant on cloud services, etc.
 - e.g., In 2021, major outage in National Stock Exchange outage halted trading for nearly 4 hours.
- **Healthcare:** Disruption of telemedicine services, inaccessible digital health records, etc.
 - e.g., **2017 Wannacry** Ransomware attack on Hospitals in UK led to cancellation of ~19000 appointments
- **Government and security:** e.g., 2020 cybersecurity breach at Kundankulam Nuclear Power Plant of NPCIL.
- **Others:** Communication breakdown, energy sector disruptions due to failure of smart grids, etc.

Vulnerability of digital infrastructure in India

- **Import dependence:** Heavy reliance on imported hardware and software create supply chain vulnerabilities and security risks.
- **Large digital footprint with low digital literacy:** Only 38% of households in India are digitally literate. (**Central Board For Workers Education**)
- **Limited redundancy:** Lack of adequate backup and redundancy measures, making systems more vulnerable to single points of failure.
- **Others:** State-sponsored cyber-attacks, lack of robust cybersecurity protocols, etc.

Urban Naxalism

Recently, State Government of Maharashtra introduced Maharashtra Special Public Security Bill, 2024 aimed at curbing the increasing of Naxalism in urban areas.

Key Provisions of the Maharashtra Special Public Security Bill, 2024

- Targets a wide range of actions by suspects including **encouraging or preaching disobedience of the law**.

- Allows **declaring organizations unlawful** and gives power to District Magistrates or police commissioners to grant permission for prosecution.
 - Currently, an organization can also be declared as unlawful under the **Unlawful Activities Prevention Act (UAPA), 1967**.
 - However, **prosecution under UAPA requires approval from Central or State Governments**.

Urban Naxalism

- **Naxalism** [also called **Left-Wing Extremism (LWE)**] refers to an **extremist ideology** which **doesn't believe in democracy and democratic processes** and seeks to **overthrow the State through violent means**.
 - In India, it originated from the **1967 uprising in Naxalbari** (West Bengal).
- Although there is no standard definition of Urban Naxalism, it **generally refers to the presence of, and activities carried out by, Naxalites, or the CPI (Maoist), in urban areas**.
 - Naxalite activities in urban areas include **maintaining safe houses for leaders and cadres, providing logistics support to under-ground squads; mobilising and recruiting youth, students and workers** from industry and other bodies, etc.
- Although **Union Ministry of Home Affairs does not use the phrase 'Urban Naxal'**, Government of India's **National Policy and Action Plan addresses LWE in all its manifestations, including the urban activities**.

SEBEX 2 – New Explosive Formulation

Indian Navy certified a **new explosive named 'SEBEX 2'**.

- Developed by **Economic Explosives Limited (EEL)**, a subsidiary of Solar Industries, **under Make in India initiative**, SEBEX 2 is a **cutting-edge explosive formulation** and is among the **most potent non-nuclear explosives globally**.
- New formulation of SEBEX 2 was tested under the **Defence Export Promotion Scheme (DEPS)** of the Navy.
- According to reports, Indian Navy has also certified **SITBEX 1 (Thermobaric explosive)** and **SIMEX 4**.

About SEBEX 2, SITBEX 1, and SIMEX 4

- **SEBEX 2** is based on **high-melting explosives (HMX)** and offers **approximately 2.01 times the lethality of standard TNT**.
 - **Trinitrotoluene (TNT)** is an explosive used in military shells, bombs, and grenades, in industrial uses, and in underwater blasting.
 - **Conventional explosives** like DENTEX/TORPEX, which are generally used in conventional warheads, aerial bombs and various other types of ammunition, **have TNT equivalence of 1.25-1.30**.
- **SITBEX 1** (Thermobaric explosive) generates **extended blast duration with intense heat**, is suited to target enemy bunkers, tunnels, and other fortified positions.

- **Thermobaric explosive compositions** are fuel rich formulations capable to create sustained high temperature and longer duration overpressure as compared to conventional high explosives.
- **SIMEX 4** is a munition which is safer than standard explosives when it comes to storage, transportation and handling and is more likely to accidentally go off.

Rudram-1

India successfully test-fires **first indigenous anti-radiation missile** 'Rudram-1'.

About Rudram-1

- **Air-to-Surface missile** developed by **DRDO** for Indian Air Force (IAF).
- **Features:**
 - **Launch platform:** Sukhoi-30MKI fighter jets.
 - It has **Inertial Navigation Systems (INS)-GPS navigation** and Passive Homing Head for final attack, allowing it to **accurately hit radiation-emitting targets**.
 - **Range:** Height ranging from **500 meters to 15 km**, and **can hit radiation-emitting targets within 250 km**
- **Significance:** Allows IAF to conduct **Suppression of Enemy Air Defence (SEAD)** operations deep **within enemy territory**, neutralizing critical air defense installations.

Zorawar Tank

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

About Zorawar Tank

- Jointly developed jointly by the DRDO and private sector firm L&T.
- Named after the legendary **General Zorawar Singh** who led multiple successful victories in Tibet.
- **Key Features:**
 - Equipped with advanced technologies such as **artificial intelligence (AI)**, integration of tactical surveillance drones, etc.
 - Designed for **rapid deployment** and **manoeuvrability in mountainous regions**, providing the same firepower as regular tanks but with enhanced mobility and situational awareness.
 - Tanks are **amphibious**, making them versatile for operations in riverine regions.

Exercises in News

- **Nomadic Elephant:** Joint Military Exercise **between armies of India and Mongolia** will be conducted in Meghalaya.
- **Exercise MAITREE:** Joint military Exercise between **India-Thailand** was conducted in Thailand.



- **RIMPAC Exercise:** The opening ceremony for the 29th edition of the biennial **Rim of the Pacific (RIMPAC) exercise** was held in Hawaii (USA).
 - It is **world's largest international multilateral maritime exercise** (India also takes part in it)
 - It aims to build relationships, enhance interoperability, contribute to the peace and stability in the Indo-Pacific region."
- **Exercise Freedom Edge: South Korea, US and Japan** began their first trilateral multi-domain exercise, Freedom Edge. It took place in **South Korea's southern island of Jeju.**
- **Exercise Pitch Black:** Indian Air Force Contingent reached Australia to participate in **Exercise Pitch Black.**
 - **Held every two years**, it is a **multinational exercise.**
- **Exercise Sagar Kavach - 01/24:** It is a coastal security exercise **held along Andhra Pradesh coast.**
 - Assets of Indian Navy, Coast Guard, Marine Police, fisheries, customs and other security agencies were engaged in it.

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TOGETHER WE SCALE HEIGHTS

High Seas Treaty

Context:

Union Cabinet has approved **India to sign** the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement, also known as the **High Seas Treaty**. The **Ministry of Earth Sciences** will spearhead its implementation.

What are High Seas?

- **Definition:** High seas are areas **outside the national jurisdiction** of any country.
 - Typically, **national jurisdictions extend up to 200 nautical miles (370 km)** from the coastline, an area called **Exclusive Economic Zone (EEZ)**.
- **Global Commons:** High Seas **constitute about 64%, roughly two-thirds**, of the total ocean area and are considered **global commons**.
 - They belong to no one, and **everyone enjoys equal rights** for navigation, overflight, economic activities, scientific research, or laying of infrastructure like undersea cables.

BBNJ Agreement

- **Name:** It is formally called the Agreement on Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction.
- **Under UNCLOS:** It is an international treaty under the **United Nations Convention on the Law of the Sea (UNCLOS)**.
 - BBNJ Agreement will be the **third implementation agreement** under UNCLOS if and when it enters into force, alongside its sister implementation agreements:
 - **1994 Part XI Implementation Agreement** (which addresses the exploration and extraction of mineral resources in the international seabed area) and
 - **1995 UN Fish Stocks Agreement** (which addresses the conservation and management of straddling and highly migratory fish stocks).
- **Adoption:** Agreement was adopted in 2023 and is **open for signature** for two years.
 - It will be an **international legally binding treaty** after it enters force 120 days after 60 countries ratify it.
 - As of June 2024, **91 countries have signed the BBNJ Agreement**, and eight Parties have ratified it.
- **Objective:** To ensure the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, for the present and in the long term.

Key Provisions of BBNJ Agreement

- **Scope of application:** It applies to Areas Beyond National Jurisdiction (ABNJ), which include the high seas.
 - It does **not apply to any warship, military aircraft or naval auxiliary**.
 - **Only Part-II**, which deals with Marine Genetic Resources, applies to any **government vessel in non-commercial service**.
- **Institutional Arrangement:** Treaty establishes:

- **Conference of Parties (COP):** COP will consist of the Parties to the Treaty and is the **main decision-making body** (except for certain matters on environmental impact assessments).
- **Scientific and Technical Body (STB):** STB will provide scientific and technical advice to the COP.
- **Clearing-House Mechanism (CHM):** CHM will be primarily an open-access platform and serve as a centralized platform.
 - It will enable Parties to access, provide and disseminate information on the **four substantive elements** of the BBNJ Treaty.
- **Subject-Matter Committees:** These include access and benefit-sharing committee, capacity-building and transfer of marine technology committee, finance committee, and Implementation and Compliance Committee.
- **Financial Mechanism:** It establishes a financial mechanism that will provide adequate, accessible, additional and predictable financial resources, which will function under COP.

Four Substantive Elements of BBNJ Treaty	
Marine Genetic Resources, including the fair and equitable sharing of benefits	<ul style="list-style-type: none"> ● Marine Genetic Resource (MGR): MGR is any material of marine plant, animal, microbial or other origin containing functional units of heredity of actual or potential value. ● Benefit sharing: Treaty established a mechanism for a fair and equitable sharing of benefits associated with MGRs of ABNJ and associated Digital Sequence Information (DSI). <ul style="list-style-type: none"> ○ There is yet no consensus on definition of DSI. Presently, its definition ranges from narrow (DNA and RNA) to broad (which include DNA, RNA, Protein, Metabolites, traditional knowledge, ecological interactions etc.) ● Traditional Knowledge: MGR Mechanism also takes into consideration the rights and obligations associated with traditional knowledge of Indigenous Peoples and local communities. ● No Sovereign Rights: No country must claim or exercise sovereignty or sovereign rights over MGRs of ABNJ.
Measures such as Area-Based Management Tools, including Marine Protected Areas	<ul style="list-style-type: none"> ● Area-Based Management Tool (ABMT): It aims at establishment of well-connected networks of Marine Protected Areas. ● Marine Protected Area (MPA): An MPA provides protection for all or part of the natural resources within it by prohibiting or limiting certain activities that could harm its biodiversity. <ul style="list-style-type: none"> ○ To date, the largest international MPA is in Antarctica's Ross Sea, established by the Commission for the Conservation of Antarctic Marine Living Resources.
Environmental Impact	<ul style="list-style-type: none"> ● EIA Framework: Agreement provides an EIA framework (i.e., global standard) for identifying and evaluating the potential impacts of an activity in ABNJ.

Assessments (EIAs)	<ul style="list-style-type: none"> • EIA Requirement: Agreement directs parties to communicate EIA reports to the Clearing-House Mechanism.
Capacity-Building and the Transfer of Marine Technology	<ul style="list-style-type: none"> • Mechanism: Agreement requires parties to develop and implement mechanisms for capacity building, including financing research programs and dedicated initiatives, to help developing nations. • Initiatives: Capacity Building initiatives may include sharing data and information in user friendly formats; information dissemination, such as marine scientific research and EIAs; and developing and strengthening national regulatory frameworks.

Significance of BBNJ Agreement

- **Biodiversity Conservation:** By checking overexploitation of resources, biodiversity loss, pollution, including dumping of plastics, ocean acidification, and many other problems.
 - According to UN estimates, about **17 million tonnes of plastics** were dumped in the oceans in 2021.
- **Mitigating impacts of Climate Change:** On marine ecosystems, such as warming, ocean deoxygenation, ocean acidification, etc.
- **Equitable economic order:** Agreement will help realize a just and equitable international economic order which takes into account the interests and needs of developing States, whether coastal or landlocked.
- **Significance for India:**
 - **Strategic expansion:** BBNJ Agreement allows India to enhance its strategic presence in areas beyond our EEZ (Exclusive Economic Zone), which is very promising.
 - **Resource Benefits:** In addition to shared monetary benefits, it will strengthen India's marine conservation efforts and collaborations, open newer avenues for scientific research, capacity building and technology transfer, etc.
- **Promotion of traditional knowledge:** It follows an inclusive, integrated, ecosystem-centric approach based on the precautionary principle and promotes using traditional knowledge.

Conclusion

A growing recognition of critical role of the vast oceanic realm has led to finalization of long-awaited BBNJ agreement. The agreement will play a crucial role in achieving the recent ambitious '30x30' initiative to protect 30% of marine ecosystems by 2030.

UN Convention on Laws of the Seas (UNCLOS)

- **UNCLOS** is a comprehensive international law that lays down the broad frameworks for legitimate behaviour on, and use of, seas and oceans everywhere.
 - It was adopted in 1982 and came into force in 1994.
- **State Parties:** UNCLOS has now achieved almost universal acceptance (170 State Parties including India) and is often referred to as the 'constitution of the oceans'.

- **Provisions:** It defines the rights and duties of nations regarding activities in the oceans, and also addresses issues such as sovereignty, passage rights, and rights of exclusive economic usages.
- **International Seabed Authority (ISA):** It establishes the ISA to regulate mining and related activities on the ocean floor beyond national jurisdiction.
- **Territorial demarcation:** UNCLOS demarcates different zones of the oceans as follows:
 - **Territorial Sea:** It extends up to 12 nautical miles from shore and coastal States have full sovereignty here.
 - **Contiguous Zone:** It extends up to 24 nautical miles and acts as a buffer zone in which the coastal State has limited enforcement authority to prevent infringements in its territorial zone.
 - **Exclusive Economic Zone (EEZ):** It can extend up to 200 nautical miles and coastal States do not have full sovereignty, but have sovereign rights and jurisdiction for the exploitation, conservation and management of marine resources.
 - **High Sea:** It encompasses any part of the sea that does not fall into any of the other zones and is therefore outside of the jurisdiction of any state.
- **Seabed zoning system:** For the seabed, subsoil and resources therein, UNCLOS established a zoning system as follows:
 - **Continental shelf:** It can extend beyond a State's territorial sea and even EEZ if it is naturally contiguous, and a State holds sovereign rights for exploration and exploitation of its resources.
 - **Area:** It is common heritage of humankind and activities related to seabed mineral resources shall be carried out for the benefit of humankind as a whole.

Urban Development and Disaster Resilience

Context:

Rising frequency of various disasters, especially in Monsoon season, have brought to fore the unpreparedness of Indian cities to deal with disasters and seasonal extremities.

Vulnerability of Indian Cities

1. **Population Centers:** Over 30 percent of India already resides in cities—a number which is projected to grow to **40 percent by the year 2030**.
 1. By its very nature of population concentration and developmental densities, urban areas give birth to risks.
2. **Unplanned urbanization:** The growth of urbanization in India has been largely unplanned, leading to both **environmental and resource degradation**.



1. According to a paper by the National Institute of Urban Affairs (NIUA), megacities like Chennai, Kolkata, and Mumbai had already **reached their maximum threshold for environmental degradation** before 2014.
3. **Climate Change:** Climate change puts further strain on infrastructure with increase in frequency and intensity of climate related disasters such as heatwaves, urban floods, cyclones etc.
 1. In August 2023, torrential rains in Shimla and Solan district of Himachal Pradesh triggered landslides, flash floods and cloudbursts, disrupting lives and livelihoods.
4. **Existing Vulnerabilities:** Various vulnerabilities already exist in urban setting such as urban poverty, extent of informality in urban employment, social inequality etc.

What is a Disaster Resilient City?

As per National Institute of Disaster Management, a disaster resilient city:

- Is one where **sensible building codes are followed and informal settlements are not built in vulnerable areas** such as flood plains or steep slopes.
- Has an **inclusive, competent and accountable local government** focusing on sustainable urbanization.
- Is one where a **shared, local information base** on disaster losses, hazards, risks and vulnerability of populace is maintained.
- Is one where **people are empowered** to participate, decide and plan their city together with local authorities and **value local and indigenous knowledge**, capacities and resources.
- Has taken steps to **anticipate and mitigate the impact of disasters**, incorporating monitoring and early warning technologies to protect infrastructure, community assets and individuals.
- Is able to **respond, implement immediate recovery strategies and quickly restore basic services** to resume social, institutional and economic activity after such an event.

Initiatives/Mechanisms for developing urban disaster resilience

- **Governance:** Disaster Management Act, 2005, and institutions under it including National Disaster Management Authority, State Disaster Management Authorities and National Disaster Response Force.
 - **National Policy on Disaster Management 2009** envisions to build a safe and disaster resilient India by developing a holistic, proactive, multi-disaster oriented and technology driven strategy.
 - **National Disaster Management Plan (NDMP) 2016** provides a framework and direction to the government agencies for all phases of disaster management cycle.
- **Urban Local Government (ULG):** Urban local governments have critical roles and responsibilities in building resilience to climate change and related disasters.
 - Such responsibilities include setting and enforcing building codes, land use regulations, urban planning and zoning, basic infrastructure, fire protection, healthcare and emergency planning and response etc.
- **Government Schemes:** Schemes such as Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Housing for All (Urban) Scheme and the Smart Cities Mission focuses on making cities smart, sustainable, inclusive and livable while promoting economic growth.

- **Climate Smart Cities Assessment Framework:** It consists of indicators across five categories namely: urban planning, green cover and biodiversity; energy and green buildings; mobility and air quality; water management; and waste management.
- **Union Budget 2024-25:** The Budget has also proposed encouraging electric bus systems for cities and has provided ₹1,300 crore for it. E-buses offer an economical and eco-friendly operating system, but the main challenge is their higher upfront cost. However, this budgetary support may get the ball rolling.

Challenges in building disaster resilience in Indian cities

- **Lack of planning:** According to the NITI Aayog, 65 percent of Indian cities currently do not have a master plan. Even the city master plans are not sufficiently addressing the issue of climate change.
- **Governance issues:** Political influence on decisions for location for infrastructure development leads to uncontrolled construction in disaster-prone zones which heightens the risk of natural and anthropogenic disasters.
- **Concretization:** Urban spaces are increasingly being covered with concrete and asphalt at the expense of green spaces turning them into heat sinks.
 - This phenomenon is also known as Urban Heat Island, and it further exacerbates climate extremities and increases risk factor.
- **Crumbling Infrastructure:** Sewerage and drainage systems in most Indian cities is inadequate to cope with heavy rainfall, causing water logging and flooding in Indian cities in every monsoon season.
- **Insufficient health infrastructure:** There is a lack of strong quick response system that is required in times of crisis. Health infrastructure is in critical need of funds, investments, staff, equipment and quality service delivery.
- **Departmentalization in functioning:** Departments often operate in silos focusing on resources such as water, transport, energy, etc. independently, which further complicates outcomes.
- **Lack of private funding:** According to the Global Infrastructure Hub, private funding has remained stagnant in the last few years while the infrastructure funding gap has reached multi-trillion-dollar figures.

Way Forward

1. **Governance:** Disaster management should be **devolved to municipalities**, and functionaries need to be properly empowered for efficient implementation of plans and discharge of duties.
2. **Finance:** Climate finance can be mobilized by **creation of a land banks** (owned by the municipalities) and leasing of properties to commercial organizations.
 1. The option of **Corporate Social Responsibility (CSR)** funding also needs to be explored.
 2. **Public-Private Partnerships (PPPs)** will be essential in addressing the funding needs of low-carbon and energy-efficient development.
3. **Participatory Planning:** Future planning and reforms should be participatory in nature and consider the informality and vulnerabilities that are prominent in Indian cities.
 1. In Japan, for example, the disaster management agencies work with communities to generate awareness about things to do at the time of a disaster.

4. **Nature Based Developments:** Natural hazards will not result in disasters if natural products are used in built structures.
 1. For instance, in the mountainous state of Uttarakhand, most fatalities were noted among people living in concrete structures.
5. **Greening of public and private spaces:** Creation of multiple small patches of green space at various places in cities will be useful in managing microclimate, as against developing a few vast patches.
6. **Green mobility:** A shift to green mobility in public transport is urgently needed for maintaining a good environment.
7. **Knowledge Management Networks:** Cities need to create and utilize knowledge management frameworks which require comprehensive data collection to understand hyperlocal needs and challenges.
 1. Resources can be used **most efficiently and sustainably** with location-specific knowledge, which is best generated and understood locally.

Landslides

Context:

Recently, Hilly regions of **Wayanad district of Kerala** experienced one of the worst landslides in recent history.

Landslide in India

- A landslide is a mass movement of material, such as rock, earth or debris, down a slope, under the influence of gravity.
 - **Steep slopes:** Steep inclines make the mountains vulnerable to landslides from minimal water or seismic activity.
- As per **India Landslide Susceptibility Map (ILSM)** around **13.17% of the country is susceptible to landslides** and that **4.75% is 'very highly susceptible'**.
- **Sikkim has 57.6% landslide-prone area**, while **Kerala, outside the Himalayas, has 14% of land** in the 'very high susceptibility' category.
- India accounts for about **8% of global fatalities due to landslides**.

Causes of landslides

Himalayan Region	Western Ghats
<ul style="list-style-type: none"> • Tectonically unstable formations: The young, actively forming Himalayas are prone to earthquakes, increasing landslide risk. • Loose sediments: Uncompacted geological materials heighten susceptibility to landslides. 	<ul style="list-style-type: none"> • Monsoon-induced landslides: Heavy rainfall, especially during monsoons on the steep western side and cyclones on the eastern side, oversaturates the soil, leading to landslides. • Geological stability with neo-tectonic activity: While generally stable, these regions have some uplifted areas

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| <ul style="list-style-type: none"> • Hydropower projects: These projects concentrate large amounts of water in one area, increasing both humidity and pressure. The higher humidity can contribute to landslide risk. • Development activities: Human interventions like road widening and large construction projects further destabilize the already fragile mountain environment. | <p>affected by recent tectonic movements, which can influence landslide susceptibility.</p> <ul style="list-style-type: none"> • Deforestation: Removal of native trees weakens soil stability, as these trees normally help hold topsoil to the bedrock. • Anthropogenic activities such as Mining, Human settlements and construction. |
|--|--|

Steps Taken for Mitigation of Landslides

- **Early warning Forecasting:** The Geological Survey of India recently established the National Landslide Forecasting Centre (NLFC) in Kolkata to enhance landslide prediction.
 - **Bhusanket Web Portal and Bhooskhalan Mobile App were launched** to enable quick dissemination of landslide forecasts and allow stakeholders to share and update spatial and temporal information on landslide occurrences.
- **National Disaster Management Authority guidelines:** NDMA's Guidelines on Management of Landslides and Snow Avalanches outline the national policy for managing landslides and related activities.
- **Dedicated schemes:** NDMA launched the Landslide Risk Mitigation Scheme (LRMS) to financially and technically support landslide-prone states.
- **National Landslide Risk Management Strategy:** This strategy document addresses all the components of landslide disaster risk reduction and management, such as hazard mapping, monitoring and early warning systems, awareness programmes, capacity building and training, regulations and policies, stabilization and mitigation of landslides, etc.
- **SENDAI framework:** Sendai Framework for Disaster Risk Reduction 2015-2030 was the first major agreement of the post-2015 development agenda and provides Member States with concrete actions to protect development gains from the risk of disaster.

Way forward

- **Accepting ESA draft notification for Western Ghats across six states:** As it will become law and would impose restrictions on economic activities such as quarrying, mining, and large infrastructural development in these areas.
- **Land use Zoning Regulations:** Implementation of Land use Zoning Regulations based on local and site specific landslide zonation (1:10k or larger) maps be made mandatory in hills/ mountains.
- **Slope modification regulations:** Such as slope modification regulations of the Aizawl Municipal Corporation can be a good model for other regulatory bodies in landslide prone areas to follow
- **State specific landslide mitigation strategies:** Need to be formulated to address specific issues especially for each mountain state.

- **Regulating Development activities:** For example- Kerala should decline engineering projects in ecologically sensitive areas and establish expert committees to determine feasibility of other projects, as suggested by the Madhav Gadgil committee for Kerala.

International Solar Alliance (ISA)

Context:

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

Global Energy Transition Landscape

- The current **trajectory** towards Sustainable development is **misaligned** with the **Paris Agreement's goal of limiting global warming to 1.5°C**.
- **Current projections** suggest that **by 2050** there will be **only a moderate 4% reduction** in global emissions, pushing the **rise in global warming to an alarming 2.4°C**. (ISA)
- **Global emissions must be cut by 43% in this decade** for the world to reach the **1.5°C limit agreed in Paris**. (UNFCCC)
- The world requires **\$1.6 - \$2 trillion in solar investment by 2030** (IEA).

Solar energy: A medium to fuel both growth and transition

- It is the **most accessible and versatile** renewable energy source.
- **Exhibits highest potential at lowest costs:** Low Levelized Cost of Electricity (LCOE) of \$0.049/kWh while capable of producing 1600-49800EJ per year.
- **Lower Carbon footprint** compared to other renewable sources like hydropower and bioenergy.
- **High Decentralization potential** E.g. off-grid systems
- **Advanced technological developments** compared to other renewable sources.
- **Remarkable growth rate with a 21% CAGR (2015-2022)**, surpassing wind, bioenergy and hydro energy.
- **Projected contribution to the total energy mix is 27% by 2030, necessitating 3500 GW of capacity building.**
- **Penetration of solar energy in global RE capacity** projected to increase from 28% in 2021 to **45% in 2030**

Significance of ISA

- **Energy equity and justice: Nuanced approach beyond one-size-fits-all.**
 - **Differentiated approach** for High-income countries, Emerging economies, Low-income countries and SIDS.
- **Taking solar energy from lab to streets:** Democratic access to technology and resources especially for developing and low-income countries.
- **Creation of a global solar energy market:** by encouraging large scale deployment with reduced cost and collaborative development. E.g. PM KUSUM scales solar application in agriculture.



- **Facilitate standardised policies and procedures:** To instil confidence in investors by offsetting risks. E.g. Standardised auction and Power Purchase Agreements (PPA) framework.
- **Platform for collaborative Research and Development:** Pool resources to improve R&D in developing countries which lack the financial capability.
- **Significant shift in India's Foreign Policy:** India's global leadership in sustainability to further strategic interests. E.g. Mission LiFE
 - India is playing the role of a 'bridge' between the Global North and the Global South in harnessing solar energy through ISA.
 - India is also providing new normative norms in the domain of global energy governance, which will address the concerns of Global South countries. E.g. highlighting issues like greater technological diffusion, financial assistance etc.

Challenges for ISA

- **Coordination issues among member states** hindering effective implementation of initiatives. E.g. Issues like membership rights, importance to procedure over pragmatism are potential roadblocks.
- **Geopolitical challenges:** China dominates the global solar supply chain, which is a hindrance to the achievement of energy equity.
- **Private sector participation:** In most developing countries, power falls under the public sector domain and involvement of private sector, although important for scaling, may make renewable energy inaccessible, hindering energy equity and justice.
- **Implementation issues:** Issues of land acquisition and potential ecological harm caused by the land-intensive solar deployment. E.g. Of the 50 Solar Parks sanctioned, only 11 are completed till 2023.
- **Technical challenges** E.g. Grid integration.

Way Forward

- **Address challenges related to solar energy:** Unequal global solar energy access due to regional disparities in adoption costs etc.
- **Ensure equity in ensuring energy security:** Decoupling of per capita energy consumption with energy intensity with focus on people-centric growth.
- **Focus on Energy Equality:** Along with scaling renewable energy production, focus must be on inclusion of all stakeholders with a bottom-up approach to solar proliferation.

Conclusion

India's initiatives like ISA, the Green Hydrogen Innovation Centre and the Global Bio-Fuel Alliance demonstrates India's capability in shaping new discourses on global renewable energy rooted in the age-old Indian traditional ethos of 'Vasudhaiva Kutumbakam.'

Case Studies

- India's first-ever floating solar plant at Kayamkulam, Kerala.

- **Surya Nutan:** a hybrid kitchen-connected indoor solar cooking solution by the Indian Oil Corporation (IOCL).
- **Canal-Top-Solar panels on Sardar Sarovar project, Gujrat:** addresses land acquisition issues, improves efficiency of energy production.
- **North Sea 1 (NS1):** World's first Offshore Solar Sea Farm in Netherlands.
- **SOLshare, a Bangladeshi startup** is revolutionising the solar peer-to-peer electricity trading system through an ICT-enabled network.

Great Indian Bustard

Context:

Ministry of Environment, Forest and Climate Change (MoEFCC) approved funds for next phase (from 2024 to 2029) of Bustard Recovery Program.

Bustard Recovery Program

- **Coverage of species:** Great Indian Bustard (GIB) and Lesser Florican.
 - There are four bustard species present in India, other two are **Bengal Florican; Macqueen's Bustard.**
- **Background:** Plans to recover the species **first started in 2013** under the National Bustard Recovery Plan, which later gave way to the Bustard Recovery Project in 2016.
 - The Bustard Recovery Project commenced for an initial period of **five years (2016-21)** and **now extended till 2033.**
- **Current Status:** As of now, around 140 GIBs and fewer than 1,000 Lesser Floricans are surviving in the wild.
- **Project implemented by:** Wildlife Institute of India
- **Funding agency:** National Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Authority
- **Partner agencies:** Ministry of Environment, Forest & Climate Change Rajasthan Forest Department Gujarat & Maharashtra Forest Departments
- **Project Objectives:**
 - **Conservation Breeding:** Secure ex-situ populations of **great Indian bustard and lesser florican.**
 - **Applied Research:** Prioritize conservation areas, characterize threats, assess population and habitat status, and evaluate management effectiveness.
- **Capacity-Building and Outreach:** Improve protection enforcement, sensitize stakeholders, and incentivize local land use.
- **Pilot Implementation of Surgical Habitat Management:** Demonstrate best practices through experimental interventions.

- **Collaborating agencies:**

- **Bombay Natural History Society:** A pan-India wildlife research organization, has been promoting the cause of nature conservation since **1883**.
 - Conservation of nature, primarily biological diversity through action based on **research, education and public awareness**.
- **Others:** International Fund for Houbara Conservation / Reneco; The Corbett Foundation; Humane Society International; Jivdaya Charitable Trust; The Grasslands Trust.

About Great Indian Bustard (GIB)

- **Conservation Status**

- **Wildlife Protection Act, 1972:** Schedule I and IV
- **IUCN:** Critically Endangered
- **CITES:** Appendix I

- **Key Characteristics**

- **Habitat:** Agro-grassland bird endemic to the Indian Subcontinent.
 - In India, their population is confined mostly to Rajasthan and Gujarat. Small population occur in Maharashtra, Karnataka and Andhra Pradesh.
- **Food Habit: Omnivorous bird**, they feed on grass seeds, insects like grasshoppers and beetles, and sometimes even small rodents and reptiles.
- **Others**
 - GIB lacks frontal vision
 - Breed mostly during the monsoon season when females lay a single egg on open ground.

- **Importance of GIBs:** Considered as indicators of the health of grasslands or pulse of grassland ecosystem.

About Lesser Florican

- Lesser florican (*Sypheotides indicus*) is the **smallest bird of the bustard family (Otidae)**.
- **Conservation Status**
 - **Wildlife Protection Act, 1972:** Schedule I and IV
 - **IUCN:** Critically Endangered
- **Habitat:** Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, Andhra Pradesh.
- **Threats:** Pesticide usage in breeding grounds; Mismanagement of agro-grasslands through untimely grass harvest, excessive livestock grazing, etc.

Steps taken for GIBs

- **Declaration of Protected areas:** Key habitats designated as National Parks/sanctuaries for e.g., Desert National Park, (Rajasthan), Naliya Grassland (Lala Bustard Wildlife Sanctuary)

- **Species Recovery Programme:** GIBs has been identified for conservation efforts under the '**Species Recovery Programme**', which is a centrally Sponsored Scheme for development of Wildlife Habitats.
 - Providing financial and technical assistance to states for GIB protection.
- **Conservation breeding:** Captive population development for wild release and in-situ conservation support.
 - **For e.g-** GIB conservation breeding centres are functioning in **Rajasthan's Sam, Ramdevra**.
- **Legal protection:** Included in Schedule-I of the **Wild Life (Protection) Act, 1972**, which prohibit hunting.
- **Capacity Development:** Such as training in artificial incubation and insemination techniques.
 - **For e.g-** Personnel were trained in **artificial breeding techniques** at **National Avian Research Centre (NARC), Abu Dhabi in 2022-23**.
- **Supreme Court Cases:** Apex Court also monitoring the **GIB and Lesser Florican conservation programme** and a petition seeking protection of the two species is pending before it.

Conclusion

Saving the Great Indian Bustard requires **multi-level collaboration**. This effort extends **beyond a single species, aiming to protect whole ecosystems**. Addressing complex challenges demands coordinated action for long-term conservation success.

Soil Health

Context:

At International conference on Soils held in Morocco, **UNESCO** has pledged to support its member states by establishing 'world soil health index' in association with its international partners.

More about News

- **World soil health index**
 - **Standardized measure** for assessing soil quality across regions and ecosystems.
 - Identifies **degradation or improvement** trends.
 - Identifies **areas at risk**.
 - **Enhances understanding** of soil management effectiveness.
- **In addition**, UNESCO will launch a pilot programme for long-term soil and landscape management in ten natural sites supported by its Biosphere Reserves Programme.

About Soil

- Defined as the **mixture of rock debris and organic materials** which develop on the earth's surface.
- **Factors of soil formation:** It is influenced by relief, parent material, climate, vegetation, life-forms, time, and human activities.
- **Importance:** Healthy soils are essential for maintaining ecosystems and biodiversity, regulating the climate, producing food and purifying water.



• Soil Degradation

- Soil degradation is the **physical, chemical and biological decline in soil quality**.
- It can be the loss of organic matter, decline in soil fertility, and structural condition, erosion, adverse changes in salinity, acidity or alkalinity, and the effects of toxic chemicals, pollutants or excessive flooding.
- According to the **World Atlas of Desertification**, **75% of soils are already degraded**, directly impacting 3.2 billion people, and if current trends continue, this proportion will **rise to 90% by 2050**.
- As per ISRO's Desertification and Land Degradation Atlas of India (2021)-Total degraded land is **96.4 million hectares (29.32% of total geographical area)**.

Factors behind degrading soil health

- **Deforestation:** Vegetation destruction accelerates soil degradation, **increasing susceptibility to wind and water erosion**, resulting in loss of organic material, decreased soil aggregation, stability, and fertility.
 - As per ISRO's Desertification and Land Degradation Atlas of India (June 2021) report around **30 Mha Desertification/Land Degradation in India** (during 2018-19) happened through **Vegetation degradation**.
- **Salinization / Alkalization:** Activities such as improper canal irrigation water management can lead to salinization in semiarid and arid areas, causing salt accumulation in root zones.
 - E.g.,- **About 50 % of the arable land in Punjab** has been damaged due to salinity.
- **Improper crop rotations:** Intensive cereal-based rotations (rice and wheat) due to various pressures such as Population growth, land shortage, etc. causing soil fertility decline.
- **Overgrazing:** It exceeds land's livestock carrying capacity which also reduces vegetation quantity and quality.
 - E.g., Degradation of Banni grasslands of Gujarat.

Steps taken to improve soil health

- **Promotion of organic farming:** Organic farming is being promoted through various schemes/programmes, namely Rashtriya Krishi Vikas Yojana (RKVY), Mission for Integrated Development of Horticulture (MIDH), National Mission on Oilseeds & Oil Palm (NMOOP) etc.
- **Soil Health Card:** Card contain the status of soil with respect to **12 parameters, namely N,P,K (Macro-nutrients); S (Secondary- nutrient); Zn, Fe, Cu, Mn, Bo (Micro - nutrients); and pH, EC, OC (Physical parameters)**.
- **Improving Forest Coverage:** As per the **India State of Forest Report (ISFR) 2021**, in 2 years total forest and tree cover increased by 2261 square kilometre in India, which help in reduce soil erosion.
- **Prevent burning of crop residues:** National guidelines have been issued to prevent burning of crop residues, thereby ensuring their proper recycling for improving soil health.
- **Bonn challenges pledge:** The Bonn Challenge is a global goal to bring 150 million hectares of degraded and deforested landscapes into restoration by 2020 and 350 million hectares by 2030.

Way forward

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Freedom UPSC with **Dhananjay Gautam**

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- **Adopting Sustainable Agricultural Practices:** Diverse crop rotations enhance **soil health**, reduce pests, boost microbial activity, and improve yields.
- **Maximize Soil Cover:** Cover crops can be planted as part of both grazing and cropland operations to maximize soil cover year round.
 - The presence of protective vegetative cover such as grass, shrubs, cultivated crops, even stubble, **decreases the velocity of the wind and minimizes its eroding capacity**.
 - Moreover, the root system of vegetation helps to compact and keep together soil particles.
- **Minimize Disturbance:** Adopt measures like **limiting tillage, optimising chemical input, etc.**
- **Integrated land use planning:** Allocate resources considering varied uses and user demands across agricultural, industrial, and other sectors to reduce negative effect on soils.
- **Precision Farming:** Utilizing GPS, sensors, and data analytics to optimize soil management practices, ensuring the right amount of water, nutrients, and pesticides are applied where needed.
- **Community-Based Soil Conservation:** Identification and/or development of suitable approaches/tools that help to carryout participatory soil health assessment.

Other Short News

FAO released State of the World's Forests 2024 Report

Theme for this year: “Accelerating Forest solutions through innovation”.

Key highlights

- **Deforestation Rate declined** to 10.2 million hectare (ha) per year in 2015–2020 from 15.8 million ha per year in 1990–2000.
- **Non-Timber Forest Products support livelihoods** of about **275 million people** in India.
- India ranked 3rd for average **annual net gain in forest area** from 2010- 2020.

Need for Innovation in Forest Sector

- **Climate change related stress (wildfire, pest):** Innovative forest and land management strategies needed for resilience.
- **Shift towards bioeconomy:** Zero-carbon bioeconomy needs innovation for diverse, efficient wood-based product uses.
- **Opportunity from non-wood forest product:** Many wild forest-based foods, including fish, are rich in micronutrients and have high nutritional content.

Barriers to development of innovations in forest sector

- **Lack of innovation culture** discouraging curiosity, creativity and risk-taking.
- **Capital limitations** like human (deficient skill); natural (limited access to forest); social (restricted tenure rights), etc.
- **Lack of policy support** impacting technology adoption.

Recommendations to scale up innovation

Download Our Application



Freedom UPSC with **Dhananjay Gautam**



- **Recognizing and rewarding innovation** can help foster conducive culture.
- **Boost skills, capabilities and knowledge** to ensure that forest-sector stakeholders have capacity to manage innovation creation and adoption.
- **Provide opportunities for knowledge and technology transfer**, and build appropriate safeguards.
- **Ensure universally accessible** financial resources.

United Nations Water Convention

Ivory Coast joined the United Nations Water Convention (Convention on the Protection and Use of Transboundary Watercourses and International Lakes).

United Nations Water Convention

- **Genesis:** Adopted in Helsinki (Finland) in 1992 and entered into force in 1996.
- **Legally binding:** Requires Parties to use transboundary waters reasonably and equitably and ensure their sustainable management.
- **Members:** India is not a party

NOTE: UN Watercourses Convention (UN Convention on the Law of the Non-Navigational Uses of International Watercourses) was adopted in 1997. **Indus Waters Treaty** (1960) aligns with it.

Navigating New Horizons, a Foresight Report Released by UNEP

The report identifies various critical global shifts which are accelerating the **triple planetary crisis of pollution, biodiversity loss and climate change**.

- It also highlights that **Global polycrisis**, i.e, multiple shocks such as wars, extreme weather, pandemics etc faced today are interwoven and are a consequence of globalization.

Various shifts, Signals and Potential Disruptions

- **Changing relationship between humans and the environment:** Rising AMR, increase in uninhabitable Spaces due to climate change.
- **Scarcity and competition for critical resources is reshaping global security dynamics:** E.g. orbital space debris.
- **Waves of innovation in the digital landscape:** Internet of Things, AI Adoption.
- **Autonomous and artificial intelligence weapons systems:** Amplified risks of biological agents misuse.
- **Mass forced displacement:** 1.5% of world's population is forcibly displaced.
- **Eco-Anxiety:** Negative emotional responses related to the threat of environmental and climate crises.

Climate Change and Marginal Farmers

'Impact of Climate Change on Marginal Farmers' Report was released by **the Forum of Enterprises for Equitable Development (FEED)** which is dedicated to advocating for marginal farmers.



Key highlights

- **Vulnerability due to extreme weather:** Over 1/3rd of marginal farmers had to cope with **extreme weather events at least twice in five years**.
- **Reduction in agriculture income:** Climate change may reduce annual agricultural income by 15-18% and by 20-25% in unirrigated areas (Economic Survey of 2017- 18).
- **Livelihood Diversification:** Over 86% of farmers altered their occupations due to climate impacts. Alternative livelihood includes **temporal migration, seeking work under MGNREGA**, etc.
- **Hurdles in adoption of CRA practices:** High up-front cost, limited knowledge about options, small land holdings and lack of physical resources are the major hurdles in adoption of **Climate Resilient Agricultural (CRA)** practices.

Key Recommendations

- **Strengthening existing platforms** like the Global Alliance for Climate-Smart Agriculture (GACSA) developed by the FAO.
- Shift focus from **land productivity** (grains produced per hectare) to **water productivity** (grains produced per cubic meter of irrigation water).
- Mission mode approach on **Education, Training, Orientation, and Extension Support to farmers**.

Spring Initiative

UN-backed network Principles for Responsible Investment (PRI) has launched “**Spring**”, a **new initiative** to halt or reverse nature loss by 2030.

About Spring Initiative

- **Supported by a coalition of 200 investors** managing a combined \$15trn in assets.
- **Objective:** To address systemic risk of nature loss to societies and long-term portfolio value creation by enhancing corporate practices on forest loss and land degradation.
- It focuses on **responsible political engagement**, a vital aspect of corporate governance.

Fund for Responding to Loss and Damage

The Board for Loss and Damage Fund decided to call it as “**Fund to respond to Loss and Damage**” (FrLD).

- It was decided that **Philippines** will be the host country for Board of the fund.

About FrLD

- It was established in **27th session of UNFCCC Conference of the Parties (COP)** in Sharm el-Sheikh (Egypt) in 2022.
- **Purpose:** Fund will help developing countries **compensate** for losses and damages from natural disasters caused by climate change.
- **Loss and damage** refer to the negative consequences that arise from unavoidable risks of climate change, like rising sea levels, prolonged heatwaves, desertification, ocean acidification etc.

Air Pollution Harms Pollinators More: Study

A recent study published in Nature Communications reveals that **air pollution disproportionately harms pollinators** like bees and butterflies while crop-destroying pests remain largely unaffected.

Key Findings

- **Scent-based communication disruption:** Air pollutants alter scent trail (airborne chemical signals), disrupting bees' and wasps' ability to locate flowers, mates, or prey.
- **Biological impact:** Among the biological behaviours including feeding, growth, survival, and reproduction, the **ability to locate food was most severely impaired**.
- **Ozone is most harmful pollutant:** Ozone reduced beneficial insects' ability to thrive by around 34%. **Nitrogen oxides** also had substantial negative effects.
- **Damage at low pollution levels:** Changes in insect performance occur even at low levels of air pollution.

About Pollination and pollinators

- **Pollination**, an essential part of **plant reproduction**, refers to transferring pollen grains **from the male anther of a flower to the female stigma**. It is of two types:
 - **Self-pollination:** Transfer of pollen grains **within same flower or another flower of the same plant**.
 - **Cross-pollination:** Transfer of pollen grains to flower of a **different plant of the same kind**.
- **Pollinators** refer to **agents** (or facilitators) of **pollination**. It could be:
 - **Abiotic:** Wind and water
 - **Biotic:** **Insects** (bees, wasps, beetles, etc.), **birds, and bats** among others

White Paper on Glacial Geoengineering

A group of scientists have released a landmark white paper on glacial geoengineering

- Glacial Geoengineering is the **deliberate modification of the climate system around a glacier** to slow the melt of the ice shelf and reduce sea level rise.

Proposed Glacial Geoengineering Strategies

- **Ocean-heat transport interventions:** Setting **sediment berms or fibrous curtains** along the seabed in the front of ice shelves to **block the flow of warm circumpolar deep water**.
- **Basal-hydrology interventions:** Slow the flow of streams that carry meltwater off the ice sheets.
 - This can be done through **drilling holes** through glacier beds to create drainage channels, thereby diverting meltwater streams and slowing ice sheet loss.

About Geoengineering

- Geoengineering is the **deliberate, large-scale manipulation of Earth's climate systems** to counteract anthropogenic global warming.
- **Categories of Geoengineering:**

- **Solar Geoengineering / Solar Radiation Management (SRM):** It aims to limit the sun's radiation onto the Earth's surface and reduce global average temperature.
 - **Strategies** include Aerosol Injection, Marine Cloud Brightening, Albedo Improvement, Ocean Mirror etc.
- **Carbon Geoengineering / Carbon Dioxide Removal (CDR):** It aims to reduce the concentration of CO₂ in the atmosphere by removing it from the atmosphere.
 - **Strategies** include Carbon Capture and Storage, Ocean Alkalinity Enhancement, Ocean Fertilization etc.

Dual Tower Solar Thermal Plant

China has unveiled the **world's first dual-tower solar thermal power plant (TPP)**, which boosts **energy efficiency** by 24%.

Features of the Solar TPP

- **Tracking of Sunlight:** The plant features **two 200-meter tall towers**, each surrounded by **thousands of mirrors** which automatically **track the sun's movement** and achieve **94% reflection efficiency**.
- **Storage of excess heat:** The plant utilises **molten salt storage** as a **thermal battery**, allowing it to store excess heat collected during the day for continuous power generation at night.

Aquilaria Malaccensis (Agarwood)

CITES eases export of agarwood from India, move to benefit lakhs of farmers.

About Agarwood:

- **Aquilaria Malaccensis (agarwood)** is an evergreen tree native to Northeast India, Bangladesh, Bhutan, and parts of Southeast Asia, and is considered a precious aromatic plant in the region.
- **Economic Utility:** aromatic plant's oil and chips both are highly valued in the market.

Protection:

- **IUCN Status:** Critically Endangered
- **CITES:** Appendix II
- **Wildlife (Protection) Act, 1972:** Schedule IV

Jerdon's Courser

Jerdon's Courser has not been visually spotted in over a decade.

About Jerdon's Courser

- **Nocturnal bird** found only in the Eastern Ghats.
- **Exclusively endemic** to **Andhra Pradesh**, specifically within the **Sri Lankamalleswara Wildlife Sanctuary** in Kadapa, Andhra Pradesh.

- **Protection Status:**

- Under **Integrated Development of Wildlife Habitats' (IDWH) scheme.**
- **Schedule-I of the Wildlife (Protection) Act, 1972**
- **IUCN Status:** Critically Endangered

Wolbachia Bacteria

Recently, study has highlighted that Wolbachia bacteria had manipulated the wasp Encarsia Formosa to entirely get rid of its males.

- Encarsia Formosa wasps helps in controlling population of whiteflies, a major agricultural pest.

About Wolbachia bacteria

- Commonly found in nematodes and arthropods, especially insects
- In insects, these are **present in eggs** but they are **absent in the sperm**. Due to this, females can transmit them to their offspring whereas males can't.
 - As a result, Wolbachia have evolved ways to manipulate their insect hosts to produce more female than male progeny.
 - **Tra gene** of Wolbachia play key role in showing this feature.
- **Potential Application:** Mosquitoes with Wolbachia can be used to reduce numbers of target mosquito species, for example, Ae. Aegypti mosquitoes.

CITES Released Report on Rosewood

CITES launched "CITES Rosewoods: The Global Picture" report.

- The report details CITES-listed rosewood species' **characteristics, ecosystem roles, regeneration rates, and threats.**
- Such information will help CITES parties make **informed non-detriment findings (NDFs).**
 - NDF is a **mandatory scientific analysis** under CITES to ensure **that exporting a specified quantity** of specimens of **Appendix I and II -listed species will not affect their long-term survival in the wild.**

Rosewood

- **About:** 'Rosewood' also called as "palisander" encompasses a wide range of **tropical hardwoods** in the Fabaceae (Leguminosae) family. Rosewood in **Appendix II of CITES include:**
 - **Dalbergia latifolia** (Malabar rosewood) and **Dalbergia Sissoo** (Shisham) are found in **India** and are listed as Vulnerable and Least Concern (respectively) on IUCN red list.
 - **African rosewood**, native to West African countries, is listed as **endangered** on IUCN red list.
- **Utility:** Crafting **furniture and musical instruments.**
- **Role in Ecosystem:**



- **Soil Improvement:** Dalbergia species can improve degraded soil through fast decomposing leaf litter, rich in nitrogen, phosphorus, and carbon.
- **Nitrogen Fixation:** Some species form symbiotic associations with soil bacteria to fix atmospheric nitrogen.

Syntrichia Caninervis

Scientists have found a **desert moss** - Syntrichia Caninervis - which is able to withstand Mars-like environment conditions.

- **Mosses** are **small, non-vascular flowerless plants** in the taxonomic division **Bryophyta**.
- Mosses are commonly found in **moist-shady locations** and are **distributed throughout the world except in salt water**.

About Syntrichia Caninervis

- It is **widespread in some of Earth's harshest locations** including Antarctica and the Mojave Desert.
- It could be the **first possible pioneer species for the colonization of Mars**.
- Tags :
- SYNTRICHIA CANINERVIS
- desert moss

Araku Coffee

Araku coffee found mention in Prime Minister's 'Mann ki Baat'.

About Araku Arabica Coffee

- Grows in the hilly tracks of Andhra Pradesh and Odisha.
- Accredited with **Geographical Indication (GI) Tag in 2019**.
- Takes its name from **Araku Valley**, situated in the **Eastern Ghats (Andhra Pradesh)**.
 - Weather of the valley with its **hot days** and **cold nights** along with the iron-rich soil allows the coffee to ripen slowly and gives it **aromatic richness** and **taste**.
 - Produced by the tribals with emphasis on organic approach with use of organic manures, green manuring and organic pest management practices.

Unming La Pass

NewSpace Research and Technologies successfully tested a **100-kg Max Take Off Weight (MTOW) Unmanned Aerial Vehicle (UAV)** at the **Unming La pass**.

About Unming La Pass:

- Located at 19,024 ft. in the **Eastern Ladakh along the Ladakh Range**.
- Also, it is renowned for being the highest motorable road in the world.



- Constructed by the **Border Road Organization (BRO)** under **Project Himank**.
- **Geostrategic importance of Road**- Improves connectivity to the **Line of Actual Control (LAC)**
 - Also, improves **local connectivity** in **Chisumle-Demchok** sector to **Leh** and also **boosts tourism** in **Ladakh**.
- **Other important passes in Ladakh**: **Khardung La**, **Chang La**, **Tanglang La**, etc.

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TOGETHER WE SCALE HEIGHTS



India's Sports Ecosystem

Context:

India's Olympic ranking fell from **48th in Tokyo (2020) to 71st in Paris**.

More on the News

- India won **six medals** in Paris with **no gold medals** (one silver, five bronze), down from **seven in Tokyo** (one gold, two silver, four bronze).
- Despite the decline, **Paris was still India's third-best Olympic performance**, better than Rio 2016's two medals.
- Also, this decline contrasts with improved performances in other events like the **2022 Commonwealth Games and 2021 Summer Deaflympics**.
 - Thus, the recent Olympic slide **highlights gaps in India's sports ecosystem** despite multiple initiatives taken to improve India's sports ecosystem.

India's Sporting Ecosystem

- Sports is a state subject**. Thus, the responsibility for promotion/development of sports in the country, including providing sports facilities, rests primarily with the respective State / UT Governments.
- However, **Central government**, through its various schemes, **supplements** the efforts for state government
- Sports generates revenue and raises country's soft power while also having significant **contribution to general health and well-being of the players**.
 - Despite these benefits, **only around 6% of India's population participates in sports**, which is much lower than around 20% in countries like the US, Australia and as high as 60% in Japan.

Challenges that persist in India's sporting ecosystem

- Talent identification issues:** Despite being the world's most populous country, India sent only 117 athletes to the Paris Olympics, compared to 594 from the U.S., 572 from France, and 460 from Australia.
 - This is due to a **lack of early-stage talent identification and inadequate scouting mechanisms**.
- Resource constraint:** India's sports budget is low as compared to countries like US, Germany, and China. Fund underutilization is also an issue.
 - For instance, the **Khelo India scheme spent only Rs 318 crore out of Rs 500 crore allocated** in 2019-20 (Parliamentary Standing Committee on Human Resource Development).
- Infrastructure Gaps:** Sports infrastructure is limited, especially in educational institutions and underdeveloped states like Bihar and Jharkhand.
 - Most facilities** that meet international standards are **concentrated in a few states** like Haryana, Punjab, and Karnataka.

- **Governance Issues:** India's sports governance is dominated by politicians and bureaucrats and often suffers from corruption and unethical conduct.
 - For example, In January 2023, many Olympic medallists accused the then Wrestling Federation of India (WFI) president and the coaches of the Federation of sexual harassment.
- **Mismanagement of athletes:** For example, Vinesh Phogat's disqualification from Paris Olympic for being 100 grams overweight cost India a confirmed silver and a potential gold medal.
 - Similarly, Antim Phangal lost her bout due to exhaustion after starving for 48 hours to lose weight.
- **Other Challenges:** Lack of awareness about sports opportunities and government supports, shortage of coaching staff, gender disparities, inadequate attract private sector support, etc.

Initiatives to promote sports ecosystem in India

- **Budgetary support:** Budgetary allocation for the Union Ministry of Youth Affairs and Sports has nearly doubled from 2014-15 to 2023-24.
- **Khelo India program:** For identification and development of athletes at the grassroots and elite levels.
- **Khelo India Rising Talent Identification (KIRTI) programme:** Aimed at school children between nine and 18 years to hunt talent from every nook and corner of the country.
- **Mainstreaming of Sports Activities:** FIT India Movement and the incorporation of sports within the National Education Policy 2020.
- **National Sports Development Fund scheme:** The Scheme funds a Developmental Group of Athletes who are medal prospects for the Olympic Games. Corporate and Public Sector Undertakings can contribute to this fund.
- **Target Olympic Podium Scheme (TOPS):** To provide comprehensive assistance (including funding, specialised equipment, international exposure, top-tier coaching, and a monthly allowance) to India's top athletes.
- **One School-One Sport policy:** Initiative by the Ministry of Defence for Sainik Schools so that they can focus on at least one sporting discipline identified for the respective State/UT
- **Use of Technology:** Data analytics based on Artificial Intelligence are being used to predict the sporting acumen in an aspiring athlete.

Way ahead for strengthening India's Sports Ecosystem

- **Driving mindset change:** Parents should be made aware of advantages that students with state or national level accreditation in sports enjoy like reservations at higher educational institutes and preferences in government jobs.
 - Separately, corporates should inculcate sports as a constructive means for wellness among employees.
- **Increase the talent pool**



- **Nourish younger talent pool:** Implement more tournaments in schools and **community-based sports programs, provide nutrition support and address social barriers and gender inequality** in sports.
 - The '**one panchayat, one playground**' initiative by the **Kerala Government** is a parameter that can be advocated across States to promote sporting culture at the grassroots.
- **One State-One Sport policy:** Region-specific traditional sports needs to be promoted to ensure mass participation and cultivate an interest among people.
 - Localised sports mega events such as '**Rural Olympics**', on the lines of what the Rajasthan government has done, should be promoted countrywide.
- **Improving governance structure of sports federation:** Facilitate independent form of recruitment for top positions and bringing transparency both in the functioning of federations as well as policymaking.
- **Corporate funding for the sports sector:** As Indian firms mostly prefer to deploy their CSR money through NGOs, there is a need to incentivise the formation of NGOs specialised in sports across the country.
- **Supporting multiple disciplines:** Indian corporates, and entrepreneurs are actively participating in Indian Premier League (IPL), which ensures that these games receive consistent publicity.
 - IPL for games like **Badminton, Football, Tennis, and Volleyball by sponsoring leagues** that facilitates owning teams and building sports facilities should be encouraged.
- **Ensuring Accountability:** Implement performance metrics for nutritionists and support staff of athletes and fix the accountability for last-moment mismanagement.

About Olympic Games

- **Genesis:** Olympic games began in **1896 in Athens (Greece)**, with 14 nations competing in nine sports. The Games are **held every four years since then**.
- **Motto:** "Faster-Higher-Stronger" reflecting the aim of the Olympic movement from an athletic, technical, moral and educational perspective.
- **Olympic Flag:** Introduced in 1920, the flag features **five interlocking rings** symbolising the '**five parts of the world**' in which the **Olympic movement** prevails.
- **Olympic Flame:** It symbolizes the **positive values of fire** and with the **Olympic Torch Relay**, the flame travels the country in which the Games are being held, starting a few months before the Games begins.
- **Paris 2024:** Included 4 additional sports viz., **breaking** (making its Olympic debut), **sport climbing, skateboarding, and surfing**.
- **Court of Arbitration for Sport (CAS):** It was created in **1983 to deal** with the **legal problems that an athlete could face**.
 - It is **recognised by the Paris Convention** signed by the presidents of the **IOC** among others

India and Olympics

- India first participated in the **Olympics in 1900 in Paris**, represented by an **Anglo-Indian Norman Pritchard**.
- The **Indian Olympic Association (IOA)** was **formed in 1927**, with **Sir Dorabji Tata as President**, and it was **recognized** by the IOC the same year.
 - The IOA **coordinates with National Sports Federations to send teams to the Olympics** and other international games.

Other Short News

Immunisation In India

WHO/UNICEF Estimates of National Immunization Coverage (WUENIC) 2023 released.

Key findings

Global:

- Childhood **immunization coverage stalled in 2023**, leaving **2.7 million children** either unvaccinated or under-vaccinated.
- **Over 50% of unvaccinated children** live in the **31 conflict-affected countries**.

India:

- In 2023, **1.6 million children missed crucial Diphtheria, pertussis, and tetanus (together called DPT) and measles vaccinations**.
- **India lacks human papillomavirus (HPV) vaccination** in national programs despite **cervical cancer** being **second-highest cancer in women (18% of female cancers)**.
- India accounted for **2 million zero-dose children**.
 - **Zero-dose children** are those that lack access to or are never reached by routine immunization services.

Immunisation in India

- **Universal Immunization Programme (UIP)** has been operational in India since 1985.
- **Mission Indradhanush 2014** was launched as a special drive to vaccinate all unvaccinated and partially vaccinated children, pregnant women under UIP.
 - So far **5.46 crore children and 1.32 crore pregnant women** have been vaccinated.
- **Intensified Mission Indradhanush (IMI) 5.0, 2023** is a catch-up vaccination campaign for children up to 5 years of age and pregnant women, who were left out.
 - **12 diseases covered:** Diphtheria, whooping cough, tetanus, polio, tuberculosis, measles and hepatitis-B, pertussis, meningitis and pneumonia, Japanese encephalitis (JE) and measles-rubella (MR).



WHO Tobacco Cessation Guideline

The World Health Organization (WHO) has released its **first-ever** clinical treatment guideline for **tobacco cessation in adults**.

- It is expected to help more than **750 million tobacco users who want to quit all forms of tobacco** but find it difficult to do so.
- **More than 60 per cent of the world's 1.25 billion tobacco users** want to quit, yet 70 per cent lack access to effective cessation services.
 - **Reasons:** inefficient health systems, lack of resources, etc.

State Of Food Security And Nutrition

The State of Food Security and Nutrition in the World Report, 2024 released

- The report has been prepared by **five specialized agencies of the United Nations-FAO, IFAD, UNICEF, WFP, and WHO**.
- The theme of the report focuses on the **financing to end hunger, food insecurity and malnutrition in all its forms**.

Need for the New Definition

- **Absence of a coherent picture of the financial resources** spent on food security and nutrition.
- **Existence of Multiple definitions** creating problems like underfinanced areas, issue accountability of institutions, and tracking of progress.

The report puts forward a new definition of financing for food security and nutrition

- Refers to the **public and private financial resources, both domestic and foreign**, directed towards eradicating hunger, food insecurity and all forms of malnutrition.
- It aims at **availability, access, utilization and stability of nutritious and safe foods**, along with **strengthening the resilience of agrifood systems**.

Current gaps in financing

- **Public spending on agriculture per capita** is very low and not steadily growing in low-income countries (LICs) and lower-middle-income countries (LMICs)
- Food security and nutrition take less than a quarter of **official development assistance and other official flows and** seem to have been less of a priority for donors.

Genetically Modified (GM) Crops

Context:

The Ministry of New and Renewable Energy (MNRE) has released Scheme Guidelines for funding of testing facilities, infrastructure, and institutional support for development of Standards and Regulatory framework under the National Green Hydrogen Mission.

Key-features of the Guidelines

- **Budgetary Outlay:** Rs. 200 Crore till FY 2025-26.
- **Objective:** To identify the gaps in the existing testing facilities for components, technologies and processes in the value chain of Green Hydrogen & its derivatives.
- **National Institute of Solar Energy (NISE)** will be the Scheme Implementation agency (SIA).

Implementation Methodology:

- SIA will identify the **test facilities**.
- SIA will issue **call for proposals (CfP)** in consultation with MNRE for **establishment** of testing facilities.
- The proposals will be evaluated by a **Project Appraisal Committee (PAC)**.
- **Selected agencies** will be recommended by PAC to MNRE to issuing sanctions.
- **Letter of Award** shall be issued to Executing Agency (EA) by SIA.
- **Funding and Disbursement:** MNRE will fund up to:
 - 100% of the capital cost (for Government entities).

What is Green Hydrogen (GH₂)?

- It refers to **hydrogen produced through electrolysis**, which splits water molecules (H₂O) into hydrogen (H₂) and oxygen (O₂) using electricity generated from renewable sources like solar, wind, hydro etc.
 - Another method of producing GH₂ is from biomass, which involves **the gasification of biomass to produce hydrogen**.
 - **Applications of GH₂:** Fuel Cell Electric Vehicles (FCEVs) Aviation and Maritime, Industry (Fertilizer Refinery, Steel, Transport (Road, Rail), Shipping, Power Generation.
 - **70% of the capital cost** (For Non-Government entities)

About National Green Hydrogen Mission (NGHM)

- Launched in **2023**, with an outlay of **â,¹ 19,744 crore**.
- **Duration:** Phase I (2022-23 to 2025-26) and Phase II (2026-27 to 2029-30).
- **Objective:** To make India a Global Hub for production, usage and export of Green Hydrogen and its derivatives.

Key components:

- **Facilitating demand creation** through exports and domestic utilization.

- **Strategic Interventions for Green Hydrogen Transition (SIGHT)** programme, which includes incentives for manufacturing of electrolyzers and production of green hydrogen.
- **Pilot Projects** for steel, mobility, shipping, decentralized energy applications, hydrogen production from biomass, hydrogen storage, etc.
- Development of **Green Hydrogen Hubs** (for e.g., 3 ports namely Deendayal (Kandla, Gujarat), Paradip (Odisha) and V.O. Chidambaranar (Tuticorin, Tamil Nadu) have been identified.
- **Establishing a robust framework** of regulations and standards.
- **Research & Development** programme.

Initial steps taken under NGHM

- **GAIL Limited** has started India's maiden project of blending Hydrogen in City Gas Distribution grid in Indore (Madhya Pradesh)
- **NTPC Limited** has initiated blending of Green Hydrogen up to **8%** in PNG Network at **NTPC Surat (Gujarat)**.
- Hydrogen based Fuel-Cell Electric Vehicle (FCEV) Buses in **Greater Noida (Uttar Pradesh)** and **Leh** by NTPC.
- **Oil India Limited** has developed a **60-kW** capacity hydrogen fuel cell bus, which is a hybrid of an electric drive and a fuel cell.

Challenges in green hydrogen adoption

- **Economically viability:** The NITI Aayog report states that the current cost of producing green hydrogen via electrolysis, ranging from **\$4.10 to \$7 per kg**, is still too high to compete with grey or brown hydrogen.
- **Difficulty in Hydrogen Storage:** As hydrogen as a gas typically requires **high-pressure tanks (350-700 bar)** tank pressure and as a liquid requires cryogenic temperatures because the boiling point of hydrogen at one atmosphere pressure is $\sim 252.8^{\circ}\text{C}$.
- **Lack of Skill:** In the domain of hydrogen production, the workforce demand is expected to reach **~2.83 lakhs**, encompassing **roles in design and planning, installation, commissioning**, and green hydrogen production units.
- **Resource scarcity:** Green hydrogen is produced by **electrolyzing water**, which can require up to **9 Liters of water per kilogram** of hydrogen (As per International Energy Agency).
- **Lack of global standards on carbon intensity & safety:** Regulations for green hydrogen definitions, transportation, storage, safety, and usage vary widely across countries.

Way forward

- **Reduce cost:** India aims to reduce green hydrogen **production costs to \$1 per kg by 2030** through low-cost renewable energy, local electrolyser manufacturing, and technological advancements.
- **Incentives:** For new applications, where the viability of using green hydrogen is still at early stage, necessary incentives should be designed.
 - **For example**, Production-Linked Incentive (PLI) scheme for green steel targeting export markets.

- **Research and Development:** India should invest **\$1 billion in R&D by 2030** to advance commercial green hydrogen technologies and promote alternative methods like bio-hydrogen
- **Initiate green hydrogen standards and a labelling programme:** A **digital (AI/ML equipped) labelling** and tracing mechanism certification of origin should be initiated.
 - Public entities such as BIS (Bureau of Indian Standards) and PESO (The Petroleum and Explosives Safety Organization) are expected to take a leading role in this process.
- **Construct an inter-ministerial governance structure:** An interdisciplinary **Project Management Unit (PMU)** with globally trained experts must be created which can dedicate fulltime resources to effectively implement the mission.

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- **Strategic Interventions for Green Hydrogen Transition (SIGHT)** programme, which includes incentives for manufacturing of electrolyzers and production of green hydrogen.
- **Pilot Projects** for steel, mobility, shipping, decentralized energy applications, hydrogen production from biomass, hydrogen storage, etc.
- Development of **Green Hydrogen Hubs** (for e.g., 3 ports namely Deendayal (Kandla, Gujarat), Paradip (Odisha) and V.O. Chidambaranar (Tuticorin, Tamil Nadu) have been identified.
- **Establishing a robust framework** of regulations and standards.
- **Research & Development** programme.

Initial steps taken under NGHM

- **GAIL Limited** has started India's maiden project of blending Hydrogen in City Gas Distribution grid in Indore (Madhya Pradesh)
- **NTPC Limited** has initiated blending of Green Hydrogen up to **8%** in PNG Network at **NTPC Surat (Gujarat)**.
- Hydrogen based Fuel-Cell Electric Vehicle (FCEV) Buses in **Greater Noida (Uttar Pradesh)** and **Leh** by NTPC.
- **Oil India Limited** has developed a **60-kW** capacity hydrogen fuel cell bus, which is a hybrid of an electric drive and a fuel cell.

Challenges in green hydrogen adoption

- **Economically viability:** The NITI Aayog report states that the current cost of producing green hydrogen via electrolysis, ranging from **\$4.10 to \$7 per kg**, is still too high to compete with grey or brown hydrogen.
- **Difficulty in Hydrogen Storage:** As hydrogen as a gas typically requires **high-pressure tanks (350-700 bar)** tank pressure and as a liquid requires cryogenic temperatures because the boiling point of hydrogen at one atmosphere pressure is **~252.8°C**.
- **Lack of Skill:** In the domain of hydrogen production, the workforce demand is expected to reach **~2.83 lakhs**, encompassing **roles in design and planning, installation, commissioning**, and green hydrogen production units.
- **Resource scarcity:** Green hydrogen is produced by **electrolyzing water**, which can require up to **9 Liters of water per kilogram** of hydrogen (As per International Energy Agency).

- **Lack of global standards on carbon intensity & safety:** Regulations for green hydrogen definitions, transportation, storage, safety, and usage vary widely across countries.

Way forward

- **Reduce cost:** India aims to reduce green hydrogen **production costs to \$1 per kg by 2030** through low-cost renewable energy, local electrolyser manufacturing, and technological advancements.
- **Incentives:** For new applications, where the viability of using green hydrogen is still at early stage, necessary incentives should be designed.
 - **For example,** Production-Linked Incentive (PLI) scheme for green steel targeting export markets.
- **Research and Development:** India should invest **\$1 billion in R&D by 2030** to advance commercial green hydrogen technologies and promote alternative methods like bio-hydrogen
- **Initiate green hydrogen standards and a labelling programme:** A digital (AI/ML equipped) **labelling** and tracing mechanism certification of origin should be initiated.
 - Public entities such as BIS (Bureau of Indian Standards) and PESO (The Petroleum and Explosives Safety Organization) are expected to take a leading role in this process.
- **Construct an inter-ministerial governance structure:** An interdisciplinary **Project Management Unit (PMU)** with globally trained experts must be created which can dedicate fulltime resources to effectively implement the mission.

Facial Recognition Technology

Context:

NITI Aayog released 'White Paper: Responsible AI for All (RAI) on Facial Recognition Technology (FRT)'

More about the news

- The paper examines FRT as the first use case under **NITI Aayog's RAI principles** and aims to establish a framework for responsible and safe development and deployment of FRT within India.

About Facial Recognition Technology (FRT)

- It is an Artificial intelligence (AI) system which allows **identification or verification of a person based on certain images or video data** using complex algorithms.
- FRT can be used for **two purposes**:
 - **1: 1 verification of identity:** Facial map is obtained for the purpose of matching it against the person's photograph on a database. **E.g. 1:1 is used to unlock phones.**
 - **1: n identification of identity:** Verification **against the entire database** to identify the person in the photograph or video. **E.g. 1: n is used for mass monitoring and surveillance.**

Applications and use-cases of FRT

- **Security related Uses**
 - **Law and order enforcement:**

- **Identification of Persons of Interest**, including suspected criminals. E.g., **Uttar Pradesh's 'Trinetra'** for real-time identification of criminals
- **Identification of Missing Persons**. E.g., **Telangana's 'Darpan'** for matching photos and identifying missing children.
- **Monitoring and surveillance**. E.g., **China's Skynet Project**.
- **Immigration and border management**. E.g., **Canada's 'Faces on the Move'** enables Border Protection by prevention of people entering the country using fake identification.
- **Crowd Control**. E.g., Pan Tilt and Zoom Surveillance Cameras used in Prayagraj, Uttar Pradesh Law for maintenance of large crowds during Kumbh Mela, 2021.
- **Non-Security related Uses**
 - **Verification and authentication of individual identity** for access to products, services, and public benefits using biometrics. E.g., **Using Aadhar Card for Authentication based on Facial Recognition**.
 - **Ease of access to services**. E.g., contactless onboarding at airports through **Digi Yatra**.
 - **Ease in usability** such as **unique IDs in educational institutions**, etc. E.g., **Central Board for Secondary Education's 'Face Matching Technology Educational'** for authentication to access academic documents.

What are the risks associated with FRT systems?

- **Inaccuracies: FRT systems may lead to misidentification due to inaccuracies resulting from-**
 - **Automation bias and underrepresentation in databases:** It may lead to disparities in AI systems based on skin tone, race, gender etc.
 - Lack of accountability
 - **Technical factors:** This includes **intrinsic factors** like **facial expression, aging, plastic surgery** etc. and **extrinsic factors** like **illumination, pose variation, occlusion, or quality of image**.
 - **Glitches or perturbations:** FRT systems can be **sabotaged by minor tweaks** that are insignificant to humans but **can render the technology ineffective**.
 - **Lack of training of human operators:** FRT systems require a human operator to either verify or act on outputs provided by FRT systems.
- **Concerns regarding Accountability, legal liability and grievance redressal:** Due to complexity in computational algorithms and protections surrounding Trade secret and intellectual property of FRT systems.
- **Rights-based issues:** Supreme Court in Justice K Puttaswamy v. Union of India (2017) has recognised the **right to informational autonomy** as a facet of the **right to privacy** within **Article 21** of the Constitution. FRT systems may violate these rights due to-
 - **Purpose creep:** Use of personal data like Biometric facial images in manners contrary to or in addition to its stated purpose is against the concept of informational autonomy.

- **Data leaks:** Weak institutional data security practices may lead to **data breaches and unauthorised access of personal data.**
- **Lack of meaningful consent:** Making facial recognition mandatory for access to public services, public benefits or rights without adequate alternative means to those services and rights undermines meaningful consent.
- **Private Security Use:** Incentivization of private security firms to flag suspicious individuals using FRT can lead to **excessive and potentially unjustified surveillance activities.**

Way Forward: Recommendations of NITI Aayog for responsible use of FRT

- **Principle of Privacy and Security:** Establish **data protection regime** fulfilling a **three-pronged test of legality, reasonability and proportionality** set by the Supreme Court in the **Puttaswamy judgement**.
 - **E.g., Digital Personal Data Protection (DPDP) Act 2023** aims to regulate the processing of digital personal data while ensuring individuals' right to protect their data and the need to process it for lawful purposes
- **Holistic governance framework:** Set out **extent of liability** arising from any harms/damages caused by the use of an FRT system.
- **Adopting Privacy by design (PBD) principles:** Such as collection of user's explicit consent.
- **Principles of accountability:** Address issues pertaining to transparency, algorithmic accountability and AI biases to **secure public trust**.
 - Also, establish an accessible **grievance redressal system** for any FRT related issues.
- **Ensuring Safety and Reliability:** Publishing standards of FRT related to explainability, bias and errors.
- **Principle of protection and reinforcement of positive human values:** Constitute **ethical committee** to assess ethical implications and oversee mitigation measures.

India's Ballistic Missile Defence Program

Context:

Recently, DRDO successfully conducted flight-tests of the Phase-2 Ballistic Missile Defence (BMD) System.

More on the News

- **Phase-II Air Defence (AD) Endo-atmospheric missile** was launched from Integrated Test Range, Chandipur, post **detection of target missile by weapon system radars deployed on land and sea.**
- Phase-II Air Defense Endo-atmospheric missile is an **indigenously developed 2-stage solid propelled ground launched missile system.**
 - It is meant for neutralizing enemy ballistic missile threats in the **altitude bracket of endo to low exo-atmospheric regions.**
- Test has demonstrated India's **indigenous capability to defend against the Ballistic Missiles of 5000 km class.**

About Ballistic Missile Defence (BMD) Systems

- BMD systems seek to **defend against an aerial attack** like drones, fighter jets, and ballistic and cruise missiles by launching interceptors that would hit incoming missiles and destroy them on impact.
- Other Important Missile Defence systems of the world **include THAAD (USA), Iron Dome (Israel), Patriot (USA), etc.**

Evolution of India's BMD Program

- India's BMD program was **sanctioned in 2000** in the backdrop growing threats from China and Pakistan and nuclearization of the sub-continent.
- Work for its development commenced in 2 phases:
 - **Phase-I:** Designed to intercept missiles with a range of up to 2000 km.
 - It includes 3 things - **Prithvi Air Defence (PAD), Ashwin Advanced Air Defence (AAD), and Swordfish RADAR** (long-range tracking radar developed for the BMD system).
 - Phase 1 has been **successfully tested and has been deployed.**
 - **Phase-II:** It is capable to intercept missiles with range up to 5000 km.
 - It consists of two missiles, **AD-1 and AD-2.**
 - **AD-1** is a **long-range** interceptor missile designed for **both low exo-atmospheric and endo-atmospheric interception** of long-range ballistic missiles as well as aircraft.
 - **AD-2 missile is meant to intercept intermediate-range ballistic missile targets** with a range between **3000-5500 km.**

Significance of BMD Program

- **Strategic:** Domestic BMD capability aligns with India's goal of **strategic autonomy in defense matters** and the vision of becoming **net-security provider in the Indo-Pacific.**
 - **e.g., Delay in delivery of the S-400 air-defence missile system** due to ongoing Russia-Ukraine conflict essentially points to the problem of relying on foreign countries for security needs.
 - It can also have implications for **regional and global balance of powers** by influencing adversaries' perceptions of India's defence capabilities and potentially impact their strategic calculations.
- **Security:** Changing **security environment in the Indo-Pacific** and **simultaneous threats from two nuclear states** necessitates development of BMD system.
 - An effective BMD system would also help India **negate nuclear coercion while still maintaining a no-first-use policy regarding nuclear weapons.**
 - It is also important in the context of contingencies, like **irrational actions by States** and the **growing threats from non-state and transnational actors** in South Asia.
- **Technological:** An effective BMD system may also lead to advancements in other critical domains such as Radars and tracking systems, dual-use technologies like telecommunication and aerospace, etc.

- **Diplomatic:** It can influence India's relationship with major powers like the US, Russia, etc., and its role in global non-proliferation efforts.

Challenges/ Concerns with BMD Systems

- **Arms race:** BMD can change the nuclear order and alter strategic stability encouraging adversaries to develop technology to thwart BMD systems and restore mutual vulnerability.
- **Cost and resources:** Securing adequate funding and allocating resources for research, development, testing, and deployment has always been a significant challenge in India due to **lack of economies of scale**.
- **Inter-operability and evolution:** Integrating the BMD capabilities with the existing military infrastructure requires careful planning to ensure smooth coordination and functioning during real-world scenarios.
 - Defense capabilities also need to **evolve as per the evolving advanced and unpredictable missiles capabilities from potential adversaries**.

Conclusion

India's efforts to develop and deploy its BMD capabilities along with projects such as 'Project Kushi' which envisages to detect and neutralize aerial threats such as stealth fighters, aircraft, ballistic and cruise missiles, precision guided munitions, UAVs, etc., can significantly enhance India's deterrence posture and its ability to protect against potential threats, marking a new chapter in country's defense modernization efforts.

Other Short News

Global India AI Summit 2024

Global India AI Summit 2024 summit hosted by India (lead chair of GPAI in 2024) was recently concluded.

Key Highlights and Outcomes of the Summit

- India emphasized on **democratizing AI** and making it accessible to all.
- A new **integrated partnership on AI** announced by OECD and GPAI (**Global Partnership on Artificial Intelligence**)
- GPAI members came to a consensus about the **future vision of GPAI**, giving recognition to the **New Delhi 2023 GPAI Ministerial Declaration**.

Quantum Governance

Recently, the **University of Oxford** has cautioned against inflated expectations of quantum technologies.

- In spite of **quantum technologies potential** (e.g., quantum computing, quantum sensors, etc.,) it **carries risks** of misuse **due to potential dual-use applications**, especially in digital security.
- In this regard, many have called for **Quantum Governance** to create **awareness of its concepts** and **explore its benefits for humankind**.

About Quantum Governance

- **World Economic Forum (WEF)** was one of the first organisations to discuss quantum computing governance.
- 'Quantum Governance' framework for this is based on the **principles of transparency, inclusiveness, accessibility, non-maleficence, equitability, accountability, and the common good.**

Significance

- **Accelerate the development of responsible quantum computing** by building trust in the technology.
- **Early ethical consideration** by addressing quantum computing ethics during design and development phases.
- **Learning from other technologies** by applying ethical principles from AI, nanotech, nuclear, etc.

Challenges

- Researchers **favor open quantum frameworks**, while national policies prioritize **strong intellectual property** protections for quantum technologies.
- Private sector's **profit-driven approach** may **hinder responsible, open quantum development.**
- There is **limited evidence on the impact of responsible innovation policies** in quantum governance.

About Quantum Technologies

- Quantum Technology is based on the **principles of Quantum mechanics** developed in the early 20th century to describe nature at the scale of atoms and elementary particles.
- **Application:** secure communication, disaster management through better prediction, computing, simulation, chemistry, healthcare, cryptography, etc.

Initiatives taken by India

- National Mission on Quantum Technologies and Applications, 2023.
- 21 Quantum hubs in the country and 4 Quantum research parks across India.

Snowblind Malware

A new malware called 'Snowblind' is targeting Android phones.

About Snowblind Malware

- It is a malware that targets Android devices to **steal banking** and other sensitive **information.**
 - **Malware**, or malicious software, is any program or file that's intentionally harmful to a computer, network or server.
- People usually get this virus by downloading a **malicious app** that looks legitimate.
- It repackages an app to avoid **detection** and misuses **accessibility features** to steal sensitive information and control the app remotely.

Naturally Existing DNA Editing Tool

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Scientists discovered naturally existing DNA editing tool - Bridge Recombinase Mechanism (BRM).

- **BRM utilizes mobile genetic elements or “jumping genes”,** which cut and paste themselves into genomes, performing **on-the-go DNA manipulation** and are **present in all forms of life**.
- **Jumping Genes** are small DNA segments with a **recombinase enzyme** along with **extra DNA segments at the ends of the genes** that binds and manipulates DNA.
- **Gene editing** is alteration of genetic material of a living organism by inserting, replacing, or deleting a DNA sequence, with the aim of improving some characteristic of a plant/ animal or correcting a genetic disorder.

About BRM

- **Extra DNA** at the ends of jumping genes **gets joined together** and converts the DNA double helix structure into a **single-stranded RNA molecule**.
- This bridge RNA molecule can **bind to two DNA segments (donor and target)**, allowing for **flexible DNA modifications**.
- **Donor and target loop can be programmed independently**, offering great flexibility in inserting or recombining sequences to DNA.

Significance of BRM

- It will allow researchers to **rearrange, recombine, invert, duplicate, move, and perform other editing operations** on **very long DNA sequences**.
- It can lead to development of more **advanced gene editing therapeutics and treatments for diseases**.

Mitochondrial Disease (Mito)

New IVF procedure called **mitochondrial donation** (currently under trial in Australia) offers a cure to Mito.

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

About Mito

- **Inherited metabolic condition** caused by **genetic mutation** in the DNA.
- It impairs the **ability of mitochondria** to convert food and oxygen into energy.
- **Two Kinds** (as there are two types of DNA):
 - **Nuclear DNA**, inherited from both parents.
 - **DNA of the mitochondria**, passed down through the mother.

Monoclonal Antibodies

Nipah monoclonal antibody trials may begin in India in 2025.

About Monoclonal Antibodies

- Monoclonal antibodies (moAbs or mAbs) are **lab-made proteins mimicking natural antibodies**.

- Antibodies are **parts of body's immune system** which **seeks out antigens** (foreign materials) and destroy them.
- **Applications:**
 - **Diagnostics** (e.g., ELISA),
 - **Treating diseases** (cancer, infections, autoimmune disorders, etc.)
 - **Analyzing cell types** in blood/tissue (with the use of fluorescent tags).

Electroencephalography (EEG)

2024 marks the 100th year of electroencephalography (EEG)

About EEG

- It is a **medical test which measures brain electrical activity** generated by neurons.
- It uses **small, metal discs called electrodes** that attach to the scalp.
- Brain cells communicate via electrical impulses, and this activity shows up as wavy lines on an EEG recording.
- **Uses:** Detecting epilepsy, neurological disorders, or any other brain related tumors, damage, etc.

Aditya-L1 Completes its First Halo Orbit

Aditya-L1 was inserted in its **halo orbit** in early 2024 and takes 178 days to complete a revolution around the **Lagrange L1** point.

- At **Lagrange point**, the **gravitational pull** of the **two large bodies** equals the necessary **centripetal force** required for a small object to move with them.
- For two body gravitational systems, there are a total five **Lagrange points** denoted as L1, L2, L3, L4 and L5. Out of these L4 and L5 are stable.

What are halo orbits?

- These are **periodic** and **three-dimensional orbits** resulting from an interaction between the **gravitational pull** of the two planetary bodies and **centrifugal force** on a spacecraft.
 - Halo orbits exist in any **3-body system**. E.g., **Earth-Moon orbiting satellite system**.
 - Mainly linked to L1, L2 or L3.

Benefits of placing Aditya-L1 in Halo Orbit

- Ensuring a mission lifetime of 5 years
- **Reducing fuel consumption** (minimising station-keeping manoeuvres)
- Ensuring an **unobstructed view of the sun**

About Aditya-L1 Mission (2023)

- **First Indian space mission** to study the Sun.
- **Objectives:** Study the **Sun's corona, solar emissions**, solar winds and flares, and **Coronal Mass Ejections (CMEs)**, and will carry out round-the-clock imaging of the Sun.



- **Payload:** Carries 7 payloads (Visible Emission Line Coronagraph (VELC), Solar Ultraviolet Imaging Telescope (SUIT) etc.)

Planetary Defense

ISRO is keen to be a part Global Planetary Defense Efforts.

- At an international workshop on Asteroid Day 2024, ISRO Chairperson said that ISRO is looking to study **asteroid Apophis** when it is **32,000 km away from Earth in 2029** to prepare for planetary defense efforts.

About Asteroid Apophis

- **Discovered in 2004**, it is a **near-Earth object (NEO)** and was identified as one of the most hazardous asteroids that could impact Earth.
 - There are billions of comets and asteroids in our solar system. The vast majority never approach Earth. When a **comet or asteroid's orbit brings it close to Earth, it is classified NEO.**
- However, a radar observation campaign in March 2021, combined with precise orbit analysis, allowed astronomers to conclude that there is **no risk of Apophis impacting our planet for at least a century.**

Planetary Defense

- It refers to **efforts and strategies aimed at protecting Earth from potential impacts by NEOs** such as asteroids and comets.
 - It involves **multiple strategies** including detection, tracking, impact assessment, deflection, etc.
- **Need of Planetary Defense:** If NEOs path intersects with that of Earth's orbit, then depending on their size, speed, angle and impact region, could threaten billions of lives on impact and in the ensuing tsunamis, earthquakes and fires.

Mars Odyssey Orbiter

Recently, **NASA's Mars Odyssey** Orbiter captured the view of largest volcano in our solar system, Olympus Mons, located on Mars.

About Mars Odyssey

- Launched in **2001**, it is the longest continually active orbital mission.
- It was the first spacecraft to make a **global map of chemical elements and minerals that make up Martian surface.**
- **Objective of Mars Odyssey**
 - **Determine abundance of hydrogen** in shallow subsurface.
 - **Acquire high spatial and spectral resolution images** of surface mineralogy.
 - Characterize Martian near-space radiation environment as related to radiation-induced risk to human explorers.

Lunar Cave

Researchers have found evidence of an underground cave on the moon that is accessible from the surface.

- The cave was recorded at the **Sea of Tranquillity**, a large, dark, basaltic plains on lunar surface.

About Lunar cave

- Lunar caves are believed to be the **underground passageways formed through volcanic processes** that are connected to the pits covering the moon's surface.
- **Significance of the discovery:**
 - New insight into the evolution of the moon and lunar volcanism.
 - Caves could provide shelter for future astronauts from radiation, micrometeorites, and temperature extremes.

Small Modular Reactors (SMRs)

Budget 2024-25 announced that **Centre will partner with private sector** to develop **Bharat Small Reactors (BSRs)**.

- This announcement marks a historic shift in India's nuclear policy, as the **Atomic Energy Act of 1962** did not permit private sector participation in nuclear energy generation.
- BSRs are aligned with global trends where **Small Modular Reactors (SMRs)** are gaining attention.
 - Unlike **SMRs**, which are an entirely new concept involving **factory-made, easily assembled reactors**, **BSRs** are based on India's existing **Pressurized Heavy Water Reactor technology**.
 - They can enhance the contribution of **Nuclear energy in India's energy basket** (current share of **nuclear energy is 1.6%**).

About Small Modular Reactors

- They are **advanced nuclear reactors** that have a power capacity of up to **300 MW(e) per unit**.
- There are more than **80 SMR designs and concepts globally**. Most of them are in **various developmental stages**.

Significance of the SMRs

- **Reduced fuel requirements**, require less frequent refueling, every 3 - 7 years, compared to 1 - 2 years for conventional plants (IAEA).
- **Saves construction time** as prefabricated units of SMRs can be manufactured, shipped and installed on site.
- **Eliminate or significantly lower the potential for unsafe releases** of radioactivity to the environment.

Tokamak Fusion Reactor

China has made world's first high-temperature superconducting Tokamak device - 'HH70'.

- Previously, the EU and Japan inaugurated JT-60SA, the world's largest and most advanced Tokamak fusion reactor in Japan and pledged support to advance fusion research for International Thermonuclear Experimental Reactor (ITER).
 - Tokamak is a machine for controlled thermonuclear fusion with a toroidal shape, similar to a doughnut.

About Nuclear Fusion

- A process by which two light atomic nuclei combine to form a single heavier one while releasing massive amounts of energy.
 - In nuclear fission, on the other hand, large atomic nuclei are split into smaller atomic nuclei to release energy.
- Most fusion reactors use a mixture of deuterium and tritium — hydrogen atom isotopes that contain extra neutrons.

About ITER

- ITER is a global scientific partnership between China, Europe, Japan, India, the Republic of Korea, Russia and the US.
 - It's currently under construction in France.
- Objective:** To prove the viability of fusion as an energy source.
- It will be the largest Tokamak device to test magnetic confinement to produce fusion energy.
- ITER has been designed for high fusion power gain with about 10-fold return (expressed as $Q \geq 10$), i.e., ratio of heating input power to thermal output power.
 - Current record for fusion power gain in a Tokamak is $Q = 0.67$ by European JET facility in the UK.

Li-Fi Technology

MoD funded a start-up under the Innovations for Defence Excellence (iDEX) will secure Li-Fi technology for the Indian Defence sector, particularly focusing on the Navy.

- iDEX fosters innovation and technology development in Defence and Aerospace sector.
- Managed by Defence Innovation Organization under MoD.

About Li-Fi (Light Fidelity) Technology

- A bidirectional wireless system that uses visible light (400-800 Terahertz) for communication, unlike Wi-Fi which uses radio waves.
 - Transmits data with the help of Light Emitting Diode (LED).
- Working:**
 - On/off activity of the LED transmitter enables data transmission in accordance with the incoming binary codes (switching ON is a logical '1', switching it OFF is a logical '0').
- Applications:** Aircrafts, hospitals (operation theatres), power plants etc. where electromagnetic (Radio) interference creates security issues.

Advantage of Li-Fi over Wi-Fi

- **Faster:** Combination of low interference, high bandwidths provide high data rate.
- **Cheaper and sustainable:** It is up to 10 times cheaper than Wi-Fi, requires fewer components and uses less energy.
- **Secure:** Since light does not pass through walls like radio waves do, it prevents interception.

Disadvantages

- **Much shorter range** than Wi-Fi.
- **Can't be accessed** beyond the **illumination range** of light, etc.

Steel Slag

Guidelines for Utilization and Processing of Steel Slag in Road Construction, released by Central Road Research Institute (CRRI).

About Steel slag

- It is a **solid waste generated** in the **process of steel making**.
- It is composed of **oxides of calcium, iron, silicon, magnesium**, etc.
- **Key Applications:** Road base course material (**Steel Slag Road Technology (SSRT)**), Blending material for Portland cement, Fertilizer and soil improvement etc.
- **Benefits of SSRT**
 - **Technical:** Improved durability of road; Improved skid resistance; Economical than bituminous etc.
 - **Environmental:** Utilization of 19 million tons of steel slag waste, generated annually; Reduction of carbon footprint in road construction.

Dark Oxygen

Scientists discovered 'dark' oxygen **13,100-feet** deep in the Pacific Ocean.

About Dark oxygen

- It is believed that Dark Oxygen is the oxygen that is produced without the process of photosynthesis.
- According to the study, it is generated by **metallic nodules present on the seafloor**.
- These natural metal formations appear to **catalyze the splitting of seawater (H₂O)** into hydrogen and oxygen.
- Previously, it was believed that **most of the oxygen came from marine plants** performing photosynthesis, a process which is dependent on sunlight.
- Discovery challenges **existing paradigms about oxygen production** in Earth's most inaccessible marine environments.

Denisovan

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Scientists have identified bone remains found in a Tibetan **Baishiya Karst Cave** as belonging to a **Denisovan individual**.

About Denisovans

- An **extinct species of hominid** and a **close relative to modern humans**.
- May have **ranged from Siberia to Southeast Asia** during the **last Ice Age**.
- DNA evidence suggests Denisovans are **related to both Neanderthals and modern humans**, and **may have interbred with both**.
- Share a **common ancestor - Homo heidelbergensis** (most likely lived in Africa) - with both **modern humans and Neanderthals**.

Last Universal Common Ancestor (LUCA)

Scientists suggest LUCA could have formed just **300 million years after Earth's formation**.

- This is estimated to be around **4.2 billion years ago**.

About LUCA

- Researchers believe all the three branches of life i.e. **bacteria, archaea, and eukarya** have originated from a single microbe, called LUCA.
 - However, there is **no fossil evidence to support the existence of LUCA**.
- **Suggested Characteristics:**
 - **Anaerobic:** Grew in an environment devoid of oxygen.
 - **Thermophile:** Heat loving microbe.
 - **Metabolism:** Depended upon hydrogen, carbon dioxide and nitrogen, turning them into compounds such as **ammonia**.

International Mathematical Olympiad

A **six-member student team from India** have secured **4 Gold medals, 1 silver medal, and 1 honourable mention** in the **International Mathematical Olympiad (IMO) 2024**.

- This is the best performance by an Indian in IMO since the country's **debut in 1989**.

About IMO

- It is the **World Championship Mathematics Competition** for **High School students** and is held **annually** in a different country.
- **First IMO** was held in **1959** in **Romania**.
- **Gold, Silver and Bronze medals** are awarded, as well as **Honorable Mentions** for good effort.

Assam's Charaideo Moidam

Context:

Assam's Charaideo Moidam was officially inscribed on the United Nations Educational, Scientific and Cultural Organization (UNESCO) **World Heritage List**.

More on the News

- The decision was taken during the **46th World Heritage Committee (WHC)** session in Delhi.
- Moidams (or Maidams) in Assam's Charaideo district were **recommended** for inclusion in the UNESCO World Heritage List **under the cultural property category** by International Council on Monuments and Sites (ICOMOS).
 - It is the **first time a site from the North East** has made it to the UNESCO World Heritage List under the **Cultural Category**.
- World Heritage Site status **boosts awareness, enhances preservation efforts, and may attract financial and expert support** for site conservation.
 - **India's total UNESCO World Heritage sites now stand at 43** with 3 being in Assam (including Kaziranga National Park and Manas National Park).

Other Indian Initiatives at the 46th Session

For the first time India hosted the meeting of WHC. It announced following initiatives also:

- **\$1 million grant to the UNESCO World Heritage Centre** for supporting conservation efforts, particularly in Global South countries.
- The signing of the **Cultural Property Agreement (CPA)** between **India and the USA** to prevent illegal trafficking of cultural property and retrieval of antiquarian objects to their place of origin.
 - CPA is aligned with the **1970 UNESCO Convention** on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, to **which both countries are state parties**.
- Agreement between the **Archaeological Survey of India (ASI)** with **International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM)** for capacity building and research on tangible heritage.

About Charaideo's Moidams

- **Locations:** In the foothills of the **Patkai Ranges**, eastern Assam.
- **Royal Necropolis:** Charaideo is home to the **royal necropolis** of the **Tai-Ahom dynasty** (13th-19th century CE) and are comparable the Egyptian Pyramids.
 - Moidam means 'Home for Spirit' and it **symbolizes heaven- earth continuum**.
- **Architectural Features:** Banyan trees and the trees used for coffins and bark manuscripts were planted and **water bodies were created near Moidams**. Each Moidam consists of:
 - An **earthen mound** (Ga-Moidam) topped by a **central shrine** (Chou Cha Li)
 - An **octagonal wall** (Garh) symbolizing the Tai universe

- A **brick-and-stone vault** (Tak) with a grave pit (Garvha)
- **Protection Officers:** During Ahom's reign, Moidams were protected by special officers called **Moidam Phukans** and a guard group known as **Moidamiya**.
- **Insights in Afterlife Belief:** Moidams have **grave goods** such as food, horses, elephants, and sometimes even servants (**items they would require in their afterlife**).
- **Burial Practices:** The site reveals **two distinct burial practices**. During **pre-17th century CE** bodies were embalmed and entombed and later cremated ashes were buried.
 - This evolution in burial practices provides **critical evidence of the Tai-Ahoms' localization process over time**.
- **Cultural continuity:** Annual rituals such as **Me-Dam-Me-Phi** (ancestor worship) and **Tarpan** (libation ceremony) are **still performed**, maintaining a 600-year-old tradition.
- **Discovery:** The earliest sketch of the ground plan of a Moidam was published in the journal of the **Asiatic Society of Bengal**, in 1848 by **Sergeant C. Clayton**

Features that Make Charaideo's Moidams Exceptional

- **Well preserved:** While Moidams are **found in other areas within the Brahmaputra Valley**, those found at the **Charaideo** are **regarded as exceptional and are well preserved**.
- **Advanced Engineering:** Moidams' **stable structure**, engineering of **the vault**, and use of **water to buffer seismic impact highlight** Ahom's engineering skills.
- **Cultural Transition:** With the influence of Hinduism, the Ahoms also started to cremate their dead. Yet, this burial system is still practised by the **priestly sections of the Ahoms** and the Royal bodyguards clan.

Other Burial Practices in India

Period/Practice	Features
Harappan Civilization	<ul style="list-style-type: none"> • Presence of graves where dead bodies were generally placed in a north-south orientation on their back. • A coffin burial has been found at Harappa. • From Lothal some examples of pairs of skeletons of a male and a female in each case buried together have been found. • Careful placement of bodies with ornaments and other objects is indicative of their belief in life after death.
Megalith	<ul style="list-style-type: none"> • It involves a certain burial style having stone erect structures for dead. • Their origin can be traced back to Neolithic-Chalcolithic period (such as urn burial from Chalcolithic site of Inamgaon, Maharashtra). • However, most of south Indian megalithic sites show general association with iron. Hence, the period of megaliths is also refereed as Iron Age.

	<ul style="list-style-type: none"> The belief on 'Death and Afterlife' is perceived through grave goods and pottery and other offerings. <ul style="list-style-type: none"> Hire Benkal, Megalith Site in Gangavati Taluka, Koppal District, Karnataka is under consideration under the tentative list of UNESCO.
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Pilgrim Corridor Projects

Why in the News?

Union Budget 2024-25 announced that **corridor projects will be built** for the **Vishnupad Temple at Gaya** and the **Mahabodhi Temple at Bodh Gaya in Bihar**.

More on the News

- The **Vishnupad and Mahabodhi Temples** are located about 10 km apart (refer to the box at the end).
- The newly announced corridor project is inspired by the **Kashi Vishwanath Temple Corridor in Varanasi (Uttar Pradesh)**.
 - The foundation stone for the corridor, now also known as **Shri Kashi Vishwanath Dham**, was laid down in 2019.
 - It was conceptualised as a project to create an easily **accessible pathway to connect Shri Kashi Vishwanath Temple to the banks of the river Ganga**.

About Pilgrim Corridor Projects

These Corridor Projects are **large-scale infrastructure developments** designed to **renovate and restore religious sites** while also **connecting nearby religious places**. In recent years, India has announced several pilgrim corridors projects (refer to the map) aimed at transforming these pilgrim places into **world-class pilgrimage and tourist destinations**.

Some of the key features of these projects are:

- Preservation and Restoration:** For example, the **Kashi Vishwanath Corridor** expanded the area around the temple and **restored smaller temples** including Sheetla Mata Temple, Shri Ram Temple, and Shri Gangeshwar Mahadev Temple among others.
- Amalgamation of Development and Heritage:** For example, Mahakal Lok Corridor, which is flanked by two majestic gateways named **Nandi Dwar and Pinaki Dwar**, features murals depicting stories from the "**Shiv Puran**".
- Enhanced Visitor Experience:** Decongestion of religious places, virtual museum of the ancient temples, restrooms, shops, information centers, crowd management facilities, enhanced accessibility of religious places (escalators and ramps), etc. being under taken in various pilgrim corridor projects.
- Boost to Tourism and the Economy:** India earned over 2.3 lakh crore in foreign exchange from tourism, a 65.7% increase year-on-year (Economic Survey 2023-24).

- Pilgrim corridor projects will give significant boost to religious tourism and lead to generate additional employment and ancillary activities.

Challenges Associated with Pilgrim Corridor Development Projects

- **Rehabilitation Issues:** For example, more than 17 acres of land, encompassing five villages, had to be acquired for the implementation of the Jagannath Heritage Corridor project.
- **Demolition of Neighbouring Old Structures:** For example, concerns related to the demolition of smaller but ancient temples were raised during the Kashi Vishwanath Corridor project.
- **Sustainability Concerns:** Large-scale construction can have negative effects on the local environment, including pollution, deforestation, and disruption of natural water bodies.
 - Also, large-scale tourism may see a rise in the carbon footprints of these places.

Way Ahead

- **Heritage Impact Assessments:** These would help address adverse impacts on neighbouring ancient structures, rituals related to them and communities associated with them.
- **Community Participation:** Involving the local community in planning ensures their interests are considered, reducing potential conflicts and easing land acquisition.
- **Sustainable Tourism:** These corridor projects should align with “Travel for LiFE”, a program under Mission LiFE.
 - Travel for LiFE has been envisaged to create awareness about sustainable tourism and to nudge the tourists and tourism businesses to adopt sustainable practices synchronous with nature.

About Vishnupad Temple

- **Location:** Gaya, Bihar, on the banks of the Falgu River.
- **Dedicated to:** The temple is dedicated to Lord Vishnu and is marked by his footprint, also known as Dharmasila, on a Basalt Rock.
 - **The footprint is marked by four symbols:** Conch-Shell (Shankha) Wheel (Chakra) Mace (Gada) Lotus (Padma)
 - According to Hindu mythology, this footprint marks where **Lord Vishnu subdued the demon Gayasur** by placing his foot on the demon's head.
 - This sacred site is **mentioned in the Mahabharat and the Ramayana** (lord Rama performed pind-daan for his father).
- **Restoration:** The current structure was restored by Devi Ahilya Bai Holkar, ruler of Indore, in 1787.

Mahabodhi Temple Complex

- **Location:** Bodh Gaya, Bihar
- **Global recognition:** UNESCO World Heritage Site
- **Historical Background:**
 - The first temple at this site was built by **Emperor Asoka in the 3rd century B.C.**
 - The current temple structure, dating back to the **5th or 6th century from the late Gupta period**, is one of the oldest brick-built Buddhist temples.
- **Main Temple:**

- The temple is built in the classical Indian temple architecture style with a **curvilinear shikhara (tower) topped by amalaka and kalasha**.
 - However, the design of the temple is **neither Dravida nor Nagara**.
 - It is narrow like a Nagara temple, but it rises without curving like a Dravida one.
- It has **entrances from the east and the north**.
- It also has a **low basement with mouldings decorated with honeysuckle and geese design** and above this is a series of niches containing images of the Buddha.
- **Vajrasana (Diamond Throne):**
 - A polished sandstone platform marking the spot where Buddha sat and meditated.
 - It was originally installed by Emperor Asoka to mark the spot where Buddha sat and meditated.
- **Seven Sacred Sites**
 - **Sacred Bodhi Tree:** Located to the west of the temple, it is believed to be a direct descendant of the tree under which Buddha attained Enlightenment.
 - **Other Sacred Places:** Animeshlochan Chaitya (prayer hall), Ratnachakrama (the Jewelled Ambulatory), Ratnagar Chaitya, Ajapala Nigrodh Tree (under which Buddha meditated during his Fifth Week, answering the queries of Brahmins), Lotus Pond, and Rajyatana Tree.

Other Short News

Shree Jagannath Temple

Ratna Bhandar, the sacred treasury of Shree Jagannath Temple, Puri **reopened after 46 years**.

- Odisha government established high level committee led by retired Justice Biswanath Rath to supervise inventorisation of valuables including jewellery stored in Ratna Bhandar.
- Additionally, **Magji Ladoo (Odisha's Dhenkanal district)**, one of the 'chappan bhog' prasad at Shree Jagannath Temple got **Geographical Indication (GI) Tag**.

About Ratna Bhandar

- Located on northern side of **Jagamohana (assembly hall of temple)**.
- Comprises of **Bahar Bhandar** (outer chamber) and **Bhitar Bhandar** (inner chamber).
- These chambers contain **jewels of three sibling deities — Lord Balabhadra, Lord Jagannath, and Devi Subhadra**.

Shree Jagannath Temple, Puri, Odisha (White Pagoda)

- Dedicated to **Lord Jagannath (incarnation of Lord Vishnu)**, Sister **Devi Subhadra** and elder brother **Lord Balabhadra** (holy trinity).
- Built during rule of **Anantavarman Chodaganga Deva**, the founder of **Ganga dynasty** in first part of **12th century A.D.**

Architectural style of Shree Jagannath Temple

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- **Architecture style:** Kalinga Architecture
- Four component parts consisting of
 - **Vimana or Deula (Garbhagriha):** Built in style of **nagara type Rekha deula** characterized by curvilinear tower known as **sikhara**.
 - **Jagamohana:** It is in form of **Pidha deula**, in which sikhara has tiers of diminishing pidhas or platforms.
 - **Natamandapa:** Audience/Dancing Hall
 - **Bhogamandapa:** Hall for residuary offerings.
- On both sides of outer wall of main temple, figures of **Vishnu**, **four on either side are carved which altogether depict 24 forms of Vishnus**, like Keshava, Madhava, Damodara and Narayana etc.

World's Oldest Cave Painting

Scientists have discovered the **world's oldest-known cave painting** inside **Leang Karampuang cave** in **Sulawesi, Indonesia**, dating back at least **51,200 years**.

- Previously, the **oldest known painting** was in Sulawesi's **Leang Tedongnge cave**, dating to at least **45,500 years ago**.
- However, some believe that the painting in **Spain's Maltravieso cave** attributed to Neanderthals is the oldest and dates back to around 64,000 years ago.

About Karampuang cave painting

- Its age was determined using **uranium-based dating technology**.
- Features a **standing pig** and **three smaller human-like figures in dark red pigment**.

Apatani Tribe

Researchers from the Zoological Survey of India (ZSI) have recorded a new species of forest-dwelling horned frog from the **Talle Wildlife Sanctuary** (Arunachal Pradesh).

- New species has been named after the dominant Apatani community in Arunachal Pradesh.

About Apatani Tribe

- The tribe Found in **Ziro valley** and known for their effective traditional village council called bulyañ.
- Region of tribe has been included in **UNESCO's Tentative List** as living Cultural Landscape (where man and environment have harmoniously existed together in a state of interdependence).
- **Major Festival:** Dree and Myok
- **Key Dance:** Daminda, and Pree dance

Mascho Piro (Mysterious Tribe)

Recently, uncontacted indigenous Mashco Piro tribe was located in remote Peruvian Amazon, in Peru.

About Mascho Piro

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- Numbering more than 750, they are believed to be **largest uncontacted tribes** living in jungles of **Amazon and Southeast Asia**.
- They are **nomadic hunter-gatherers**.
- Contact with them is **prohibited** fearing the **spread of a disease among population** to which it has no immunity.
- **Madre de Dios Territorial Reserve** was notified in 2002 to protect their territory. However, large parts of land have been sold to companies for timber and other produce.

Indian Newspaper Society (INS)

Prime Minister inaugurates INS Towers in Mumbai.

About INS

- **Genesis:** Its origin can be traced back to **1927**. **INS** is established as Indian & Eastern Newspaper Society (IENS) in 1939.
 - Mr. Arthur Moore of the Statesman was the first president of INS.
- **Key objective:** To act as a **central organization of the Press of India** and of **any other country in Asia**, which desires to associate itself with the Society.
- **Members:** Owners, proprietors and publishers of print media
- **Key role:**
 - An independent body **authenticating circulation figures of newspapers** and periodicals in India.
 - Protecting and promoting the **freedom of press in India**.

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Balancing Work and Leisure

Introduction

Recognising the importance of play for children's development, the **UN Convention on the Rights of the Child**, which has set out 'the right of the child to rest and leisure,' **declared June 11 an International Day of Play**. Also, recent research by Anglia Ruskin University suggests **that leisure activities** like painting, knitting, or pottery can **enhance well-being more than work**.

However, while over-identifying with a job can cause stress, not having one can also contribute to anxiety and depression.

What is Leisure and what is its significance?

- Leisure is often seen as **free time**, but it more broadly refers to the **freedom to choose whether or not to do something**.
 - For instance, **unemployment is not leisure**, as the person is forced not to work despite wanting to.
- True leisure **allows people to pursue activities like rest, hobbies, entertainment, sports, and travel**, but only when there's a genuine **sense of freedom**.
 - For instance, **travel required for work loses the essence of leisure** as the person is obliged to pursue them.
- **Leisure**, unlike mere amusement, involves **pleasure, happiness and living blessedly**.

Relationship between work and leisure

Work and leisure often complement each other, but can also be contrasting at times.

Complimentary Relationship

- **Freedom of choice and intrinsic motivation:** Robert Robinson once stated, "Leisure is work you volunteer for". Thus, when a job is based on freedom of choice, it can feel like leisure.
 - For example, writing novels or columns for newspapers might feel like leisure to persons who enjoy reading and writing.
- **Ensuring well-being:** Voltaire emphasised the beneficial aspects of work, stating, "**Work banishes boredom, vice, and poverty**." So, just like leisure, work can also contribute to the well being of people.
 - For example, **employment allows people to form relationships** and improve emotional control, which helps overcome trauma and improves problem-solving skills.

Contrasting Relationship

- **Freedom vs. Responsibilities:** Leisure characterised by **freedom and enjoyment**, improves creativity, performance, and job satisfaction.
 - **Work** on the other hand often **requires effort and responsibility**, driven by **external expectations and goals**. It promotes **financial security, personal development, and a sense of accomplishment** but can be tiring.

- Thus, **even leisure activities**, such as sightseeing, reading, or playing, can lead to fatigue, anxiety, and bad health **when performed owing to work commitments**.
- **Self-Expression vs Personal growth:** Performance below a certain standard **may not be acceptable in workplace**. However, excessive effort to satisfy these standards could jeopardise one's capacity for self-expression, a crucial aspect of leisure.
 - For example, **school education ceases to be a joyful learning activity** when students are forced to cram information without understanding its meaning, solely for the sake of excelling in academics and future careers.

The complimentary and contrasting relationship of work and leisure underscores the necessity of striking a balance between the two in order to have fulfilling good life.

Factors that make it difficult to maintain a balance between Work and Leisure

- **Workplace culture:** A capitalist workplace culture pushes employees toward **job creeps, expectation of perfectionism and encourages extra hours** to get noticed or promoted, leading to a constant cycle of overwork.
 - **Job creep** happens when a person performs tasks that are outside the agreed scope of their job.
- **Technological advances:** Technology like email and cell phones has blurred the line between work and home, making it hard to disconnect.
- **Desire for overearning:** Some people work beyond their needs due to uncertainty about the future or the desire to bequeath wealth, often working until they're exhausted rather than satisfied.
- **Hustle culture:** Society often glorifies being busy as a sign of success, encouraging people to constantly push themselves, further diminishing leisure time.

Way Forward for ensuring work and leisure coexist harmoniously

- **Positive work culture:** Promote positive work culture by adopting participative democratic leadership styles, fostering open communication, organizing team-building activities at the workplace, etc.
 - Giving workers an extra day off a week actually increases productivity, boosts physical and mental health (feeling of being happier) and reduces CO2 emissions (WEF).
- **Bounded rationality:** Instead of pursuing perfectionism, bounded rationality should be accepted and people should be allowed to fail sometimes in some works.
 - The term '**bounded rationality**' refers to rational decision-making that considers the **cognitive limitations of the decision-maker**.
- **Embrace flexibility:** While technology has blurred boundaries, it also offers flexibility.
 - Flexible hours and hybrid working enhance job satisfaction and productivity by allowing employees to balance work and personal life.
- **Set boundaries:** Clearly define work hours and stick to them. Avoid checking work emails or taking calls outside these hours to maintain a separation between work and home life.

Conclusion

Both Aristotle and Rabindranath Tagore emphasize the **importance of leisure in cultivating a fulfilling life**. Aristotle argues that true leisure allows individuals to engage in **noble pursuit** that nurtures virtue, such as music, poetry, and philosophy. Similarly, Tagore warns **that without leisure, we risk becoming mere workers**, performing tasks mindlessly without any deeper purpose.

Public Infrastructure and Public Service Delivery

Introduction

Recently, more than **15 bridges have collapsed in Bihar**, around 15 engineers were suspended for negligence and ineffective monitoring. Previous incidences of **failure of public infrastructure** like the **Morbi bridge collapse in Gujarat (2022)**, **airport roof collapses** at Delhi, Rajkot and Jabalpur and **railway collision of Kanchanjunga Express** with a container freight train have resulted in loss of lives and property. These incidences highlight the **compromised quality of public infrastructure** and **failure of government in ensuring quality public service delivery**.

Public service delivery

- In line with the **social contract theory**, the **government** is charged with the **responsibility of provision of various public services to the citizens**.
- **Public Service Delivery** is the mechanism through which public services are delivered to the public by local, municipal, or federal governments. **E.g. Sewage and trash disposal, public education, and health services.**
 - It acts as a **tangible link between government and citizens** and **promotes national values among citizens**.
- **Significance:**
 - **Economic Growth:** quality public service delivery helps in **poverty alleviation, human capital formation and eliminating corruption**.
 - **Ensure equitable distribution of resources:** It helps **reduce inequalities** stemming from gender, caste etc. **E.g. Targeted service delivery with TPDS to ensure food security.**

Ethical Issues in the governance of infrastructure development

- **Inefficient administrative machinery:** It acts as an obstacle to effective implementation of development plans. **E.g. negligence of responsibility**
- **Policy issues:** **Quality** of service delivery is neglected. Rather focus is on doing the **bare minimum** to complete the duty assigned.
 - **L1 contract method** (lowest bidder wins): prioritizes **cost over quality and safety**.
- **Corruption:** Misuse of **discretion** by the public officials leads to creation of a **nexus** between officials, contractors and other stakeholders involved.
- **Lack of probity:** Mechanism for **fixing accountability** and ensuring **transparency** are either absent or not effectively implemented. Public servants **recuse from the responsibility** of ensuring quality service delivery.
 - **E.g., Delhi floods** caused by jammed gates of Yamuna barrage- **lack of maintenance** due to **multiple authorities** involved and lack of fixed **accountability**.

- Attitudinal issues like indifference, lack of motivation for striving for excellence.

Ethical issues involved in public service delivery

- **Lack of Professional ethics:** Public servants often lack the managerial skills to ensure effective service delivery.
- **Lack of a 'public service' attitude:** Public servants prioritizing **personal gains** over their public **duty** and responsibility.
 - The **social status** of a public servant leads to problems like **patronage, favouritism** etc.
- **Corruption:** Unethical usage of **power and discretion**. E.g. **Leakages** in PDS distribution, **inclusion and exclusion errors** in schemes.
- **Accountability and transparency:** **Lack of just and fair treatment** of malafide errors weakens **deterrence** towards corrupt practices.

ARC Seven Step Model for Citizen Centricity (2nd Administrative Reforms Committee)

1. **Define** all services which you provide and **identify** your clients
2. Set **standards** and norms for each service
3. Develop **capability** to meet the set standards
4. **Perform** to achieve the standards
5. **Monitor performance** against the set standards.
6. **Evaluate** the **impact** through an independent mechanism
7. **Continuous improvement** based on monitoring and evaluation of results

Case Studies

- **Commission for Right to Services:** constituted by states like **Maharashtra, West Bengal, Punjab** etc.
- **Right to Public Services Legislations** passed by more than 20 states. E.g. **The Haryana Right to Service Act, 2014.**

Why are issues persistent in public service delivery?

- **Lack of effective implementation** of various service improvement systems, including rules and regulations for civil servants.
- **Rigidity in the administration:** **Resistance** of administration to reforms and **change**.
- **Political constraints:** Political interests prioritized above public interest hinder equitable public service delivery.
- **Neglect of reforms for ethical grassroot bureaucracy:** Most reforms and changes cater to administrative reforms at higher levels of bureaucracy.

Measures to ensure Good Governance

- **Administrative reforms:** Measures like **Citizen's Charter**, a **responsive grievance redressal** mechanism and **fixing accountability** of every public servant.
- **New Public Management (NPM):** It involves the adoption of **efficient practices** from the **private** sector to apply in the public sector. (See Box)

- **Human capital development:** Recruitment and training of capable public servants and inculcating **ethical values of public service**. E.g. **Mission Karmayogi**
 - **Sensitization of the grassroot bureaucracy** as they are the **direct link** to public service delivery to the **citizens**
- **E-governance:** Optimal adoption of technology to improve **quality of public service delivery**, efficient **utilization of public funds** and ease of **access** to services for the citizens.
 - E.g. **SMART** (Simple, Moral, Accountable, Responsive and Transparent) governance, 'Aaple Sarkar' App of Maharashtra.
- **Monitoring project implementation:** **Regular audits** at multiple levels ensure elimination of errors like **faulty design, material usage**, whereas ensures **accountability** of public servants.
 - E.g. ICT-based, multi-modal platform for Pro-Active Governance and Timely Implementation (**PRAGATI**).

Characteristics of New Public Management (NPM)

- **Separation** of strategic policy from operational management.
- **Result-orientation** along with focus on processes and procedures.
- **Citizen-centric orientation** rather than focus on interests of organisations or bureaucrats
- **Provider to enabler:** increased involvement of the **private and voluntary sectors** in service delivery and strategic decision-making. E.g. **Contracting-out and PPP**.
- **Entrepreneurial management culture**. E.g. Total Quality Management (TQM), IS 15700:2005.
 - IS 15700:2005 is the **Indian Standard for Quality Management Systems** given by **BIS**.

Conclusion

In the fast-changing world, the **role of the government has increased**, particularly in the provision of **service delivery**. The **governance structure needs to evolve** from a **monolithic bureaucratic hierarchy** towards **multi-level institutions** that interpenetrate **civil society** and **minimize the gap between government and the citizens**.

Conflict of Interest of Public Officials

Introduction

Recently, a US-based firm accused the Chairperson of SEBI of violating SEBI's Code of Conduct, leading to a potential conflict of interest. The situation presents a new potential for conflict of interests between civil servants or individuals in high-ranking positions, involving their private interests and public duties.

What is Conflict of Interest?

- **Definition:** A 'conflict of interest' involves a conflict between the public duty and private interests of a public official, wherein, public official's private interests can improperly influence the performance of his/her official duties and responsibilities (**OECD**)



- Conflict of Interests between public and the private sectors have become a **major issue of public concern across the globe** due to close forms of collaboration such as **public private partnerships, self-regulation, interchanges of personnel, sponsorships, etc.**
- **Types of Conflict of Interest**
 - **Actual:** A situation where the official's private interest is in conflict with his/ her duty to perform in the public interest.
 - **e.g.,** a public official awarding a lucrative contract to a company owned by their family member.
 - **Potential:** A situation where the official's private interest have not yet come into conflict with his/ her duty to perform in the public interest but may do so in the future.
 - **e.g.,** an academic researcher receiving funding from a corporation for a study related to that company's products.
 - **Perceived:** A situation where the official's private interest looks as if it is in conflict with his/ her duty to perform in the public interest, although that is not the case.
 - **e.g.,** an elected official attending a private event hosted by a lobbyist, even if no direct favors are requested.

Legal Framework to prevent Conflict of Interest in India

For Public Servants

- **Central Civil Services (Conduct) Rules, 1964:**
 - **Civil Servants must declare any private interests relating to his public duties** and take steps to resolve any conflicts in a way that protects the public interest;
 - **Civil Servant should not misuse his/her position** as civil servant and not take decisions in order to **derive financial or material benefits for himself, his family or his friends.**
- **Central Vigilance Commission guidelines** for various procurements, bidding, and other processes outlining Conflict of Interests.
- **SEBI's Code on Conflict of Interests for Boards Members:** 'A member shall take all steps necessary to ensure that any conflict of interests to which he may be subject to does not affect any decision of the Board.'

For Businesses

- **Section 166 of the Companies Act, 2013:** A director of a company shall not involve in a situation in which he may have a direct or indirect interest that conflicts, or possibly may conflict, with the interest of the company.
- **SEBI Guidelines** for dealing with conflict of interests of various entities such as stock exchanges, intermediaries, etc.

Way Forward to ensure effective resolution of Conflict of Interests

- **Identification of Relevant Conflict of Interest:** Establish procedures for identifying, managing, and resolving conflict of interest situations by establishment of effective, complete, and prompt disclosure process.
- **Demonstrate Leadership Commitment:** All public officials should keep their private interests in a manner that preserves public confidence and integrity of the organization rather than mere compliance in letter.
- **Ensure wide publication and understanding of the Conflict of Interest policy:** E.g. by publishing the Conflict of Interest Policy, giving regular reminders etc.
- **Periodic review of 'at-risk' areas for potential conflict of interest situations:** E.g., Inside information, gifts and other forms of benefit, outside appointments, activity after leaving public office, etc.
- **Introduction of Cooling off period for public servants to prevent from revolving door:** Cooling off period is the introduction of a minimum time interval restricting former public officials from accepting employment in the private sector.
 - **Revolving door** refers to the movement of individuals from government to the private sector and from the private sector to government.
- **Creation of independent of oversight bodies:** Independent bodies or ethics commissions can be established to pro-actively monitor, investigate, and enforce conflict of interest rules.
 - **e.g.,** Several States in the US have Ethics Commission as guardians of the standards of conduct for public officials.

Conclusion

Addressing conflicts of interest is not merely a matter of legal compliance but a fundamental aspect of ethical governance. Public officials hold positions of trust, and safeguarding this trust requires robust mechanisms to prevent, identify, and manage conflicts of interest. By fostering a culture of transparency, accountability, and integrity, governments can ensure that decisions are made in the best interest of the citizens, thereby maintaining the legitimacy of public institutions and reinforcing the democratic principles.

Ethics of Online Gaming

Introduction

Voluntary Code of Ethics for Online Gaming Intermediaries (OGI) has been issued as a Joint Declaration of the members of Digital Gaming Committee of the Internet and Mobile Association of India (IAMAI) in collaboration with the All India Gaming Federation (AIGF), E-Gaming Federation (EGF) and Federation of Indian Fantasy Sports (FIFS).

About the Code of Ethics

- The code is voluntary in nature, meaning that it is not legally binding.
- **Objectives:**
 - To protect **interest of consumers** and enable them to **make informed choices** about the online games they access.



- To create a **healthy environment for online games** in India and ingrain a culture of **responsible gaming** in the country.
- To elevate the industry standard and bring **uniformity in the business practices** of signatories.
- **Key Provisions:** Responsibilities of Online Gaming Intermediaries include:
 - **Responsible Gaming:**
 - Provide users with access to information about responsible gaming and safety guidelines.
 - Offer a self-exclusion feature, allowing players to willingly suspend their access for a chosen period.
 - Utilize widely available advanced technology tools to monitor player behaviours.
 - **Age Gating (Safeguards for minors):** Real money prizes shall not be offered to users below 18 years of age.
 - **Fair Gaming:**
 - Draft and publish on their website and platform terms and conditions and privacy policy accurately specifying mechanics and rules of online games.
 - OGLs offering real-money games will not offer any contest or game where platform directly or indirectly participate against users.
 - **Financial Safeguards:**
 - Update KYC, implement controls and preventive measures to detect and prevent money laundering or other unlawful activities.
 - Not allowing financial transactions through unauthorized payment systems.
 - **Responsible Advertising:**
 - Fair and truthful advertisement, not inducing minors, containing necessary disclaimers and warnings.
 - Not promoting online gaming as an alternative to employment.
 - **Safe, Secure and Reliable Gaming:**
 - Process and store digital personal and non-personal data in compliance with applicable data protection laws, and
 - Recognize and integrate evidence-based best practices for safer gaming.

Key Stakeholders

Stakeholders	Roles/Interests
Gamers	Consumers, advocates, and potential victims of unethical practices.
Game Developers	Enhance gaming experience, promote fair gaming practices, responsible for content and mechanics and potential targets of ethical concerns.
Platform providers	Responsible for content moderation, user safety, comply with regulations and establishing their dominance in market.

Regulatory Bodies	Protection of consumers, revenue generation, prevention of illegal activities, enforcing regulations including content restrictions, age gating and promoting responsible gaming practices.
Civil Society	Protection of children from harmful content and excessive gaming, prevent social disharmony, and promote ethical gaming.

Ethical concerns with Online Gaming

- **Gaming vs. Gambling:** Often there are concerns with online gaming platforms promoting gambling.
 - Gaming involves skill-based activities, strategic thinking, and immersive experiences, while gambling entails wagering money on uncertain outcomes with chance playing a critical role.
- **Privacy concerns:** Online gaming platforms meticulously track player actions and interactions, profiling player behaviour while also providing personalized experience.
 - Such data also includes personal sensitive data such as name, age, banking details etc. which raises concerns regarding person's privacy, data consent and surveillance boundaries.
- **Fair play:** Real money game outcomes can be **manipulated by malicious actors** undermining the integrity of competitions and financial loss to users.
- **User protection:** Instances of disruptive behaviours like harassment, cheating, bullying, identity theft and abuse.
 - There are also apprehensions over offshore betting apps masquerading as online games and the **potential for money laundering** posed by players in the sector.
- **Accountability:** There have been instances of emergence of online games undertaking unfair practices and promoting addiction, wagering, or user harm.
 - Gaming companies indulge in misleading advertisements, which can be detrimental to user well-being.
- **Virtue ethics:** Also, in-game characters traits displayed in action influences players' ethical decision-making in real life.

Regulatory Framework for Gaming in India

- **Distinction in Games:** Under Indian law, games of skill are generally considered legal, while games of chance are considered illegal. This legal distinction is based on the degree to which skill versus chance influences the outcome of the game.
 - Rummy, Horse Racing, Poker and Fantasy Sports are often considered Games of Skill while Casino Games, Lotteries and Betting are often considered Games of Chance.
- **Constitutional Provision:** Courts recognized skill gaming as a protected activity under Article 19(1)(g) of the Constitution, which guarantees the freedom to practice any profession or carry on any occupation.
 - **Seventh Schedule** of Constitution empowers each state in India to enact laws related to "betting and gambling", resulting in varying regulations across states.
 - For instance, Telangana and Andhra Pradesh have prohibited all online games, eliminating the exemptions for games of skill.



- However, Sikkim and Nagaland have established licensing systems for various online games.
- **Online Gaming Rules:** Ministry of Electronics and Information Technology has established a central legal framework for online gaming via amendments to the **Information Technology, Intermediary Guidelines and Digital Media Ethics Code Rules, 2021**.
 - These rules aim to prevent gambling, user harm, and money laundering, especially in case of access to 'online real-money games' to the public.
- **Digital Personal Data Protection (DPDP) Act, 2023:** It aims to safeguard individual privacy and regulate data processing.
- **Consumer Protection Act, 2019:** It also applies to online gaming in India and protect consumers rights to safety, be informed, seek redressal, be heard, and choose.

Way Forward

- **Privacy ethics and data protection:** Provide **data anonymization and encryption** techniques to safeguard player identities and personal information.
 - Also, adhere to **data minimization** and provide users **comprehensive control** over their data with mandatory consent requirement for personal data collection.
- **Responsible gaming:** Proactive measures and educational initiatives are essential, emphasising collaborative efforts among industry stakeholders, regulators, and advocacy groups.
- **Self-regulation:** Imposing self-regulation within gaming companies is crucial in addressing these challenges. The aspects of self-regulation can include:
 - **Identity and age verification**, coupled with robust Know Your Customer (KYC) protocols.
 - **Counselling support**, player support services, time constraints on gaming sessions etc.
 - **Regular audits** and identifying at-risk players by positive monitoring of player behaviour.
- **Anti-money laundering regulations:** These should include enhanced due diligence for high-risk consumers, use of geolocation services in verification of physical location for financial transaction and sources of funds verification.

Smart City Mission

Context:

Government extended Smart Cities Mission till **31st March 2025**

Objectives	Salient features
<ul style="list-style-type: none"> • Promote cities with smart solutions for core infrastructure, sustainability, and quality of life through the application of 'smart solutions'. • Drive growth through comprehensive development of social, economic, physical, and institutional aspects. • Create replicable models for sustainable, inclusive urban development to inspire other cities. 	<ul style="list-style-type: none"> • Ministry: Ministry of Housing and Urban Affairs (MoHUA). • Launch year: 2015 • Valid Till: 31st March 2025 • Type: Centrally Sponsored Scheme • Funding: The Union Government provides on an average Rs.100 crore per city per year. <ul style="list-style-type: none"> ◦ An equal amount on a matching basis is to be provided by the State/ULB. ◦ Additional resources mechanism includes grants under the Finance Commission, innovative finance mechanisms (Municipal Bonds), government programs and borrowings. • Selection Process: 100 Smart Cities have been selected based on the idea of Competitive and Cooperative Federalism. <ul style="list-style-type: none"> ◦ Stage 1 of the competition: Shortlisting of cities by States. <ul style="list-style-type: none"> ▪ Cities are distributed among the States and UTs on the basis of an equitable criterion. In this Stage, the competition was intra-state. ◦ Stage 2 of the competition: The Challenge round for selection <ul style="list-style-type: none"> ▪ Each of the potential Smart Cities prepared their proposals for participation in the 'City Challenge' to competes for selection as a Smart City. • Special Purpose Vehicle (SPV): Implementation of the Smart Cities Mission is being done by a SPV. <ul style="list-style-type: none"> ◦ The SPV will plan, appraise, approve, release funds, implement, manage, operate, monitor and evaluate the Smart City development projects. ◦ It is set up at the city level in the form of a limited company under the Companies Act, 2013.



- It is promoted by the **State/UT and the Urban Local Body (ULB)** jointly both having **50:50 equity shareholding**.
 - Private entities may invest, but the State/UT and ULB must retain majority control.
- Funds provided by the Government of India in the SCM to the SPV will be in the **form of tied grant and kept in a separate Grant Fund**.
- **Strategy:**
 - Adopted three models of area-based developments:
 - **Retrofitting (city improvement)**
 - **Redevelopment (city renewal)**
 - **Greenfield (city extension)**
 - Along with area-based development, a pan-city initiative is also used.
 - It envisages the **application of selected smart solutions** to the existing city-wide infrastructure.
- **Convergence with Other Government Schemes:** With schemes such as AMRUT, Swachh Bharat Mission (SBM), National Heritage City Development and Augmentation Yojana (HRIDAY), etc.
- **Integrated Command and Control Centres (ICCC):** ICCCs in 100 Smart for evidence-based policy and decisions.
 - Provides several **online services to citizens** in areas of traffic management, health, water etc.
- **Current status:** As on 03rd July 2024, the 100 Cities have completed 7,188 projects (90% of total projects).