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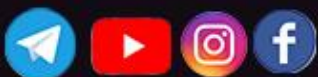


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POLITY AND GOVERNANCE

TAMPON TAX

Why is it in the news?

- i) According to the **World Bank**, more than a quarter of menstruating women and girls around the world – some 500 million people – struggle to manage their periods, often because they cannot afford sanitary pads.
- ii) Concern about “**period poverty**” has fuelled campaigns globally calling for the end of the so-called **tampon tax, which refers to consumption levies such as value-added tax (VAT) that most countries charge on items such as sanitary pads, tampons, panty liners and menstrual cups.**
- iii) In some countries, period products are considered non-essential items for VAT purposes, while items including toilet paper, condoms and over-the-counter medicines are tax-free or carry a lower levy.

Which countries have abolished the tampon tax?

- i) Since **Kenya became the first country to scrap VAT on sanitary pads and tampons in 2004**, at least 17 countries have followed suit, according to research by the Thomson Reuters Foundation.
- ii) Among the latest countries to pass laws to abolish the tampon tax are Mexico, Britain and Namibia. Another 10 countries have designated sanitary products as tax-exempt goods or have exempted the tax on imported raw materials used to make them.
- iii) Advocates against period poverty usually campaign for sanitary products to be zero-rated for VAT, as this means producers can also claim

back taxes on raw materials, making the final product truly tax-free. Although Tanzania and Nicaragua had also scrapped the tax on period products, both countries reintroduced it in 2019.

- iv) Mainly in Europe, 17 countries have reduced the VAT on sanitary products, with Italy the latest to do so this year.
- v) The European Union last year revised a directive that previously only allowed member states to reduce VAT on sanitary products by 5%. The change means nations can now apply lower tax rates to some goods.
- vi) In tampon tax pioneer Kenya, free distribution of period products in schools is included in the annual budget, though campaigners say the supply is patchy. Elsewhere in Africa, free pads are provided to schoolgirls in South Africa, Botswana and Zambia.

Why are some countries unwilling to scrap tampon taxes?

- i) VAT is an important source of revenue for governments – and the reason why many countries still have a tampon tax. In countries belonging to the **Organisation for Economic Co-operation and Development (OECD)**, VAT revenue represented 6.7% of their **gross domestic product (GDP)** in 2020.
- ii) VAT rates vary widely from country to country – from 5% in Canada to up to 27% in Hungary – and governments often have different definitions of what is considered an essential good that is exempted from the levy.
- iii) In nearly two dozen U.S. states, menstrual

products still carry a **general sales tax (GST)** similar to VAT that is levied on all consumer goods and services. Several other U.S. states have no such levy.

- iv) Advocates also say that in countries where **menstruation remains a taboo subject**, lawmakers and policymakers show little interest in starting debate about the affordability of period products.

What comes next?

- i) In the United States, advocates said there is growing political will to remove the sales tax in states where it is still imposed such as Texas, where a bill to scrap it won preliminary approval in March.
- ii) From Chile to the Czech Republic there are ongoing efforts to slash the tax, as well as bills to distribute free products in schools, such as the **Dignified Menstruation Law in Mexico**. Some women's rights advocates say the distribution of free pads may ultimately be the only way to ensure access to period products.
- iii) In 2022, **Scotland** became the first nation to make tampons and sanitary pads free and available at designated public places such as community centres, youth clubs and pharmacies.

HOW ARE UNIVERSITIES ASSESSED UNDER THE NATIONAL INSTITUTIONAL RANKING FRAMEWORK?

Why is it in the news?

- i) For five years, the **Indian Institute of Technology (IIT) Madras** has maintained its dominance as the top-ranked higher-education institute in India. Other IITs follow suit, holding seven out of the top 10 positions in the '**Overall Category**' of the **National Institutional Ranking Framework (NIRF) 2023**, released recently.

The **Indian Institute of Science (IISc)** in Bengaluru,

All India Institute of Medical Sciences in Delhi (AIIMS) and Jawaharlal Nehru University (JNU) have also been consistently placed in the top 10.

- ii) The **eighth edition of NIRF, released by the Ministry of Education**, is an assessment of universities and colleges in India, evaluating institutions on weighted variables: student strength, faculty qualifications, infrastructure and the number of economically and socially deprived students.

How does NIRF work?

- i) India has 1,113 universities, 43,796 colleges and 11,296 stand-alone institutions, according to the **India Survey on Higher Education**.

Out of these, 5,543 unique institutions (9.86% of the total) participated in the ranking exercise across 13 categories — 'overall', universities, medical, engineering, management, law, architecture, colleges, research institutions, pharmacy, dental, agriculture and allied sectors, and innovation.

- ii) Launched in 2015, NIRF was meant to follow an Indian approach that considers India-centric parameters like diversity and inclusiveness apart from excellence in teaching and learning and research. According to the Secretary of the **National Board of Accreditation**, NIRF addresses the limitations of international rankings, which may not account for region-specific context.
- iii) The higher education institutes were evaluated across five parameters, weighted differently: Teaching, Learning and Resources (TLR, 30%); Research and Professional Practice (RP, 30%); Graduation Outcome (GO, 20%); Outreach and Inclusivity (OI, 10%); Perception of the institute (10%).

Each parameter has a sub-category. For the total 100-mark OI score, the four sub-parameters are students from other states/countries (30), women diversity (30), economically and socially challenged students (ESCS, 20), facilities for physically challenged students (PCS, 20). The representation of students from marginalised locations is thus given 2% weightage in the overall ranking.



- (Parameters and individual metrics for marking)
- iv) Registered institutions self-submit required documents online; data on patents, research and citations were retrieved from third-party websites such as Scopus. NIRF invited feedback from stakeholders through public announcements for a period of one week, post which the data was analysed and a survey was undertaken. Participating HEIs are required to upload this data on their own websites in the interests of transparency.

2023 findings at a glance

- i) The top 25 ranks have remained mostly undisturbed over the years, with IIT Madras and the IISc Bengaluru retaining the top positions. IISc falls behind IIT Madras across metrics of online education, research and patents, and representation of economically and socially disadvantaged students.

In comparison, the international metric **QS Global World Ranking 2023 (by education think-tank QS Quacquarelli Symonds)** titled IISc as India's top university, followed by IIT Bombay, Delhi and Madras.

- ii) The top 10 colleges in the "overall" category, for instance, are the same as last year, with some switching places (IIT Bombay, IIT Kharagpur and IIT Roorkee dropped marginally, while AIIMS Delhi rose from 9th to 6th place).
- iii) 36 institutes of the "overall" category were Institutes of National Importance (INIs, such as IITs and NITs), 26 are State universities, and seven Central universities were in the top 100 HEIs. Unlike previous years, State-sponsored colleges and universities outnumber Central HEIs in the medical vertical.

State-wise break-up

- i) Top 100 colleges: 35 are in Tamil Nadu, 32 in Delhi, 14 in Kerala, 8 in West Bengal, 3 from Maharashtra and the remaining 8 from other States (2 from Karnataka; 1 each from Mizoram, Pondicherry, Chandigarh, Telangana, Haryana, Gujarat).
- ii) Top 100 universities: 22 from Tamil Nadu, 10 in Maharashtra, 10 in Karnataka, 7 in Delhi, 6 in Punjab, 4 in West Bengal, 4 in Kerala, 4 in Andhra Pradesh and the remaining 33 from other States.
- iii) NIRF this year introduced the "**agriculture and allied sectors**" and "**innovation**" categories, with Indian Agricultural Research Institute and IIT Kanpur topping the two verticals respectively.

Why have experts criticised NIRF?

While NIRF is a good beginning for India to piece together the state of education, the parameters and metrics used "**lack scientific merit**", according to a Professor of the Centre for

Economic Studies and Policy.

- i) The first concern is the **small radius of participating institutions** in the voluntary exercise accounting for less than 10% of the total HEIs which makes NIRF a narrow, inconsistent and sometimes contradictory representation of India's higher education landscape.

For instance, in last year's rankings, **Symbiosis Law School (a private law college)** scored a 100 in Perception, surpassing National Law Universities which are a popular choice for law aspirants.

The limited representation could be because there is no compulsion or incentive for institutes to participate. NIRF's inclusion guidelines could be another reason; these permit registration for institutes with a minimum of three batches, a defined faculty-to-student ratio and at least 1,000 students enrolled for UG and PG courses for entry into the "overall" category.

- ii) Secondly, methods of teaching and evaluation vary, but the parameter for comparing HEIs in the "overall ranking" is the same for all institutions, which can be a bit **"confusing"**. While data on publications, patents and research may apply to medical and engineering colleges, it remains unsuitable for social science institutes or law schools.

Comparing a JNU with an IIT may be asymmetric when there are stark differences in research laboratories and graduation outcomes due to professional job markets. Social science research institutions are then at a disadvantage in this ranking. IITs and IISc grab more points and hence they will be ranked higher.

- iii) Moreover, the data collected is not granular enough for the results to translate into

meaningful insights. For example, the rankings specify **"faculty with PhD vs faculty with master's degree"**, but micro-level data on how many professors and assistant professors hold the degree, and how many marginalised students are enrolled in PhD courses, might have added more value— since University Grants Commission norms mandate PhD for most academic positions. Similarly, despite increasing education costs, the NIRF neither measures nor makes any mention of individual fees as a metric for evaluating institutes.

Self-reported data may also be overstated and fudged, allowing institutes to inflate their results. Evidence suggests that some private multi-discipline universities have claimed the same faculty in more than one discipline. Faculty in liberal arts have been claimed as faculty in law too, to claim an improved FSR [faculty-student ratio]. This manipulation defeats the purpose of ranking, especially in the case of single-discipline institutions like the NLUs.

In 2021, NIRF also changed its methodology for counting students in the ESCS category, including both UG and PG students who received full tuition-fee reimbursement from the institution. Moreover, the OI category allows greater weightage to regional diversity than ESCS students. Central universities like NITs and IITs, which cater to pan-India aspirants, may then fare well and score higher marks in that sub-parameter.

3D DIGITISATION OF MUSEUMS

Why is it in the news?

Recently, the Union government has planned to complete **3D digitisation of all museums** under its administrative control by the year end for better conservation of artefacts.

More about the news

- i) Museums include Salar Jung museum, Hyderabad, the Allahabad Museum in Prayagraj, the Indian Museum, Kolkata, the Victoria Memorial Hall, the National Museum and the National Gallery of Modern Art.
- ii) Besides aiding conservation, 3D digitisation in the museum space can offer visitors new ways to access and explore the collection.
- iii) 3D models can be used in **augmented reality and virtual reality** learning experiences, and facilitate 3D printing.

3D scanning

- i) It will mean analysing a real-world object or environment to collect three-dimensional data of its shape and possibly its appearance. The collected data is then used to construct digital 3D models.
- ii) The entire process was being carried out by the **Ministry of Electronics and Information Technology (MeitY)**. A Memorandum of Understanding has been signed between the MeitY and Union Culture Ministry for this.

JATAN virtual museum builder software

- i) The 3D digitisation would be done using the **JATAN virtual museum builder software** which has been designed and developed by **Human Centres Design and Computing Group, Centre for Development of Smart Computing, Pune**.
- ii) JATAN is a **digital collection management system for Indian museums**.
- iii) It is a client server application with features such as image cropping, watermarking, unique numbering, and management of digital objects with multimedia representations.
- iv) It can create 3D virtual galleries and provide

public access through web, mobile or touch screen kiosks.

COMMISSION OF RAILWAY SAFETY (CRS)

Why is it in the news?

- ★ Investigation into the recent tragic train accident in Odisha is being conducted by the **Commissioner of Railway Safety (CRS)**.

Commissioner of Railway Safety (CRS)

- i) The **Commission of Railway Safety (CRS)** is a government body that acts as the railway safety authority in the country. Rail safety commissioners are part of CRS.
- ii) CRS deals with matters related to safety of rail travel and operations, among some other statutory functions – inspectorial, investigatory, and advisory – as laid down in the Railways Act, 1989.
- iii) Its administrative Control is under the **Ministry of Civil Aviation (MoCA)**.
- iv) The CRS does not report to the Ministry of Railways of the Railway Board.
- v) Its Headquarter (HQ): Lucknow, Uttar Pradesh

Why is it under MoCA Control?

- i) The reason or principle behind this is to keep the CRS insulated from the influence of the country's railway establishment and prevent conflicts of interest.
- ii) The separation of CRS from the Railway Board enhances the credibility of safety oversight and investigations.

NATIONAL MISSION ON ADVANCED AND HIGH-IMPACT RESEARCH (MAHIR)

Why is it in the news?

- ★ The Ministry of Power and the Ministry of New and Renewable Energy are jointly launching **National Mission MAHIR**.

About MAHIR

- i) The mission aims to identify emerging technologies in the power sector and develop them indigenously, at scale, for deployment within and outside India.
- ii) The Mission will be funded by pooling financial resources of the Ministry of Power, Ministry of New and Renewable Energy and the Central Public Sector Enterprises under the two Ministries. Additional funding will be mobilized from Government of India's budgetary resources.
- iii) The mission is Planned for an initial period of five years from 2023-24 to 2027-28.
- iv) Following eight areas are identified for research:
 - 1) Alternatives to Lithium-Ion storage batteries
 - 2) Modifying electric cookers / pans to suit Indian cooking methods
 - 3) Green hydrogen for mobility (High Efficiency Fuel Cell)
 - 4) Carbon capture
 - 5) Geo-thermal energy
 - 6) Solid state refrigeration.
 - 7) Nano technology for EV battery
 - 8) Indigenous CRGO technology
- v) The Mission will have a two-tier structure:

a) Technical Scoping Committee:

It will be chaired by the Chairperson of Central Electricity Authority.

It will identify ongoing and emerging research areas globally and recommend potential technologies for development under the Mission.

b) Apex Committee:

It will be chaired by the Union Minister for Power & New and Renewable Energy.

It will deliberate on the technology and products to be developed and approve the research proposals.

MP'S CM LEARN AND EARN SCHEME

Why is it in the news?

Recently, the Madhya Pradesh cabinet headed by the CM approved the '**Mukhyamantri Seekho-Kamao Yojana**' (CM Learn and Earn Scheme).

About Mukhyamantri Seekho-Kamao Yojana' (CM Learn and Earn Scheme)

- i) Under the scheme, **unemployed youth will get a stipend of Rs 8,000 to 10,000 per month as financial assistance during the period of skill learning in various establishments.**
- ii) 703 work areas including Engineering, Tourism, Hotel Management, Hospital, Railway, ITI, Software Development, Banking, Chartered Accountant, Industries, and other financial services have been identified for training.
- i) It will also provide industry-oriented training to the trainees, proficiency in latest technology and processes, thereby enhancing their regular employability.

What is the Eligibility?

- i) The local residents of Madhya Pradesh, in the **age group of 18 to 29 years**, whose educational qualification is 12th or ITI or higher, will be eligible in the scheme.
- ii) The selected youth will be called **student trainees.**

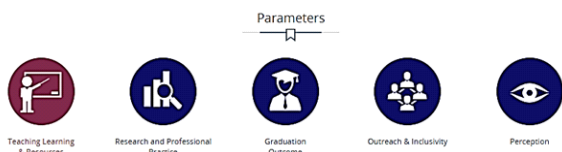
NATIONAL INSTITUTIONAL RANKING FRAMEWORK (NIRF)

Why is it in the news?

- ★ The **National Institutional Ranking Framework (NIRF)** announced the India Rankings 2023 of higher education institutions. For the 2023 rankings, 5,543 unique institutions applied for ranking.

About National Institutional Ranking Framework (NIRF)

- i) It has been accepted by the Ministry of Education (MoE) and launched by the Honourable Minister for Education on 29th September 2015.
- ii) This framework outlines a methodology to rank institutions across the country.
- iii) This is the eighth consecutive edition of India Rankings of HEIs in India.
- iii) **IIM Ahmedabad** tops in Management subjects retaining its first position for the fourth consecutive year, i.e., from 2020 to 2023. It was ranked among the top two in Management subject of the India Rankings from 2016 to 2019.
- iv) **All India Institute of Medical Sciences (AIIMS), New Delhi** occupies the top slot in Medical for the sixth consecutive year, i.e., from 2018 to 2023. Moreover, AIIMS is ranked at 6th position in the Overall category thereby improving from its 9th position in 2022.



Distinct additions of the 2023 edition

- i) Introduction of a new subject namely Agriculture & Allied Sectors.
- ii) Integration of the “**Innovation**” ranking previously executed by the **Atal Ranking of Institutions on Innovation Achievements (ARIIA)** into the India Rankings with an aim to reduce the burden on institutions of providing similar data to two different agencies.
- iii) Expansion of scope of “**Architecture**” to “**Architecture and Planning**” to include institutions imparting courses in Urban and Town Planning.
- v) **National Institute of Pharmaceutical Education and Research, Hyderabad** tops the ranking in Pharmacy for the first time pushing Jamia Hamdard to the second slot.
- vi) **Miranda House** retains the 1st position amongst colleges for the seventh consecutive year, i.e., from 2017 to 2023.
- vii) **IIT Roorkee** stands at 1st position in Architecture subject for the third consecutive year, i.e., from 2021 to 2023.
- viii) **National Law School of India University, Bengaluru** retains its first position in Law for the sixth consecutive year, i.e., from 2018 to 2023.

Some of the Key Highlights of India Rankings 2023

- i) **Indian Institute of Technology Madras** retains its 1st position in Overall Category for a fifth consecutive year, i.e., 2019 to 2023, and in Engineering for an eighth consecutive year, i.e., from 2016 to 2023.
- ii) **Indian Institute of Science, Bengaluru** tops the Universities Category for the eighth consecutive year, i.e., from 2016 to 2023. It stood first in the Research Institutions Category for the third consecutive year, i.e., from 2021 to 2023.
- ix) **Indian Agricultural Research Institute, New Delhi** takes the top slot in Agriculture and Allied Sectors.
- x) **Indian Institute of Technology, Kanpur** tops in the Innovation category.

What is the Significance of rankings?

- i) Ranking and accreditation are vital for evaluating the quality of educational programs offered by higher education institutions in colleges and universities.
- ii) India Rankings serve as a valuable tool for students in identifying universities based on

their relative standing in various categories and subject domains among **higher educational institutions (HEIs)** in the country.

- III) It has also helped universities in identifying areas for improvement in teaching, research, resources, and infrastructure.

HOW KFON AIMS TO BRIDGE THE DIGITAL DIVIDE IN KERALA

Why is it in the news?

- I) On November 7, 2019, the Left Democratic Front (LDF) government in Kerala announced that Internet connection would be a basic right in the State, becoming the first State in the country to do so. The declaration came three years after the United Nations had passed a resolution recognising **Internet access as a basic human right**.
- II) The Kerala government's announcement was accompanied by a detailed plan to ensure that it would become a ground reality, with the **setting up of the Kerala Fibre Optic Network (KFON)**, through which Internet connections would be provided free of cost to 20 lakh **below-poverty-line (BPL)** families.
- III) The project is aimed at ensuring universal Internet access and narrowing the digital divide, which has become especially acute after the COVID-19 outbreak. When online classes became the norm, many students were left in the lurch without connectivity or digital devices, leading to the State's local bodies launching initiatives to provide devices and organise community screening of classes.
- IV) In addition to domestic connections, close to 30,000 government institutions, including offices, educational institutions and hospitals would also be provided with KFON connections.

How is the government running the network and providing services?

- I) The Kerala government's role involves setting up the vast infrastructure required for providing Internet even to the remotest corners of the State. The network has reached remote locations, including tribal hamlets in Wayanad and elsewhere, which had remained out of the information superhighway until now.
- II) The cabling works, stretching to 34,961 km, piggybacks on the **Kerala State Electricity Board (KSEB)**'s existing infrastructure. KFON Limited is, in fact, a joint venture of the **KSEB and the Kerala State Information Technology Infrastructure Ltd (KSITIL)**.
- III) In July 2022, the **Department of Telecommunications (DoT)** granted KFON an **infrastructure provider (IP)** licence and also approved it as an **internet service provider (ISP)**. After a tendering process, the KFON shortlisted six internet service providers, with the government providing it an amount of ₹ 124 per connection per month.

The beneficiaries

- I) In the first phase, it was aimed to provide Internet connections to 14,000 BPL families, with 100 each from the State's 140 assembly constituencies. The panchayats and the urban local bodies were given the responsibility of choosing the beneficiaries. But the process of selection has been slow, with many local bodies delaying the submission of a list of beneficiaries from their area.
- II) As of now, Internet connection has been provided to 7,000 BPL families across the State. The process of identifying the remaining beneficiaries will continue. **Each household will get 1.5 GB of data per day at 15 Mbps speed.**

The economics

- I) The free Internet connections for BPL families and the connections to government institutions is just one part of the **1,548-crore KFON project**, while the rest of the network will be monetised.
- II) The State government in 2022 constituted a committee headed by the Chief Secretary to study the possibilities of monetising the network. About 22 of a total of 48 fibres will be used for the network's own operations. The KSEB will also be using some.
- III) Internet services will also be made available to the public at affordable rates in the second phase. Instead of the government offices paying separately for the internet services, the government will pay the bills for all the offices as quarterly payments.

The road ahead

- I) The commissioning of the first phase of KFON comes a week after the Chief Minister declared Kerala as India's first fully e-governed state. The e-office system has already been implemented in the Secretariat, district collectorates, commissionerates and directorates. As many as 900 government services, comprising all the services usually required by the public, are now available through a single-window portal.
- II) The government has also begun a digital literacy campaign at the grassroots through various local bodies to ensure that everyone is equipped to access basic services through the Internet. If the KFON project achieves what has been envisaged, it can bring about a change at the grassroot level as far as access and opportunities are concerned.

UNIVERSITY GRANTS COMMISSION (INSTITUTIONS DEEMED TO BE UNIVERSITIES) REGULATIONS, 2023

Why is it in the news?

Recently, the **Union Education Minister** released the **UGC (Institutions Deemed to be Universities) Regulations, 2023**, which will replace the 2019 guidelines.

Background

- I) The **UGC Act 1956** provides for the Central Government to declare any institution other than a University to the status of Institution Deemed to be University as if it were a university within the meaning of **Section 2(f)**. Upon declaration, such institution shall be deemed to be a university.
- II) The procedure for the **declaration of status (General) & De Novo**, the establishment of an off-campus centre, minimum eligibility to acquire the status, its governance, etc. are regulated by UGC Regulations. The first set of Regulations was notified in the year 2010 and was revised in 2016 and 2019.
- III) With the announcement of the **National Education Policy 2020** and in order to make the Regulations simple the UGC constituted an expert committee to review and revise the Regulations.

What are the Salient features of the regulations?

- I) The new rules are built on the principle of a **"light but tight"** regulatory framework envisioned in the National Education Policy 2020.
- II) It is released for existing higher education institutions to get the deemed-to-be status by simplifying the eligibility criteria in order to establish more quality-focused deemed universities.
- III) Under the 2019 guidelines, higher education

institutions having “**existence for not less than 20 years**” were eligible for applying for the status. However, the revised guidelines have now replaced it with multi-disciplinarity, **NAAC grading, NIRF ranking and NBA grading**. Besides, a cluster of institutions managed by more than one sponsoring body or a society can also apply for deemed to be university status.

- IV) The new regulations also introduce the “**Distinct Institution**” category, where an existing institution or an institution starting from the beginning with the focus on teaching and research in unique disciplines and/ or addressing the strategic needs of the country or engaged in the preservation of Indian cultural heritage or preservation of the environment or dedicated to skill development or dedicated to sports or languages or any other discipline, so determined by the Expert Committee of Commission, will be exempted from eligibility criteria.
- V) Among other criteria that have been changed are the faculty strength has been increased from 100 to 150, corpus fund for private institutions has been increased from Rs 10 crore to Rs 25 crore, and the creation of executive councils like central universities in these universities as well.
- VI) The revised guidelines have also made it mandatory for deemed universities to register on **Academic Bank of Credits (ABC)**.
- VII) The institutions can offer twinning programmes, joint degree programmes, and dual degree programmes in accordance with the provisions stipulated in the regulations concerned.

Significance

- I) It will encourage universities to focus on quality and excellence, strengthen the research ecosystem and have a long-term impact in transforming our higher education landscape.
- II) It will facilitate the creation of much more quality-focused deemed-to-be universities in an objective and transparent manner.

NATIONAL ELECTRICITY PLAN 2022-32

Why is it in the news?

The **Central Electricity Authority (CEA)** has notified the **National Electricity Plan (NEP)** for the period of 2022-32.

About NEP 2022-32

- I) The plan document includes the review of the last five years (2017-22), a detailed plan for the next five years (2022-27) and the prospective plan for the next five years (2027-32).
- II) As per **section 3(4) of the Electricity Act, 2003**, Central Electricity Authority has been mandated to prepare a NEP in accordance with the National Electricity Policy and notify such a plan once in five years. NEP prepared by the CEA is a five-year plan that assesses India’s current electricity needs, projected growth, power sources, and challenges.
- III) The projected **All India peak electricity demand and electrical energy** requirement is 277.2 GW and 1907.8 BU for the year 2026-27 and 366.4 GW and 2473.8 BU for the year 2031-32 as per 20th **Electric Power Survey (EPS)** Demand projections.
- IV) Installed capacity does not perfectly translate into generated power as different sources of energy have varying efficiencies, and not all sources of power are available at all times. For instance, solar power is available only during

the day and wind energy is dependent on climate variables. Accounting for this, the available power from renewable energy will only be around 35.04% of the total generated electricity by 2026-27 and 43.96% by 2031-32.

- V) The projection of total capacity addition is in line with the target of the country to achieve a non-fossil based installed capacity of around 500 GW by the year 2029-30.

NEP envisages that the share of non-fossil based capacity is likely to increase to 57.4% by the end of 2026-27 and may likely to further increase to 68.4% by the end of 2031-32 from around 42.5% as of April 2023.

- VI) The domestic coal requirement has been estimated to be 866.4 Million Tonnes for the year 2026-27 and 1025.8 Million Tonnes for the year 2031-32 and an estimated requirement of 28.9 MT of coal imports for the plants designed to run on imported coal.

About the Central Electricity Authority (CEA)

- I) The functions and duties of CEA are delineated under Section 73 of the Electricity Act, 2003.
- II) Besides, CEA has to discharge various other functions as well under Section 3 (National Electricity Policy & Plan), Section 8 (Hydro Electric Generation), Section 34 (Grid Standards), Section 53 (Provision relating to Safety and Electric Supply), Section 55 (Use of Meters) and Section 177 (Making of Regulations) of the Electricity Act, 2003.
- III) It seeks to achieve the vision by performing its statutory function by providing technical support base to all stakeholders in the power sector, to support Ministry of Power for forming policies in the power sector, to make technical standards & regulations, to carry out project monitoring, to disseminate power sector

information, to upgrade skills of human resources in the power sector of the country.

MEKEDATU DAM PROJECT

Why is it in the news?

The Mekedatu dam project is located in Ramanagaram district about 100 km south of Bengaluru, close to where the Cauvery enters Tamil Nadu. The project has been contentious for years.

What is the Dispute?

- I) Disagreement between **Karnataka and Tamil Nadu over the waters of the Cauvery** go back to a time when they did not even exist and issue revolves around the principle that the upper riparian state (Karnataka) must obtain the consent of the lower riparian state (Tamil Nadu) for any construction activities on the river.
- II) In 1990, the **Cauvery Water Disputes Tribunal (CWDT)** was established to resolve the matter, and in 2007, it issued its final order on water sharing. The Supreme Court of India upheld the order in 2018, reducing Karnataka's allocation of water to Tamil Nadu.

Mekedatu Dam Project

- I) Mekedatu is a multipurpose balancing reservoir project focussing on the generation of electricity and supply of drinking water in the region. Mekedatu means "**goat's leap**" in Kannada.
- II) In 1996, the project was first planned by the Karnataka Power Corporation to meet the water and electricity needs of the people in Bengaluru and the surrounding districts. In 2013, the Karnataka government announced the project and submitted a detailed project report to the Centre on its plans in 2019.
- III) The government aimed to construct a reservoir at Mekedatu in Ramanagara district of

Karnataka, which is about 90 km away from Bengaluru and 4km ahead of the border with Tamil Nadu.

- IV) With an estimated budget of Rs 9,000 crore, a reservoir is to be built on the confluence of Cauvery with its tributary Arkavathi.
- V) The Mokedatu dam will be larger than the Krishnaraja Sagar project on the Cauvery. The **Central Water Commission (CWC)** had cleared a feasibility study for the project in 2018.

Significance of the project

- I) It aims to supply drinking water to Bengaluru and surrounding regions. It would be able to help the city address its water woes. Currently, more than 30% of Bengaluru is dependent on borewell water.
- II) There are also plans to generate 400 MW of power: The revenue earned from power generation is expected to compensate the Government for its investment on the project within a few years.

Dispute over Cauvery Water

- I) The rift among states over the Cauvery water is continuing from pre-independent India. In 1892, the dispute arose between the erstwhile Presidency of Madras under British rule and the princely state of Mysore, when the construction of irrigation systems on the Cauvery was proposed by the latter. But as opposed to the same reasons that the upstream state might control water.
- II) In 1924, an agreement enabled the construction of the **Krishnaraja Sagar dam** and decided the allocation of Cauvery waters among the states. The timeline of the agreement was 50-year and after it lapsed, the dispute caught fire again.

- III) Thus, Tamil Nadu approached the centre for setting up a tribunal to decide the allocation of water between the states. In 1990, the tribunal was set up and in 2007 allocated the water to Karnataka (270 tmcft), Kerala (30 tmcft), Puducherry (97 tmcft) and Tamil Nadu (419 tmcft) and allocation would stand reduced in rain-scarcity years.

Concerns

- I) The proposed land for the submergence zone is habitats for certain threatened species. The project will be adversely impacting their natural habitat.
- II) The project will need multiple clearances from the Centre and courts as it involves the Cauvery water sharing dispute.
- III) Tamil Nadu opposes any project in the upper riparian without Supreme Court approval. Tamil Nadu argues that the project is unauthorized and could harm its interests, violating the orders of the Cauvery Water Disputes Tribunal and the Supreme Court.

About Cauvery River

- I) The Cauvery (also spelt as 'Kaveri'), known as 'Ponni' in Tamil.
- II) It rises in the Brahmagiri range of the Western Ghats and it reaches the Bay of Bengal in the south of Cuddalore, in Tamil Nadu. Its main tributaries are Amravati, Bhavani, Hemavati and Kabini.
- III) The Cauvery basin is spread in the states of Karnataka, Tamil Nadu and Kerala and the Union Territory of Puducherry.
- IV) Tributaries: Harangi, Hemavati, Kabini, Bhavani, Lakshmana Tirtha, Noyyal, and Arkavati.

WHO SHOULD OWN THE WORLD'S LITHIUM?

Why is it in the news?

- I) Recently, the news of potentially significant reserves of **lithium**, an element needed to manufacture batteries used in electric cars and other renewable energy infrastructure, in Jammu and Kashmir has been welcomed universally.
- II) Commentators have called this a boost for national prosperity and security without dismissing concerns about the potential social and environmental impacts.

What is the status of India's lithium industry?

- I) India's **electric-vehicle (EV)** market was valued at \$383.5 million in 2021, and is expected to **expand to \$152.21 billion in 2030**. India imported 450 million units of lithium batteries valued at **\$929.26 million (₹ 6,600 crore) in 2019-2020**, which makes the development of the country's domestic lithium reserves a matter of high stakes.
- II) Scholars have argued that the ongoing global transition to low-carbon economies, the rapid expansion of **artificial intelligence (AI)**, and 5G networks will greatly reshape global and regional geopolitics. The access to and control over rare minerals, such as lithium and cobalt, will play a crucial role in these epochal changes.

Who should own these minerals?

- I) In July 2013, a three-judge bench of the Supreme Court of India ruled that the **owner of the land has rights to everything beneath, "down to the centre of the earth"**.
Yet, large areas of land, including forests — which make up more than 22% of India's landmass — hills, mountains, and revenue wasteland are publicly owned.
- II) The Supreme Court also recalled that the Union

government could always ban private actors from mining sensitive minerals, as is already the case with uranium under the **Atomic Energy Act 1962**. In today's context, lithium is as important as, if not more than, uranium.

How do other countries manage lithium reserves?

The stories of two South American countries, **Chile and Bolivia** — which have the largest known reserves of lithium — are particularly instructive.

- I) In Chile, the government has designated **lithium as a strategic resource** and its development has been made the exclusive prerogative of the state. The state has licensed only two companies — SQM and Albemarle — to produce lithium in the country.

In April 2023, **Chile's president Gabriel Boric** announced a new **"National Lithium Strategy"**, which many in the corporate sector took to be a declaration of his intention to nationalise the industry. On the contrary, Mr. Boric has clarified that his government would honour existing contracts.

As a supplement, the new strategy calls for public-private partnerships for future lithium projects, which will allow the state to regulate the environmental impact of lithium-mining, distribute the revenue from lithium production more fairly among local communities, and promote domestic research into **lithium-based green technologies**.

- II) Bolivia's new constitution, developed under the leadership of **former president Evo Morales** and approved by a popular vote in February 2009, gave the state "the control and direction over the exploration, exploitation, industrialisation, transport, and commercialisation of natural

resources.”

The Morales administration nationalised lithium and adopted a hard line against private and foreign participation. This is believed to be one of the factors for the country’s failure to produce any lithium at a commercial scale nearly 20 years after the industry was nationalised.

Bolivia’s current president, Luis Arce, seeks to change that. However, instead of handing over lithium resources to the private sector, Mr. Arce wants to join hands with other Latin American countries to design a ‘lithium policy’ that would benefit all their economies.

III) **Mexico’s president Andrés Manuel López Obrador** also nationalised lithium in February this year, declaring, “Oil and lithium belong to the nation, they belong to the people of Mexico.”

IV) In general, the countries in Latin and South America are thinking through ways and means to pursue a multi-pronged strategy. While the national governments of these countries exercise a significant degree of control, the nature of private sector participation varies between these countries. The actions of these governments are also a response to the mobilisation of Indigenous Peoples in the region who want to hold corporations as well as governments to account.

Way forward

- I) As India explores and develops its own lithium reserves, the appropriate development of this sector will require a very high level of effectiveness on the part of the Indian state.
- II) Much of India’s mineral wealth is mined from regions with very high levels of poverty, environmental degradation, and lax regulation.

Effective and careful management of the sector should be paramount if India’s rare minerals development is to meet its multiple goals — social wellbeing, environmental safety, and national energy security.

CITY INVESTMENTS TO INNOVATE, INTEGRATE & SUSTAIN 2.0 (CITIIS 2.0)

Why is it in the news?

- ★ Recently, the Union Cabinet has approved the **City Investments to Innovate, Integrate and Sustain 2.0 (CITIIS 2.0)**.

About CITIIS 2.0

- I) The program aims to support competitively selected projects promoting circular economy with focus on integrated waste management at the city level, climate-oriented reform actions at the State level, and institutional strengthening and knowledge dissemination at the National level.
- II) The funding for CITIIS 2.0 would include a loan of Rs.1760 crore (EUR 200 million) from AFD and KfW (EUR 100 million each) and a technical assistance grant of Rs.106 cr. (EUR 12 million) from the EU.
- III) CITIIS 2.0 is a program conceived by the **Ministry of Housing and Urban Affairs (MoHUA)** in partnership with the **French Development Agency (AFD)**, Kreditanstalt für Wiederaufbau (KfW), the **European Union (EU)**, and **National Institute of Urban Affairs (NIUA)**.
- IV) The program will run for a period of four years, i.e., from 2023 till 2027.

CITIIS 2.0 has three major components

- I) Component 1: Financial and technical support for developing projects focused on building climate resilience, adaptation and mitigation in up to 18 smart cities.

- II) Component 2: All States and UTs will be provided support to
- set-up State climate centres
 - create State and city level Climate Data Observatories
 - facilitate climate-data driven planning, develop climate action plans and
 - build capacities of municipal functionaries.
- III) Component 3: Interventions at all three levels; Centre, State and City to further climate governance in urban India through institutional strengthening.

Significance

- CITIIS 2.0 will supplement the climate actions of Government of India through its ongoing National programs (National Mission on Sustainable Habitat, AMRUT 2.0, Swachh Bharat Mission 2.0 and Smart Cities Mission).
- CITIIS 2.0 will contribute positively to India's **Intended Nationally Determined Contributions (INDCs)** and **Conference of the Parties (COP26)** commitments.

RS 75 COIN LAUNCHED TO MARK INAUGURATION OF NEW PARLIAMENT

Why is it in the news?

- ★ A new commemorative coin with a denomination of **Rs 75** was unveiled by Prime Minister Narendra Modi at the inauguration of the new Parliament building.

Features

- The latest Rs 75 coin is **circular in shape with a diameter of 44mm**.
- The composition of the coin is of a **quaternary alloy 50 per cent silver, 40 percent copper, 5 per cent nickel and 5 percent zinc**.



Inscriptions

- The face of the coin shall bear the **Lion Capital of Ashoka Pillar** in the centre, with the legend **Satyameva Jayate** inscribed below, flanked on the left periphery with the word **"Bharat"** in Devnagri script and on the right periphery the word **"INDIA"** in English.
- The other side of the coin displays an image of the new parliament building. The inscription **"Sanskad Sankul"** is written in Devanagari script on the upper periphery while the words **"Parliament Complex"** in English on the lower periphery of the coin.

Background of Commemorative Coins

- India has been issuing commemorative coins **since the 1960s** for several reasons such as paying homage to notable personalities, spreading awareness about government schemes, or remembering key historic events.
- The country released its first commemorative coin in 1964 in honour of Jawaharlal Nehru, who had passed away that year.

Power to design and mint coins

- The **Coinage Act, 2011** gives the central government the power to design and mint coins in various denominations.
- In the case of coins, the role of the RBI is limited to the **distribution of coins that are supplied by the central government**.
- All coins are minted in the four mints owned by the Government of India in **Mumbai, Hyderabad, Kolkata and Noida**.

NITI AAYOG'S ANNUAL HEALTH INDEX 2020-21

Why is it in the news?

- ★ **Kerala, Tamil Nadu and Telangana** emerged as the top performers among the 'larger states' in the **NITI Aayog's annual 'health index' for the Covid year of 2020-21.**

What are the Key takeaways?

I) Based on Overall Performance:

- a) Among the 19 'larger states', Kerala, Tamil Nadu and Telangana have occupied first, second and third place respectively, in terms of overall performance.
- b) Bihar (19th), Uttar Pradesh (18th) and Madhya Pradesh (17th) are at the bottom of the list.
- c) Among the eight smaller states, Tripura has recorded the best overall performance, followed by Sikkim and Goa; Arunachal Pradesh (6th), Nagaland (7th) and Manipur (8th) are at the bottom.
- d) And among the eight UTs, Lakshadweep has been ranked as the top performer in terms of overall performance, while Delhi ranked at the bottom.

II) Based on Incremental Performance:

Rajasthan, Uttarakhand and Odisha emerged as the top three performers in 2020-21, as compared to their performance in 2019-20.

What is NITI Aayog's Annual Health Index?

- I) In 2017, the **National Institution for Transforming India (NITI Aayog)** in collaboration with the **Ministry of Health and Family Welfare (MoHFW)** and the World Bank initiated an annual Health Index for tracking Overall Performance and Incremental Performance across all states and **Union Territories (UTs).**

II) The objective of the Annual Health Index is to track and rank progress on health outcomes and health systems performance, develop healthy competition and encourage cross learning among states and UTs.

III) The health index assesses states and UTs on two parameters – **incremental performance (year-on-year progress) and overall performance.**

IV) The ranking is done under three categories: larger states, smaller states and Union territories (UTs) to ensure comparison among similar entities.

V) The Health Index is a composite score that reflects the achievements and incremental improvements of the states and UTs on 24 indicators across three domains: **health outcomes, governance and information, and key inputs and processes.** Each domain has been assigned weight based on its importance with a higher score for outcome indicators.

The 'health outcomes' include indicators like neonatal mortality rate, total fertility rate, sex ratio at birth, immunization coverage, proportion of institutional deliveries, total case notification rate of tuberculosis, and proportion of people living with HIV on antiretroviral therapy.

The 'governance and information' domain includes indicators like proportion of institutional deliveries, average occupancy (in months) of three key posts at state level, average occupancy (in months) of the chief medical officer, and days taken for fund transfer.

The 'key inputs/ processes' is a measure of health infrastructure available, including the proportion of functional 24X7 primary healthcare centres, districts with functional cardiac care units, and vacancies in healthcare provider positions.

THE FIRST DIGITAL CENSUS

Why is it in the news?

- I) India had conducted the Census every 10 years since 1881, but in 2020, the **decennial exercise** for Census 2021 had to be postponed due to the pandemic. Though the government has not announced fresh dates for the Census, the groundwork is being laid and details are emerging about some of the features.
- II) It will be the **first digital Census** giving citizens an opportunity to “**self-enumerate**”. The **NPR (National Population Register)** has been made compulsory for citizens who want to exercise the right to fill the Census form on their own rather than through government enumerators. For this, the **Office of the Registrar General of India (RGI)** has designed a “self-enumeration” portal, so far in English only, that is yet to be launched. During self-enumeration, Aadhaar or mobile number will be mandatorily collected.

What is the status of the Census exercise?

- I) A January 2 notification extending the deadline for the freezing of administrative boundaries in States till June 30 has ruled out the exercise at least till September. As preparation and training takes at least three months, the Census will have to be pushed to next year.
- II) Around 30 lakh government officials will be assigned as enumerators and each will have the task to collect the details of 650-800 people through both online and offline mode, covering an **estimated population of 135 crore people**. The Lok Sabha election is due in April-May 2024 and it is unlikely that the Census will be carried out before that since the same workforce will be dedicated to the elections.

- III) The completion of both the phases of the Census will take at least 11 months, even if done at an accelerated pace from October 1.

What is holding up the Census?

- I) One reason which is holding up the exercise is the **amendments proposed to the Registration of Births and Deaths Act, 1969**. The government wants to have a centralised register of births and deaths that can be used to update the population register, electoral register, Aadhaar, ration card, passport and driving licence databases.
- II) The centrally stored data will be updated in real time without human interface leading to addition and deletion from electoral rolls when an individual turns 18 and after an individual’s death respectively.

What about self-enumeration and NPR?

- I) Recently, Mr. Shah inaugurated the new **Janganana Bhavan (Census building)** in New Delhi, and released a report, ‘**The Treatise on Indian Censuses Since 1981**’ containing details about the questions to be asked in the forthcoming Census and other aspects. The report said that “self-enumeration for Census will be provided to only those households that have updated the **NPR [National Population Register]** online”.
- II) The NPR, unlike the Census, is a comprehensive identity database of every “**usual resident**” in the country and the data proposed to be collected at the family level can be shared with States and other government departments. Though Census also collects similar information, the **Census Act of 1948** bars sharing any individual’s data with the State or Centre and only aggregate data at the administrative level can be released.

According to **Citizenship Rules 2003 under the**

Citizenship Act, 1955, NPR is the first step towards a compilation of the **National Register of Indian Citizens (NRIC/NRC)**. Assam is the only State where an NRC has been compiled based on the directions of the Supreme Court, with the final draft of Assam's NRC excluding 19 lakhs of the 3.29 crore applicants. The BJP-ruled Assam government has rejected the NRC in its current form and demanded re-verification of 30% names included in the NRC in areas bordering Bangladesh and 10% in the remaining State.

- III) In 2020, the NPR was opposed by several State governments such as West Bengal, Kerala, Rajasthan, Odisha, Bihar, Andhra Pradesh, Telangana, Punjab and Chhattisgarh and civil society organisations due to its link with the proposed NRC as it might leave many people stateless for want of legacy documents.
- IV) There are apprehensions that the **Citizenship Amendment Act (CAA), 2019** that allows citizenship on the basis of religion to six undocumented religious communities from Pakistan, Afghanistan and Bangladesh who entered India on or before December 31, 2014 will benefit non-Muslims excluded from the proposed citizens' register, while excluded Muslims will have to prove their citizenship. The government has denied that the CAA and NRC are linked and that there are currently any plans to compile a countrywide NRC.

What is the current status of NPR?

- I) The NPR was first collected in 2010 when the Congress government was in power at the Centre. It was updated in 2015 and already has details of 119 crore residents.
- II) In March 2020, the **Ministry of Home Affairs (MHA)** amended the Census Rules framed in 1990

to capture and store the Census data in an electronic form and enabled self-enumeration by respondents.

The NPR is scheduled to be updated with the first phase of Census 2021. For this phase (houselisting and household phase), 31 questions have been notified, while for the population enumeration — the second and main phase — 28 questions have been finalised but are yet to be notified.

The NPR is expected to collect details on 21 parameters of all family members, up from 14 questions in 2010 and 2015. The sub-heads include passport number, relationship to head of the family, whether divorced/widowed or separated, mother tongue, if non-worker, cultivator, labourer, government employee, daily wage earner among others. The form also has a column on Aadhar, mobile phone, Voter ID and driver's licence.

- III) Though the government has claimed that the NPR form has not been finalised yet, the sample form is part of the Census of India 2021 Handbook for Principal/District Census Officers and Charge Officers in 2021.

ACCREDITATION OF NHRC, INDIA

Why is it in the news?

- I) For the second time in a decade, the U.N.-recognised **Global Alliance of National Human Rights Institutions (GANHRI)** deferred the accreditation of **National Human Rights Commission, India (NHRC-India)**.
- II) In 2017, the Global Alliance of National Human Rights granted accreditation to the National Human Rights Commission after a year-long deferment; it had raised concerns about the functioning of **India's statutory human rights body**.

What are the reasons for Deferment?

Global Alliance of National Human Rights Institutions (GANHRI) deferred citing objections like:

- a) Political interference in appointments, involving the police in probes into human rights violations;
- b) Lack of diversity in staff and leadership;
- c) Insufficient action to protect marginalised groups;
- d) Poor cooperation with civil society.

Why is accreditation important?

- I) The Global Alliance of National Human Rights Institutions represents 110 human rights bodies across the world. The accreditation status it gives is **based on the United Nations' Paris Principles, which was adopted in 1993.**
- II) The Paris Principles lists six criteria that human rights bodies must adhere to – mandate and competence, autonomy from government, independence guaranteed by a statute or Constitution, pluralism, adequate resources and adequate powers of investigation.
- III) Human rights bodies that are fully compliant with these principles are given the "A" status. In case they are partially compliant, a "B" status is given. The **global alliance reviews the accreditation every five years.**
- IV) Without the accreditation, the National Human Rights Commission will not be eligible to represent India at the UN Human Rights Council.

GANHRI (Global Alliance of National Human Rights Institutions)

- I) It was formerly known as the International Coordinating Committee of National Human Rights Institutions (NHRIs), GANHRI is a global network of NHRIs.

- II) It is constituted as a non-profit entity (under Swiss law) and Secretariat support is provided by the **Office of the UN High Commissioner for Human Rights (OHCHR).**
- III) The **Sub-Committee on Accreditation (SCA)** of the Global Alliance of National Human Rights Institutions (GANHRI) has the mandate to review and analyse accreditation applications and to make recommendations to the GANHRI Bureau on the compliance of applicants with the Paris Principles.
- IV) It coordinates the relationship between NHRIs and the UN human rights system.

PANCH KARMA SANKALP

Why is it in the news?

- ★ Recently, the **Union Minister of Ports, Shipping & Waterways (MoPSW)** announced '**Panch Karma Sankalp**' during the ministry's second Chintan Shibir held in Munnar, Kerala. The 'Panch Karma Sankalp' includes 5 major announcements:
 - I) To provide 30% financial support for the promotion of Green Shipping;
 - II) Under the Green Tug Transition Programme Jawaharlal Nehru Port (Navi Mumbai), VO Chidambaranar Port (Tuticorin, TN), Paradip Port (Odisha) and Deendayal Port, Kandla (Gujarat) will procure two tugs each;
 - III) Deendayal Port and VO Chidambaranar Port to be developed as Green Hydrogen Hub;
 - IV) Jawaharlal Nehru Port and VO Chidambaranar Port, Tuticorin to become smart ports by next year;
 - V) Single Window Portal to monitor river and sea cruises.

'Harit Sagar' Guidelines

- I) To meet the larger vision of achieving the Zero

Carbon Emission Goal, the Ministry of Ports, Shipping & Waterways has launched 'Harit Sagar' the Green Port Guidelines in May 2023.

- II) Harit Sagar Guidelines - 2023 envisages ecosystem dynamics in port development, operation and maintenance while aligning with 'Working with Nature' concept and minimizing impact on biotic components of harbour ecosystem.
- III) It lays emphasis on use of Clean / Green energy in Port operation, developing Port capabilities for storage, handling and bunkering Greener Fuels viz. Green Hydrogen, Green Ammonia, Green Methanol / Ethanol etc.

FORUM SHOPPING

Why is it in the news?

- ★ Recently, the **Chief Justice of India (CJI)** DY Chandrachud condemned 'forum shopping'.

What is Forum shopping?

- I) When litigants or lawyers attempt to deliberately move their case to a particular judge or Court where they think the judgment could be more favourable, they are said to be "forum shopping."
- II) This practice involves choosing a court that is likely to provide the most favourable outcome, rather than following the standard legal process.
- III) Lawyers think about which is the right forum to approach as part of their litigation strategy. For example, one could directly approach the Supreme Court via a public interest litigation case instead of the concerned High Court because the issue could get more eyeballs.

Issues with Forum Shopping

- I) It cited the injustice caused to the other party in the case and overburdening some courts over others and interfering with judicial process.
- II) It circumvents the normal course of justice and

may increase the workload on the courts.

- III) A number of writers recognize that forum shopping may lead to an undesirable lack of decisional uniformity.
- IV) It has no sanction in the law and gives unfair advantage to one party.

SC judgements on 'Forum Shopping'

- I) **Chetak Construction Ltd. vs. Om Prakash (1998)**: A litigant cannot be permitted choice of the forum, and that every attempt at forum shopping must be crushed with a heavy hand.
- II) **Union of India & Ors. vs. Cipla Ltd (2017)**: SC laid down a "functional test" to be adopted for forum shopping.
- III) **Vijay Kumar Ghai vs. State of W.B (2022)**: SC termed forum shopping as a disreputable practice by the courts that "has no sanction and paramourty in law".

What is Bench Hunting?

"Bench hunting" refers to petitioners managing to get their cases heard by a particular judge or court to ensure a favourable order.

THE NATIONAL MEDICAL DEVICES POLICY, 2023

Why is it in the news?

- I) Recently, the Union Cabinet approved the **National Medical Devices Policy, 2023**. The policy endeavours to facilitate an orderly growth of the sector and in turn, **achieve the public health objectives of access, affordability, quality and innovation**.
- II) It is expected to help the domestic medical devices sector market grow from \$11 billion to \$50 billion by 2030 alongside achieving a 10-12% global market share over the next 25 years.
- III) The aim is to provide the required support and direction, and help the sector become

“**competitive, self-reliant, resilient and innovative**” to cater not only to domestic but global needs.

What does it do about regulatory streamlining?

- I) The most significant of the introduced measures entail regulatory streamlining. The policy enhances the role of the **Bureau of Indian Standards (BIS)** along with designing a coherent pricing regulation.
- II) Pricing regulation is particularly important for addressing a broader challenge in the domestic device manufacturing sector as some of the private hospitals give higher priced products instead of available low-cost options.
- III) Besides capping prices, the streamlining endeavour will also create a **single window clearance system** for licensing of medical devices, combining relevant departments like the **Atomic Energy Regulatory Board (AERB), MeitY and the Department of Animal Husbandry and Dairying (DAHD).**

What about human resource development and innovation?

- I) To ensure a skilled workforce and create future ready MedTech human resources, comprising scientists, regulators, health experts, managers, and technicians, the policy would support dedicated multidisciplinary courses for medical devices, including futuristic medical technologies, high-end manufacturing and research.

This would complement the Department’s proposed **National Policy on Research and Development** alongside innovation in the pharma-MedTech sector in India. Further, centres of excellence in academic and research institutions, innovation hubs, and ‘plug and play’

infrastructure are also being planned, alongside support to start-ups.

- II) The policy also seeks to **establish and strengthen large medical device parks and clusters with quality infrastructure facilities close to economic zones with requisite logistics connectivity.** This is expected to be a collaborative venture with the State governments and industry, resulting in better convergence and backward integration with the industry.
- III) Ensuring an ecosystem to encourage private investments, series of funding from venture capitalists and potential **public-private partnerships (PPP)** is a key component of this endeavour. This will also be supplemented intervention programs such as **Make in India, Ayushman Bharat, Heal-in-India and Start-up mission.**

Why the need for human resources, innovation?

- I) Human resources, innovation and investment are particularly important for the medical devices sector because, despite relatively low entry barriers, it is highly capital-intensive and requires continuous skill development to be in consonance with newer technologies.
- II) As per the **Indian Brand Equity Foundation (IBEF)**, a huge gap still exists in the current demand and supply of medical devices from U.S., China and Germany; **India has an overall 70-80% import dependency on medical devices.** Many domestic and international manufacturers view this under-penetration as a potential growth opportunity.

Why are we discussing imports?

- I) Notwithstanding that India is among the major global manufacturers of equipment such as syringes, needles, surgical blades, surgical

gloves, condoms, PPE, masks, hydrocephalus shunts, orthopaedic implants and intra-ocular lenses, it is highly dependent on imports for basic consumables like examination gloves, hot water bottles and home care products like blood pressure instruments, diabetes sugar monitors, and thermometers. **China and U.S. combined make up 60% of our import basket.**

- II) If the National Medical Devices Policy (2023) and the **Parliament Healthcare Committee** recommendations are implemented then the trade imbalance can be corrected to be at least 60-70% domestic market share and a more reasonable 30% imports.

What is the Export Promotion Council?

The policy envisages the creation of a dedicated **Export Promotion Council** for the sector under the Department of Health. This would be a forum to deal with varied market access issues, while also combining and sharing stakeholders' knowledge and expertise.

How does our domestic market look like?

- I) The domestic industry comprises a combination of large multinationals, small and mid-sized companies. As per the IBEF, **India is the fourth largest Asian medical market after Japan, China and South Korea and is among the top 20 globally.** It is estimated to grow at a CAGR of 15% — two-and-half times the global growth rate. Between 2020-25, the diagnostic imaging (which includes radiographs and ultrasound) market is likely to expand at a CAGR of 13.5%.
- II) Exports of medical devices stood at \$2.90 billion in FY 2022; this is estimated to scale to \$10 billion by FY 2025. Key export countries include U.S., France, Singapore, China, Turkey, Brazil, the Netherlands, Iran and Belgium.

- III) India's major medical clusters are Gujarat, Karnataka, Maharashtra, Haryana, Andhra Pradesh and Tamil Nadu. Their manufacturing expertise varies from pharmaceuticals, medical electronics, stents and implants to low-end medical consumables.
- IV) However, a pending demand within the industry is a separate law for medical device manufacturers. Experts recommends that the law that treats manufacturers as criminals should not be applicable, instead, there should be a separate law like those in Europe, Canada, Japan, Brazil etc., as it will give developers and manufacturers the freedom to make innovative products.

HOW WILL THE NEW ORDINANCE AFFECT 'SERVICES' IN DELHI?

Why is it in the news?

- I) Recently, a Constitution Bench headed by the **Chief Justice of India D.Y. Chandrachud** held that the Delhi government can make laws and administer civil services in the national capital. The court limited the role of the **Lieutenant Governor (LG), an arm of the Centre, over bureaucrats in the capital to three specific areas — public order, police and land.**
- II) The judgment intended to strike a balance between the national interests of the Centre in the capital and the authority of an elected Delhi government to legislate and administer meaningfully through "professional" civil service officers deputed to its departments.
- III) However, the Centre turned the tables on the judgment. The President promulgated the **Government of National Capital Territory of Delhi (Amendment) Ordinance, 2023** to make a fresh claim of power over the services in the capital.

The stated aim of the Ordinance is to **“provide for a comprehensive scheme of administration of services”** which **“balances the local and domestic interests of the people of Delhi with the democratic will of the entire nation reflected through the President of India”**.

What does the Ordinance say?

- I) The government has used the Ordinance route to indirectly return to its original position which it had taken in May 21, 2015 through a Home Ministry notification. The notification, which formed the bone of contention between the **Aam Aadmi Party (AAP) government and the Centre** for the past eight years, gave the **Lieutenant Governor (LG)** power over the services. It required the LG to consult the Chief Minister only at his “discretion”. The notification had excluded **Entry 41 (services) of the State List** from the scope of powers of the Delhi government.
- II) The Ordinance forms a “permanent” **National Capital Civil Service Authority (NCCSA)** with the Chief Minister as chairperson, and the Chief Secretary and Principal Home Secretary as Member and Member Secretary, respectively.
- III) The NCCSA exercises authority over civil service officers working in all Delhi government departments except those in public order, police and land. It would decide transfers, postings, prosecution sanctions, disciplinary proceedings, vigilance issues, etc, of civil service officers deputed to Delhi government departments by majority of votes of the members present and voting. **The Lieutenant Governor’s decision, in case of a difference of opinion, would be final.**

This throws open a scenario in which bureaucrats in the NCCSA could possibly veto

the Chief Minister. The Ordinance explains that the Chief Secretary would represent **“the will of the officers of GNCTD” (Government of the National Capital Territory of Delhi)**.

- IV) The Supreme Court had envisaged a **“neutral civil service”** carrying out the day-to-day decisions of the Council of Ministers.

The NCCSA attempts to bring civil service officers out of the administrative control of the elected Ministers, who embody the will of the people, and transform them into a power lobby.

The NCCSA negates the intrinsic link between government accountability and the principle of collective responsibility highlighted in the judgment. The Ordinance, by creating the NCCSA, skirts the emphasis laid down in the judgment on the **“triple chain of command”** in the governance of Delhi. The court had held that the civil services were accountable to the Ministers of the elected government, under whom they function. The Ministers were in turn accountable to the legislature, and the legislature ultimately to the people of Delhi. The chain of command was forged by the Supreme Court to ensure democratic accountability.

- V) The Ordinance also does not heed the **President’s own Transaction of Business Rules of the Government of National Capital Territory of Delhi, 1993**. The Supreme Court had held in 2018 that “a significant aspect of the Rules is that on matters which fall within the ambit of the executive functions of the Government of **National Capital Territory of Delhi (NCTD)**, decision-making is by the government comprising the Council of Ministers with the Chief Minister at its head”. This view was reinforced on May 11, 2023.

VI) The court had also dismissed the **K. Balakrishnan Committee's** specific recommendation that the **“services” should not be included within the legislative and executive ambit of the NCTD**. The court held that the committee report was not relevant as it preceded the insertion of **Article 239AA — the provision that deals with the governance structure of Delhi, in the 69th Constitution Amendment, 1991**.

Does the Ordinance go against the Supreme Court judgment?

- I) The Ordinance is based on the argument that the Supreme Court has itself acknowledged the superior authority of Parliament to make laws for the national capital. A review petition filed by the Centre in the Supreme Court claimed that **Delhi is not a “full-fledged State” but only a Union Territory which is an extension of the Union**. The Parliament is Delhi's true legislature, the Centre has argued. However, the May 11 judgment addresses this contention by acknowledging that though Delhi is not a full-fledged State, its Legislative Assembly is constitutionally entrusted with the power to legislate upon the subjects in the State List and Concurrent List.
- II) The unanimous judgment held that though **Delhi is not a State under the First Schedule to the Constitution**, it is conferred with power to legislate upon subjects “to give effect to the aspirations of the people of NCTD”. It has a democratically elected government which is accountable to the people of the NCTD. Under the constitutional scheme envisaged in **Article 239AA (3)**, NCTD was given legislative power which though limited, in many aspects is similar to States. In that sense, with the addition of Article 239AA, the Constitution created an

“asymmetric federal model” with the Union of India at the centre, and the NCTD at the regional level.

The May 11 judgment had also referred to how the majority in a 2018 Constitution Bench judgment had held that while NCTD could not be accorded the status of a State, the concept of federalism would still be applicable to NCTD.

- III) The court had held that the executive power of the Delhi government was **“coextensive”** with its legislative power. That is, the executive arm of the government covers all the subjects, including services, except public order, police and land, for which the legislative arm can make laws.

What does the Ordinance and the judgment say about the LG's powers?

- I) The Ordinance has put the LG back in the driver's seat by giving him the power to take a final call on any decision taken by the NCCSA regarding services. This is despite the fact that the LG's powers were curtailed way back in 2018 by another Constitution Bench judgment.
- II) On May 11, the court had agreed with its conclusions in 2018 that the LG was bound by the aid and advice of the Council of Ministers under Article 239AA (4) while exercising executive powers in relation to matters falling within the legislative domain of the legislative assembly of NCTD.
- III) The court had held that even the **“limited discretionary power”** afforded to the LG “ought to be exercised in a careful manner in rare circumstances such as on matters of national interest and finance. The Lieutenant Governor could not refer every matter to the President”.

What lies ahead?

- I) An Ordinance is not beyond judicial review of

the apex court. If the 2023 Ordinance is challenged separately, the Union would have to prove the “extraordinary or emergent situation” which necessitated it to promulgate an Ordinance merely days after a Constitution Bench settled the law.

- II) A Constitution Bench in **DC Wadhwa versus State of Bihar** had held that the power of the Executive to promulgate an Ordinance should not be “perverted to serve political ends”.

HOW HAS THE SUPREME COURT VALIDATED TAMIL NADU’S STAND ON JALLIKATTU?

Why is it in the news?

- I) Recently, **Jallikattu**---the traditional rural sport involving bulls, has received judicial approval. A Constitution Bench of the Supreme Court has ruled that the amendment made in 2017 by the Tamil Nadu Assembly to the **Prevention of Cruelty to Animals Act, 1960**, facilitating the smooth conduct of the sport with stringent regulations, is valid.
- II) The court has, thus, settled the question whether the sport should be disallowed on the ground that it involves unnecessary cruelty to animals and violates animal rights. The verdict is also applicable to other sports involving bovines such as **Kambala (buffalo race) in Karnataka and bullock-cart racing in Maharashtra**.

What are the controversies over jallikattu?

- I) The main conflict over the sport, which involves sturdy bulls being let loose into the arena and being chased by men who are considered winners if they manage to hold on to the humps of the animals without being thrown off, is whether it entails unnecessary cruelty. Animal rights activists have been arguing that the **manner in which it is held is cruel** because it

inflicts pain and suffering. What appears to be a bull’s ferocity in the arena is actually a flight response born out of fear. Specific acts that allegedly took place in the past — before the events were regulated by law — such as beating the bulls or twisting their tails and other acts that inflict pain so that they are more ferocious in the arena, are now rare.

- II) In 2006, a Madras High Court judge, when a petition for permission to hold a **rekla race (a kind of bullock cart race)** came up, barred the conduct of any such event including jallikattu. On appeal, a Division Bench set aside the order, but asked the government to take steps to prevent any kind of violence or cruelty as well as ensure the safety of the participants and spectators. It favoured regulation over an outright ban.
- III) The State Assembly adopted the **Tamil Nadu Regulation of Jallikattu Act in 2009** to strengthen its case for holding the event by adopting regulations and safety measures. In July 2011, the Union Ministry of Environment and Forests issued a notification including ‘**bulls**’ in a list of animals that are prohibited from being exhibited or trained for any performance. Efforts to organise the sport as a regulated event failed and jallikattu could not take place for some years.
- IV) The ban caused a bitter divide in society between two camps: those who believed that jallikattu should be organised without any hindrance as it was **part of the State’s tradition and culture**, and that its continuance was needed to preserve the native breeds of bulls on the one hand; and those who believed it cannot be regulated at all as it **amounted to cruelty and ill-treatment of animals in any form**. Further, the

number of **human casualties** during the events every year also raised concern about the safety of the participants and spectators.

Why did the Supreme Court ban the sport?

- I) In a landmark verdict that established a **rights jurisprudence for animals** under the Constitution, the Supreme Court imposed a ban on jallikattu and similar sports involving animals in 2014.
- II) It held the Tamil Nadu law regulating the sport as repugnant to the Central legislation on preventing cruelty to animals. It said the Act was **“anthropocentric”** in the sense that it sought to protect the interests of organisers, spectators and participants and not the animals. On the other hand, the **Prevention of Cruelty to Animals Act, 1960 (PCA)** was an **“ecocentric” law**.
- III) The Bench ruled that the **provisions of the State law were contrary to provisions of the Central Act in three ways:**
 - a) It went against the statutory duty of anyone with the care or charge of any animal to ensure its well-being and prevent infliction of unnecessary pain or suffering;
 - b) The bar on using animals solely for entertainment and inciting them to fight; and
 - c) The restrictions on the training and exhibition of performing animals.
- IV) The court cited the **‘Five Freedoms’** recognised for animals by the **World Health Organization for Animal Health:**
 - a) freedom from hunger, thirst and malnutrition;
 - b) freedom from fear and distress;
 - c) freedom from physical and thermal discomfort;
 - d) freedom from pain, injury and disease; and
 - e) freedom to express normal patterns of behaviour and said that these freedoms should be read into

the provisions favouring animal rights found in the PCA.

- V) In addition, these rights and freedoms flow from the **Fundamental Duties in the Constitution, viz., Art. 51A(g)**, which imposes a duty on citizens to protect and improve the natural environment and to have compassion for living creatures.

What was Tamil Nadu’s response?

- I) A massive agitation broke out in January 2017 against the government’s failure to facilitate the conduct of jallikattu for successive years, with tens of thousands of people, especially youngsters, occupying the sands of the Marina in Chennai for days. This led to a surge of support for jallikattu.
- II) The then government agreed to take legislative measures. With the Union government’s cooperation, it obtained the President’s prior instruction to issue an ordinance that sought to remove the basis for the 2014 Supreme Court judgment.
- III) To avoid repugnancy with the Central law, the ordinance, which was replaced by an Act within a few days, was adopted as a State-specific amendment to the PCA itself. It was framed in a way that would define jallikattu as an event organised to promote and follow tradition and culture and to preserve the native breeds of bulls. Its clauses were worded to remove the applicability of the PCA provisions to jallikattu. It added the sport as another exception to the list of acts the PCA itself allows as those that do not amount to cruelty (other exceptions include dehorning, castration and destruction of stray dogs and other animals). It made the restriction on use of animals for performances inapplicable

to jallikattu, besides including the sport to the list of 'exemptions' from the rule against using some animals as performing animals.

- IV) With the President giving his assent, the amendment became law in Tamil Nadu.

What does the SC ruling now say?

- I) In its latest ruling, a Constitution Bench has accepted the basic argument that **jallikattu is part of the cultural heritage of Tamils**. It observed that the judiciary cannot examine the question whether something was part of tradition and culture, and that it would defer to the legislature's view in this regard. On this point, it differed from the 2014 verdict which had rejected the claim that the sport had cultural and traditional value.
- II) It **upheld the Amendment Act**, saying it has now legitimised the bovine sport and that it cannot be termed a piece of colourable legislation. The

court recalled that the 2014 judgment had banned the sport by citing acts that amounted to cruelty then. However, the situation was now different, as the State amendment has been followed up with stringent regulations for conducting jallikattu.

- III) It ruled that the State legislation should be read along with the rules framed for holding these events. Therefore, there are no statutory violations now that warrant a ban on jallikattu. In particular, it said the stringent rules made by Tamil Nadu, Karnataka and Maharashtra have eliminated the **"offending elements"** of jallikattu, Kambala and bullock-cart racing in the respective States. These changes minimise the potential for cruelty, and address the concerns about animal rights violations.

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INTERNATIONAL RELATIONS

THE US TO REJOIN UNESCO

Why is it in the news?

- I) Recently, the **United Nations Educational, Scientific and Cultural Organisation (UNESCO)** announced that the United States will rejoin it in July, four years after it left the agency (along with Israel), alleging that UNESCO was biased against Israel. The move to rejoin will face a vote by UNESCO's member states and is expected to pass easily.
- II) UNESCO is a **UN agency tasked with furthering international cooperation and peace through the promotion of educational, scientific and cultural causes**. For instance, it designates locations globally as World Heritage Sites, which means international recognition and possible funding. **The United States was a founding member of UNESCO in 1945.**
- III) According to UNESCO, the US Department of State has now welcomed the way in which UNESCO had addressed in recent years emerging challenges, modernised its management, and reduced political tensions.

What made the US leave UNESCO?

- I) The issue goes back to 2011, when UNESCO inducted Palestine as a member. This led to the US halting the agency's funding, worth millions of dollars, under then President Barack Obama.
- II) Notably, **Palestine is not recognised as a sovereign state by the United Nations**. It was included as a non-member observer State over Israel's objections in 2012, meaning it could participate in General Assembly proceedings but lacked voting rights.
- III) In 2013, Israel's ambassador to UNESCO, told that his country supported the United States' decision to stop its funding, saying it was "objecting to the politicisation of UNESCO, or any international organisation, with the accession of a non-existing country like Palestine".
- IV) The Palestinians claim the West Bank, east Jerusalem and Gaza Strip — territories captured by Israel in the 1967 war — for an independent state. Israel says the Palestinians' efforts to win recognition at the UN are aimed at circumventing a negotiated settlement and meant to pressure Israel into concessions.
- V) Israel and the United States termed the inclusion of Palestine, UNESCO's previous criticism of Israel's occupation of East Jerusalem and naming what it said were ancient Jewish sites as Palestinian heritage sites as examples of anti-Israel bias.
- VI) US laws, owing to the country's historical ties with Israel, prohibit funding to any UN agency that implies recognition of the Palestinians' demands for their own state. But this was negotiated recently through an agreement in 2022 that allowed for giving UNESCO funds again.
- VII) Officials estimated that the US accrued \$600 million in unpaid dues in these years and this amount was one of the reasons behind then US President Donald Trump's decision to withdraw in 2017, a year after he was elected President. The decision came into effect in 2019. Israel owes an estimated \$10 million and it also cut funding to the agency in the years leading up to its exit.

And why has the US moved to join UNESCO again?

- I) According to US officials, the decision to return was also due to China filling the gap left by the US in UNESCO policy making, such as in setting standards for artificial intelligence and technology education around the world.
- II) However, there was no immediate response from the Israeli government.

The US's earlier withdrawal from the UN

- I) The United States previously pulled out of UNESCO under the Ronald Reagan administration in 1984 because it viewed the agency as mismanaged, corrupt and used to advance Soviet interests.
- II) It rejoined in 2003 under then President George Bush, who said, "As a symbol of our commitment to human dignity, the United States will return to UNESCO. This organisation has been reformed and America will participate fully in its mission to advance human rights and tolerance and learning."

ATLANTIC DECLARATION

Why is it in the news?

Recently, the **US President Joe Biden and UK Prime Minister Rishi Sunak** agreed on an "**Atlantic declaration**".

About Atlantic Declaration

- I) The Atlantic Declaration and accompanying Action Plan form the basis of a new type of innovative partnership across the full spectrum of economic, technological, commercial, and trade relations. It is the "**first of its kind**" in covering the broad spectrum of the two countries.
- II) It will constitute a new economic security framework covering ever-closer cooperation on critical and emerging technologies and stronger protective toolkits.

- III) It will support the United States and the United Kingdom in efforts to harness the energy transition and technological breakthroughs to drive broadly shared growth, create good jobs, and leave no community behind.
- IV) It will explore ways to deepen trade and investment relationships.
- V) Other focused areas: Partnering on an inclusive and responsible digital transformation, building the clean energy economy of the future, and further strengthening our alliance across defence, health security, and space.

Objectives

- I) Both countries announced a new strategic pact as their leaders rededicated the "**special relationship**" to counter Russia, China, and economic instability.
- II) It aims to boost industry ties on defence and renewable energy, in the face of growing competition from China.
- III) It will allow them to explore increased cooperation in other areas for mutual economic benefit.

Status of a partnership between both countries

- I) The **U.S.-UK bilateral investment relationship is the largest in the world**, with over \$1.5 trillion in stock supporting more than 2.7 million jobs in both countries.
- II) Over the last century, the essential partnership between the United States and the United Kingdom has enabled them to lead together on issues of global importance.
 - a) Since the signing of the **Atlantic Charter in 1941**, they have worked together to shape an open and rules-based international order based on their enduring support for shared values.

- b) In the **New Atlantic Charter signed in 2021**, they underscored and refreshed this vision.

Challenges

- I) They face new challenges to international stability – from authoritarian states such as **Russia and the People’s Republic of China (PRC)**.
- II) Disruptive technologies; non-state actors; and transnational challenges like climate change.

Steps

- I) They are committed to continuing to strengthen NATO’s ability to deter further attempts to undermine Alliance security, in support of **NATO’s new Strategic Concept**.
- II) They have taken significant steps to implement **AUKUS**, including announcing their plans to support Australia acquiring conventionally armed, nuclear-powered submarines.

Future Outlook

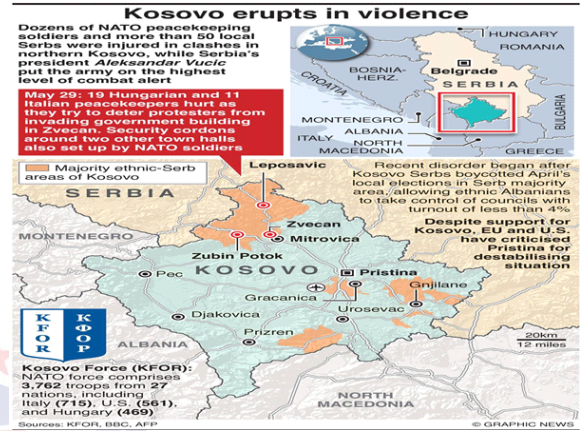
- I) They must keep pace with changes in the world around them and adapt alliances to them.
- II) The global economy is undergoing one of the greatest transformations since the Industrial Revolution. Breakthroughs in innovation offer enormous potential if they can harness them to work for, not against
- III) The transition to the clean energy economies of the future is an opportunity to improve jobs and livelihoods and deepen the resilience of our economies.

THE KOSOVO-SERBIA CONFLICT

Why is it in the news?

- I) In the aftermath of one of the worst escalation of tensions between Kosovo and Serbia in at least a decade, the North Atlantic Treaty Organization (NATO) recently sent 700 more of its peacekeeping troops to Kosovo.
- II) Clashes broke out on May 29 between **Serbs**

protesting in North Kosovo and the NATO-led Kosovo Force (KFor), leaving about 30 NATO soldiers and 50 Serbs injured. Since then, the Presidents of Serbia and Kosovo have met once on June 1 under pressure from the **European Union (EU)** in the presence of French and German leaders. However, a resolution to the long-standing conflict remains uncertain.



What are the roots of the conflict?

- I) **Both Kosovo and Serbia lie in the Balkans, a region of Europe made up of countries that were once a part of the erstwhile Republic of Yugoslavia.**
- II) Kosovo, a former province of Serbia, unilaterally declared Independence in 2008 and is recognised as a country by about 100 nations including the U.S. and a number of EU-member countries.
- III) Serbia, however, does not recognise Kosovo’s sovereignty and continues to consider it as a part of itself despite having no administrative control over it. Serbia sees historic significance in Kosovo.
- IV) The Serbian Empire had gained control of Kosovo in the 12th century, and the latter went on to become the heart of the kingdom with several Serb Orthodox Christian churches and monasteries of significance being built in Kosovo.

- V) Serbia lost Kosovo for 500 years to the **Ottoman Empire in the 1389 Battle of Kosovo**. During the Ottoman Rule, the ethnic and religious balance shifted in Kosovo, leading it to become a **majority ethnic Albanian region with Muslims**. After five centuries of Ottoman rule, Kosovo became part of Serbia in the early 20th century and post the Second World War, it was eventually made a province (with autonomy) of Serbia, which was then one of the six republics of Yugoslavia. Serbia considered this the rightful return of Kosovo, but the ethnic Albanians, who currently make up 90% of Kosovo's population considered it unfair. In the 1980s, Kosovo Albanians increasingly mobilised and sought separation from Serbia. In 1989, Serbia's autocratic leader Slobodan Milošević leveraged Serbian nationalism to consolidate power and stripped Kosovo of its autonomy.
- VI) In the late 1990s, the **Kosovo Liberation Army (KLA)**, consisting mainly Kosovo Albanians, led an insurgency against the Serbian rule of Kosovo. Serbia responded by cracking down on the rebellion by deploying heavy forces in 1998 and 1999. Nearly 13,000 lives, mainly of ethnic Albanians, were lost during this period. However, in 1999, NATO intervened by carrying out air raids and bombardment of Serb targets, forcing Serbia to end hostilities and pull out of Kosovo. Subsequently, NATO deployed 50,000 peacekeepers and through the **UN Security Council (UNSC) Resolution 1244**, a transitional UN-led administration began to head Kosovo.
- VII) In 2008, Kosovo declared independence from Serbia. While Serbia challenged Kosovo's actions before the **International Court of Justice (ICJ)**, the ICJ was of the opinion that Kosovo's declaration

was not against international law.

What has happened since 2008?

- I) Currently, an ethnic Serb minority of more than 50,000 resides in multiple municipalities in the northern part of Kosovo bordering Serbia, making up about 5.3% of the country's population. The Kosovo Serbs do not recognise Kosovo state institutions, receive pay and benefits from Serbia's budget, and pay no taxes either to **Pristina, the capital of Kosovo or Belgrade, the Serbian Capital**.
- II) Since 2008, clashes have broken out on and off in Kosovo's northern region, either when Serbs have clashed with Kosovo's police or due to the larger issue of Serbia not recognising Kosovo's independent status. Meanwhile, Kosovo cannot become a member country of the UN without Serbia's approval as it has its diplomatic allies in Russia and China who would veto such a decision.
- III) In 2011, EU, backed by the U.S, initiated talks to resolve the conflict between the two countries, offering the prospect that the two could only become a part of the EU if they bilaterally normalised relations. In 2013, **the two reached the Brussels Agreement brokered by the EU**, which included measures to dismantle Serbia-backed parallel structures in Kosovo's north and the creation of the Association of Serb Municipalities to administratively link Kosovo's 10 Serb-majority municipalities. While the agreement was not fully implemented on the ground, the participation of Serbs in elections was facilitated.
- IV) In July 2022, violent clashes broke out in the northern region over the issue of Kosovo asking

Serbian drivers to use temporary Kosovo number plates for their vehicles when in the country, just like Serbia requires Kosovo vehicles to change number plates when they pass through or travel in Serbia.

The ethnic Serbs in the north then staged protests and put up blockades at the two border entry points between Serbia and Kosovo. These are the only points through which Kosovo citizens can travel to Western Europe and engage in trade.

- V) Clashes once again escalated in December last year with the Kosovo Serbs putting up more barricades and Serbia warning that it was ready near the border with its combat troops.

What prompted the recent clashes?

- I) In April this year, Kosovo held mayoral elections in municipalities. These elections were boycotted by ethnic Serbs in the northern municipalities and saw only about a 3% turnout, as a result of which ethnic Albanian mayors got elected in these municipalities. Notably, protesting the July 2023 move by Kosovo asking for a change of number plates, ethnic Serb mayors in northern municipalities, along with local judges and 600 police officers had resigned in November and opposed fresh elections to their posts.
- II) Recently, with the support of the Kosovo police, ethnic Albanian mayors took office in northern Kosovo's Serb-majority area and faced protests by Serbs. The move by Kosovo to install Albanian members led the U.S. and its allies to rebuke Pristina, as it triggered clashes. Then on May 29, violent clashes took place between NATO soldiers and Serb protesters.

Where do the resolution talks stand?

- I) So far, the dialogue has produced over 30 mostly technical and some political agreements,

between Serbia and Kosovo. Since late 2015, there has been little progress in reaching new agreements or implementing existing ones. In 2018, former Kosovo President Thaçi and Serbian President Aleksandar Vučić had proposed redrawing borders and swapping some territories between the two countries as a way of normalising ties but the EU rejected it saying it would open the Pandora's box of territorial claims in parts of Europe.

- II) The talks were suspended in 2018 due to Kosovo's imposition of 100% tariffs on Serbian goods in response to the latter's campaign to block Kosovo's Interpol membership bid.
- III) In February this year, both Serbia and Kosovo tentatively agreed to EU's plan which proposed that Belgrade should stop lobbying against Kosovo's candidature in international organisations including the United Nations. In turn, Kosovo was to form an association of Serb-majority municipalities.

Additionally, both sides were to also open representative offices in each other's capital to help resolve outstanding disputes. However, the two parties eventually walked out of signing the deal as Kosovo's Prime Minister Albin Kurti faced nationalist opposition for not being assertive enough while Serbia's populist leader Mr. Vučić was criticised back home for engaging in a compromise.

- IV) Talks have also stalled because both sides now doubt the EU's seriousness about granting them membership as many of the EU countries, including France, are against the bloc's further expansion.

What about Serbia's ties with Russia?

- I) Kosovo's current leader and the West are also

concerned about Serbia's strong historic and military ties with Moscow and its political closeness with President Vladimir Putin who has maintained support for the Serbian claim. The concerns have intensified after the start of the Ukraine conflict and Mr. Kurti has warned of a spillover in the Balkans backed by Russia.

- II) Besides, Serbia's dependence on Russia for diplomatic support to counter Kosovo's bids at the UN puts Moscow in a position of influence. The Carnegie Endowment paper on the issue points out that Kremlin also **"fears that ending the conflict between Serbia and Kosovo will diminish Russia's stature in Serbia and severely undermine its clout in the Balkans"**.

What next?

Since the Presidents of both sides met on June 1, Kosovo has indicated that a solution for de-escalation is close and it is open to holding fresh elections in Serb dominant municipalities, provided they are held in a free and fair manner, without Belgrade pressuring ethnic Serbs to boycott the vote.

WHY DOES NORTH KOREA WANT SPY SATELLITES?

Why is it in the news?

- I) On May 31, a **North Korean military reconnaissance satellite Malligyong-1** was launched through a new type of rocket named **Chollima-1**. The satellite is said to have flown for about 10 minutes before crashing into the Yellow Sea.
- II) The Korean Central News Agency (KCNA) reported the failure as the **instability in the rocket's engine and fuel system**.
- III) The launch, however, prompted evacuation warnings and emergency alerts in parts of South

Korea and Japan. The U.S., Japan and South Korea expressed 'strong condemnation' to the launch.

What is N. Korea's space programme?

- I) North Korea in the past decade has had an active space program that is closely related to its missile program. Satellite launch vehicles use the same core technology as long-range missiles that deliver warheads capable of destroying intercontinental targets. (Intercontinental Ballistic Missiles or ICBMs).
- II) Starting from 1998, North Korea successfully orbited its first satellite in 2012 after three failed attempts. The launch vehicle used was **Unha-3**, a likely variant of Taepodong-2 ICBM. The Unha-type launch vehicle was also used in the 2016 launch of Pyongyang's Earth Observation satellite.
- III) The flight on May 31 was the sixth satellite launch by Pyongyang. It was done through the Chollima-1 which is a new space launcher known to have an engine that is similar to North Korea's dual-nozzle liquid-fuel machine used in Hwasong-15 ICBM.
- IV) Additionally, in April, North Korea announced that it had completed the construction of its first spy satellite.

Why does it want assets in space?

- I) The North Korean spy satellites are expected to play a crucial role in providing **advanced surveillance technology**, that covers a large portion of the region, to improve the ability to strike targets during conflict. Kim Jong Un, the leader of North Korea, stated that the nation would have the capability to "use pre-emptive military force when the situation demands."
- II) Moreover, North Korea's space programme is a response to other strategic developments in the

region. Earlier, the U.S. announced that it would be activating U.S. Space Forces Korea. This system would provide South Korea with advanced capabilities of missile warning and satellite communications throughout the Korean peninsula and its proximate areas.

- III) On May 25, South Korea successfully launched its **Nuri rocket** that is designed to assist Seoul's efforts to develop a space-based surveillance system. These developments nudged Pyongyang to hasten the launch of Malligyong-1.

What does this mean for East Asia?

- I) The security anxiety in East Asia in response to the North Korean satellite launch reveals a sense of urgency among the regional powers. North Korea no longer needs to develop its long-range missile technology under the guise of satellites since its test-firing in 2017. Pyongyang seems unafraid to reveal its technological intentions and strengthen its security apparatus in the region.
- II) While the launch is a breach of the UN Security Council resolutions, it is unlikely to attract additional economic sanctions. This displays the weak effectiveness of sanctions imposed on North Korea.
- III) Additionally, while the international responses to the launch were largely focused on the missile technology, the possibility of a successful set of four to five military satellites by Pyongyang in-orbit would provide North Korea's military the surveillance capacity that covers the region, strengthening its missile-launch capabilities.

WHAT ARE THE FRICTION POINTS ON THE LAC?

Why is it in the news?

- I) As the 2020 standoff in Eastern Ladakh marks

three years, India and China are far from achieving the objective of disengagement and de-escalation and restoration of **status quo ante** to resolve the situation along **the Line of Actual Control (LAC)**.

- II) As part of the disengagement process from the friction points in Eastern Ladakh, India and China have been engaged in talks at the **diplomatic, military and political level**, with the senior military commander-level talks being the major avenue to undertake disengagement and de-escalation and resolve the standoff that began in May 2020.

Where is the disengagement process?

- I) Since the Corps commander level talks in 2020, the two sides have so far undertaken disengagement from five friction points — **at Galwan after the violent clash in June 2020, the north and south banks of Pangong Tso in February 2021, at Patrolling Point (PP) 17 in the Gogra-Hot Springs area in August 2021, and PP15 in September 2022.**

On the **Depsang Plains and Demchok**, there are fundamental disagreements, as India maintains that they are the two additional friction points that still remain while China has refused to accept it, terming them as legacy issues predating the 2020 standoff.

- II) On several occasions, Army Chief Gen Manoj Pande has termed the situation along the LAC as **"stable but unpredictable"** while stating that five out of the seven friction points in Eastern Ladakh have been resolved and the focus is now on the remaining two points.
- III) The 18th round of Corps Commander talks was held at the **Chushul Moldo meeting point** on the Chinese side on April 23, 2023.

On May 31, 2023, India and China held the **27th Meeting of the Working Mechanism for Consultation and Coordination on India-China Border affairs (WMCC)** in New Delhi which made no headway and the two sides agreed to hold the 19th round of Corps Commanders talks very soon. In the past, Beijing has said that it would not accept India's demand for restoration of status quo ante prior to the standoff saying that "the status quo of April 2020... was created by India's illegal crossing of the LAC."

- IV) Meanwhile, China has been undertaking massive build-up of infrastructure, habitat and induction of new weapons and equipment along the **3,488 km-long LAC**, fundamentally altering the status quo on the ground.
- V) India too has been building infrastructure and undertaking capability enhancement to match the Chinese. This is in addition to the over 50,000 troops and heavy equipment, on each side, that continue to be deployed close to the LAC in Eastern Ladakh. In this backdrop, any de-escalation to restore the status quo predating the standoff looks remote.

What are buffer zones? What is their status?

- I) During the disengagement process, **buffer zones** were created at the friction points as per the understanding reached at the Corps Commanders-level talks. It was decided that both sides would pull back at an equal distance from the friction points to prevent any fresh flare-ups; also, no patrolling would be undertaken by both sides till the overall disengagement and de-escalation is achieved after which the two sides have to work out new patrolling norms to maintain peace and tranquillity. All disengagements carried out earlier have been

done on the basis of mutual and equal security with no prejudice to LAC claims by either side.

- II) Since the beginning of the standoff, China had moved large number of troops and equipment close to the LAC in addition to the ingress by Chinese troops inside Indian territory at friction points. On the North Bank, Chinese troops made ingress from **Finger 8 up to Finger 4** blocking Indian patrols. India holds its place till Finger 4 but claims territory till Finger 8 as per alignment of the LAC. Disengagement has been undertaken there since and buffer zones at all the five points continue to be in place.



- III) To ensure that the Chinese are fully honouring the understanding reached, verification by aerial monitoring using **Unmanned Aerial Vehicles (UAV)** as well as satellites is undertaken regularly. In fact, during the first phase of disengagement both sides had pulled back troops by equal distance from **Patrolling Points (PP) 14 in Galwan valley and PP15 in Gogra-Hot Springs** during which violent clashes had occurred resulting in the deaths of 20 Indian personnel and at least five deaths on the Chinese side.

What is the strategic significance of Depsang?

- I) **Demchok** is one of the two mutually agreed disputed areas in Eastern Ladakh, while **Depsang**

is another friction point. In Demchok while there are varying claims in the Charding La area, China has set up tents on this side of Charding nala.

- II) The crucial Sub-Sector North (SSN) consists of the Depsang plains and **Daulat Beg Oldie (DBO)**. Currently, the airfield at DBO is accessible by the 255 km-long **Darbuk-Shyok-DBO (DSDBO)** road. A plan for an alternate axis across Saser La which has an ancient trade route, is in the works.
- III) In Depsang Plains, Chinese troops have been blocking Indian Army patrols from going up to the PPs 10, 11, 11A, 12 and 13, beyond the Y junction. Chinese build-up in this area threatens Indian positions at DBO and also brings Chinese troops closer to the DSDBO road.



- IV) Depsang is also close to the Karakoram-pass overlooking the strategic **Saltoro ridge and Siachen glacier, the world's highest battlefield**. Also, the distance from the **Limit of Patrol (LoP)**, on which the PPs are marked, to the LAC is the maximum in the Depsang area.

IRAN-TALIBAN WATER CONFLICT

Why is it in the news?

- I) **Iran and Afghanistan** are locked in a long-standing dispute over the sharing of water from the **Helmand River**.
- II) The Helmand River is a vital source of water for

both sides, supporting agriculture, livelihoods and ecosystems in the region.

What is the Dispute?

- I) Afghanistan and Iran signed an agreement — **the Helmand River Treaty** — in 1973 to regulate the allocation of river water. But the accord was neither ratified nor fully implemented, causing disagreements and tensions to persist.
- II) Iran has accused Afghanistan of violating its water rights for years, arguing that far less water than the amount agreed to in the 1973 treaty flows into Iran.
- III) Last year, Iran received only 4% of its share of the river water, Afghanistan has rejected Iran's accusations, underlining that climatic factors like a shortage of rainfall, resulting in reduced river water volumes, are to blame for the situation.
- IV) A major source of concern for Iran is Afghanistan's construction of dams, reservoirs and irrigation systems along the Helmand River.

Helmand River

- I) The Helmand is **Afghanistan's longest river**. It originates near Kabul in the western Hindu-Kush Mountain range and flows in a south-westerly direction through desert areas for a total of about 1,150 kilometers before emptying into Lake Hamun, which straddles the Afghanistan-Iran border.



- II) **Lake Hamun is the largest freshwater lake in Iran**. It used to be one of the world's largest wetlands

fed by Helmand.

- III) It is separated from the watershed of the Kabul River by the Unai Pass.

About Iran -Taliban Ties

- I) Iran and Afghanistan share a **950-kilometer** land border. Both countries have no major territorial disputes.
- II) Iran had cultivated good ties with the Taliban before the Islamic fundamentalist group captured Kabul in August 2021 as US and NATO troops were in the final weeks of their pull out from Afghanistan.



HOW HAS DHAKA REACTED TO THE U.S. THREAT ON VISAS?

Why is it in the news?

- I) Recently, the U.S. Secretary of State Antony Blinken announced a **“new visa policy”** which threatens to restrict visas to Bangladeshis who undermine the democratic election process at home. The notification said the restriction would apply to current and former Bangladeshi officials, members of pro-government and opposition political parties, and members of law enforcement, the judiciary and security services.
- II) There were **allegations of rigging in elections held in 2014 and 2018**, which the government of Prime Minister Sheikh Hasina had denied. Bangladesh responded immediately to the U.S. threat, with the government saying it would take steps to prevent any interference in elections.

- III) The **U.S. is the largest foreign direct investor in Bangladesh** followed by Japan and China.

What does the notification specify?

The new visa policy specifies that actions that undermine the democratic election process include:

- a) Rigging, voter intimidation, the use of violence to prevent people from exercising their right to freedoms of association and peaceful assembly, and
- b) The use of measures designed to prevent political parties, voters, civil society, or the media from disseminating their views.

What is the status of relations between the U.S. and Bangladesh?

- I) Bangladesh and the U.S. share a strong economic bond despite somewhat icy political relations because of legacy reasons.
- II) Washington under President Nixon was not in favour of East Pakistan seeking liberation from West Pakistan, followed by the birth of Bangladesh post-December 16, 1971. This particular issue became accentuated as the government of Sheikh Hasina has modelled itself as the defender of the spirit of 1971, and equates its opponents with those who opposed the creation of Bangladesh.
- III) The Hasina government has maintained a distinction between economic and political relations between the two sides. **The U.S. is the third largest trading partner of Bangladesh and is the largest recipient of the garments produced in Bangladesh.** With China taking a keen interest in Bangladesh, the U.S. feels the need to look beyond trade ties. The importance of the Indo-Pacific strategy also makes Bangladesh politically indispensable for the U.S.

What are some of the other hurdles?

- I) Prime Minister Hasina has followed a policy of zero tolerance against terrorism and extremism since being sworn to power in 2009. She has uprooted insurgents of northeast India who had maintained a base in Bangladesh for decades. That apart, Islamist radicals were also consistently targeted by security agencies especially the **RAB (Rapid Action Battalion)**. Her actions, however, have drawn criticism from various quarters including the U.S., which has accused Bangladesh of violating human rights and for enforcing the disappearance of around 600 individuals. In December 2021, serving and former top officials of the RAB were sanctioned by the U.S. Treasury Department.
- II) Additionally, Bangladesh maintains a neutral policy on the Ukraine crisis, with Ms. Hasina repeatedly arguing against interference in the affairs of sovereign countries.
- III) On the ground, multiple projects indicate a strong cooperation between Dhaka and Moscow. **Russia is building the first nuclear power project in Rooppur** which is expected to be operational later this year. Ms. Hasina has also shown her plan to maintain energy independence and announced in the Qatar Energy Forum earlier this month that her government will purchase energy at a “comfortable” price.

What lies ahead?

- I) Ms. Hasina has emerged as an important regional player because of her strong connection with India. Interestingly, India has not responded to the visa restrictions despite the fact that **Bangladesh is the largest trade and security partner of India in South Asia**.
- II) Moreover, Bangladesh has shown some

indication to soften its attitude to the U.S. with its April declaration of the **Indo-Pacific Outlook (IPO)**.

- III) However, there is no sign that Ms. Hasina would consider a stronger strategic alignment with the U.S. by allowing a naval base for them or by joining the western bloc on Ukraine.

CHINA'S 'SECRET' POLICE STATIONS ABROAD

Why is it in the news?

- I) China is once again in the crosshairs of the West over its **'secret police stations'**, this time ruffling Germany's feathers. Recently, Berlin stated that Beijing was still operating two so-called **'overseas'** police stations in Germany.
- II) In November 2022, Berlin called upon Beijing to shut down extraterritorial police stations in the country. Beijing, in February 2023, responded that what it called its **'service stations'** -were closed.
- III) However, a German interior ministry spokesperson stated that the police stations were **"not fixed-location offices, but mobile facilities"** from which official duties were being conducted on behalf of Beijing. Berlin said it is reassessing bilateral relations with Beijing, even though **China remains Germany's largest trading partner**.
- IV) Canada, Netherlands, United Kingdom, and the United States have also confronted China about its 'secret police stations' on their soil.

How did China's secret police stations begin?

- I) China claimed that the rise of **'online fraud'** by Chinese nationals around the world was why it set up these 'service stations', as per an investigation done by Spain-based group Safeguard Defenders.
- II) In 2018, the Chinese district of Fujian launched

an operation to stop scammers from going overseas. The operation took stringent steps against suspected scammers, like demolishing their properties, banning them from trains, suspending medical and other government subsidies, and banning their children from schools.

- III) The operation was applauded by the **Chinese Communist party (CPC)** and expanded in 2021, with a task force of 70 to target people overseas involved in fraud and illegal cross-border travel. The **Public Security Bureau (PSB)**, assisted by local cadres and police authorities, was tasked with taking 'anti-fraud' measures abroad. The headquarters of the operation was in China's Yunnan province and other centres were set up in south-eastern Chinese provinces Nantong, Wenzhou, and Qingtian, apart from Fuzhou.
- IV) As of July 2022, 230,000 Chinese 'suspects' were 'educated and persuaded to return to China' from overseas to 'confess crimes related to telecom fraud'. To further crack down on fraud, China passed the '**Anti-Telecom and Online Fraud Law (ATOFL)**' in September 2022, holding overseas Chinese citizens accountable for such crimes.
- V) Nine '**forbidden**' countries were listed as the main regions for fraudulent transactions by Chinese nationals and the public was warned from travelling to these nations. These include Turkey, UAE, Myanmar, Thailand, Malaysia, Laos, Cambodia, Philippines and Indonesia. Moreover, Chinese nationals were advised to return immediately if they had no 'emergency reason' to be in those nations.

The nine fraud-related countries



(Nine 'forbidden' countries listed by China for online fraud)

- VI) These stringent crackdowns resulted in several innocent Chinese nationals being put on the suspect list, leading to mass deportation to China to face stringent action under ATOFL. Reports state that the 'suspects' were often lured into fraud through threats, smuggling and intimidation and faced severe measures like loss of power and water supply at their homes or the homes of their relatives.

Expansion of 'secret police' globally

- I) In January 2022, reportedly to target 'Chinese overseas suspects', China widened its net setting up the first batch of 30 overseas police service stations in 25 cities across 21 countries . This included Canada, US, Italy, France, Spain, Ireland, UK, Suriname, Peru, Brazil, Chile, Panama, Argentina, Venezuela, Angola, South Africa, Tanzania, Myanmar, Cambodia, Kazakhstan, Philippines, Japan, Laos, Kyrgyzstan, Thailand, Korea, Sri Lanka, Ulaanbaatar, Papua New Guinea, Australia, New Zealand, and Fiji.
- II) These were set up to do administrative work for Chinese citizens abroad like renewing Chinese driver licences, passport renewal and aid the diaspora with consular needs. However, extending the police stations' jurisdiction, these

centres also cracked down on all kinds of illegal and criminal activities involving overseas Chinese persons. Reports state that these centres have made arrests of Chinese suspects based on complaints and ‘persuaded’ such suspects to return to China to face legal action.

Map of publicly documented Overseas Police Service Centers from Fuzhou County and Qingtian County³³



(China has set up 104 overseas police stations in 53 countries)

- III) Moreover, reports state that these stations have become overseas contact points in Italy and Germany to carry out prosecution work such as transoceanic mediation, cross-border inquiries, video reports and complaints. With these expanded powers, these service stations are being used to target Chinese nationals abroad, particularly dissidents opposed to the CPC and President Xi Jinping.

Global concern about China’s secret police

- I) China’s tough crackdown on its overseas citizens via these service stations has raised concerns among several nations. They believe that Beijing is using these centres to circumvent bilateral extradition treaties, local authorities’ jurisdiction and United Nations Conventions to set up an alternative policing and judicial system in other countries.
- II) In November 2022, twelve countries including the US, UK, Canada, Netherlands and Germany

launched investigations to ascertain if Beijing established such centres in their territory. However, certain governments in Africa and Asia have entered into an explicit agreement with China to set up joint patrol stations, similar to an agreement signed by Italy signed with China in 2016.

Three such stations were exposed in Toronto, with the Canadian government issuing a ‘**cease and desist**’ order to them. Canadian Prime Minister Justin Trudeau raised concerns about these stations with Chinese President Xi Jinping at the G20 summit in Bali, Indonesia in November 2022.

- III) In December 2022, two overseas Chinese service stations in Prague were closed by the Czech Republic authorities. When the Chinese staff were questioned, they refused to divulge any information. Similarly in the UK, four Chinese service stations were found in London, Glasgow and Belfast. While a probe was launched, no action has been taken.
- IV) Meanwhile, in the US, two New York residents were arrested by the **Federal Bureau of Investigation (FBI)** for allegedly operating a Chinese “secret police station” in the Chinatown district of Manhattan. The two accused have now been released on bond following an initial appearance in a Brooklyn federal court.

China’s denial

In the wake of the accusations, Chinese embassy spokespersons have maintained that the ‘secret police stations’ were ‘overseas service stations’ opened during the pandemic to assist nationals abroad with driver’s licence renewal and similar bureaucratic matters.

THE SHIFT IN U.S.'S APPROACH TO CHINA

Why is it in the news?

- I) The Trump-era focus of the U.S. to decouple from China is being phased out by a new concept. The U.S. has expressed that it is shifting its policy on China from **decoupling to de-risking**.
- II) The EU has already declared that its approach to China will be based on de-risking. The recently concluded **G-7 summit at Hiroshima**, through its Leader's Communique, has also expressed the grouping's consensus on de-risking.

What is 'de-risking'?

- I) After the establishment of diplomatic ties between the U.S. and China in 1979, both the countries embarked on a path of increasing economic interdependence. China gained immensely from this relationship, as it helped the country drastically widen and deepen its diplomatic and economic engagement with the rest of the world.
- II) As China's economic and military power grew, its ambition to challenge the primacy of the U.S. in the international system became increasingly apparent. China's rise not only came at the expense of America's global clout, but also the latter's domestic industry, which got "**hollowed out**" in its four-decade old economic embrace with China.
- III) By the time Donald Trump took over the reins of power in the U.S., dealing with the techno-economic challenge from China became a matter of urgency. The Trump administration made it a point to attack the gargantuan bilateral trade imbalance in favour of China. It also wished to keep the U.S.'s high technology sector out of China's reach.
In a series of moves, Trump raised tariffs on

Chinese imports which invited retaliatory tariffs from China. The U.S.-China '**trade war**' started, and bilateral relations were set on course for a "**decoupling**" from the American standpoint. This approach was marked by a rare sense of bipartisanship in an otherwise polarised domestic political climate in the U.S.

- IV) Therefore, the Biden administration which took over from the Trump administration continued with the latter's China policy. However, over time, the Biden administration added its own features into the China policy inherited from Trump. Most recently the label of "decoupling" has been changed to "de-risking".

According to the U.S. National Security Advisor Jack Sullivan, "de-risking fundamentally means having resilient, effective supply chains and ensuring we cannot be subjected to the coercion of any other country".

While decoupling stands for an eventual reversal of the four-decade old project to enmesh the two economies, de-risking aims to limit such an effect only in areas where it undercuts the national security and industrial competence of the U.S.

- V) Recent legislations in the U.S. such as the **Bipartisan Infrastructure Law, CHIPS and Science Act as well as the Inflation Reduction Act** have been subsumed under this new approach. The U.S.'s geo-economic initiatives like the **Partnership for Global Infrastructure and Investment as well as the Indo-Pacific Economic Framework for Prosperity** are also supposed to reflect the spirit of de-risking.

Why de-risking?

- I) In order to understand the **rationale behind the U.S.'s shift from decoupling to de-risking**, it is

important to comprehend the timing of the move.

- II) The policy change has been announced in the wake of several events of high geopolitical significance. The world has just emerged out of the tentacles of the pandemic after three disruptive years and the global economy is hoping for a resulting rebound. The U.S.-China rivalry had peaked in the past few months — from the ratcheting of tensions across the Taiwan Strait to the acrimonious spy balloon episode between the two countries.

China also witnessed Xi Jinping beginning his second decade of rule over China in an unprecedented third term as the General Secretary of the Communist Party of China, Chairman of the Central Military Commission and President of the People’s Republic of China, ever since the dawn of the reform era.

In parallel, a year has passed since Russia began its special military operation in Ukraine, with the conflict going on without any end in sight. Mr. Xi, after starting his third consecutive leadership term, made his first foreign visit to Russia where he proposed a peace plan. He has also, in his third leadership tenure, extended his **“peace-making diplomacy”** to West Asia, striking gold in normalising the frayed Saudi-Iran ties.

- III) All of these developments have necessitated the U.S. to recalibrate its posture towards China. In such a situation, casting the U.S.-China relations as a new Cold War and a zero-sum game appears to be risky for the U.S. Bringing more nuance into its earlier decoupling approach could bring down China’s guard and give the U.S. more room to re-consolidate its strength.
- IV) Perhaps, the Russia-Ukraine conflict could have played a pivotal role in enabling the U.S.’s policy

shift towards China. The Biden administration, unlike its predecessor, has made it a point to reassure its European allies. At a time when China has been backing Russia in its shadow battle in Ukraine against the West, the idea of decoupling hardly appeals to the European Union (EU). The EU has in fact been looking to woo China in order to convince it to stop supporting Russia from skirting Western sanctions.

What could be the geopolitical ramifications of de-risking?

- I) The U.S. efforts to keep its allies closer in its geopolitical rivalry against China by adopting the path of de-risking has already won a significant victory in Japan at the G-7 summit. The leaders at the summit declared that they will coordinate their **“approach to economic resilience and economic security that is based on diversifying and deepening partnerships and de-risking, not de-coupling”**.
- II) China has expressed its scepticism to the West’s de-risking approach, portraying it as a façade to the decoupling agenda. Moreover, China has expressed its disapproval in painting China as the actor responsible for heightening geopolitical risks. According to China, the real source of risks is the U.S., which it alleges to have created instability across the world by pursuing political and military interventions and perpetuating a Cold War mindset.
- III) The continuing emphasis in de-risking to diversify supply chains away from China demonstrates that the Trump-era spirit of decoupling is being carried forward, albeit with some changes. This could also make the West’s moves to counter China’s rise much more sustainable by facilitating a united front among

allies. However, its effectiveness could be questionable, as it has dialled down U.S.’s rhetoric against China which could be read by the latter as a sign of its adversary’s weakness.

Conclusion

Though countries like India will stand to benefit from de-risking by leveraging its benefits like attracting supply chains and confronting China’s aggressive moves, it could also come at a cost. With the Russia-Ukraine conflict and the consolidation of the European alliance being the major triggers behind this shift, de-risking could lead to U.S. focus on the Indo-Pacific being diluted, at least for the short term.

GROUP OF SEVEN (G7)

Why is it in the news?

- I) In a recent meeting, the word **“de-risking”** has been used in the statement to describe the G7 countries’ stance towards China on economic matters.
- II) The United States President has previously stated that G7 is not looking to decouple from China, but looking to de-risk and diversify their relationship with China.”

What does “de-risking” mean?

- I) The US State Department describes de-risking as **“the phenomenon of financial institutions terminating or restricting business relationships with clients or categories of clients to avoid, rather than manage, risk”**.
- II) Simply put, de-risking is to move business away from areas that are considered risky in terms of the returns they could generate.
- III) In 2016, the World Bank said that global financial institutions were increasingly terminating or restricting business relationships with smaller local banks in some

regions in order to “de-risk”, as it is often perceived that such banks would not be able to pay back loans.

- IV) In the context of China, de-risking can be interpreted as a reduction of the reliance on China in the economic sphere — for the supply of materials or as a market for finished goods — so that potential risks to trade and disruption of supply chains are reduced.

G7’s strategy for China

- I) In the G7 statement, the countries said, “Our policy approaches are not designed to harm China nor do we seek to thwart China’s economic progress and development. A growing China that plays by international rules would be of global interest.”
- II) The statement clarified, “We are not decoupling or turning inwards. At the same time, we recognize that economic resilience requires de-risking and diversifying. We will take steps, individually and collectively, to invest in our own economic vibrancy. We will reduce excessive dependencies in our critical supply chains.”
- III) ‘Decoupling’ is used here as an alternative to an economic boycott. In 2018, the US administration raised tariffs on China’s aluminium and steel exports to improve the balance of trade with China, which resulted in a trade war after China retaliated by imposing tariffs worth hundreds of billions of dollars on US products.

About Group of Seven (G7)

- I) It is an intergovernmental organisation of seven countries that are the world’s most industrialized and developed economies.
- II) Its members are France, Germany, United Kingdom, Italy, United States of America, Canada and Japan.

- III) **Japan holds the presidency of the G7 in 2023.**
- IV) It traces its origin to an informal meeting of the Finance Ministers of France, West Germany, the US, Great Britain and Japan (Group of Five) in the wake of the 1973 oil crisis.
- V) Canada joined the group in 1976 and the European Union (EU) began attending the meetings from 1977.
- VI) It was called the G8 after the original seven were joined by Russia in 1997 and it returned to being called G7 when Russia was expelled as a member in 2014 following the latter's annexation of the Crimea region of Ukraine.
- VII) The group regards itself as **"a community of values"**, with freedom and human rights, democracy, the rule of law, prosperity and sustainable development as its key principles.
- VIII) It prides itself as a group of nations that steadfastly promote liberal democracy and enjoy economic prosperity, which they seek to institutionalise through multilateral cooperation.
- IX) It meets annually to discuss issues of common interest like international security, energy policy and global economic governance.
- X) Representatives of the European Union are always present at the annual meeting of the heads of state and government of the G7. It does not have a formal constitution or a fixed headquarters and the decisions taken by leaders during annual summits are **non-binding**.
- II) Another problem for the G7 is managing the dual threat of Russia and China while maintaining cohesion.
- III) The recent complex and urgent issues require greater inclusive diplomacy, coordination and follow-through, but the G7 forum has struggled to achieve these things.
- IV) The G7 has inadequate focus on environmental security and climate finance to help developing countries commit to green energy.
- V) The G7 has been criticised for being outdated and ineffective in recent decades due to its exclusion of two of the world's largest economies-India and China.

Way ahead for India & G7

- I) India has become a regular invitee at G7. The fact that China is not an invitee is another selling point for India.
- II) India can play an important role as a link between the industrialized countries and the developing world.
- III) India needs to be a part of any and every sustained effort to find solutions to solve global challenges.

THE EU'S CARBON BORDER ADJUSTMENT MECHANISM

Why is it in the news?

- I) Recently, the co-legislators at the European Commission signed the **Carbon Border Adjustment Mechanism (CBAM)**. It has been described as a landmark tool to put a **"fair price on the carbon emitted during the production of carbon intensive goods that are entering the EU, and to encourage cleaner industrial production in non-EU countries."**
- II) The reporting system under the regulation would be enforced from October 1 for certain goods to

facilitate a smooth roll out and dialogue with third countries. Importers would start paying the financial levy from 2026.

What is the CBAM?

- I) Its primary objective is to avert ‘**carbon leakage**’. It refers to a phenomenon where a EU manufacturer moves carbon-intensive production to countries outside the region with less stringent climate policies. In other words, replace EU-manufactured products with more carbon-intensive imports.
- II) From 2026, once the CBAM is fully implemented, importers in the EU would have to buy **carbon certificates** corresponding to the payable carbon price of the import had the product been produced in the continent, under its carbon pricing rules. Conversely, if a non-EU producer is paying a price (or tax) for carbon used to produce the imported goods, back home or in some other country, the corresponding cost would be deducted for the EU importer.
- III) The Commission, in coordination with relevant authorities of the member states, would be responsible for reviewing and verifying declarations as well as managing the central platform for the sale of CBAM certificates. Importers would have to annually declare by May-end the quantity and embedded emissions in the goods imported into the region in the preceding year.
- IV) The idea here is to avert the possibility of carbon leakage alongside encouraging producers in non-EU countries to green their manufacturing processes. Moreover, it will ensure a **level playing field between imports and EU products**. This would also form part of the continent’s broader

European Green Deal which endeavours to achieve 55% reduction in carbon emissions compared to 1990 levels by 2030 and become a climate neutral continent by 2050.

Didn’t the EU already have a mechanism in place?

- I) Yes. The gradual introduction of the CBAM would be in parallel with the phasing out of the allocation of free allowances given out under the EU **Emissions Trading System (ETS)**, which was also aimed at supporting the decarbonisation of the region’s industries.
- II) The ETS had set a cap on the amount of greenhouse gas emissions that can be released from industrial installations in certain sectors. Allowances were to be bought on the open decentralised ETS trading market; however, certain allowances were given out for free to prevent carbon leakage.
- III) Though effective in addressing the issue of leakage, the EU concluded it dampened the incentive to invest in greener production at home and abroad. This was because of the tendency to rely on free allowances to meet operational requirements and obligations. Thus, the idea to have an import-based tariff instead.

Why are countries worried?

- I) CBAM would initially apply to imports of certain goods and selected precursors, whose production is carbon-intensive and are at risk of ‘leakage’ such as the cement, iron and steel, aluminium, fertilizers, electricity and hydrogen sectors. Eventually, once fully phased in, it would capture more than half of the emissions in ETS covered sectors.
- II) In 2021, the **United Nations Conference on Trade and Development (UNCTAD)** had concluded that Russia, China and Turkey were most exposed to

the mechanism. Considering the level of exports to the union in these sectors, it stated India, Brazil and South Africa would be most affected among the developing countries. Mozambique would be the most exposed least-developing country. Important to note, countries in the EU combined represent about 14% of India's export mix for all products, steel and aluminium included.

- III) India's exports in the five segments represented less than 2% of the total exports to the EU between 2019 and 2021. However, while the impact of the regulation may appear limiting, its long-term effects can be severe for multiple factors.
- a) First, EU being India's third largest trade partner and given the latter's projected growth trajectories, the size of exports (including in the CBAM sectors) will invariably rise.
 - b) Secondly, CBAM's scope would expand beyond its current ambit to include other sectors as well. Given India's products have a higher carbon intensity than its European counterparts, the carbon tariffs imposed will be proportionally higher making Indian exports substantially uncompetitive.
 - c) And finally, international climate policies (including CBAM) will compel other countries to impose similar regulation eventually translating to "a significant impact" on India's trading relationships and balance of payments.

PACIFIC ISLAND NATIONS

Why is it in the news?

Recently, the Prime Minister attended the **Forum for India Pacific Islands Cooperation (FIPIC)** summit in Papua New Guinea.

Highlights of the Summit

- I) As part of India's Act East Policy, Prime Minister Narendra Modi announced a **12-point development plan for the Pacific Island nations**.
- II) The 12-point development plan focuses on a range of areas including healthcare, renewable energy and cyber-security.
- III) A major part of India's engagement with Pacific Island nations is through development assistance under South-South Cooperation that is mainly in the form of capacity building and community development projects.

Pacific Island Nations

- I) The Pacific Islands is an area geographic region of the Pacific Ocean comprising three ethno-geographic groupings: **Melanesia, Micronesia, and Polynesia**.
- II) The region is made up of independent states, associated states, and parts of non-Pacific countries. The Pacific Islands do not include Australia, the Aleutian Chain islands, or the Indonesian, Philippine, and Japanese archipelagos.
- III) The Pacific Islands create a triangle, starting at New Guinea, stretching to Hawaii, and then down to New Zealand. New Zealand and Papua New Guinea make up about 90% of the Pacific Islands' total square mileage.
- IV) Papua New Guinea is the largest by landmass and population and Nauru is the smallest nation.
- V) There are 15 independent Pacific Island nations in addition to tens of thousands of islands, islets, and atolls. The independent nations are: Northern Mariana Islands, Federate States of Micronesia, Fiji, French Polynesia, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Palau, Samoa, Solomon

Islands, Tonga, Tuvalu, Vanuatu, Wallis and Futuna.

- VI) Kiribati, Samoa, Solomon Islands, Tuvalu and Vanuatu are classified as least-developed countries. New Zealand is a developed country. The remaining countries and areas are classified as developing countries.

About India Pacific Islands Cooperation (FIPIC)

- I) The Forum for India–Pacific Islands Cooperation (FIPIC) was launched during Prime Minister, Mr. Narendra Modi’s visit to Fiji in November 2014.
- II) FIPIC includes India and 14 of the island countries – Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.
- III) The FIPIC initiative marks a serious effort to expand India’s engagement in the Pacific region.

IV) Objectives:

Provide necessary information and facilitation regarding prospects of Trade and Investment. Facilitate meetings between the concerned businessmen from both sides. Exchange of business delegations between India and Pacific Islands Countries.

Online & Offline Matchmaking Services. Organising Events / Trade Fairs.

Significance of Pacific Island Nations for India

- I) In recent years, India’s approach towards the **Pacific Island Countries (PICs)** has been on a gradual positive shift. This change can be attributed to various geopolitical, economic and strategic factors. Geopolitically, the PICs are a part of the larger Indo-Pacific region.
- II) The current globalised world thrives largely on international trade, 90 percent of which is transported via sea routes. The sea-lanes of the Indo-Pacific region are **critical to international commerce** and the Pacific Islands lie right at the centre of it. Therefore, the rising significance of the Indo-Pacific, regionally and internationally, has brought the PICs to the centre of the global attention.
- III) The wider Pacific region with its strategic and economic significance has attracted the attention of countries like the US, Russia, China, Japan, Australia, and Indonesia.
- IV) In recent years, New Delhi has reached out to these small island states, highlighting the government’s willingness for greater engagement.

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SCIENCE AND TECHNOLOGY

STATUS OF TRANSGENIC CROPS IN INDIA

Why is it in the news?

- I) Recently, three States, Gujarat, Maharashtra and Telangana, have deferred a proposal, approved by the Centre's **Genetic Engineering Appraisal Committee (GEAC)**, to test a **new kind of transgenic cotton seed** that contains a **gene, Cry2Ai**, that purportedly makes cotton resistant to **pink bollworm, a major pest**.
- II) The conflict shows that a broad acceptance of genetically modified crops continues to be elusive.

What is the status of transgenic crops in India?

- I) There is an array of crops — **brinjal, tomato, maize, chickpea** — in various stages of trials that employ transgenic technology. **However, cotton remains the only transgenic crop that is being commercially cultivated in India.**

After a long hiatus, **the GEAC, the apex technical body charged with evaluating proposals for testing genetically modified (GM) seeds**, approved the **environmental release of Mustard hybrid DMH-11** and its parental lines, during its 147th meeting on 18 October, 2022 for seed production and testing. This is one step away from full commercial cultivation.

- II) However, **the GEAC, which is under the Union Environment Ministry**, isn't the final arbiter in the case of GM crops. There is a long-standing litigation in the Supreme Court on the permissibility of allowing transgenic food crops in farmer fields based on petitions filed by **activist Aruna Rodrigues and Gene Campaign, an NGO.**

Following the GEAC approval for DMH-11, the petitioners approached the apex court asking for a stay on the release of the crop because it would encourage farmers to spray **herbicides, which are banned in India**. Hearings on this case are still ongoing.

- III) In 2017, the GEAC had accorded a clearance for GM mustard, but went back on its decision and imposed additional tests. In 2010, the GEAC had approved **GM brinjal**, but this was put on an "indefinite moratorium" by the United Progressive Alliance government.

What is the process of regulating transgenic crops in India?

- I) The process of developing transgenic crops is an elaborate one as **inserting transgenic genes into plants** to elicit a sustained, protective response is a mix of both science and chance.
- II) There are multiple safety assessments done by committees before they are cleared for further tests in open plots of lands which are located at either agricultural universities or plots controlled by the **Indian Council for Agricultural Research (ICAR)**.
- III) A transgenic plant can apply for commercial clearance, only after it has proven to be demonstrably better than comparable non-GM variants on claimed parameters (for instance, drought tolerance or insect resistance) without posing ecological harm to other species that may be being cultivated in the vicinity.
- IV) Open field trials often take place over multiple crop seasons and types of geographical

conditions, to assess its suitability across different States.

Why have Gujarat, Maharashtra and Telangana rebuffed the GEAC?

- I) The cotton seed has been developed by the **Hyderabad-based Bioseed Research India** with Cry2Ai which makes it resistant to pink bollworm. The first generations of transgenic cotton had been developed to inure cotton against a more widespread pest called **American bollworm**.
- II) The Cry2Ai seed has passed preliminary, confined trials and was recommended by the GEAC to be tested in farmer's fields at Telangana, Maharashtra, Gujarat and Haryana. **Agriculture being a State Subject** means that, in most cases, companies interested in testing their seeds need approvals from the States for conducting such tests. Only Haryana gave permission for such tests. This was after the GEAC in October 2022 sent letters to all States to **"communicate their views/comments"** within two months on the proposal.
Telangana requested GEAC for a 45-day extension to consider the proposal. On May 16, Telangana responded that it would not allow trials to be conducted in the current cropping season. Gujarat later responded that the proposal was "unacceptable" to them, but did not furnish reasons.
- III) Following these responses, the GEAC has asked the **Department of Biotechnology (DBT) and the ICAR** to jointly organise capacity-building activities with regard to GM crops for apprising the State/UT Government(s) about the technology involved and the regulatory framework in place for evaluation of these GM crops.

Are there changes in the offing in process of regulation of GM crops?

- I) The GEAC consists of a panel of plant biotechnologists and is headed by a senior official of the Environment Ministry and co-chaired by the scientist of the DBT. To resolve the issue of States not according approvals on testing, because of differing attitudes to GM crops, the GEAC is considering a proposal by the DBT to declare some regions across India as **notified testing sites**.
- II) There are 42 such proposed sites and, if it goes through, companies and institutions wanting to conduct trials of GM crops at these locations won't need the permission of States for trials.

USING AI TO FIND AN ANTIBIOTIC AGAINST A SUPERBUG

Why is it in the news?

- I) In a major breakthrough for the use of **Artificial Intelligence (AI)** in the field of medicine, scientists from the United States and Canada have found a new antibiotic – powerful enough to kill a superbug – using AI.
- II) **Superbugs are bacteria that are resistant to several types of antibiotics**. Each year these drug-resistant bacteria infect more than 2 million people in the US and kill at least 23,000, according to the **US Centres for Disease Control and Prevention (CDC)**.

What is *Acinetobacter baumannii*?

- I) The study ('**Deep learning-guided discovery of an antibiotic targeting *Acinetobacter baumannii***') dealt with the **bacterium *Acinetobacter baumannii*** and saw participation from Canada's McMaster University and Massachusetts Institute of Technology (MIT) in the US.
- II) In 2017, the bacterium was identified by the

World Health Organization (WHO) as one of the world's most dangerous antibiotic-resistant bacteria.

Notoriously difficult to eradicate, *A. baumannii* can cause pneumonia, meningitis and infect wounds, all of which can lead to death. *A. baumannii* is usually found in hospital settings, where it can survive on surfaces for long periods.

- III) The WHO's list of superbugs highlighted bacteria that are having **built-in abilities to find new ways to resist treatment and can pass along genetic material that allows other bacteria to become drug-resistant as well.**

How do bacteria become resistant to drugs?

- I) According to WHO, antibiotics are medicines used to prevent and treat bacterial infections. Antibiotic resistance occurs when bacteria change in response to the use of these medicines. This ultimately threatens the ability of medicines to treat common infectious diseases.
- II) Where antibiotics can be bought for human or animal use without a prescription, the emergence and spread of resistance is made worse.
- III) The WHO lists infections such as **pneumonia, tuberculosis, and foodborne diseases** as becoming harder to treat with existing medication due to increasing anti-bacterial resistance.

How did researchers use AI in this case?

- I) Narrowing down the right antibacterial chemicals against bacteria can be a long, difficult process. This is where algorithms come in because the concept of AI is based on the process of machines being given large amounts of data and training themselves on identifying patterns and solutions based on them.
- II) According to MIT, the researchers first exposed *A.*

baumannii grown in a lab dish to about 7,500 different chemical compounds, to see which ones could help pause the growth of the bacterium.

Then they fed the structure of each molecule into the machine-learning model. They also told the model whether each structure could prevent bacterial growth or not. This allowed the algorithm to learn chemical features associated with growth inhibition.

- III) Once the model was trained, the researchers used it to analyse a set of 6,680 compounds. This analysis took less than two hours and yielded a few hundred results. Of these, the researchers chose 240 to test experimentally in the lab, focusing on compounds with structures that were different from those of existing antibiotics. Those tests yielded nine antibiotics, including one that was very potent and effective at killing *A. baumannii*. This has been named "**abaucin**".

Way Forward

Hence, using AI, we can rapidly explore vast regions of chemical space, significantly increasing the chances of discovering fundamentally new antibacterial molecules.

THE HIROSHIMA PROCESS THAT TAKES AI GOVERNANCE GLOBAL

Why is it in the news?

- I) Recently, the **annual Group of Seven (G7) Summit**, hosted by Japan, took place in Hiroshima on May 19-21, 2023.
- II) Among other matters, the **G7 Hiroshima Leaders' Communiqué** initiated the **Hiroshima AI Process (HAP)** – an effort by this bloc to determine a way forward to regulate **artificial intelligence (AI)**.
- III) The ministerial declaration of the G7 Digital and

Tech Ministers' Meeting, on April 30, 2023, discussed **"responsible AI"** and global AI governance, and said, **"we reaffirm our commitment to promote human-centric and trustworthy AI based on the OECD AI Principles and to foster collaboration to maximise the benefits for all brought by AI technologies"**.

What is the Hiroshima AI process?

- I) The Communiqué accorded more importance to AI than the technology has ever received in such a forum – even as G7 leaders were engaged with other issues like the war in Ukraine, economic security, supply chain disruptions, and nuclear disarmament. It said that the G7 is determined to work with others to "advance international discussions on inclusive AI governance and interoperability to achieve our common vision and goal of trustworthy AI, in line with our shared democratic value".
- II) The Communiqué recognise the need to immediately take stock of the opportunities and challenges of generative AI, which is increasingly prominent across countries and sectors, and encourage international organisations such as the OECD to consider analysis on the impact of policy developments and **Global Partnership on AI (GPAI)** to conduct practical projects. In this respect, the relevant ministers will establish the Hiroshima AI process, through a G7 working group, in an inclusive manner and in cooperation with the OECD and GPAI, for discussions on generative AI by the end of this year.

These discussions could include topics such as governance, safeguard of intellectual property rights including copyrights, promotion of transparency, response to foreign information

manipulation, including disinformation, and responsible utilisation of these technologies.

- III) The HAP is likely to conclude by December 2023. The first meeting under this process was held on May 30. Per the communiqué, the process will be organised through a G7 working group, although the exact details are not clear.

Why is the process notable?

- I) While the communiqué doesn't indicate the expected outcomes from the HAP, there is enough in there to indicate what values and norms will guide it and where it will derive its guiding principles, based on which to govern AI, from.
- II) The communiqué as well as the ministerial declaration also say more than once that AI development and implementation must be aligned with values such as freedom, democracy, and human rights. Values need to be linked to principles that drive regulation. To this end, the communiqué also stresses **fairness, accountability, transparency, and safety**.
- III) The communiqué also spoke of "the importance of procedures that advance transparency, openness, and fair processes" for developing responsible AI. **"Openness" and "fair processes"** can be interpreted in different ways, and the exact meaning of the "procedures that advance them" is not clear.

What does the process entail?

- I) An emphasis on freedom, democracy, and human rights, and mentions of **"multi-stakeholder international organisations" and "multi-stakeholder processes"** indicate that the HAP isn't expected to address AI regulation from a State-centric perspective. Instead, it exists to account for the importance of involving multiple stakeholders in various processes and to ensure the latter are fair and transparent.

- II) The task before the HAP is really challenging considering the divergence among G7 countries in, among other things, regulating risks arising out of applying AI. It can help these countries develop a common understanding on some key regulatory issues while ensuring that any disagreement doesn't result in complete discord.
- III) For now, there are three ways in which the HAP can play out:
- 1) It enables the G7 countries to move towards a divergent regulation based on shared norms, principles and guiding values;
 - 2) It becomes overwhelmed by divergent views among the G7 countries and fails to deliver any meaningful solution; or
 - 3) It delivers a mixed outcome with some convergence on finding solutions to some issues but is unable to find common ground on many others.

CAPTAGON PILLS

Why is it in the news?

Reports suggest that the **Islamic State (IS)** and Syrian fighters widely consumed **Captagon Pills** to increase alertness and suppress appetite during their gruelling battles.

More about the news

- I) Captagon is a **highly addictive amphetamine-type drug**, which is produced mainly in Syria and widely smuggled across West Asia.
- II) While Nazi Germany supplied **Pervitin**, a methamphetamine (now known as crystal meth) to its soldiers, the Allied forces gave their troops Benzedrine, which was amphetamine sulfate.
- III) The drug remained popular even after the war until in 1965, when the US banned Benzedrine inhalers after decades of reported abuse. In the following decades, new illicit tablets, mainly

containing amphetamine, labelled Captagon surfaced in Bulgaria from where Balkan and Turkish criminal networks smuggled them to the Arabian Peninsula.

What exactly is Captagon?

- I) The original Captagon contained fenethylamine, a synthetic drug of the phenethylamine family to which amphetamine also belongs.
- II) It was commercially sold in several countries until the 1980s and was banned due to fears of its highly addictive nature.

What do amphetamine-based drugs do?

- I) According to a 2015 report published by Vox, Captagon pills, like other amphetamine-based drugs, stimulate the central nervous system, providing "a boost of energy, enhance someone's focus, let someone stay awake for longer periods of time, and produce a feeling of euphoria.
- II) A person consuming any amphetamine-based drug might feel some sort of placebo effect though, which could lead to erratic behaviours.
- III) Captagon or other amphetamine-type drugs usually stay in the blood for around 36 hours.

What are its Negative Impacts?

- I) Consumption of amphetamines can cause loss of appetite and weight, heart problems such as fast heart rate, irregular heartbeat, increased blood pressure, and heart attack, which can lead to death.
- II) They can also cause high body temperature, skin flushing, memory loss, problems thinking clearly, and stroke.

THE CHINA-US RACE TO THE MOON

Why is it in the news?

- I) China achieved a new milestone recently when it sent its first civilian into space. The three-member crew will complete a five-month mission

at the space station, relieving the Shenzhen 15 crew, which has been at the space station for six months and is set to return to Earth in June.

- II) With the successful landing of a second manned crew aboard its space station, the **Chinese Manned Space Agency** aims to land astronauts on the moon before 2030.
- III) On the other hand, the US plans to send a manned crew to the moon by 2025 under the **Artemis programme**. Under the Artemis-I mission, it launched the Orion spacecraft, which returned to NASA's Kennedy Space Centre in Florida on December 11 after completing its 1.4-million-mile journey from Earth to the moon and back.

What is the Artemis programme?

- I) Succeeding the Apollo missions which sent seven manned crews to the moon and back between 1969 and 1972, the Artemis programme aims to land on the moon, set up a long-term base and then send the first astronauts to Mars.
- II) **Led by the US**, the programme is a joint venture of several countries, including Australia, Canada, Italy, Japan, Luxembourg, the United Arab Emirates, the United Kingdom, Ukraine, South Korea, New Zealand, Brazil, Poland, Mexico, Israel, Romania, Bahrain, Singapore, Colombia, France, Saudi Arabia, Rwanda, Nigeria, Czech Republic, and the latest to join, Spain. These countries are signatories of an open treaty called the **'Artemis accords'** which aims to put humans back on the moon.
- III) The programme's initial three missions are titled Artemis-I, II and III.

Artemis-I

For Artemis I, NASA built a super heavy-lift launch vehicle called the **'Space Launch System' (SLS)** — its most powerful till date — to carry its

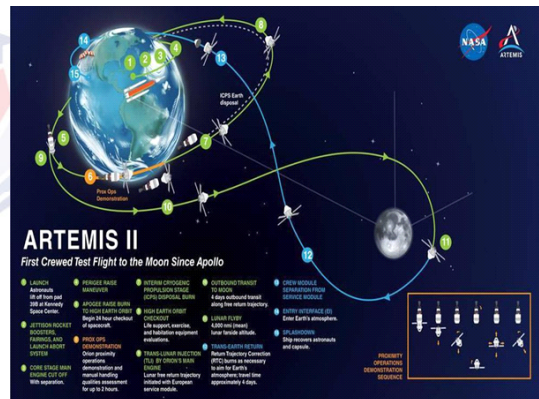
spacecraft , astronauts, and cargo directly to the moon on a single mission.

NASA also built a human spacecraft named **'Orion'** for deep-space missions to travel to the moon and Mars.

It can also carry a human crew to space, provide emergency abort capability, sustain astronauts during their missions and provide safe re-entry from deep space.

Artemis-II

Under Artemis-II, NASA plans to launch a crew of four astronauts onboard the SLS, perform multiple manoeuvres on an expanding orbit around the Earth on the Orion, do a lunar flyby and return back to Earth. The ten-day mission is slated for 2024.



As per its scheduled timeline, the SLS will initially launch the Orion along with the four-member crew similar to Artemis-I. Prior to the separation of the **Interim Cryogenic Propulsion Stage (ICPS)**, the Orion will orbit the Earth twice to check if all systems of the spacecraft are functional while still close to Earth. After the second orbit, the Orion will separate from the ICPS to continue its journey to the moon.

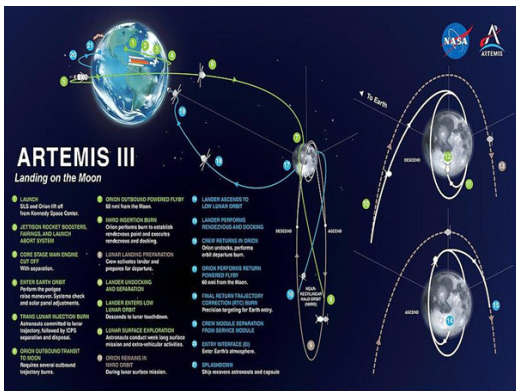
(Artemis-II mission plan)

Before it enters lunar orbit, the crew will use the ICPS as a target for a proximity operations

demonstration. Using onboard cameras and the spacecraft’s windows, the crew will manually approach the ICPS and then back away from it. This demonstration will ultimately help in critical rendezvous, proximity operations and docking and undocking for Artemis-III. The crew will also perform tests on other systems like communication, life support, and navigation before Orion’s service module pushes the spacecraft to its path to the moon. Orion will travel along the back side of the moon for four days, before doing a lunar flyby and returning to the earth. Aboard the Orion, the crew’s module will separate from the service module, enter the earth’s atmosphere and splash down.

on the moon. The crew will conduct a week-long lunar exploration and return to the lander which will first ascend to the low lunar orbit before docking on the Orion. The spacecraft will then perform a lunar flyby before returning to Earth. NASA has selected SpaceX to provide the lunar lander which will transport the crew from Orion to the surface of the moon and back again.

Artemis-III



Artemis-III will mark the return of humans to the moon in 2025. Similar to Artemis-I and II, the crew onboard the Orion will be launched to the moon. After the ICPS pushes the Orion towards the lunar orbit, the Orion will perform two engine burns to set itself on a **Near-Rectilinear Halo Orbit (NRHO)** in the moon’s gravitational orbit. The NRHO will help to establish a landing site on the moon.

(Artemis-III mission plan)

After preparation, the lunar lander will separate from the spacecraft — which will continue to be in the NRHO, enter the lower lunar orbit and land

Artemis IV and onwards

In Artemis IV, NASA aims to land a second crew on the moon in 2028 and establish a Lunar Gateway station whose components will be launched prior to the Artemis IV mission to the NHRO.

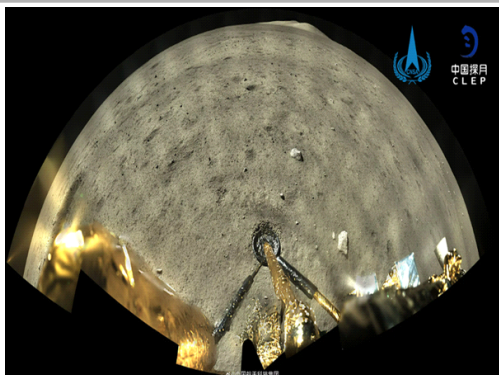
Successive missions will see a crew landing at the Lunar Gateway station in 2029 along with several components required for moon exploration by different countries. The aim is to set up a permanent base on the lunar surface and then proceed to send astronauts to Mars from the moon.

China’s Moon mission

Chang’e 1 to 5

Dubbed as the Chang’e mission, the Chinese Lunar Exploration Program has already launched two lunar orbiters (Chang’e 1 & 2) and two lunar rovers (Chang’e 3 & 4) — one on the unexplored south pole of the far side of the moon.

The Chinese launched Chang’e 5 on November 23, 2020, onboard its Long March 5 rocket. The spacecraft entered the lunar orbit on November 28, 2020, and its descender slowly soft-landed in the Mons Rumker region of Oceanus Procellarum on the south pole of the moon. The lander scooped, drilled and collected samples of the lunar surface and transferred them to the ascender via a robotic arm.



(China's Chang'e-5 spacecraft captured this image of the lunar surface shortly after landing in the Ocean of Storms on 1 December 2020)

The ascender lifted off to lunar orbit and transferred them to the return capsule via the lunar orbiter on December 3, 2020. The return capsule with the orbiter entered the earth's orbit after five days. While the orbiter separated from the return capsule and headed to the Sun-Earth Lagrange point L1 for its next mission, the capsule landed in the Siziwang Banner grassland of Inner Mongolia in north China on December 17. The recovered sample of lunar **regolith (the loose unconsolidated rock and dust atop bedrock)** was found to weigh 1.731 kg.

Chang' e 6,7 & 8

Currently, China aims to continue its research of the moon's south pole, sending two missions — Chang'e 6 and Chang'e 7 — in 2024 and 2026 to bring back samples. Chang' e 7 comprises an orbiter, a relay satellite, a lander, and a mini-flying probe and will explore the lunar south pole for resources. It will also aim to detect water ice in the permanently shadowed area.

China further plans to build a permanent science base on the moon. Towards this end, Chang' e 8 will carry a lander, a rover, and a flying detector along with a 3D-printing module to test the construction of a lunar base.

International Lunar Research Station

- I) Constructing a lunar base is a joint venture between **China and Russia**. On April 29, 2021, the two nation's space agencies- **China National Space Administration and Russia's State Space Corporation (Roscosmos)** — issued a joint statement that they will collaborate in the construction of an **International Lunar Research Station (ILRS)** for the peaceful exploration and use of the Moon.
- II) The station will be equipped with energy supplies, communications and navigation, space shuffling, lunar research and ground support services and a command centre. Apart from Russia, Pakistan, Argentina and international organizations including the Asia Pacific Space Cooperation Organization have agreed to participate in the project, while at least ten other countries are considering it.

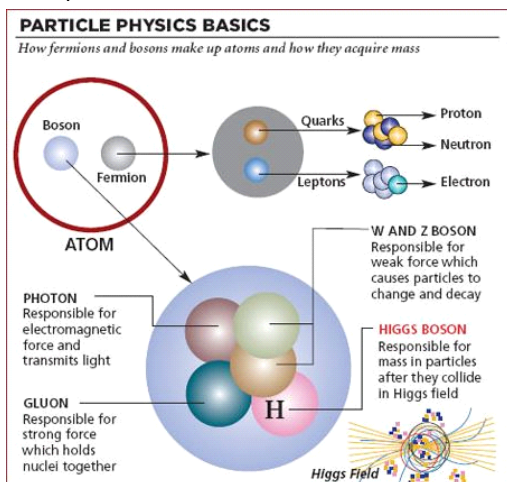
THE DECADE-LONG SEARCH FOR A RARE HIGGS BOSON DECAY

Why is it in the news?

- I) Recently, physicists working with the **Large Hadron Collider (LHC) particle-smasher at CERN, in Europe**, reported that they had **detected a Higgs boson decaying into a Z boson particle and a photon**. This is a very rare decay process that tells us important things about the Higgs boson as well as about our universe.
- II) The **Higgs boson is a type of boson, a force-carrying subatomic particle**. It carries the force that a particle experiences when it moves through an energy field, called the **Higgs field, that is believed to be present throughout the universe**. For example, when an electron interacts with the Higgs field, the effects it experiences are said to be due to its interaction with Higgs bosons.

What is the Higgs boson?

- I) An **electron is a subatomic particle that has mass.** How does this mass arise? How can we say that an electron has less mass than a proton, or that a photon has no mass at all?
The answer lies with the Higgs boson. The stronger a particle's interaction with the Higgs boson, the more mass it has. This is why electrons have a certain mass, protons have more of it, and neutrons have just a little bit more than protons, and so on. A Higgs boson can also interact with another Higgs boson: this is how we know that its mass is greater than that of protons or neutrons.
- II) Since all the matter in the universe is made of these particles, working out how strongly each type couples to Higgs bosons, together with understanding the properties of Higgs bosons themselves, can tell us a lot about the universe itself. The latter is why the new result is notable.
- III) **Photons, the particles of light, have no mass because they don't interact with Higgs bosons.** So, a question should arise: how did a Higgs boson decay to a Z boson and a photon if it doesn't interact with photons? The answer lies in spacetime.



What are virtual particles?

- I) According to **quantum field theory**, which is the theory physicists use to study these interactions, space at the subatomic level is not empty. It is filled with virtual particles, which are particles that quickly pop in and out of existence. They can't be detected directly, but according to physicists their effects sometimes linger.
- II) The LHC creates a Higgs boson by accelerating billions of highly energetic protons into a head-on collision, releasing a tremendous amount of energy that condenses into different particles. When a Higgs boson is created in this hot soup, it has a fleeting interaction with virtual particles that creates a Z boson and a photon.

What is the new result?

- I) Because it is so heavy, the Higgs boson is an unstable particle that decays into lighter particles. We can't always say which combination of particles it will decay into. However, the theory that describes the properties of fundamental particles has clearly predicted the probability that it will take a given path. For example, this theory, called the **Standard Model**, says that a Higgs boson will decay to a Z boson and a photon 0.1% of the time. This means the LHC needed to have created at least 1,000 Higgs bosons to have been able to spot one of them decaying to a Z boson and a photon.
- II) As it happens, the Z boson is also unstable. According to experts, Z bosons decay to two muons some 3% of the time. If the detectors at the LHC were looking for a pair of muons plus a photon created at the same time, the LHC would have had to create at least 30,000 Higgs bosons to observe the decay just once. This is why, even though the Higgs boson was discovered more

than a decade ago at the LHC, it is only now that physicists are confirming this decay pathway.

Is this a new finding?

I) The two detectors that announced the new measurement, **called ATLAS and CMS**, had in fact looked for and found the decay before as well (in 2018 and 2020).

On this occasion, however, the two teams combined their data, collected “between 2015 and 2018”, and as a result “significantly increased the statistical precision and reach of their searches,” according to a CERN statement.

II) This significance is even now not high enough for the teams to claim a Higgs boson decayed to a Z boson and a photon with 100% certainty, reflecting the rarity of the decay pathway.

What is the Standard Model?

I) Why do physicists go to such lengths to spot the decay in the first place? This is because the Standard Model predicts that the Higgs boson will take this path 0.1% of the time if its mass is 125 billion eV/c² (a unit of mass used for subatomic particles).

II) The Standard Model has made many accurate predictions but it can't explain what dark matter is or, in fact, why the Higgs boson is so heavy. Testing its predictions as precisely as possible is a way for physicists to find whether there are any cracks in the Model – cracks through which they can validate new theories of physics. For example, some theories predict a higher rate of decay through this pathway; if the LHC and its detectors find experimental proof of that, the new theories could open a new realm of science.

NEW NavIC SATELLITE

Why is it in the news?

I) Recently, the **Indian Space Research Organisation**

(**ISRO**) has launched the first of the second-generation satellites for its navigation constellation successfully.

II) Christened **NVS-01**, the first of ISRO's NVS series of payloads is the heaviest in the constellation and was launched by a **Geosynchronous Satellite Launch Vehicle (GSLV)** rocket from Sriharikota.

III) Each of the seven satellites currently in the **Indian Regional Navigation Satellite System (IRNSS)** constellation, operationally named **NavIC**, weighed much less.

What are the features of Second-generation NavIC satellite?

I) The satellite will have a **Rubidium atomic clock** onboard, a significant technology developed by India which only a handful of countries possess.

The satellite-based positioning system determines the location of objects by using the atomic clocks on board; failure of clocks means the satellites are no longer able to provide accurate locations.

Several of the existing satellites stopped providing location data after their onboard atomic clocks failed — this was the main reason for the launch of the replacement satellite in 2018.

II) The second-generation satellites will send signals in a third frequency, **L1, besides the L5 and S frequency signals** that the existing satellites provide, increasing interoperability with other satellite-based navigation systems.

The L1 frequency is among the most commonly used in the **Global Positioning System (GPS)**, and will increase the use of the regional navigation system in wearable devices and personal

trackers that use low-power, single-frequency chips.

- III) The second-generation satellites will also have a **longer mission life of more than 12 years**. The existing satellites have a mission life of 10 years.

What is the practical purpose of the NavIC constellation?

- I) NavIC is in use for projects such as **public vehicle safety, power grid synchronisation, real-time train information systems, and fishermen’s safety**.
- II) Other upcoming initiatives such as **common alert protocol-based emergency warning, time dissemination, geodetic network, and unmanned aerial vehicles** are in the process of adopting the NavIC system.
- III) Some cell phone chipsets such as the ones built by **Qualcomm and MediaTek** integrated NavIC receivers in 2019.

What are the significant features of regional navigation system?

- I) There are **four global satellite-based navigation systems — the American GPS, the Russian GLONASS (GLObalnaya NAVigatsionnaya Sputnikovaya Sistema), the European Galileo, and the Chinese Beidou**.

Japan has a four-satellite system that can augment GPS signals over the country, similar to India’s **GAGAN (GPS Aided GEO Augmented Navigation)**.

- II) NavIC is better than GPS in some aspects. While GPS can get you within 20 metres of your target, NavIC is more accurate and can get you even closer—within 5 metres. For individual users, this might not be significant but for military equipment like guided missiles, it is crucial.

- III) However, unlike GPS, which can be used anywhere in the world, **NavIC is regional and can only be used within India and up to 1,500 km from its borders**.

- IV) NavIC uses satellites in high geo-stationery orbit — the satellites move at a constant speed relative to Earth, so they are always looking over the same region on Earth.

- V) NavIC signals come to India at a 90-degree angle, making it easier for them to reach devices located even in congested areas, dense forests, or mountains.

- VI) With the use of NavIC picking up, the government has been looking at the possibility of increasing the coverage area of the system.

THE GAGANYAAN RECOVERY TRAINING PLAN

Why is it in the news?

- ★ Recently, **the Indian Navy and the Indian Space Research Organisation (ISRO)** have released the **Gaganyaan Recovery Training Plan** at INS Garuda in Kochi.

More about the news

- I) The document outlines the training plan for recovery of the crew module of the Gaganyaan mission.
- II) The document defines overall requirements with respect to training of various teams participating in recovery operations including divers, **MARCOs (marine commandos)**, medical specialists, communicators, technicians and naval aviators.
- III) The recovery training is planned in incremental phases starting from unmanned recovery to manned recovery training in harbour and open sea conditions.

About Gaganyaan Mission

- I) The Gaganyaan mission aims to demonstrate the capability to launch human beings (three crew

members) to low earth orbit and bring them back safely to earth by landing them in either the Bay of Bengal or the Arabian Sea.

- II) **Low-Earth orbit (often known as LEO)** encompasses Earth-centred orbits with an altitude of 2,000 km or less.
- III) Its objective is to demonstrate indigenous capability to undertake human space flight mission to LEO.
- IV) **Launch Vehicle Mark-3 (LVM3)** is the launch vehicle for the Gaganyaan mission.
- V) All systems in the LVM3 launch vehicle are reconfigured to meet human rating requirements and named **Human Rated LVM3 (HLVM3)**.

Advantages of Gaganyaan Mission

It has both tangible and intangible benefits for the nation, which includes:

- I) Progress towards a sustained and affordable human and robotic programme to explore the solar system and beyond.
- II) Advanced technology capability for undertaking human space exploration, sample return missions and scientific exploration.
- III) Future capability to actively collaborate in global space station development & to carry out scientific experiments of interest to the nation.
- IV) The programme will strengthen international partnerships and global security through the sharing of challenging and peaceful goals.
- V) Ample scope for employment generation and human resource development in advanced science and R&D activities.

WILL FACIAL RECOGNITION AI TOOLS HELP DETECT TELECOM FRAUD?

Why is it in the news?

- I) To weed out rampant cases of fraudulently procured SIM cards being used across the

country for financial and other cyber scams, the **Department of Telecommunications (DoT)** has begun using an artificial intelligence-based facial recognition tool named '**Artificial Intelligence and Facial Recognition powered Solution for Telecom SIM Subscriber Verification (or ASTR, to be pronounced astra, the Hindi word for weapon)**'.

- II) ASTR has already been used in multiple States including Haryana, Gujarat, Maharashtra, Tamil Nadu, and Kerala. Notably, while the DoT has put out success stories of fake mobile connection busts using ASTR this year, there is no personal data protection regime or AI-specific regulation in India yet.

Why is artificial intelligence being used to detect telecom frauds?

- I) Recently, the Punjab police had blocked 1.8 lakh SIM cards allegedly activated using fake identities, out of which 500 connections were obtained using one person's photo but different accompanying **KYC (Know Your Customer)** parameters like names, address proofs, and so on.
Haryana's **Nuh district (formerly Mewat) was described as the 'new Jamtara' (the Jharkhand region infamous for such frauds)** when the police arrested 66 accused for allegedly duping around 28,000 people across the country to the tune of ¹ 100 crore using 99 fake SIM cards. Meanwhile, Karnataka lost ¹ 363 crore to cyber fraud in 2022, which averages very close to ¹ 1 crore per day.
- II) As per the DoT, a large proportion of financial cyber frauds involve the use of fake mobile connections that leverage anonymity.
- III) According to DoT, India is the **second-largest**

telecom ecosystem in the world, with about 117 crore subscribers, and while manually identifying and comparing the vast number of subscriber verification documents such as photographs and proofs is a massive exercise, and it aims to use the facial recognition-based “**indigenous and NextGen platform**” **ASTR** to analyse the whole subscriber base of all **telecom service providers (TSPs)**.

- IV) Also, the DoT points out that the currently available conventional text-based analysis is limited to finding similarities between the proof of identities or addresses and verifying whether such information is accurate but it cannot trawl photographic data to detect similar faces.

What is ASTR and how will it detect fake SIM connections?

- I) Facial recognition is an **algorithm-based technology** which creates a digital map of the face by identifying and mapping an individual’s facial features, which it then matches against the database to which it has access.
- II) In 2012, the DoT had directed all TSPs to share their subscriber database including pictures of users with the department.
- III) The ASTR analyses this database subscriber images provided by TSPs and put them into groups of similar-looking images using **facial recognition technology (FRT)**.

In the next step, it compares the associated textual subscriber details with pictures in the database and uses a string-matching concept called “**fuzzy logic**” to identify approximately similar-looking names of users or other KYC information to group them.

The last step is determining if the same face (person) has acquired SIMs in multiple names,

dates of birth, bank accounts, address proofs, and other KYC documents. Alternatively, ASTR also identifies if more than eight SIM connections have been obtained in one person’s name, which is not allowed as per DoT rules.

- IV) ASTR’s facial recognition technology detects facial features by mapping 68 features of the frontal face. It characterises two faces as similar if there’s a 97.5% match.

What are the concerns associated with the use of facial recognition AI?

- I) The use of FRT involves issues related to misidentification due to the inaccuracy of the technology. An algorithmic FRT, which is trained on specific datasets may **have limits to its knowledge**, i.e., it might make technical errors due to occlusion (a partial or complete obstruction of the image), bad lighting, facial expression, ageing and so on.
- II) Errors in FRT also relate to the **underrepresentation of certain groups of people in the training datasets**. Studies on FRT systems in India indicate a disparity in error rates based on the identification of Indian men and Indian women. Extensive research globally has revealed that its accuracy rates fall starkly based on race, gender, skin colour and so on. This, in turn, can result in a false positive, where a person is misidentified as someone else or a false negative, where a person is not verified as themselves.
- III) Other concerns about FRT, which are ethical relate to **privacy, consent, and mass surveillance**. The Supreme Court in the **Puttaswamy case** had recognised the right to informational autonomy as an important part of the right to privacy enshrined in **Article 21**.

IV) FRT systems consume and compute vast amounts of biometric facial data, to both train and operate. In many cases, an individual may not be in control of the processing of their data or not even be aware. This could — and has — **resulted in wrongful arrests and exclusion from social security schemes.**

What is the legal framework governing such technology in India?

I) In several jurisdictions world-over which are using FRT in their governance and privately, players have to adhere to the local personal data protection regimes if AI regulation is not in place. For instance, in the **European Union**, where a specific AI Act is currently being drafted, FRT tools have to adhere to the strict privacy and security rules in the **General Data Protection Regulation of 2018**. This is also the case in **Canada**.

II) In India, there is **no data protection law in place** after the government withdrew the **Personal Data Protection Bill, 2019** last year following extensive changes recommended by a Joint Parliamentary Committee. The Centre this year came up with a new draft of the Bill but it has not been tabled in Parliament yet.

Secondly, India also does not have an FRT-specific regulation. While there is a regulatory vacuum, according to the **Internet Freedom Foundation's Project Panoptic**, which tracks the spread of FRT in India, there are more than 130 government-authorized FRT projects in the country that spread access use cases such as authentication for access to official schemes, airport check-in (the DigiYatra project), real-time use on suspects by various state police forces, identity authentication to access education document (used by the CBSE), and so on.

Way Forward

I) NITI Aayog has published several papers enunciating India's national strategy towards **harnessing the potential of AI reasonably**. It says that the use should be with due consent and should be voluntary and at no time should FRT become mandatory. It should be limited to instances where both **public interest and constitutional morality** can be in sync.

II) Enhanced efficiency of automation should per se not be deemed enough to justify the usage of FRT. It is yet to be seen whether ASTR aligns with this definition and the Puttaswamy judgment of 2017.

COULD A PHOTOGRAPHY DISPUTE IN THE U.S. AFFECT CHATGPT AND ITS COUSINS?

Why is it in the news?

I) Copyright law protects the work of diverse artists, including photographers, as well as provides a set of exclusive rights for artists over their creative output. This includes controlling the manner in which others reproduce or modify their work.

II) However, these exclusive rights are balanced with the rights of the users of such work, including other artists who might want to build on or comment on them, with the help of diverse exceptions under copyright law.

What is exempt from infringement liability?

I) Different jurisdictions follow different approaches to exceptions. Some, particularly countries in continental Europe, adopt the **'enumerated exceptions approach'**: the use in question needs to be specifically covered under the statute to be considered as an exception to infringement.

II) Some others, including the U.S., follow an **open-**

ended approach that doesn't specify exemptions beforehand; instead, they have guidelines about the types of uses that can be exempted.

The U.S. courts primarily consider four factors when determining whether a particular use can be considered to be an instance of fair use:

- 1) Purpose and character of the use;
- 2) Nature of the copyrighted work;
- 3) Amount and substantiality of the portion taken by the defendant, and
- 4) Effect of the use on the potential market of the plaintiff's work.

Of these, U.S. courts have been giving the highest importance to the first factor. In particular, whether the use of something can be considered **"transformative"** has often played the most critical role in determining the final outcome in a fair-use case.

This open-ended approach to exceptions provides U.S. copyright law considerable flexibility and strength to deal with challenges posed by emerging technologies on the copyright system.

However, it has a major limitation: there is no way to know whether an activity will be exempted from liabilities until after litigation. That is, it is very hard to predict **ex ante** whether an activity will be exempted from copyright infringement liabilities.

The recent decision of the U.S. Supreme Court in **Andy Warhol Foundation for the Visual Arts Inc. v. Goldsmith et al.** has just added more unpredictability to this process – with implications for how we regulate a powerful form of artificial intelligence.

What is the Andy Warhol Foundation case?

- I) Known for her concert and portrait shots, Lynn

Goldsmith photographed the famous musician Prince in 1981. One of those photos was licensed in 1984 to *Vanity Fair* magazine for use as an "artist reference". The licence specifically said the illustration could appear once as a full-page element and once as a one-quarter page element, in the magazine's November 1984. *Vanity Fair* paid Ms. Goldsmith \$400 for the licence.

- II) It then hired the celebrated visual artist **Andy Warhol** to work on the illustration. Mr. Warhol made a **silkscreen portrait of Prince** using Goldsmith's photo. It appeared in the magazine with appropriate credits to Ms. Goldsmith. But while the licence had authorised only one illustration, Mr. Warhol additionally created 13 screen prints and two pencil sketches.

- III) In 2016, Condé Nast, the media conglomerate that publishes *Vanity Fair*, approached the **Andy Warhol Foundation (AWF)** to reuse the 1984 illustration as part of a story on Prince. But when they realised that there were more portraits available, they opted to publish one of them instead (an orange silkscreen portrait). And as part of the licence to use it, they paid \$10,000 to AWF, and nothing to Ms. Goldsmith.

- IV) When AWF realised that Ms. Goldsmith may file a copyright infringement suit, it filed a suit for declaratory judgment of non-infringement. Ms. Goldsmith then counter-sued AWF for copyright infringement.

What did the courts find?

- I) First, a district court summarily ruled in favour of AWF, opining that Mr. Warhol's use of Ms. Goldsmith's photo constituted fair-use. The court banked on the first factor and held that Mr. Warhol's work was **"transformative"** as they "have a different character, give Goldsmith's

photograph a new expression, and employ new aesthetics with creative and communicative results distinct from Goldsmith's".

It also observed that Mr. Warhol's work added something new to the world of art "and the public would be deprived of this contribution if the works could not be distributed".

- II) However, the Court of Appeals for the Second Circuit reversed these findings and disagreed that Mr. Warhol's use of the photograph constituted fair-use. The case subsequently went to the U.S. Supreme Court, which delivered its verdict on May 18, 2023.
 - a) The majority of judges concluded that if an original work and secondary work have more or less similar purposes and if the secondary use is of a commercial nature, the first factor may not favour a fair-use interpretation – unless there are other justifications for copying.
 - b) In this particular instance, according to the majority decision, both Ms. Goldsmith's photos and Mr. Warhol's adaptations had more or less the same purpose: to portray Prince. The majority said that while copying may have helped convey a new meaning or message, that in itself did not suffice under the first factor.
 - c) The dissenting opinion focused extensively on how art is produced, particularly the fact that no artists create anything out of a vacuum. The dissenters also opined that Mr. Warhol's addition of important "new expression, meaning and message" tilted the first factor in favour of a finding of fair-use.

How does this affect generative AI?

- I) While this dispute arose in the context of use of a photograph as an artistic reference, the implications of the court's finding are bound to

ripple across the visual arts at large. The majority position could challenge the manner in which many generative **artificial intelligence (AI)** tools, such as ChatGPT4, MidJourney, and Stable Diffusion, have been conceived.

These models' makers 'train' them on text, photos, and videos strewn around the internet, copyrighted or not. For example, if someone is using a generative AI tool to create pictures in the style of Mr. Warhol, and if the resulting images are similar to any of the work of Mr. Warhol, a court is likelier now to rule against this being described as fair use, taking the view that both the copyrighted work and the models' output serve similar purposes.

- II) The majority's reliance on the commercial nature of the use may also result in substantial deviation from the established view: that the commercial nature of the use in itself cannot negate a finding of fair use. But the true extent of the implications of the verdict will be clear only when trial courts begin applying the ratio in this judgment to future cases.

What about Indian copyright law?

- I) There may not be any direct implications for Indian copyright law, as the framework of exceptions here is different.
- II) India follows a hybrid model of exception in which fair dealing with copyrighted work is exempted for some specific purposes under **Section 52(1)(a) of the Copyright Act 1957**. India also has a long list of enumerated exceptions.
- III) However, the observations by the U.S. Supreme Court's decision could have a persuasive effect, particularly when determining 'fairness' as part of a fair-dealing litigation. Then again, only time will tell which one will have a more persuasive effect – the majority or the minority.

FASTEST SUPERCOMPUTERS

Why is it in the news?

According to the **Ministry of Earth Sciences** India is set to dramatically scale up its super-computing prowess and install an **18-petaflop system** over the course of this year.

What is a Supercomputer?

- I) A supercomputer is a computer that performs at or near the highest operational rate for computers.
- II) These computers leverage a memory block along with multiple central processing units grouped into '**compute nodes**' – sometimes tens of thousands of nodes.
- III) Currently India's most powerful, civilian supercomputers — **Pratyush and Mihir** — with a combined capacity of 6.8 petaflops are housed at the **Indian Institute of Tropical Meteorology (IITM)**, Pune, and the **National Centre for Medium Range Weather Forecasting (NCMRWF)**, Noida, respectively.
- IV) The new supercomputers too will be housed at the IITM and NCMRWF.
- V) The fastest high-performance computing system in the world is currently the **Frontier-Cray system at Oakridge National Laboratory, United States**.

What is Petaflop system?

- I) Flops (floating point operations per second) are an **indicator of computers processing speed** and a petaflop refers to a 1,000 trillion flops.
- II) Processing power to such a degree greatly **eases complex mathematical calculations required**, and among other things, forecasting how the weather will be over the next few days all the way up to two-three months ahead.

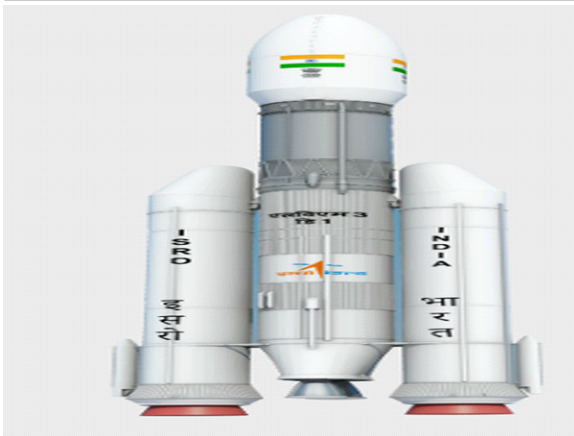
REUSABLE LAUNCH VEHICLES

Why is it in the news?

- I) Inching closer to a fully reusable launch vehicle, the **Indian Space Research Organisation (ISRO)** successfully carried out the landing experiment of the **Reusable Launch Vehicle-Technology Demonstration (RLV-TD)** programme on April 2, 2023.
- II) The success of this test marks yet another milestone in ISRO's mission to develop a fully reusable launch vehicle as part of its vision to enable low-cost access to space.
- III) Currently, ISRO has three active launch vehicles: **the Polar Satellite Launch Vehicle (PSLV), the Geosynchronous Satellite Launch Vehicle (GSLV), and the Launch Vehicle Mark-III (LVM3)**. The PSLV has four stages while the GSLVs have three stages each. Each stage has a different fuel, and is jettisoned when the fuel is expended as the rocket ascends.

What is a reusable launch vehicle?

- I) Primarily, launch vehicles comprise three or four stages apart from the payload, which needs to be launched into a polar or a geosynchronous orbit, depending on a mission's requirements.
- II) In **ISRO's three-stage rockets**:
 - a) the first or lowermost stage has a motor fuelled by **solid fuel** (in the GSLV, this can also be augmented by up to four liquid strap-on boosters);
 - b) the second stage has the Vikas engine powered by **liquid fuel**; and
 - c) the third and uppermost stage has a **cryogenic engine, which uses liquid oxygen and liquid hydrogen**.



(LVM3(Geosynchronous Satellite Launch Vehicle Mk III))

- III) In the four-stage PSLV, the first stage has a motor using **solid fuel** (augmentable with up to six solid-fuel strap-on boosters), the second stage has a **Vikas engine**, the third stage again has a **solid-fuel motor**, and the fourth stage has **two liquid engines**.
- IV) The RLV that ISRO is building has **only two stages** to propel the vehicle into orbit. Once the fuel in the first stage has been expended, the vehicle will shed it, and carry on with the second stage. Once it has been shed, the first stage will re-enter the atmosphere and land in an autonomous fashion at a pre-determined location. After some maintenance, it will be available for reuse.

Have RLVs been used in the past?

- I) Since the 1960s, experts have conceived reusable rockets as a way to lower the cost of space missions. In the most idealised version, they imagined a single-stage-to-orbit rocket that could take off and land vertically.
- II) The American aerospace manufacturing company McDonnell Douglas realised this dream in 1993, building the **Delta Clipper (DC-X)** to demonstrate lift-off, maintain altitude, and a landing on its tail. The project was later transferred to NASA's Reusable Launch Vehicle

program after the cost of each test flight proved to be too expensive. In its twelfth flight in 1996, the DC-X crashed and burned on landing, extensively damaging its exterior chassis.

- III) NASA later shelved the project due to budgetary constraints, bringing this chapter of the single-stage to-orbit launch vehicle to an end.



(The DC-X backs into its parking spot in September 1993)

What reusable technologies are currently in play in spaceflight?

- I) Several DC-X engineers subsequently moved to Amazon founder Jeff Bezos's space company **Blue Origin**. On November 23, 2015, Blue Origin's reusable space vehicle '**New Shepherd**' successfully undertook a suborbital flight, reaching an altitude of 329,839 feet, and then performed a controlled landing back at its launch site in West Texas with the help of a parachute drop.
- II) The most famous player in the reusable spaceflight sector is Elon Musk's **SpaceX**, founded in 2001. Both Blue Origin and SpaceX, among others, are developing rockets with reusable parts, especially the first stage, rather than the whole vehicle being reusable. SpaceX initially attempted to salvage the rocket's first stage using parachutes; but the boosters would break before the parachutes were deployed.

III) Then came the **Falcon 9** in 2010, a 54-metre-tall two-stage rocket with nine engines, capable of transporting cargo and crew to the International Space Station (ISS). Instead of using parachutes to recover the first stage, the Falcon 9 was equipped with retrograde thrusters, using which the first stage could come back down to a designated spot using its engines themselves. Initially, Falcon 9 attempted soft landings in the ocean as they did not have a landing site. After several failures, on its 20th attempt, a Falcon 9 was launched with a light payload to the ISS. Ten minutes after launch, the first stage — its duty done — turned back down and descended smoothly at a landing pad at Cape Canaveral. Thus far (May 19, 2023), Falcon 9 first stages have had 220 launches, 178 landings and 155 re-flights.

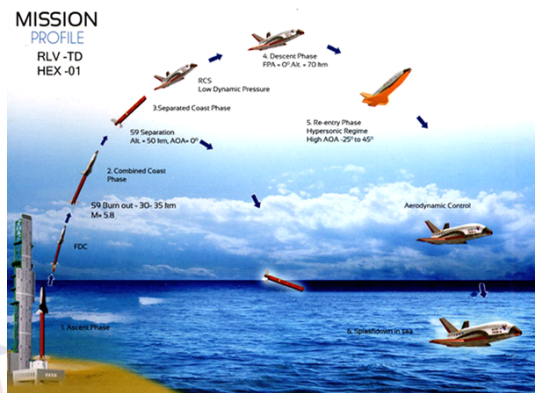
IV) In addition to these companies, the **Japan Aerospace Exploration Agency (JAXA)**, the **United Launch Alliance (ULA)**, the **European Space Agency (ESA)**, and **ISRO** have also been undertaking R&D on other aspects of reusable launch systems.

What is ISRO working on?

- I) In 2010, ISRO began developing a winged reusable rocket, taking the first step towards realising a **two-stage-to-orbit (TSTO)** launch vehicle that could be fully reusable. On May 23, 2016, the winged vehicle successfully flew at hypersonic speed. It also withstood fiery re-entry temperatures as it re-entered, qualifying its thermal protection systems, before it touched down at a pre-determined site 425 km east of Sriharikota, in the Bay of Bengal.
- II) While several other related technologies have been tested through the years, **ISRO's RLV's**

autonomous landing was only tested successfully on April 2, 2023.

III) Currently, ISRO is working on the '**Orbital Re-entry Experiment' (ORE)**, which will be taken to orbit by a modified launch vehicle comprising existing GSLV and PSLV stages. The vehicle will stay in orbit for a stipulated period, re-enter, and finally land autonomously on a runway, with landing gear.



(RLV HEX-01 mission)

UNDERSTANDING A HUMAN PANGENOME MAP

Why is it in the news?

- ★ Recently, a new study described a **pangenome reference map**, built using genomes from 47 anonymous individuals (19 men and 28 women), mainly from Africa and the Caribbean, Americas, East Asia, and Europe.

What is a genome?

- I) The **genome is the blueprint of life, a collection of all the genes and the regions between the genes contained in our 23 pairs of chromosomes.**
- II) Each chromosome is a contiguous stretch of DNA string. In other words, our genome consists of 23 different strings, each composed of millions of individual building blocks called **nucleotides or bases.**
- III) The **four types of building blocks (A, T, G and C)**

are arranged and repeated millions of times in different combinations to make all of our 23 chromosomes.

IV) **Genome sequencing is the method used to determine the precise order of the four letters and how they are arranged in chromosomes.**

Sequencing individual genomes helps us **understand human diversity at the genetic level and how prone we are to certain diseases.**

V) The genome is an identity card like Aadhaar. As each of our Aadhaar card is unique, so is our genome. As sequencing individual genomes of all humans is expensive, we do not yet have all our genome identity cards. To circumvent this, one can have a collective identity card. For example, we can have a single genome identity card for everyone living in a region.

What is a reference genome?

I) When genomes are newly sequenced, they are compared to a reference map called a **reference genome**. This helps us to understand the regions of differences between the newly sequenced genome and the reference genome.

II) One of this century's scientific breakthroughs was the **making of the first reference genome in 2001**. It helped scientists discover thousands of genes linked to various diseases; better understand diseases like cancer at the genetic level; and design novel diagnostic tests.

The reference genome of 2001 was 92% complete and contained many gaps and errors. Additionally, it was **not representative of all human beings** as it was built using mostly the genome of a single individual of mixed African and European ancestry. Since then, the reference genome map has been refined and improved to have complete end-to-end sequences of all the 23 human chromosomes.

III) Although complete and error-free, the finished reference genome map does not represent all of human diversity. The new study changed this and described the making of the **pangenome map**, the genetic diversity among the 47 individuals, and the computational methods developed to build the map and represent differences in those genomes.

What is a pangenome map?

I) Unlike the earlier reference genome, which is a linear sequence, the **pangenome is a graph**. The graph of each chromosome is like a bamboo stem with nodes where a stretch of sequences of all 47 individuals converge (similar), and with internodes of varying lengths representing genetic variations among those individuals from different ancestries.

II) To create complete and contiguous chromosome maps in the pangenome project, the researchers used long-read DNA sequencing technologies, which produce strings of contiguous DNA strands of tens of thousands of nucleotides long. Using longer reads helps assemble the sequences with minimum errors and read through the repetitive regions of the chromosomes which are hard to sequence with short-read technologies used earlier.

Why is a pangenome map important?

I) Although any two humans are more than 99% similar in their DNA, there is still about a 0.4% difference between any two individuals. This may be a small percentage, but considering that the human genome consists of 3.2 billion individual nucleotides, the difference between any two individuals is a whopping 12.8 million nucleotides.

II) A complete and error-free human pangenome

map will help us understand those differences and explain human diversity better. It will also help us understand genetic variants in some populations, which result in underlying health conditions. The pangenome reference map has added nearly 119 million new letters to the existing genome map and has already aided the discovery of 150 new genes linked to autism.

- III) Although the project is a leap forward, genomes from many populations are still not a part of it. For example, genomes from more people from Africa, the Indian sub-continent, indigenous groups in Asia and Oceania, and West Asian regions are **not represented in the current version of the pangenome map.**

Way Forward

- I) Even though the current map does not contain genome sequences from Indians, it will help map Indian genomes better against the error-free and complete reference genomes known so far.
- II) Future pangenome maps that include high quality genomes from Indians, including from many endogamous and isolated populations within the country, will shed light on disease prevalence, help discover new genes for rare diseases, design better diagnostic methods, and help discover novel drugs against those diseases.

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ECONOMY

WHAT US RATE HIKE PAUSE MEANS FOR INDIAN MARKETS

Why is it in the news?

- I) While the **US Federal Reserve** went along with the market mood and maintained the status quo at its recent policy meeting, it did signal the possibility of two more rate hikes this year to counter inflation.
- II) This led to a downturn in major indexes, including Indian markets, where Sensex fell by 0.49 per cent, or 311 points, to 62,917.63.

Why did the Fed keep rates unchanged?

- I) **Fed Chair Jerome Powell** admitted that the effects of their cumulative tightening are yet to be seen, but insisted on further tightening. It's becoming clear that the Fed is prepared for a growth setback if required to bring inflation down to its target.
- II) The pause came after 10 consecutive policy tightenings, as the central bank bought time to assess the impact of the earlier five percentage points hike on the economy, especially on the inflation and labour market front.
- III) The Fed has revised its inflation and growth projection upwards and its unemployment rate downwards, which means price pressures are looking sticky, the widely expected US recession has been pushed down the road, and the labour markets are displaying strength. If one goes by these estimates, the Fed now has more room and more reason to tighten. Investors should brace for volatility and probably some downside in gold prices over the next couple of

months. Stubborn inflation will prevent any sharp downside in prices though.

- IV) However, a section of the market doesn't expect rates to go up further. They believe that chances of further rate hikes in 2023 are slim. US Inflation at 4 per cent is already placed below its interest rates of 5.25 per cent. Inflation is clearly on its way down and the Fed won't have to tinker with rates unless there is a nasty surprise on the inflation front.

Will interest rates come down soon?

- I) The Fed's projection of two more rate hikes later this year reinforces the perception that interest rates will remain higher for an extended period, supported by various factors. If global interest rates continue to rise or even remain at their current levels, it is crucial to pay attention to the currency aspect. Therefore, we do not foresee any rate cuts from the Reserve Bank of India in the near term. Additionally, given the significant increase in the cost of capital and mounting risks to earnings, it is essential to approach current equity valuations with extreme caution.
- II) The RBI had kept the policy instrument – **repo rate – unchanged at 6.50 per cent in the June policy review. The repo rate has gone up by 250 basis points (bps) since May 2022 and the hike is still working its way through the system.**
- III) Regarding the Indian markets, while domestic inflation trends — retail inflation eased to 4.25 per cent in May — are indicating a potential cooling off, uncertainties surrounding the monsoon and a comparison of equity valuations

with other emerging markets introduce additional risks.

How does it impact the Indian markets?

- I) Recently, the benchmark Sensex at BSE fell 0.5 per cent after the Fed's indication of more hikes. The indication came as a dampener for the Indian equity markets as a continued rise in interest rates in the US may not only stall inflow of funds into Indian equities, but may also lead to some outflow from emerging markets to US treasury bonds.
- II) Experts, however, feel that the Indian markets would be more driven by domestic strength. Given that inflation has softened, the GDP growth rate is projected at 7.2 per cent for the year ended March 2023, and is set to stay strong going forward, investors should take medium to long term positions in equities.

RBI'S PLANNED 'LIGHTWEIGHT' PAYMENTS SYSTEM FOR EMERGENCIES

Why is it in the news?

- I) The **Reserve Bank of India (RBI)** has conceptualised a lightweight payment and settlements system, which it is calling a **"bunker"** equivalent of digital payments, which can be operated from anywhere by a bare minimum staff in exigencies such as natural calamities or war.
- II) The infrastructure for this system will be independent of the technologies that underlie the existing systems of payments such as **UPI, NEFT, and RTGS**.
- III) The central bank has not offered a timeline for the launch of this payments system yet.

Why is such a lightweight payments system needed?

- I) In its **Annual Report for 2022-23** published recently, RBI said that the lightweight and portable payment system is expected to operate

on minimalistic hardware and software, and would be made active only on a **"need basis"**.

- II) Such a lightweight and portable payment system could ensure near zero downtime of the payment and settlement system in the country and keep the liquidity pipeline of the economy alive and intact by facilitating uninterrupted functioning of essential payment services like bulk payments, interbank payments and provision of cash to participant institutions.
- III) The system is expected to process transactions that are critical to ensure the stability of the economy, including government and market related transactions.
- IV) Having such a resilient system is also likely to act as a bunker equivalent in payment systems and thereby **enhance public confidence** in digital payments and financial market infrastructure even during extreme conditions.

How will the lightweight system be different from UPI?

- I) According to the RBI, there are multiple payment systems available in the country for use by individuals as well as institutions, each of which has its distinct character and application.
- II) The existing conventional payments systems such as RTGS, NEFT, and UPI are designed to handle large volumes of transactions while ensuring sustained availability. As a result, they are dependent on **complex wired networks backed by advanced IT infrastructure**.
- III) However, catastrophic events like natural calamities and war have the potential to render these payment systems temporarily unavailable by disrupting the underlying information and communication infrastructure. Therefore, it is prudent to be prepared to face such extreme and volatile situations.

THE GOVERNMENT'S CEILING ON WHEAT STOCKS

Why is it in the news?

- I) Recently, in a move endeavouring to manage the “**overall food security and to prevent hoarding and unscrupulous speculation**”, the Union Government imposed limits on stock of wheat that can be held by traders, wholesalers, retailers, big chain retailers and processors.
- II) The objective here is to stabilise the price of the essential commodity by steadying supply.

What are the limits?

- I) The permissible stock that traders/wholesalers can hold is **3,000 metric tonnes**. Retailers and big chain retailers can hold **up to 10 metric tonnes at each of their outlets**, while the latter can hold up to **3,000 metric tonnes at all their depots combined**. Processors would be able to stock **75% of the annual installed capacity**.
- II) The mentioned entities are expected to declare their stock positions and update them regularly on the Department of Food and Public Distribution's portal. If the stock held by them are higher than the limit, they will have 30 days from the day of issue of notification to bring the same under the prescribed limits.

What are the additional orders?

- I) The government has also decided **to offload 15 lakh tonnes of wheat from the central pool via the Open Market Sale Scheme (OMSS)** to flour mills, private traders, bulk buyers, manufacturers of wheat products through e-auction. The idea is to control retail prices of wheat. They would be sold in lot sizes of 10 to 100 metric tonnes. This would be the first tranche, and more could be released depending on the prices and demand.

- II) The Food Secretary also announced that **the government would offload rice under OMSS to moderate its prices**. The quantity of the first phase of the e-auction (for rice) would be decided shortly.

Why is there a concern?

- I) The moves come in the backdrop of rising concerns about the overall wheat output taking a hit after the unseasonal rains and hailstorms towards the end of March and early April alongside hotter temperatures in February.
- II) Lower production leads to higher prices of the crop. This could in turn create conditions for local prices exceeding the government's purchase prices and thus, bothering the latter's endeavour to stock up supplies.
- III) The daily average price of wheat at the retail level, on June 14, stood at ¹ 29/kg compared to ¹ 27.54/kg a year back. At the wholesale level, it stood at ¹ 2,593.5 for each quintal against ¹ 2,557.89/quintal for the previous month and about ¹ 2,423/quintal a year back.
- IV) The **Food Corporation of India** is entrusted with the responsibility to ensure food grains are accessible at reasonable prices to the vulnerable sections of society under the **Public Distribution System**.
The government had set a target of procuring **341.5 lakh metric tonnes of wheat for the Central Pool in the ongoing Rabi Marketing Season (RMS) 2023-24**. RMS rolls from April to March with the maximum proportion acquired around April and June.
- V) As on June 12, 261.99 lakh metric tonnes of wheat have been procured. According to the government officials and traders, India's wheat procurement in 2023 could fall by a fifth from

the initial estimate as government purchases have slowed down in the last few days after local prices jumped. As of June, the government had 313.9 lakh metric tonnes of wheat in the central stock compared to 311.42 lakh metric tonnes in the year-ago period.

Conclusion

Notwithstanding the warnings from experts about the potential effects of El Nino, the Agricultural Ministry estimates the production of wheat at a record 1,127.43 lakh metric tonnes for the agriculture year 2022-23, higher by 50.01 lakh metric tonnes from previous year's production. The optimism is premised around the increased area of wheat sowed and better yield.

THE MASSIVE GRAIN STORAGE PLAN IN THE COOPERATIVE SECTOR

Why is it in the news?

- ★ The Union Cabinet recently approved the constitution of an **Inter-Ministerial Committee (IMC)** to facilitate the “**world's largest grain storage plan in the cooperative sector**”.

Why does India need a grain storage plan?

- I) India, the most populous country in the world, **accounts for 18 per cent (1.4 billion) of the global population (7.9 billion). However, it accounts for only 11 per cent (160 million hectare) of the arable land (1,380 million hectare) in the world.** Also, India runs the world's largest food programme under the **National Food Security Act, 2013**, that covers about 81 crore people. Therefore, to ensure food security of a billion plus population, a robust network of foodgrain storage facilities becomes essential.
- II) At present, India has a foodgrain storage capacity of **145 million metric tonnes (MMT)**

against the total food production of 311 MMT—leaving a gap of 166 MMT. In the absence of sufficient storage facilities, foodgrains are sometimes stored in the open, which results in damage.

- III) According to the **Ministry of Cooperation**, several countries have better storage capacities. For instance, against the total foodgrain production of 615 MMT, China has a storage capacity of 660 MMT. USA, Brazil, Russia, Argentina, Ukraine, France, and Canada are among other countries with the capacity to store more food grains than they produce.
- IV) India has a **storage capacity of 47 per cent of its total foodgrains production.** At the regional level, only a few southern states have the storage capacity of 90 per cent and above. In northern states like Uttar Pradesh and Bihar, it is below 50 per cent.

What is the 'world's largest grain storage plan in the cooperative sector'?

- I) At present, multiple government agencies, like the **Food Corporation of India (FCI), Central Warehouse Corporation, Warehouse Development Regulatory Authority, Railways, and the civil supply departments of states** are involved in grain management. However, that has not yielded the desired results.
- II) Under the new plan, the Ministry of Cooperation **aims to set up a network of integrated grain storage facilities through Primary Agricultural Credit Societies (PACS)** across the country. According to the ministry, there are more than 1,00,000 PACS spread across the country with a huge member base of more than 13 crore farmers. This is one of the reasons why the PACS network was chosen for the new plan.

Who is in the IMC?

I) The Union Cabinet has approved an IMC for the scheme, to be constituted under the **Chairmanship of Minister of Cooperation**.

Three other ministers — Minister of Agriculture and Farmers Welfare; Minister of Consumer Affairs, and Minister of Food Processing Industries and Secretaries will be members of the committee.

II) The IMC will modify guidelines/ implementation methodologies of the schemes of the respective Ministries as and when need arises, within the approved outlays and prescribed goals for facilitation of the scheme, by creation of infrastructure such as go-downs, etc. for Agriculture and Allied purposes, at selected 'viable' **Primary Agricultural Credit Societies (PACS)**.

What is the budgetary allocation?

Though the plan does not have a separate allocation, it will be implemented by the **convergence of 8 schemes**.

I) These schemes are **Agriculture Infrastructure Fund (AIF), Agricultural Marketing Infrastructure Scheme (AMI), Mission for Integrated Development of Horticulture (MIDH), and Sub Mission on Agricultural Mechanisation (SMAM) under the Ministry of Agriculture and Farmers Welfare**.

II) It includes two schemes of the Ministry of Food Processing Industries: **Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme (PMFME), and Pradhan Mantri Kisan Sampada Yojana (PMKSY)**.

III) Besides, the plan also includes two schemes of the Ministry of Consumer Affairs, Food and Public Distribution: **allocation of food grains**

under the National Food Security Act, and Procurement operations at Minimum Support Price.

What are the benefits of the plan?

I) According to the government, the plan is multi-pronged — it aims to address not just the shortage of agricultural storage infrastructure in the country by facilitating establishment of go-downs at the level of PACS, but would also enable PACS to undertake various other activities, viz: Functioning as Procurement centres for State Agencies/ Food Corporation of India (FCI); Serving as Fair Price Shops (FPS); Setting up custom hiring centres; Setting up common processing units, including assaying, sorting, grading units for agricultural produce, etc.

II) Officials in the Cooperation ministry said the new initiative would result in multiple benefits.

- First, it would reduce post-harvesting losses.
- Second, it would bring down the foodgrain handling and transportation cost.
- Third, farmers would have a choice to sell their produce depending on the market conditions, and not be forced into distress sale.

What will the integrated facility look like?

I) Spread over 1 acre of land, the facility will be built at a cost Rs 2.25 crore. The integrated modular PACS will have a custom hiring centre, a multi-purpose hall—procurement centres, primary processing units for cleaning and winnowing — a storage shed, and container storage and silos.

Of the Rs 2.25 crore, Rs 51 lakh will come as subsidy, while the remaining will come as margin money or loan. It is expected that the PACS will earn Rs 45 lakh in a year.

II) According to the Cooperation ministry, the new

storage plan is based on the **hub and spoke model**. Of the 63,000 PACS across the country, 55,767 will function as spoke and will have a grain storage capacity of 1,000 metric tonnes each, while the remaining 7,233 PACS, which will function as hubs, will have a storage capacity of 2,000 metric tonnes each. Thus, all the 63,000 PACs will have a combined grain storage capacity of 70 million tonnes.

- III) According to officials, the PACS will purchase agricultural equipment like tillers, rotary tillers, disc harrows, harvesters, and tractors under various government schemes, such as Sub-Mission on Agricultural Mechanisation (SMAM) and Agriculture Infrastructure Fund (AIF). It will then offer this equipment to farmers on rent.

WILL A HIKE IN MSP HELP FARMERS?

Why is it in the news?

- I) Recently, the Centre announced the **Minimum Support Price (MSP)** for this year's summer (kharif) season crops, hiking prices between **5-10% from last season**, to ensure remunerative prices to growers for their produce and to encourage crop diversification.
- II) A section of farmer representatives have expressed unhappiness over what they term as a **'meagre'** hike in the MSP, defeating the government's intent of securing a **"remunerative price"**.
- III) On the other hand, agriculture domain experts believe that an increase in the MSP may give a slight respite to growers, but argue that in the absence of any dependable or assured market mechanism of procurement-purchase for crops on the MSP in most parts of the country, the purpose of encouraging **"crop diversification"** gets defeated.

How does the MSP work?

- I) The **MSP, which is a part of the government's agricultural price policy**, is the price at which the government offers to procure farmers' produce during the season. It works as a tool to stabilise production and to control consumer prices, yet farmers across the country have been facing problems of selling their produce at the MSP.
- II) Delays in establishing procurement centres, exploitation at the hands of commission agents, who most of the time buy the produce from farmers below the MSP, and a lack of awareness about the MSP among a large section of farmers, are some of the challenges growers have been facing for years now.
- III) Against this background, farmers have been demanding a **'legal status'** to the MSP. The government, including the Centre and States, ought to come up with a system to set up an **'assured market mechanism,'** point out farmers. The MSP has little meaning unless farmers' produce is procured/purchased at the assured price.

What is the government's announcement?

- I) Recently, the government announced the **MSP for 17 'kharif' crops**, like paddy, pulses (moong, arhar, urad), oilseeds like groundnut and soyabean and cotton, for the marketing season of 2023-24. These were approved at a meeting of the **Cabinet Committee on Economic Affairs (CCEA)**.
- II) According to the government statement, the increase in MSP is in line with the **Union Budget 2018-19** announcement of fixing the MSP at a level of at least 1.5 times the all-India weighted average cost of production, which aims at a reasonably fair remuneration for the farmers. According to the Food Minister the increase in

MSP of kharif crops for this year is the highest compared to previous years.

MSP HIKE OVER THE YEARS

Crops	2020-21	2021-22	2022-23	2023-24	Change*	% Change
Paddy-common	1,868	1,940	2,040	2,183	143	7.01
Paddy-grade a	1,888	1,960	2,060	2,203	143	6.94
Jowar-hybrid	2,620	2,738	2,970	3,180	210	7.07
Jowar-maldandi	2,640	2,758	2,990	3,225	235	7.86
Bajra	2,150	2,250	2,350	2,500	150	6.38
Ragi	3,295	3,377	3,578	3,846	268	7.49
Maize	1,850	1,870	1,962	2,090	128	6.52
Tur(arhar)	6,000	6,300	6,600	7,000	400	6.06
Moong	7,196	7,275	7,755	8,558	803	10.35
Urad	6,000	6,300	6,600	6,950	350	5.30
Groundnut	5,275	5,550	5,850	6,377	527	9.01
Sunflowerseed	5,885	6,015	6,400	6,760	360	5.63
Soybean-yellow	3,880	3,950	4,300	4,600	300	6.98
Sesam	6,855	7,307	7,830	8,635	805	10.28
Nigerseed	6,695	6,930	7,287	7,734	447	6.13
Cotton-medium	5,515	5,726	6,080	6,620	540	8.88
Cotton-long	5,825	6,025	6,380	7,020	640	10.03

*IN ₹/QUINTAL; Source: Government. Note: A crop year runs from July to June. The % change is from 2022-23 to 2023-24.

Why are farmers worried?

- I) Several farmers' outfits have expressed their discontentment over the latest MSP for the summer crops, terming it as insufficient. According to the **All India Kisan Sabha (AIKS)**, the declared MSP is "unfair, belies the hopes of the farmers and inflicts huge losses in their incomes."

Also, rising input costs coupled with unfair MSP will push large sections of farmers, especially the small, marginal, and middle-level farmers, as well as tenants into indebtedness.

The longstanding promise made by the Bharatiya Janata Party in 2014 that the MSP will be given according to the **Swaminathan Commission recommendation of C2+50% (C2 or comprehensive cost of production)** remains an unfulfilled election promise.

- II) The **Bharatiya Kisan Union (Ekta-Ugrahan)**, one of the largest farmer unions in Punjab and a member of the **Samyukta Kisan Morcha (SKM)**, the umbrella body of around 500 farmer outfits, has dismissed the MSP hike, saying that the government's notion of ensuring 1.5 times the

cost of production on crops does not help in addressing the farmers' plight as it does not provide remunerative price.

What are agriculture experts saying?

- I) According to Noted economist Dr. Ranjit Singh Ghuman, the past track record shows that only three to four crops (mainly wheat, paddy and cotton and at times some pulses), were being procured at MSP while the remaining crops were being procured at much below the MSP.

This is mainly because the farmers are left at the mercy of market forces and the private players. Non-implementation of MSP and below-MSP-procurement of a large number of crops, inter alia, has been one of the major hurdles in '**crop diversification**' which is so vital for Indian agriculture and in saving the environment.

- II) Ineffective implementation of MSP and 'non-procurement' of all the crops at the MSP is also one of the main concerns of farmers.
- III) Such a scenario builds a strong rationale for giving '**legal status**' to MSP as it is the floor or reference price. This does not imply that the government should procure all those crops but would certainly bind the private players to procure those crops at least at the MSP. While facilitating crop-diversification it would raise farmers' income which is being propagated by the government.

What about foodgrain stock?

- I) As per third advance estimates for 2022-23, total foodgrain production in the country is estimated at a record 330.5 million tonnes which is higher by 14.9 million tonnes compared to 2021-22. This is the highest increase in the last five years, according to government data.

- II) The total stocks of rice and wheat held by **Food**

Corporation of India (FCI) and State agencies as on May 1, 2023, was 555.34 lakh tonnes comprising 265.06 lakh tonnes of rice and 290.28 lakh tonnes of wheat.

What lies ahead?

- I) The MSP attempts to strike a balance between the interest of growers and consumers. The government's price support policy attempts to provide a fair return to farmers while keeping in view the interest of consumers in a way that prices of food and other agricultural commodities are kept at a reasonable level.
- II) Farming over the years, for the majority, especially small and marginal farmers, has not turned out to be remunerative. A rise in their income could be the long-term answer to farmers' financial distress. To ensure this rise in income, the government should focus on **setting up an effective system to provide assured purchase and returns to farmers for all major crops at the MSP**, as is done in the case of wheat and rice or extend subsidies on input costs.

WHY IS THE MARKETS REGULATOR ASKING FOR MORE DISCLOSURES FROM FOREIGN PORTFOLIO INVESTORS?

Why is it in the news?

- I) Recently, markets regulator the **Securities and Exchange Board of India (SEBI)** floated a consultation paper that proposed additional disclosures from **Foreign Portfolio Investors (FPIs)**.
- II) The objective is two-fold, firstly, to guard against possible circumvention of the requirement pertaining to **Minimum Public Shareholding (MPS)** and secondly, to prevent the misuse of the FPI route to circumvent the requirements listed in the Press Note 3 (updated April 2020).

What is the purpose of the proposed regulations?

- I) As per the regulator, the objective is to "enhance trust in the Indian securities markets by mandating additional granular disclosures around ownership of, economic interest in, and control of objectively identified high-risk FPIs" that have either concentrated exposures to a single group and/or significant holdings by means of equity investments in India.
- II) The development assumes particular significance considering that the markets regulator had "drawn a blank" in its investigation into 13 offshore entities it considered suspicious. Further, as per observations in the report, the regulator's own investigation was made tougher by a change in the legislative policy under the **FPI Regulations, 2014**.
Based on the recommendation of a Working Group, in 2018, the provision dealing with 'opaque' structure and disclosing "every ultimate natural person at the end of the chain of every owner of economic interest in the FPI" was done away with.
- III) The proposed regulations would thus try and identify tangible ownership and curtail incidences of multiple routes being used to acquire ownership in a company. This would help avert regulatory requirements, and more importantly, keep up with the minimum public shareholding norms. For perspective, it requires that public shareholding, or the shares held by the public for a listed entity, **must be at least 25% to continue being listed**.

What issues has SEBI broadly discussed in the consultation paper?

- I) The two broad issues that prompted floating of

the proposed regulation in the consultation paper are: potential misuse of the FPI route for circumventing Press Note 3 stipulations and concentrated group investments by foreign portfolio investors endeavouring to bypass regulatory requirements (such as that for minimum public shareholding).

- II) It has been observed that FPIs direct a substantial portion of their equity portfolio in the country to a single investee company or a company group. In some instances, the investments — as against the regular buying and selling in a market — have been observed to be static and maintained for a long time.

According to SEBI, “Such concentrated investments raise the concern and possibility that promoters of such corporate groups, or other investors acting in concert, could be using the FPI route for circumventing regulatory requirements such as that of maintaining minimum public shareholding.” This would entail that the suggested free float, or the shares available in the open market for public trading without restrictions, may not actually be correct. The practice may also invite price manipulation in such scrips.

- III) The regulator’s other concern is about the potential circumvention of Press Note 3 stipulations. The central government amended the FDI policy vide Press Note 3 in April 2020 that required an entity sharing a land border with India, or where the beneficial owner is based out of any such country, to do so only via the government route.

It may happen the FPI entity is located in a country with which India does not share a land border, but the investor in the FPI (or the beneficial

owner of the FPI) might be a citizen and/or residing in such a country. The proposed regulations in both cases would be able to trace such ownership and economic interest, courtesy the additional disclosures.

What is the basis of the proposed disclosures?

- I) Broadly, the proposed regulations would enhance transparency, fully identifying objective ownership of an entity in a holding – by examining control through direct and indirect exposure alongside a clear illustration of economic interests in the holding.

The latter would form the basis of the **look-down approach**, to the level of natural persons, public retail funds or large listed corporates (that form part of the ownership structure). The assessment would be over and above the materiality threshold that is used to determine beneficial owners as per relevant laws.

- II) All in all, the proposed legislation would try and examine your overall exposure, structured by determining direct and indirect exposures to establish your hold and overall holding in the company. This must not violate the provisions of Press Note 3 and the minimum public shareholding requirements.

- III) SEBI has observed that, while under FPI regulations, details about the beneficial owner (the person on whose behalf a transaction is being conducted, also the one exercising ultimate effective control over a juridical entity) based on control or fund ownership have been made available, “it is often observed that no natural person is identified as the beneficial owner of FPIs based on economic interest, since each investor entity in the FPI is generally found to be below the threshold prescribed under PML rules.”

IV) The proposed legislation categorises FPIs into **low risk, moderate risk and high risk.**

- a) Low risk would cover government and government-related entities such as central banks or sovereign wealth funds where the facts about ownership, economic and control interest can be deciphered from the government ownership.
- b) Moderate risk refers to pension funds or public retail funds with widespread and dispersed investors. They would be categorised only if designated depository participants can independently validate and confirm the status of such FPIs as pension funds and public retail funds with a wide and diverse investor base.
- c) All other FPIs are categorised as high-risk.

What are the proposals?

- I) High-risk FPIs holding more than 50% of their equity **asset under management (AUM)** in a single corporate group would have to make additional disclosures. However, new FPIs that have just begun investments would be allowed to breach the threshold criteria up to a period of six months, following which, they too would have to make the disclosures.
- II) Further, existing ones in the process of winding down their investments in a single corporate group would be temporarily allowed to breach the criteria. This is provided they are able to wind down within six months.
- III) On an ongoing basis, high-risk FPIs would have 10 days to scale down their concentration to move away from disclosure requirements.
- IV) Other than this, the paper also proposes that existing high-risk FPIs with an overall holding in the Indian equity market of over **Rs 25,000 crore** comply with the disclosure mandate within

six months. Failing this, they would have to bring down their holding within the threshold. High-risk FPIs expecting to breach the threshold in future would only have three months to comply.

- V) Further, FPIs whose India-oriented holdings are relatively small in comparison to their global portfolio may be classified as **'moderate risk'** and not be subjected to additional disclosure requirements. These may include large index or exchange-traded funds and other funds tracing global indices of which India forms a part.
- VI) Failure to provide the above-mentioned granular disclosures wherever required would render the registration of the FPI invalid. Such FPIs would have to wind down operations within six months.

DAILY LIMIT ON UPI TRANSACTIONS

Why is it in the news?

- I) As transactions facilitated by the **Unified Payments Interface (UPI)** breach record highs, **banks have opted for daily limits.** These are over and above the already imposed ceilings mandated by the facilitator, the **National Payments Corporation of India (NPCI)**, in 2021.
- II) The idea is to sustain the smoother functioning of the payments interface as it continues to acquire popularity.

What is the conversation about daily limits?

- I) At present, users can make up to 20 transactions or ¹ 1 lakh in a single day either all at once or through the day. For certain specific categories of transactions such as the capital markets, collections (such as bills, among others), insurance and forward inward remittances, the limit is ¹ 2 lakh.

In December 2021, the limit for the **UPI-based ASBA (Application Supported by Blocked Amount) IPO and retail direct schemes** was increased to ¹

5 lakh for each transaction.

- II) The conversation now revolves around banks and apps coming up with their own guidelines for transactions. For example, state-run lenders **Punjab National Bank (PNB) and Bank of Baroda** has set its transaction limit at a much lower ¹ 25,000. PNB's daily limit is ¹ 50,000. As for apps, among others, Google Pay users breach the daily limit if they try to send money more than ten times in a single day across all UPI apps.
- III) As the payments interface looks to expand its footprint (recall the boarding of non-resident accounts having international numbers into the ecosystem) and its growing utility in daily lives, limits would help maintain an essential security infrastructure and its seamless functioning. This is also important as the interface looks to expand its use-case, as also called for in the proposed pilot project for coin-vending machines with UPI as the facilitator.

What does the industry think?

- I) According to Digital payments app PhonePe, the limits are set balancing out customer convenience and potential fraud/risk concerns. The NPCI has also increased the value limit in specific categories where the average transaction value is higher such as Capital Markets or Credit Card Bill payments.
- II) As for the moves impacting the future growth, all the ecosystem participants, the NPCI and the regulator regularly review the transaction and value limits on UPI and implement the requisite changes where the need exists.

What are the most recent trends observed with respect to UPI?

- I) In May this year, the total number of transactions

facilitated using UPI increased to 9,415.19 million. The combined value of such transactions also increased at a largely similar ¹ 14.89 lakh crore. In terms of volume, P2P (peer-to-peer) category accounted for about 43% at 4,045.48 million, in terms of value its share scaled up to Rs.11.45 lakh crore.

In the P2P category, the majority of the transactions were in the below Rs. 500 bracket (54.2%) whilst in the P2M (Peer-to-Mer chant) category, the share in the same amount bracket stood at 84.3%. This gives an indication of its lower-down utility.

- II) However, important to note in this context, until February in the financial year 2022-23, the total number of reported UPI frauds had also increased about 13% in comparison to the previous financial year to 95,402. However, this was alongside a decline in the fraud to sales ratio at 0.0015%.
- III) Thus, to combat the growing incidences, there is the imperative need to have safeguard infrastructure in a growing ecosystem.

ANTARDRISHTI (FINANCIAL INCLUSION)

Why is it in the news?

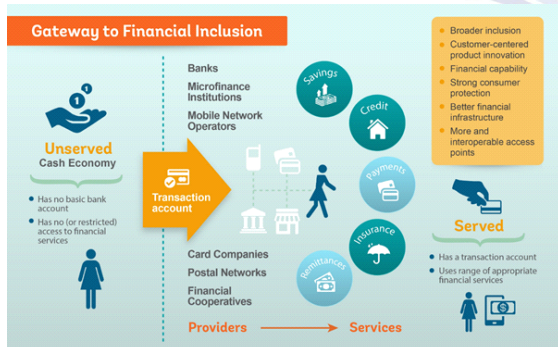
- ★ Recently, the **Reserve Bank of India (RBI)** Governor launched a Financial Inclusion Dashboard, named **Antardrishti**.

About Antardrishti

- I) The dashboard will provide the required insight to assess and monitor the progress of financial inclusion by capturing relevant parameters.
- II) The dashboard, presently intended for internal use in the RBI, will further facilitate greater financial inclusion through a multi-stakeholder approach.

About Financial inclusion

- I) Financial inclusion is the process of ensuring access to financial products and services needed by vulnerable groups at an affordable cost in a transparent manner by institutional players.
- II) The concept of financial inclusion was first introduced in India officially in 2005 by the Reserve Bank of India.
- III) The objectives of financial inclusion are to provide the following:
 - a) A basic no-frills banking account for making and receiving payments
 - b) Saving products (including investment and pension)
 - c) Simple credit products and overdrafts linked with no-frills accounts
 - d) Remittance, or money transfer facilities
 - e) Micro insurance (life) and non-micro insurance (life and non-life)
 - f) Micro pension and Financial Literacy



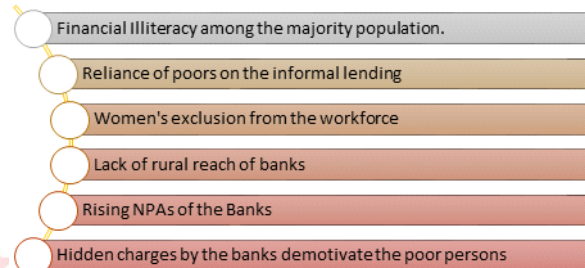
Significance of Financial Inclusion

- I) Financial inclusion strengthens the availability of economic resources and builds the concept of savings among the poor.
- II) Financial inclusion is a major step towards inclusive growth. It helps in the overall economic development of the underprivileged population.
- III) In India, effective financial inclusion is needed for the uplift of the poor and disadvantaged

people by providing them with the modified financial products and services.

Challenges in Achieving Financial Inclusion

- About Pradhan Mantri Jan Dhan Yojana (PMJDY)
- I) It is the **National Mission on Financial Inclusion** to ensure access to financial services, namely, basic savings & deposit accounts, remittance, credit, insurance, pension in an affordable manner.
 - II) It was launched by PM Modi in August 2014.



Benefits under PMJDY:

- a) One basic savings bank account is opened for unbanked people.
- b) There is **no requirement to maintain any minimum balance** in PMJDY accounts.
- c) Interest is earned on the deposit in PMJDY accounts.
- d) RuPay Debit card is provided to the PMJDY account holder.
- e) Accident Insurance Cover of Rs.1 lakh (enhanced to Rs. 2 lakhs to new PMJDY accounts opened after 28.8.2018) is available with RuPay card issued to the PMJDY account holders.
- f) An **overdraft (OD)** facility up to Rs. 10,000 to eligible account holders is available.
- g) PMJDY accounts are eligible for **Direct Benefit Transfer (DBT)**, Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Atal Pension Yojana (APY), Micro Units Development & Refinance Agency Bank (MUDRA) scheme.

Financial Inclusion (FI) Index

- I) RBI constructed the **Financial Inclusion (FI)** Index in 2021 to measure the extent of financial inclusion.
- II) It is based on three dimensions: Access (35 per cent), Usage (45 per cent), and Quality (20 per cent).

WHAT IS AFFECTING TRADE MOMENTUM?

Why is it in the news?

- I) Mired in a slowing economy, inflationary setting and tighter monetary controls world over, **India's merchandise exports shrunk 12.7% on a year-on-year (YoY) basis to \$34.66 billion in April — a six-month low. Imports fell sharper by 14% to \$49.90 billion during the same period.**
- II) The fall in imports and exports is not limited to India as other countries too have recorded similar declines — affirming the notion about slowing global demand.

What are the current underlying trends in global trade?

- I) The essential headwinds observed with respect to global trade are **weaker economic activities worldwide, inflation and tightening of monetary policies, disrupted supply chains because of the Russia-Ukraine conflict and financial instability because of the collapse of several financial institutions in advanced economies.**
- II) The ongoing conflict in Eastern Europe continues to have a bearing on the prices of energy, food and commodities. As observed by the **World Trade Organization (WTO)**, though food and energy prices receded from their post conflict peaks by the fourth quarter last year, they remained high by historical standards and continued to erode real incomes and import demand during the mentioned period. The impact of energy prices was strongest during the winter

months in Europe as Russia was among the largest suppliers of energy to Europe before it was sanctioned. Europe responded to the loss of gas shipments from Russia by shifting to other suppliers, including the U.S., Qatar, Norway and Algeria. This potentially increased LNG prices elsewhere such as Japan, where the prices doubled between January last year to February this year.

- III) The collapse of financial institutions — such as of the **crypto exchange FTX (November 2022)** alongside three banks in the U.S. since March (**the Silicon Valley Bank, Signature Bank and First Republic Bank**), and the loss of confidence in **Credit Suisse** added to the troubled scenario.
- IV) As the **United Nations Conference on Trade and Development (UNCTAD)** in its latest update (in April) concluded, the events raised the spectre of financial contagion in an already slowing economy.

What are we looking at?

- I) The **EU is India's third largest trading partner after the U.S. and China.** The **European Economic Forecast** held that the region would “narrowly escape the recession” that took shape around September. Moreover, as per the latest published statistics for the Euro area, food, alcohol and tobacco experienced the highest annual rate of inflation (on a sequential basis) in May followed by non-energy industrial goods, services and energy.
- II) As for the U.S., in May, according to Fed Chair Jerome Powell inflation had “somewhat” moderated since the middle of the last year. Nonetheless, inflation pressures continued to run high with expectations of it receding to 2% having a “long way to go”.

III) The JP Morgan Global Manufacturing **Purchasing Managers' Index (PMI)**, compiled by S&P, registered 49.6 in May — unchanged for the third consecutive month and indicating a marginal deterioration of business conditions. The indicator is used to assess manufacturing business conditions.

How are these related to trade?

I) To put it simply, in a period of economic slowdown, international trade, both exports and imports, falls sharply as overall demand for goods and services stand reduced. There is an aversion for discretionary spending which particularly weighs on some imports and postponable expenditures.

It is in this light that the exports of engineering goods, gems and jewellery, chemicals, and readymade garments and plastics, along with petroleum products contracted or grew at a slower pace in 2023.

II) Similarly, inflation, the uneven rise in prices especially of essentials such as food and energy erode the purchasing power of an individual. However, it may happen that people in the country may turn to buying imports if they are cheaper than their indigenous products, but this is where the conversion rate may potentially have a bearing to offset the dynamics. Additionally, inflation also affects the flow of capital to a developing country.

III) Important to note, **the share of exports of goods and services combined in GDP stood at 21.4% in FY 2021-22.**

WHAT IS THE ELECTRONIC INTERLOCKING SYSTEM IN RAILWAYS?

Why is it in the news?

I) An electronic track management system used by

the railways has become the focus of investigations after last week's horrific train crash involving two express trains and a goods train in Odisha's Balasore district that left 275 passengers dead and more than 1,000 injured.

II) According to the Minister for Railways a **"change made in the electronic interlocking and point machine"** led to the accident. On Sunday, the Railway Board recommended a CBI investigation as it identified **"signalling interference"** as the main cause of the accident in its preliminary probe.

III) The KAVACH is an indigenously developed **Automatic Train Protection (ATP)** system by the **Research Design and Standards Organisation (RDSO)** in collaboration with the Indian industry. It is meant to provide protection by preventing trains from passing red signals and thereby avoid collision.

What is an interlocking system?

I) **Interlocking is an integral part of railway signalling.** It refers to a mechanism that controls the movement of trains to ensure trains move safely through a controlled area. The system is an arrangement of signals and points, which may be inter-connected mechanically or electrically or both, which operate so that a train can move from one track or junction to another safely, without coming in the way of another train.

II) **Electronic interlocking (EI)** is an advanced signalling, computer-based system that uses electronic components to manage the movement of trains and the configuration of tracks. The EI, which is based on software, is designed to prevent two trains from running on the same track at the same time. It ensures that a train gets a go-ahead only when the route ahead is clear. The system is

an **alternative to the conventional Relay Interlocking system**. As of last year, 2,888 stations in India were equipped with an electronic interlocking system — **comprising 45.5% of the Indian Railways network**.

- III) The EI signal system comprises three crucial elements:
- Signal:** Based on the status of the track ahead, signals are used to tell a train to stop (red light), proceed (green), or exercise caution (yellow).
 - Point switch:** A train can change its track using a point. These are movable sections of a track which guide the wheels towards either the straight or diverging track. Switch points are operated using switches to lead trains in the desired direction. For instance, if a train has to change lines, the switch point is activated ahead of time and the point is locked. A point machine is a device used for locking point switches and plays an important role in the safe running of trains.
 - Track circuit:** These are electrical circuits on tracks to detect the presence of a vehicle or a train on a section of track. Track circuits help to verify whether a particular route is clear or occupied and if it is safe for a train to proceed.

How does the system work?

- Two information points form the basis of the EI signal system — a signal to pass is given based first on which direction the track is set, and second on whether the divergent track is free of obstruction. A moving train first gets a signal if it has to move straight or switch to a new track. The EI system then directs a train to an empty track at the point where two tracks meet. And circuits prevent another train from running on that block.

- All activities in the signalling system are recorded in a microprocessor-based system called a **data logger**. It acts like the black box of an aircraft and can store and process signal data to generate reports.
- The affected stretch where the accident took place was also equipped with an EI system.

What led to the Odisha crash?

- A signalling failure is suspected to have caused the accident. The Coromandel Express heading to Chennai from Kolkata was initially given the green signal to enter the Up Main Line, but the signal was then taken off. The train did not have a scheduled stoppage at the Bahanaga Bazar station, which it was approaching when it moved out of the main track and entered the loop line, which is a side track used to accommodate goods trains. It crashed into a parked freight train carrying iron ore, triggering the multi-train collision.
- At the time, the Coromandel Express was running at a speed of 128 kmph (80 mph). The impact of the crash was such that the engine of the Coromandel Express and the first few coaches jumped the tracks, toppled and hit the last two coaches of the Yeshwantpur-Howrah train heading in the opposite direction on the Down Main Line, running at a speed of 126 kmph.
- It is, however, not yet clear why the signal was given and taken off, and whether the signal was showing 'green' or 'red' when the Coromandel Express crossed it.
- As to why the EI system did not prevent the Coromandel Express from moving to the loop track, senior railway officials claim that the "error proof" and "fail safe" system could have been tampered with. It is called a **'fail safe'** system,

so it means that even if it fails, all the signals will turn red and all train operations will stop.

UNDERSTANDING THE KAVACH SYSTEM

Why is it in the news?

- ★ The death of over 288 passengers in the ghastly train accident on June 2 at **Bahanaga Bazaar railway station in the Balasore district of Odisha** has brought into sharp focus the safety mechanisms needed to prevent such tragedies.

What is Kavach?

- I) The **KAVACH** is an indigenously developed **Automatic Train Protection (ATP)** system by the **Research Design and Standards Organisation (RDSO)** in collaboration with the Indian industry.
- II) The trials were facilitated by the **South-Central Railway** to achieve safety in train operations across Indian Railways. It is a state-of-the-art electronic system with **Safety Integrity Level-4 (SIL-4)** standards.
- III) It is meant to provide protection by **preventing trains to pass the signal at Red (which marks danger) and avoid collision**. It activates the train's braking system automatically if the driver fails to control the train as per speed restrictions. In addition, it prevents the collision between two locomotives equipped with functional Kavach systems.
- IV) The system also relays SoS messages during emergency situations. An added feature is the centralised live monitoring of train movements through the **Network Monitor System**.
- V) 'Kavach' is one of the cheapest, SIL-4 certified technologies where the probability of error is 1 in 10,000 years.

How does Kavach work on Railway Systems?

- I) The **Traffic collision avoidance system (TCAS)**, with the help of equipment on board the locomotive

and transmission towers at stations connected with **Radio Frequency Identification (RFID)** tags, helps in two-way communication between the station master and loco-pilot to convey any emergency message.

- II) The instrument panel inside the cabin helps the loco-pilot know about the signal in advance without visual sighting, and the permissible speeds to be maintained. If a red signal is jumped and two trains come face to face on the same line, the technology automatically takes over and applies sudden brakes. Additionally, the hooter activates by itself when approaching a level crossing which serves as a big boon to loco-pilots during fog conditions when visibility is low.
- III) Both the **Shalimar-Chennai Coromandel Express** and the **Yeshwanthpur-Howrah Express** were not fitted with **KAVACH-TACS**. The Kavach system project is yet to be implemented on the **Howrah-Kharagpur-Chennai line**.
- IV) However, according to a senior member of the **Operation and Business Development, Railway Board**, reasoned that the reaction time and distance were very short as the train was travelling at a very high speed. If an obstruction comes suddenly in front of a high-moving vehicle then no technology in the world would prevent an accident.

Where has Kavach been implemented?

- I) The Union Railway Minister inspected the trial of the Kavach working system between **Gullaguda-Chitgidda Railway stations on Lingampalli-Vikarabad** section in the Secunderabad Division of South-Central Railway last March.
- II) The **South-Central Railway (SCR)** Zone is a pioneer in the implementation of the **KAVACH – (TACS)**.

The Kavach system has been deployed over 1,465 kms in the SCR limits in 77 locomotives and 135 stations till March this year.

- III) Additionally, the Secunderabad-based **Indian Railways Institute of Signal Engineering & Telecommunications (IRISET)** hosts the 'Centre of Excellence' for Kavach. IRISET has been mandated by the Railway Board to train the inservice railway staff on Kavach. The Institute's Kavach lab carries out round the year training programmes.

What is the Kavach deployment strategy?

- I) Kavach implementation is being taken up in a focused manner by the Railway Board. The first priority are the High Density Routes and the New Delhi-Mumbai and New Delhi-Howrah Sections, as they have higher chances of accidents because the trains run closer to each other. The second priority lines are the Highly Used Networks, the third ones are other Passenger High Density Routes and the final priority is of course to cover all other routes.
- II) The RDSO has approved three firms — **Medha Servo Drives, HBL and Kernex** — for providing Kavach equipment with two more being in the pipeline. Glitches about vulnerability of a vehicle crossing a closed level crossing, stray cattle or boulders on track, radio communication issues in tunnels, ghat sections, have been tackled.

LIGHTWEIGHT PAYMENTS SYSTEM

Why is it in the news?

- ★ The **Reserve Bank of India (RBI)** has conceptualised a lightweight payment and settlements system, which it is calling a "bunker" equivalent of digital payments.

About the Lightweight Payments System

- I) It can be operated from anywhere by a bare minimum staff in exigencies such as natural calamities or war.
- II) The infrastructure for this system will be independent of the technologies that underlie the existing systems of payments such as UPI, NEFT, and RTGS.
- III) The central bank has not offered a timeline for the launch of this payments system yet.

How is it different from UPI?

- I) The existing conventional payments systems such as RTGS, NEFT, and UPI are designed to handle large volumes of transactions while ensuring sustained availability. As a result, they are dependent on complex wired networks backed by advanced IT infrastructure.
- II) The lightweight and portable payment system is expected to operate on minimalistic hardware and software, and would be made active only on a "need basis".

Significance

- I) Such a lightweight and portable payment system could ensure near zero downtime of the payment and settlement system in the country and keep the liquidity pipeline of the economy alive and intact by facilitating uninterrupted functioning of essential payment services.
- II) The system is expected to process transactions that are critical to ensure the stability of the economy, including government and market related transactions.
- III) Having such a resilient system is also likely to act as a bunker equivalent in payment systems and thereby enhance public confidence in digital payments and financial market infrastructure even during extreme conditions.

WORLD'S LARGEST GRAIN STORAGE PLAN IN COOPERATIVE SECTOR

Why is it in the news?

- ★ Recently, the Union Cabinet approved the constitution and empowerment of an **Inter-Ministerial Committee (IMC)** for facilitation of the **"World's Largest Grain Storage Plan in the Cooperative Sector"**.

What is its implementation mechanism?

- I) An **Inter-Ministerial Committee (IMC)** will be constituted under the Chairmanship of the Minister of Cooperation.
- II) Minister of Agriculture and Farmers Welfare, Minister of Consumer Affairs, Food and Public Distribution, Minister of Food Processing Industries and Secretaries concerned will be members of this Inter-Ministerial Committee (IMC).
- III) The Ministry of Cooperation will implement a pilot project in at least 10 selected Districts of different States/ UTs in the country.

What are the Schemes under the plan?

- I) The plan would be implemented by convergence of various schemes of the Ministry of Agriculture and Farmers Welfare, Ministry of Consumer Affairs, Food and Public Distribution and Ministry of Food Processing Industries.
- II) Following schemes have been identified for convergence under the Plan:
 - a) **Ministry of Agriculture and Farmers Welfare:**
 - Agriculture Infrastructure Fund (AIF);
 - Agricultural Marketing Infrastructure Scheme (AMI);
 - Mission for Integrated Development of Horticulture (MIDH);
 - Sub Mission on Agricultural Mechanization (SMAM).

b) Ministry of Food Processing Industries:

Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme (PMFME);
Pradhan Mantri Kisan Sampada Yojana (PMKSY).

c) Ministry of Consumer Affairs, Food and Public Distribution

Allocation of food grains under the National Food Security Act;

Procurement operations at Minimum Support Price.

Role of Primary Agricultural Credit Societies (PACS)

- I) There are more than 1,00,000 Primary Agricultural Credit Societies (PACS) in the country with a huge member base of more than 13 crore farmers.

- II) The plan aims for the creation of infrastructure such as warehouse, custom hiring centre, processing units, godowns, etc. for Agriculture and Allied purposes, at selected 'viable' Primary Agricultural Credit Societies (PACS), thus transforming them into multipurpose societies

- III) This would also enable PACS to undertake various other activities, viz:

- a) Functioning as Procurement centres for State Agencies/ Food Corporation of India (FCI);
- b) Serving as Fair Price Shops (FPS);
- c) Setting up custom hiring centres; and
- d) Setting up common processing units, including assaying, sorting, grading units for agricultural produce, etc.

What are the Expected benefits?

- I) It aims to leverage the strength of the cooperatives to realize the vision of **"Sahakar-se-Samridhi"** and create the 'World's Largest Grain Storage Plan in Cooperative Sector'.

- II) Through the **'whole-of-Government'** approach,

the Plan would strengthen PACS by enabling them to diversify their business activities, thus enhancing the incomes of the farmer members as well.

- III) Creation of decentralized storage capacity at the local level would reduce food grain wastage and strengthen food security of the country.
- IV) By providing various options to the farmers, it would prevent distress sale of crops, thus enabling the farmers to realise better prices for their produce.
- V) It would hugely reduce the cost incurred in transportation of food grains to procurement centres and again transporting the stocks back from warehouses to FPS.

ANGEL TAX

Why is it in the news?

- ★ Recently, the Investors from 21 countries including the **US, the UK, France, Australia, Japan** have been exempted from the levy of angel tax for investment in unlisted Indian startups.

What is angel tax?

- I) There may be some unlisted companies that are doing extremely well operationally, and investors wait to buy the shares of such companies when first shares are issued.
- II) In such a situation, the company, knowing its brand value and market expectations, may issue shares at a price higher or over what a comparable stock may be granted at in the market.
- III) It will be counted as income for the start-up and be subject to income tax under the head '**Income from other Sources**' for the relevant financial year.
- IV) It is essentially the tax that unlisted companies (read-startups) are liable to pay on the capital

they raise through issue of shares.

- V) Angel tax was first introduced in 2012 to deter the generation and use of unaccounted money through the subscription of shares of a closely held company at a value that is higher than the fair market value of the firm's shares.

Amendment

- I) With the latest amendment, the **Central Board of Direct Taxes (CBDT)** had proposed to also include foreign investors in the ambit, meaning that when a start-up raises funding from a foreign investor, that too will now be counted as income and be taxable.
- II) CBDT is a **statutory authority** functioning under the **Central Board of Revenue Act, 1963**. The officials of the Board in their ex-officio capacity also function as a Division of the Ministry dealing with matters relating to levy and collection of direct taxes.
- III) **Exempted entities include:**
 - a) Government and government-related investors such as central banks, sovereign wealth funds, international or multilateral organisations; or agencies including entities controlled by the government; or where direct or indirect ownership of the government is 75 per cent or more; and
 - b) banks or entities involved in insurance business where such entity is subject to applicable regulations in the country where it is established or incorporated or is a resident.
- IV) Countries like Singapore, Netherlands and Mauritius, which constitute the major chunk of foreign direct investment in India, have not been included in the exemption list.

What is its Significance?

- I) By explicitly mentioning this list of countries, the government aims to attract more FDI into

India from countries that have robust regulatory frameworks.

- II) This move aligns with the Government's initial intention of bringing FDI under the purview of angel tax to prevent the circulation of unaccounted money.
- III) Therefore, exempting investments from regulated entities resident in countries with stringent and effective regulatory frameworks serves a logical purpose.

GAINS 2023

Why is it in the news?

- ★ Recently, the **Garden Reach Shipbuilders and Engineers (GRSE) Ltd** has launched **GAINS 2023**.

What is GAINS 2023?

GAINS 2023 (GRSE Accelerated Innovation Nurturing Scheme – 2023) is a startup challenge to identify and encourage the development of innovative solutions towards technological advances in shipbuilding by Startups.

About Garden Reach Shipbuilders & Engineers Ltd (GRSE)

- I) It is a **Category 1 Mini Ratna public sector undertaking** and is under the administrative control of the Ministry of Defence.
- II) GRSE is one of India's leading shipyards. It builds and repairs commercial and naval vessels. GRSE also builds export ships.
- III) It is the first Indian shipyard to build 100 warships and the **1st Defence Shipyard to get listed with Stock Exchanges**.
- IV) It was founded in 1884 on the eastern bank of River Hooghly, Kolkata.

THE 'OPEN NETWORK FOR DIGITAL COMMERCE'

Why is it in the news?

- I) The Union government is looking to formally launch the **Open Network for Digital Commerce**

(ONDC) this year to **"democratise e-commerce" and "to provide alternatives to proprietary e-commerce sites"**.

- II) While the government has urged companies to join the ONDC platform, major e-commerce players such as **Amazon and Flipkart** have been reluctant to get on board. Commerce Minister recently asked these companies to join ONDC soon or risk being left behind.

What is the ONDC?

- I) The government wants to change the fundamental structure of the e-commerce market from the current **"platform-centric model to an open-network model"**.
- II) The ONDC is modelled after the **Unified Payments Interface (UPI)** project that is seen as a success by many. The UPI project allows people to send or receive money irrespective of the payments platforms on which they are registered.
- III) Similarly, the government wants to ensure that buyers and sellers of goods in the e-commerce market can transact regardless of the platforms on which they are registered. So, under ONDC, a buyer registered on Amazon, for example, may directly purchase goods from a seller who sells on Flipkart. To make such transactions a reality, the government has ordered companies to list themselves on the ONDC.
- IV) The pilot version of ONDC was launched last year in a few major cities and thousands of sellers have already been on-boarded onto the platform. Amazon and Flipkart, however, have not on-boarded their main shopping platforms onto the ONDC network yet.

Why is the Centre pushing for it?

- I) The government believes that the ONDC will put an end to the domination of the e-commerce

market by a few large platforms. It says that the e-commerce market is currently broken into “silos” operated and dominated by private platforms.

Amazon and Flipkart, for instance, have been accused of promoting certain seller entities in which they hold indirect stakes. Food delivery apps such as Swiggy and Zomato have also been accused of charging high commissions from sellers.

- II) With an open network like ONDC that connects buyers and sellers across platforms, the government hopes to level the playing field and make private platforms redundant.

What do critics say?

- I) Critics argue that the purported benefits of an open network for digital commerce are far from certain at the moment. For one, sellers are already free to list their products across various e-commerce platforms even in today’s platform-centric e-commerce model. Buyers also routinely shop across platforms. Then there are also services such as price-comparison that are offered by various private websites that bridge the information gap and help buyers make better decisions.
- II) So, critics argue, the domination of the e-commerce market by platforms such as Amazon and Flipkart may not be due to any captive hold that these platforms have over buyers and sellers. Further, the supposed monopoly that platforms are said to enjoy may be no different from the limited monopoly that any business today has over its property.

What lies ahead?

- I) The capacity of the government’s technocrats to come up with an efficient alternative to e-

commerce platforms that can work seamlessly will be tested as the government rolls out the ONDC. It remains to be seen if and how the government’s open network will list products offered by various sellers.

- II) Competition generally pushes e-commerce platforms to prominently list products that are most likely to catch the fancy of buyers. Their on-boarding and listing of sellers is also heavily influenced by the ability of sellers to fulfil customer orders. In fact, platforms may invest money to build exclusive on-boarding and listing processes. If the open network’s rules prevent platforms from benefiting from such investments, they may cease to make them anymore. This will eventually affect the quality of services available to consumers. Building an efficient marketplace for the sale of goods and services may turn out to be the key challenge for ONDC.

WILL ALL OVERSEAS SPENDS COME UNDER THE TAX NET?

Why is it in the news?

- ★ A proposal in the Union Budget to levy a higher tax on some types of remittances of funds abroad came into the limelight recently after a notification was issued for its implementation from July 1.

What are the origins of these changes?

- I) In the Budget for 2023-24 presented on February 1, Finance Minister proposed to raise the **tax collection at source (TCS) rate on overseas tour packages as well as foreign remittances under the Liberalised Remittance Scheme (LRS)**.
 - a) Indians are allowed to **remit up to \$2.5 lakh a year** abroad under the LRS.
 - b) For overseas tour packages, the TCS rate was to

be raised from 5% to 20%. Similarly, a 20% tax was proposed for all remittances under the LRS, as opposed to the extant treatment — a 5% TCS on remittances over ₹ 7 lakh. This did not cover remittances made for education or medical expenses abroad, which are permitted up to ₹ 7 lakh each annually, and already attracted a 5% TCS.

- II) On March 24, while introducing changes to the **Finance Act of 2023**, finance minister stated that “it has been represented that payments for foreign tours through credit cards are not being captured under the LRS and such payments escape TCS. The Reserve Bank of India (RBI) is being requested to look into this with a view to bring credit card payments for foreign tours within the ambit of LRS and tax collection on source, thereon”.

What were the notifications issued?

- I) On May 16, the Finance Ministry **notified the Foreign Exchange Management (Current Account Transactions) (Amendment) Rules, 2023**, to bring all credit card spends abroad under the remit of the LRS.
- II) The new notification, drafted in consultation with the RBI, omitted Rule 7 of the Foreign Exchange Management (Current Account Transactions) Rules, 2000, which had kept credit cards out of the ₹ 2.5 lakh annual LRS limit as a liberalisation measure.
- III) These changes enabled the levy of a higher TCS on credit card spends overseas from July 1 this year, and the government gave an assurance that this will not impact purchases of foreign services like newspaper or streaming services subscriptions while being in India.

Why did it trigger a furore?

- I) The 20% TCS levy on credit card spends abroad would mean any such expenses made abroad, barring for education and healthcare, would entail additional funds of the taxpayer being blocked which they could either adjust against any advance tax payments or await refunds from their income tax returns. For IT refunds, taxpayers may end up waiting as long as 15 months if not more, as each assessment year’s taxes are filed in the following financial year.
- II) Several people flagged this as unnecessary harassment and blocking of funds for honest taxpayers, and questioned the need for a 20% levy if the intent was to track such spending which is likely captured by the banks issuing credit cards already. A 2% or 5% TCS would have done the tracking job as well.
- III) Concerns were also raised on employees using cards during overseas work trips, and escalating costs for those who aspire for a foreign holiday.

How did the government counter criticism?

- I) The Finance Ministry issued a statement highlighting instances that have come to their notice where LRS payments are disproportionately high when compared to individuals’ disclosed incomes. It said bona fide business visits overseas by employees won’t be affected and the primary impact will be on tour travel packages, gifts to non-residents and domestic high net-worth individuals investing in assets such as real estate, bonds, stocks outside India.
- II) Individuals remitting from their own funds are normally expected to be higher-income taxpayers, the Ministry stressed, adding that the 20% TCS rate is “not” high. The tax rate slab of 20% starts in the new regime for incomes over ₹ 12 lakh and is 30% for incomes over ₹ 15 lakh.

SOCIAL ISSUES

NON-COMMUNICABLE DISEASES IN INDIA

Why is it in the news?

- ★ The new national estimates for diabetes and other **non-communicable diseases (NCD)** shows that 31 million more Indians became diabetic in **four years (2019-2021)**.

What were the findings?

- I) In 2021, a study found that India has 101 million people with diabetes and 136 million people with prediabetes. Additionally, 315 million people had high blood pressure; 254 million had generalised obesity, and 351 million had abdominal obesity. 213 million people had **hypercholesterolaemia (wherein fat collects in arteries and puts individuals at greater risk of heart attack and strokes)** and 185 million had high **low-density lipoprotein (LDL) cholesterol**.
- II) The decade-long nationwide study was funded by the Indian Council of Medical Research and Department of Health Research, Ministry of Health and Family Welfare and co-ordinated by the Madras Diabetes Research Foundation.

What is the significance of the study?

- I) The study is the **first comprehensive epidemiological research paper which includes participants from 31 States and some Union Territories, with a large sample size of 1,13,043 individuals**. There are two big trend indicators in the study.

First, diabetes and other metabolic non-communicable diseases, such as hypertension, obesity and dyslipidemia are much more common than estimated previously in India and second, while currently urban regions had higher

rates of all metabolic NCDs than rural areas, with the exception of prediabetes, rural India will see a diabetes explosion in the next five years if left unregulated.

- II) The study also **highlights interstate and inter-regional variations**. The highest diabetes prevalence was found in Goa, Puducherry and Kerala. While prediabetes was prevalent in Sikkim, hypertension was highest in Punjab. Generalised obesity and abdominal obesity were highest in Puducherry, while Kerala had high hypercholesterolemia and high LDL cholesterol. The lowest prevalence of NCDs was found in U.P., Mizoram, Meghalaya and Jharkhand. This cross-sectional, population-based survey of adults aged above 20 years, across the country uses a stratified, multistage sampling design in the study titled — **“Metabolic non-communicable health report of India-the ICMR-INDIAB National Cross-sectional Study.”**

- III) While the diabetes epidemic is stabilising in the more developed States of the country, it is still increasing in most of the other States. Thus, there are serious implications for the nation, warranting urgent State-specific policies and interventions to arrest the rapidly rising epidemic of metabolic NCDs in India.

How does this study impact India?

- I) While India in the past four years has substantially added to its burden of diabetics and hypertensive persons with generalised and abdominal obesity, the study gives us an early warning that if not controlled, this population is predisposed to NCDs and life-altering medical conditions including strokes.



- II) Experts have explained that **India is facing the dual problem of malnutrition and obesity**. There is availability of surplus food, but after being exposed to fast foods, a lack of sleep, exercise and stress creates a perfect setting for NCDs to latch-on.

What is the way forward?

- I) The answer to this developing pandemic, is in wellness and in having a lifestyle that encompasses healthy diet and exercise.
- II) NCDs have also been one of the major concerns of the Health Ministry. It has identified the **four major NCDs — cardiovascular diseases, cancers, chronic respiratory diseases and diabetes**. They all share four behavioural risk factors — unhealthy diet, lack of physical activity, and use of tobacco and alcohol.
- III) Programmes have been brought in to strengthen health infrastructure, human resource development, health-promotion and awareness-generation for prevention, early diagnosis and ensuring referrals to appropriate healthcare facilities for treatment of NCDs.

WHO ON ARTIFICIAL SWEETENERS

Why is it in the news?

- I) Recently, the **World Health Organisation (WHO)** recommended against using **artificial sweeteners** to achieve weight loss and prevent lifestyle diseases such as diabetes. WHO emphasised that while there was a need to cut intake of sugar, it should not be replaced by artificial sweeteners.
- II) Artificial sweeteners provide the sweet taste with very little to no calories. Many diabetics use the sweeteners in their tea and coffee, but there is a growing market for packaged foods and beverages using these sweeteners to offer low-calorie options.

- III) WHO suggests that **non-sugar sweeteners (NSS)** not be used as a means of achieving weight control or reducing the risk of non-communicable diseases.

What has WHO said in its recommendation on artificial sweeteners?

- I) According to WHO report, while there could be some weight-loss and reduction in **Body Mass Index** in the short term as the artificial sweeteners bring down the calories consumed, but in the long run they have been linked to weight gain. The sweeteners have also linked to an **increased risk of Type-2 diabetes, cardiovascular diseases, and mortality** in the long run. Some low certainty data also linked the use of such artificial sweeteners to **bladder cancer and preterm birth** when consumed by pregnant women.
- II) The meta-analysis found that higher intake of NSS was associated with a 23% increase in the risk of type-2 diabetes when consumed in the form of beverages and 34% when added to foods. Higher intake of these sweeteners was also linked with 32% increase in the risk of cardio-vascular disease – including a 19% increase in risk for stroke – and 13% increase in the risk for hypertension. It was also linked with a 25% increase in the risk for pre-term birth.
- III) The WHO has made these recommendations for everyone other than those who are already diabetic. Replacing free sugars with non-sugar sweeteners does not help with weight control in the long term. People need to consider other ways to reduce free sugars intake, such as consuming food with naturally occurring sugars like fruit, or unsweetened food and beverages.

Is this the first time Artificial sweeteners have been linked to such adverse impacts?

- I) The analysis of WHO is based on already existing studies, results for which have been pooled to reach the conclusions. In fact, the WHO said that it was a “**conditional recommendation**” because the evidence was of low certainty.
- II) However, the recommendations come on the heels of two important studies that have shown the long-term consequences.
 - a) A large French study that followed those taking artificial sweeteners for nearly eight years said that it increased the risk of cancers.
 - b) Another large study published earlier this year showed that the artificial sweetener **erythritol** increased the risk of clotting and can lead to heart attacks or strokes.

Why are diet colas damaging?

- I) While the normal cola contains an extremely high amount of sugar – around 12 spoons in 500 ml – diet colas promise zero calories. This Zero-Calories is achieved by using artificial sweeteners. People tend to drink it more because they think they are consuming fewer calories. But this can lead to long-term negative consequences, including insulin resistance and diabetes.
- II) Also, artificial sweeteners are also intensely sweet, much more than sugar. So, it makes normal sweets taste less sweet and makes you crave for more sweets.

LEPTOSPIROSIS, A DISEASE THAT SURGES IN THE MONSOON MONTHS

Why is it in the news?

- I) **Leptospirosis** has emerged as an **important infectious disease** in the world today. It is a potentially **fatal zoonotic bacterial disease** that

tends to have large outbreaks after heavy rainfall or flooding.

- II) The disease is more prevalent in **warm, humid countries and in both urban and rural areas**. It affects an estimated 1.03 million people every year, killing around 60,000. The burden of leptospirosis is expected to increase in the future as the urban poor population in tropical countries increases even as sanitary infrastructure falls shorter. In India, thousands of people are affected by leptospirosis every year.
- III) However, the numbers at the global and regional levels aren't exact because of **misdiagnosis** (its symptoms mimic those of dengue, malaria, and hepatitis), limited access to reliable diagnostics, lack of awareness among treating physicians, and lack of environmental surveillance.
- IV) Within India, studies have found that leptospirosis is more common in the south, although this could be due to the region's better healthcare and thus better disease detection.

What causes the disease?

- I) The disease is caused by a bacterium called **Leptospira interrogans, or leptospira**. It is a contagious disease in animals but is occasionally transmitted to humans in certain environmental conditions.
- II) The carriers of the disease can be either wild or domestic animals, including rodents, cattle, pigs, and dogs.
- III) The cycle of disease transmission begins with the shedding of leptospira, usually in the urine of infected animals.
- IV) According to the **U.S. Centres for Disease Control and Prevention**, infected animals can continue to excrete the bacteria into their surroundings for a few months, but sometimes up to several years.

Which people are at risk?

- I) Humans become part of the cycle when they come in direct contact with this urine or indirectly, through soil and water that contain leptospira bacteria. A person is more likely to contract leptospirosis if they have cuts or abrasions on their skin.
- II) The disease is also considered **an occupational hazard** for people working in agricultural settings, with animals, or in sanitary services that bring them into contact with contaminated water.
- III) Recreational activities in contaminated lakes and rivers are also reported to increase the risk of leptospirosis.

What are the symptoms of leptospirosis?

- I) The severity of a leptospirosis infection ranges from a mild flu-like illness to being life-threatening.
- II) The infection can affect many organs, reflecting the systemic nature of the disease. This is also why the signs and symptoms of leptospirosis are often mistaken for other diseases.
- III) In milder cases, patients could experience a sudden onset of fever, chills, and headache – or no symptoms at all. But in severe cases, the disease can be characterised by the dysfunction of multiple organs, including the liver, kidneys, lungs, and the brain.
- IV) Animals exhibit a variety of clinical symptoms and indications. In cattle and pigs, the disease can potentially cause reproductive failure, stillbirths, and weak calves or piglets. Dogs experience a range of symptoms, including fever, jaundice, vomiting, diarrhoea, renal failure, and even death.

What are the misconceptions about leptospirosis?

- I) Preventing leptospirosis requires appropriate and adequate health education, community health empowerment, and preventive habits.
- II) The disease has been called **“ili jwara” in Kannada and “eli pani” in Malayalam**, both meaning **“rat fever”**. This usage has fed the common belief that rats are the sole cause of the disease, which is not true.
- III) Leptospirosis has a spectrum of reservoir hosts, including pigs, cattle, water buffaloes, goats, dogs, horses, and sheep. Further, seasonal patterns such as the onset of the monsoon can also potentially facilitate the disease’s incidence and transmission.
- IV) Ambient air that is more humid can help the pathogenic leptospira survive longer in the environment, thus increasing the risk of disease exposure in the community.
- V) The incidence of the disease is also linked to extreme weather events like floods and hurricanes, when people are exposed to contaminated water.
- VI) Similarly, poor waste management, a high density of stray animals, faulty drainage systems, and unhygienic sanitation facilities are major drivers of the disease in urban areas. In rural parts, these are contaminated paddy fields, dirty livestock shelters, and poor water-quality and sanitation.
- VII) Despite this complexity, the use of **“rat fever”** as a colloquial term for leptospirosis undermines a more holistic understanding of the disease’s causes.

How can we prevent leptospirosis?

- I) Leptospirosis control can benefit from a **‘One Health’ approach**. ‘One Health’ is an

interdisciplinary approach that recognises the interconnections between the health of humans, animals, plants, and their shared environment.

- II) People who frequently interact with animals or their urine should exercise particular caution, such as by wearing personal protective equipment like gloves and boots. The same goes for workers in flooded fields where there's a chance of being exposed to contaminated water. They should take extra care if they have cuts or abrasions on their lower extremities.
- III) Preventing animals from getting infected is also important to reduce the risk of leptospirosis spreading and to limit farmers' economic losses (when the disease causes reproductive failures in pigs and cattle). This in turn requires sanitary animal-keeping conditions, which is also desirable to improve the animals' health and to prevent the spread of many diseases.
- IV) Given the spike in leptospirosis during the monsoons, it is best to take precautions, including washing one's arms and legs with an antiseptic liquid after handling animal waste and after working in water.

Way Forward

In sum, with 'One Health' in mind, public health professionals must work closely with the animal husbandry department to familiarise people about the dangers of leptospirosis, and create countermeasures that work for the health of both people and animals.

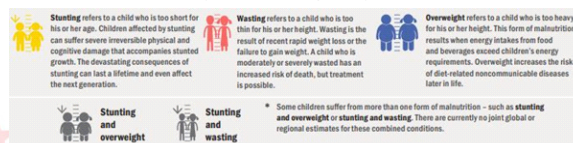
JOINT MALNUTRITION ESTIMATES

Why is it in the news?

- ★ The **United Nations Children's Fund (UNICEF), World Health Organisation (WHO) and World Bank** have released **Joint Malnutrition Estimates**.

More about the news

- I) The UNICEF, WHO and the World Bank inter-agency team update the joint global and regional estimates of malnutrition among children under 5 years of age each year.
- II) These estimates of prevalence and numbers affected for child stunting, overweight, wasting and severe wasting are derived for the global population as well as by regional groupings of **United Nations (UN)** regions and sub-regions, **Sustainable Development Goals (SDG)**, UNICEF, WHO and World Bank regions, as well as World Bank country-income group classifications.



Key Findings

Indian Scenario:

I) Reduction in Stunting:

- a) Corresponding with global and regional trends, India continues to show a reduction in stunting and recorded 1.6 crore fewer stunted children under five years in 2022 than in 2012.
- b) Stunting among children under five years in India dropped from a **prevalence rate of 41.6% in 2012 to 31.7% in 2022 with the numbers dropping from 52 lakh to 36 lakh.**
- c) This was accompanied by India's share of the global burden of stunting declining **from 30% to 25% in the past decade.**

II) Wasting and Obesity Increased:

- a) Wasting continues to remain a concern and so does growing levels of obesity.
- b) The **overall prevalence of wasting in 2022 was 18.7% in India, with a share of 49% in the global burden.**

c) The prevalence of obesity marginally increased in a decade **from 2.2% in 2012 to 2.8% in 2022 thereby contributing to 8.8% of the global share.** But the overall classification for obesity is low and much lower than the global prevalence of 5.6%.

Global Scenario:

- I) Globally, stunting declined from a **prevalence rate of 26.3% in 2012 to 22.3% in 2022.**
- II) There was no improvement on the weight issue worldwide, as its **prevalence rate grew from 5.5% to 5.6%.**
- III) The **Joint Malnutrition Estimates (JME)** reveal insufficient progress to reach the **2025 World Health Assembly (WHA)** global nutrition targets and the **2030 Sustainable Development Goal (SDG) 2 targets.**
- IV) Only about one-third of all countries are 'on track' to halve the number of children affected by stunting by 2030.
- V) Fewer countries are expected to achieve the 2030 target of 3% prevalence for overweight.



In line with National Family Health Survey (NFHS)

- I) The decline in stunting in India is commensurate with **NFHS-5 (2019-2021) data which estimated its prevalence at 35.5% as against 38% in NFHS-4 (2016) and 48% in NFHS-3 (2006).**
- II) NFHS-5 showed evidence of continued reduction of stunting and instances of underweight children.
- III) It also showed an improvement in access to health services — family planning, ante-natal care, deworming, breastfeeding counselling.

IV) In India, it has been found that two-thirds of children at 12 or 24 months had wasting at birth or at one month of age. This means two-thirds of the wasting is caused by maternal malnutrition.

WHY DO FACULTY SHORTAGES PERSIST IN INDIAN UNIVERSITIES?

Why is it in the news (Introduction)?

- I) Faculty shortages have existed in India's higher education sector at least since the 1980s, but seem to have become permanent today. The paucity of a sufficient number of faculty members undermines the growth of the country's knowledge sector and hinders its aspiration to be recognised as a "*vishwa guru*". Colleges and universities need a sufficient number of teachers and researchers to create and disseminate knowledge.
- II) There are two main obstacles to finding viable solutions to faculty shortages. The first is a **lack of reliable data on current faculty resources** in colleges and universities. The second obstacle is the partial understanding of faculty shortages as merely a **quantitative issue.**

Why is there no reliable data on faculty shortages?

In 2009, the (**erstwhile**) **Ministry of Human Resource Development** set up a task force to look into the problem. Its 2011 report, entitled '**Report of the Task Force on Faculty Shortage and Design of Performance Appraisal System**', made a damning observation:

- I) The fact that there is a huge shortage of teaching staff or faculty in the higher education system in India is not a surprise. What is, however, surprising is that this perception is not substantiated by factual data. There is no standing mechanism to collect this information regularly.

The report called for a **standing mechanism to monitor the size and quality of faculty resources and for data on faculty members** to be made available on the website of every academic institution.

More than a decade later, most academic institutions have messy and incomplete websites containing only partial information about their faculty bodies.

The government does collect data on colleges and universities, including the number of faculty members, for the annual **All India Survey of Higher Education (AISHE)**, but this is a voluntary process for various institutions. The responsibility for the accuracy of the data rests with the concerned institution, meaning the information provided is not independently verified by any independent agency.

- II) Another problem is that there is **widespread use of adjunct faculty members and even ‘ghost’ members by colleges and universities**. Adjunct or part-time faculty members are often counted as part of the regular faculty to show off a favourable teacher-student ratio. So, it has become impossible to get a reliable estimate of faculty resources.

Are shortages a quantitative issue?

The stakeholders often misunderstand a shortage to be a quantitative issue. The nature and scope of the shortage is actually more complex. In fact, it is possible to identify **six types of shortages**, each with a different (but sometimes also overlapping) set of remedial measures.

- I) The first kind is related to the fact that the **number of faculty members varies across disciplines, institutions and locations**.

There may even be an oversupply in some

disciplines or locations and an acute shortage in others. The challenge here is to first achieve some kind of balance between demand and supply in specific disciplines, which could help plug the shortages at different institutions and/or locations.

- II) The second kind of shortage is one that many public institutions face: the **inability to hire faculty despite a desperate need for them**.

The reasons for this are financial and affect nearly all state universities. Most of them, and their constituent colleges, are grossly underfunded. Even despite a large increase in the number of students, state governments have not created or sanctioned new positions. And even when positions exist, they are kept vacant due to a lack of funds.

- III) The third kind of shortages exists due to the **unwillingness of institutions to hire faculty members**.

This is common in the many private colleges and universities whose primary purpose is **profit-seeking**. The owners and administrators at these institutions prefer to make do with less. They also hire less qualified people in poorly paid part-time positions instead of better qualified, regular faculty members, to keep costs down.

- IV) The fourth kind of shortage, common to all public institutions, is due to the **reservations for members of the Scheduled Caste and Scheduled Tribe groups and of ‘Other Backward Classes’**.

Reservations reduce the pool of qualified people, sometimes severely. One result is that faculty positions remain vacant due to the unavailability of qualified applicants. To this extent, this kind of shortage is simultaneously a quantity problem – but in many cases, positions

also remain vacant due to caste-based discrimination.

- V) The fifth kind is due to an unwillingness among faculty members to work at select institutions **due to their unfavourable location and/or the working and living conditions** they present. Many newer universities that are not close to large urban centres face this problem.
- VI) Sixth, faculty shortages are also of a qualitative kind when shortages may not exist, say, in terms of the number of applicants with PhDs but **due to few candidates being really qualified for the corresponding position**. This requires us to improve the quality of PhD programmes at Indian universities.

Way Forward

Though, the six types of faculty shortages identified here are not necessarily mutually exclusive they however, do indicate that a shortage is not about the numbers alone, and that any attempt at addressing it will **require a nuanced set of policies**.

WHAT HAS INDIA DONE TO CURB UNNECESSARY HYSTERECTOMIES?

Why is it in the news?

- I) As per **National Family Health Survey-5 data**, half of the women reportedly go through **hysterectomies before they turn 35**.
- II) The Union Health Ministry recently urged State Governments to audit hysterectomy trends in public and private hospitals, in response to a Supreme Court petition arguing that women from marginalised locations are at risk of **unjustified hysterectomies for economic gains and exploitation**.
- III) Also, the top Court recently gave a three-month deadline to States and Union Territories,

directing them to implement these Health Ministry guidelines.

What are the criteria for getting a hysterectomy?

- I) After caesarean deliveries, hysterectomies are the second-most frequent procedure in women of the reproductive age group. Medically, hysterectomies should be conducted in the later part of an individual's reproductive life, or as an intervention during emergencies.
- II) Noted medical indications for removing a uterus include **fibroids (growths around the uterus), abnormal uterine bleeding and uterine prolapse, chronic pelvic pain, and premalignant and malignant tumours of the uterus and cervix**. In some cases, **oophorectomy, the removal of ovaries (the primary source of estrogen)**, is also frequently performed, which is a form of surgical menopause and linked to several chronic conditions.
- III) Reports suggest that in many cases, hysterectomies are presented to women as a **"permanent solution"** for health issues, even when other low-invasive treatments could work.
- IV) According to NFHS-5 data, the highest percentage of hysterectomies (51.8%) were to treat excessive menstrual bleeding or pain; 24.94% for fibroids; 24.94% for cysts; 11.08% for uterine disorder or rupture. Yet, studies have shown that **"many of these causes were considered to be treatable and surgery could be avoided"**.

What measures has the government taken so far?

- I) The Union Health Ministry in 2022 issued guidelines to prevent unnecessary hysterectomies — listing possible indications of when hysterectomy may be required and alternative clinical treatments for gynaecological issues.

Further, they recommended **setting up district, State-level and national hysterectomy monitoring committees** which to collect data on age, mortality, and occupations, among other details. States and Union Territories are expected to conduct audits of hysterectomy trends and furnish a report, as per the Supreme Court order.

- II) The government also proposed a grievance portal, monitored by the **National Hysterectomy Monitoring Committee**, for hysterectomy beneficiaries.

In particular, the guidelines emphasise that authorities should report hysterectomies conducted for women less than 40 years of age and incorporate the reason for hysterectomy into the existing **screening checklist**.

- III) The monitoring committees are also tasked with creating awareness, among both practitioners and patients, about bodily anatomy, the role of uterus and when hysterectomies are actually indicated.

- IV) The government’s flagship health insurance programme **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana** provides health cover of 1.5 lakhs for 1,949 procedures— **including hysterectomies**.

The government has authorised 45,434 hospitals to conduct these operations and also developed two standard treatment guidelines for hysterectomy-related procedures. These guidelines, developed by the Union Health Ministry and the **Indian Council for Medical Research (ICMR)** in consultation with health experts, explicitly state that the procedure should be **“considered only when childbearing is completed and rarely in younger patients”**.

HYSTERECTOMY SHOULD NOT BE DONE FOR					
White discharge per vaginum	Cervicitis	Non specific abdominal or pelvic pain	Minor degree of utero vaginal prolapse	Fibroids which are small (less than 5 cm) or Asymptomatic (less than 12 weeks size uterus)	Simple ovarian cyst less than or equal to 5 cm
COMPONENTS OF PRE OPERATIVE COUNSELLING AND INFORMED CONSENT <ul style="list-style-type: none"> - Need for hysterectomy - Alternative Treatment options - Risks and benefits - Potential complications of the procedure - Removal/conservation of ovaries & tubes - Route of hysterectomy - Possible need for post operative Hormone therapy in selected cases 			INVESTIGATIONS <ul style="list-style-type: none"> - Complete Blood Count - Blood grouping & cross matching - Fasting Blood Sugar & Post Prandial Blood Sugar - Renal Function Test - Liver Function Test - Urine Routine & Microscopy - Electrocardiogram - X ray chest - Others as indicated 		
COMPLICATIONS TO BE EXPLAINED <ul style="list-style-type: none"> - Risk of infection - Bleeding (primary/ reactionary/ secondary) - Injury to bladder/ bowel/ ureter - Pain - Fever - Hernia (rare and late complication) 			FOLLOW UP <ul style="list-style-type: none"> - Discharge summary with operative details - Review for histopathology report - Report if there is fever, bleeding or any other symptoms - Avoid lifting heavy weights for 8 weeks - Abstinence for eight weeks - Adequate iron and calcium & Vitamin D3 supplements - Evaluate need for hormones in very selected patients 		
<ul style="list-style-type: none"> - Ovaries should be preserved in most pre-menopausal women unless diseased - While doing hysterectomy for benign gynaecological conditions in pre-menopausal women, it is recommended to combine it with bilateral salpingectomy with a view to minimise the risk of subsequent development of ovarian malignancy^{1,2} 					
REFERENCES <ol style="list-style-type: none"> 1. Ross-Leece PJ et al. Intervention to reduce the risk of ovarian and fallopian tube cancer: A European Menopause and Andropause Society Position Statement. Maturitas. 2017 2. Davulis A et al. Efficacy of salpingectomy at hysterectomy to reduce the risk of epithelial ovarian cancer: a systematic review. BJOG. 2017. 					
CONSELLING IS AN IMPORTANT ADJUNCT TO MANAGEMENT KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES					

(Standard Treatment Workflow for hysterectomies recommended by Union Government and ICMR)

- V) Under the **Clinical Establishments (Registration and Regulation) Act, 2010**, hospitals and healthcare facilities found to have coerced women into hysterectomies without informed consent can be blacklisted. 11 States, including Arunachal Pradesh, Sikkim, Uttar Pradesh, Rajasthan, Bihar, Jharkhand and Karnataka, have adopted the Act.

- VI) In response to the petition, Bihar said that it has also directed hospitals to obtain permission from the concerned insurance provider before conducting hysterectomies for those aged forty or below.

The petition noted that unnecessary hysterectomies violate international conventions to which India is a signatory. These include the **International Covenant on Economic, Social and Cultural Rights (which recognises people’s right to control their health and body, including reproductive and sexual freedom), the Convention on the Elimination of All Forms of Discrimination Against Women and the International Covenant on Civil and Political Rights**.

What about long-term treatment of women?

- I) Hysterectomies may cause **long-term injuries and disabilities**, requiring follow-up and post-operative care, both rarely available or affordable. In some cases, when hysterectomies are unindicated, women may continue to suffer post-surgery and need additional surgery. For instance, if they had pelvic pain due to endometriosis, it might not be solved by hysterectomy alone.
- II) In other cases, patients may need medical support such as **hormone replacement therapies (if both ovaries and uterus are removed and there are menopausal symptoms)**. But these interventions are limited to private hospitals and remain unaffordable for low-income groups.
- III) There is some global evidence to show that women who underwent hysterectomy with oophorectomy — before the age 50, sans hormone therapy — had 1.8 higher odds of all-cause mortality.

What is needed instead?

- I) In 2019, a national consultation panel identified three challenges: the need for clinical and population-level guidelines; information on gynaecological morbidity at the primary level and required treatment services; and monitoring and regulating hysterectomies, particularly among younger women and people with “benign” conditions.
- II) In the present case, Chief Justice D.Y. Chandrachud also suggested that hysterectomies for those under 40 should be conducted on approval by two certified doctors. Yet, health experts warn these measures may curb access instead women in need of treatment may be turned away due to gaps in government-run

healthcare.

- III) A report by NGOs suggested that “government hospitals should provide treatment to avoid unindicated hysterectomies, and if not treatable, hysterectomies should be done in government hospitals.”
- IV) There is a need for more investment in public health infrastructure as the gap left by the public health system combined with a government policy of proactively promoting the private sector has led to the proliferation of private health providers which are unregulated, unaccountable, and out of control.
- V) Efforts are also required to improve menstrual and sanitation facilities, particularly in rural areas, and to create awareness among both patients and clinicians, including knowledge of alternative treatments. The Federation of Obstetric and Gynaecological Societies of India **launched a ‘Save the Uterus’ campaign in 2019** to advocate and train doctors for non-invasive procedures to treat uterine and other issues rather than simply removing the uterus.

WHAT IS WHO’S ADVICE ON NON-SUGAR SWEETENERS?

Why is it in the news?

- I) Recently, the **World Health Organization (WHO)** issued new guidelines on advising against the use of **non-sugar sweeteners (NSS)** like aspartame, saccharin, stevia and other derivatives as a “healthy” alternative to sugar.
- II) WHO has suggested that non-sugar sweeteners should not be used as a means of achieving weight control or reducing risk of diet-related non-communicable diseases.

What are non-sugar sweeteners?

- I) Non-sugar sweeteners (NSS) are marketed as low

or no-calorie alternatives to free sugars which aid in weight loss, and in controlling blood glucose in individuals with diabetes. NSS categories studied by WHO include acesulfame K, aspartame, advantame, cyclamates, neotame, saccharin, sucralose, stevia, and stevia derivatives.

- II) Aspartame is popularly used to sweeten diet colas that claim to have 'no sugar, no calories.' Saccharin is used, for instance, to sweeten tea or coffee.

What are the concerns?

- I) Health experts point out that India should take necessary steps to guide people on NSS because one in nine women and one in 25 men are obese, according to the **National Family Health Survey's fifth round conducted between 2019 and 2021**. Obese people are more prone to suffer from diabetes. According to WHO data, there are an estimated 25 million people living with pre-diabetes in India.
- II) Two or three decades ago, according to an expert, he never diagnosed a 20-year-old or a 25-year-old with lifestyle-related Type 2 diabetes. This has changed. Now for every three young patients who are Type 1 (diabetic at birth due to genetic factors), he has one patient under 25 years who has diabetes due to lifestyle and diet-related causes. Those who are obese in their teenage years and diabetic in their twenties have a higher chance of getting heart attacks in their thirties and forties.
- III) Also, artificial sweeteners are known to have an effect on the gut and bones and cause bloating.

What is WHO's nutritional advice?

- I) According to WHO, it is difficult to view the role of sweeteners in isolation when it comes to

weight loss studies that were analysed, so it is important to note that the **quality (nutritional profile) and quantity of diet** are also crucial in this matrix.

- II) Simply replacing free sugars in diet with NSS means that overall quality of the diet is largely unaffected, this is because free sugars are often found in highly processed foods and beverages with undesirable nutritional profiles. It instead recommends having alternative foods which are minimally processed, unsweetened foods and beverages.

What happens next?

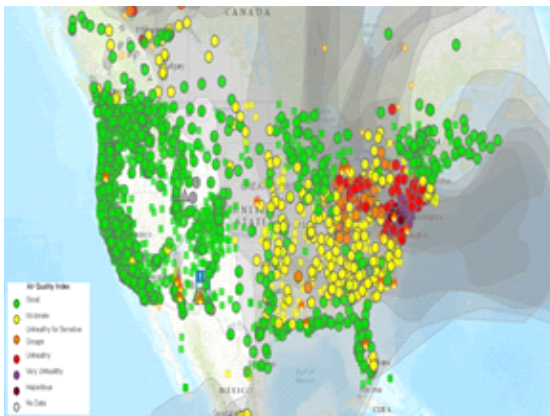
- I) Experts say WHO's conditional guideline is such that it is less certain that desirable consequences of implementing this recommendation outweigh the undesirable consequences. This means that the Ministry of Health will have to initiate discussions among policy-makers before it decides to adopt this 'conditional' recommendation as a national policy.
- II) The WHO recommends that with the help of this guidance efforts should be made, with a focus on youngsters, to tweak taste preferences and eating behaviours. It also said that potable water as a preferred replacement for beverages that are sweetened with NSS and as a mode of hydration should be incorporated.

ENVIRONMENT & BIODIVERSITY

WHAT IS CAUSING LARGE-SCALE WILD-FIRES IN CANADA?

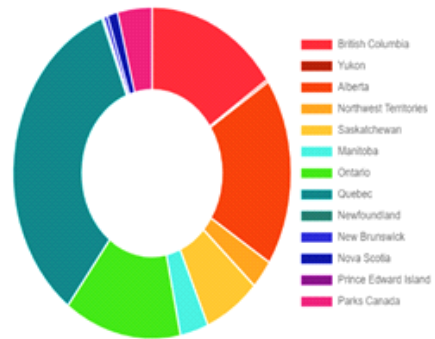
Why is it in the news?

I) New York City's air quality is currently ranked among the worst in the world due to drifting smoke rising from wildfires in Canada. Areas from the mid-Atlantic through the Northeast and upper parts of the Great Lakes registered air quality in unhealthy or worse categories. The smoke has now also engulfed Washington D.C. and other parts of the North American continent.



(Air quality in the U.S.)

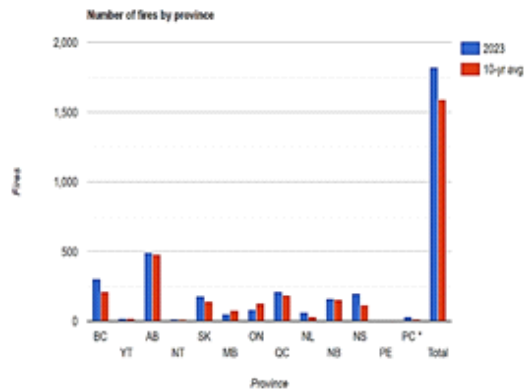
II) According to the Canadian Interagency Forest Fire Centre, there are 426 active fires in the country as on June 8, 2023. Out of these, 232 were reportedly out of control. A major chunk of these 144 were reported from Quebec province alone. The organisation has also raised the national preparedness level, an indicator of wildland fire activity, to its highest level, at five.



(Province/agency-wise distribution of active wildfires in Canada)

What is causing the wildfires in Canada?

I) Wildfires in **Canada's British Columbia and Alberta province** started in late April. These have now moved on to the eastern provinces of Quebec, Ontario, and Nova Scotia. **Quebec is Canada's largest province by area**, and also home to most currently active wildfires. Most of these have been caused by lightning. Human activities are also to be blamed for adding to the forest fires.



(Province-wise fires in Canada in 2023, compared to ten-year average period)

- II) According to a study, **lightning is the main precursor** of natural wildfires. Laboratory experiments and field observations have indicated that continuing electrical currents in lightning flowing for more than some tens of milliseconds (**so-called Long-Continuing-Currents, or LCC**) are likely to produce fires.
- III) According to the study, simulations suggest an increase in total global lightning and global LCC by the 2090s. The simulated globally averaged surface temperature increases by about 4 Kelvin (since Kelvin and Celsius have a linear relationship, this equals to an increase by about 4 degrees Celsius), and thus we obtain an increase in total lightning activity of 11% per Kelvin.
- IV) The estimated increase of LCC lightning over land by 47% indicates a higher risk of lightning-ignited wildfires in the future. Although the simulated relative increase of the global total lightning flash rate (43%) is similar to the relative increase of the global LCC lightning flash rates (41%), the trends are opposite in some regions including western parts of North America, North and the South of South America, parts of Central Asia, and in the Scandinavian Peninsula. Simulations suggest that in these parts, total lightning decreases, but LCC lightning increases, hence leading to an increase in wildfires.

How does lightning work?

- I) During a storm, water droplets from warmer air and ice crystals from cooler air come together to form **thunderstorm clouds**. Contact between these water droplets and ice crystals produces a static electrical charge in clouds.
- II) When opposing negative and positive charges in clouds build up, the insulating capacity of air

between the charges as well as between the cloud and the ground breaks down, leading to a rapid discharge. This is what we call lightning. It can occur between opposite charges within the thunderstorm cloud, or between opposite charges in the cloud and on the ground.

Is lightning an indicator of climate change?

- I) **Yes. The World Meteorological Organisation recognises lightning as an essential climate variable that critically contributes to the characterisation of the earth's climate.** As global warming increases the earth's surface temperature, lightning activity is also predicted to increase.
- II) Lightning also produces **nitrogen oxides**. These react with other gases in the atmosphere and produce ozone, which is a strong greenhouse gas that traps earth's outgoing heat and retains it in the atmosphere, altering climate and weather patterns.

What are the other reasons behind uncontrolled wildfires in Canada?

- I) **Atlantic Canada** received low snowfall this winter, followed by an unusually dry spring. The weather of **Nova Scotia province**, where wildfires are not unusual but fewer than in other provinces, is influenced by the North Atlantic Ocean. Due to its proximity to the ocean, the region ordinarily has higher humidity and more moderate temperatures as compared to many other parts of the country.
- II) This year, Nova Scotia's capital **Halifax** received just 120 millimetres of rain between March and May, roughly a third of the average.

NEW EEL DISCOVERED

Why is it in the news?

- ★ Recently, the scientists of the **Zoological Survey**

of India (ZSI) have discovered a new species of eel from Palur canal in Odisha's Ganjam district.

Eels

- I) Eels are elongated ray-finned fish belonging to the order Anguilliformes, which consists of eight suborders and about 800 species.
- II) Eels **live both in salt and fresh water**, and some species are catadromous.

New Species of Eels

- I) Scientific Name: The new species has been named **Pisodonophis kalinga** after the name of ancient Odisha.
- II) Common Name: The scientists have proposed **kalinga snake eel** as the common name of the new species.
- III) Family: It belongs to the family Ophichthidae and order Anguilliformes.
- IV) Features: It has a **snake-like appearance** and varies in length from 560 millimetres to 7 metres. The dorsal side of the body of new species is dark olive-brown, ventrally pale white and both the colours meet at the lateral side.
- V) Distribution: The species was found in the **Chilika lagoon, Asia's biggest brackish water lagoon**, and the adjoining Palur canal, where water flow is completely tide dependent. The Palur canal connects Chilika with River Rushikulya.

WOLF-DOG HYBRIDISATION / INDIAN WOLF

Why is it in the news?

- I) Recently, researchers have found the first evidence of wolf-dog hybridisation in the country.
- II) The findings claimed that **wolf (Canis lupus)-dog (Canis lupus familiaris)** hybridisation may lead to immense reduction of certain adaptations in wolves eventually causing a drop in wolf populations.

Indian wolf

- I) Scientific name: *Canis lupus pallipes*.
- II) Distribution: It is a subspecies of gray wolf that ranges from **Southwest Asia to the Indian subcontinent**.
- III) It is intermediate in size between the Himalayan wolf and the Arabian wolf, and lacks the former's luxuriant winter coat due to it living in warmer conditions. It has shorter fur with little to no underfur.
- IV) The Indian wolf travels in smaller packs and is less vocal than other variants of the gray wolf.
- V) IUCN Status: Endangered.
- VI) **Mahuadanr Wolf Sanctuary** in the state of Jharkhand is only wolf sanctuary in the country.

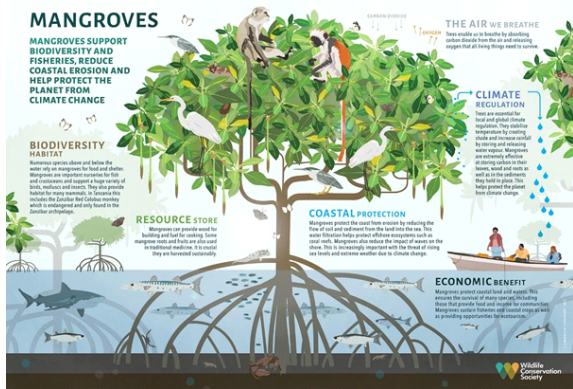
MISHTI (MANGROVE INITIATIVE FOR SHORELINE HABITATS AND TANGIBLE INCOMES)

Why is it in the news?

- ★ Recently, PM Modi launched the **MISHTI (Mangrove Initiative for Shoreline Habitats and Tangible Incomes)**. The scheme was first announced by the Union finance minister in the **2023-24 Union budget**. MISHTI (Mangrove Initiative for Shoreline Habitats and Tangible Incomes)
 - I) Initially the mangrove cover will be restored in nine states across the country. Overall, the scheme envisages the development of mangroves covering nearly **540 sq km, spreading across 11 states and two union territories over five years, starting from FY2023-24**.
 - II) This scheme will help in mitigating the threat to lives and livelihoods in coastal areas from rising sea levels and disasters like cyclones.
 - III) It involves the sharing of best practices on plantation techniques, management practices,

conservation measures and resource mobilization through the public-private partnership route.

- IV) The Centre covers 80% of the project cost, while state governments contribute the remaining 20%.



About Mangrove Forests

- I) A mangrove is a **shrub or a small tree** that lives in intertidal water in coastal areas and has roots in salty sediments, often underwater. They also grow in swamps.
- II) Mangroves are **salt tolerant plant communities** found in tropical and sub-tropical intertidal regions of the world. Such areas are characterized by high rainfall (between 1,000 to 3,000 mm) and temperature (ranging between 26°C-35°C).
- III) Mangrove forests can survive extreme weather conditions and require low oxygen levels to survive. The mangroves **cannot survive freezing temperatures and thus are found mainly in tropical and subtropical latitudes.**

What is the Significance of Mangroves?

- I) Mangrove forests can store ten times more carbon per hectare than terrestrial forests. Also, they can store carbon up to 400 per cent faster than land-based tropical rainforests. Hence, it acts like a carbon sink.
- II) Once the plants die, they take the stored carbon into the soil. This is called **“Blue Carbon”**.

- III) Moreover, Mangrove forests act as **natural barriers against rising tides and storms**. Each year, they prevent property damages of over \$65 billion.
- IV) They provide breeding grounds for marine biodiversity and 80% of global fish populations depend on healthy mangrove ecosystems.
- V) They also support a rich food web, with molluscs and algae-filled substrate acting as a breeding ground for small fish, mud crabs and shrimps, thus providing a livelihood to local artisanal fishers.

What are the threats?

- I) According to the **Global Mangrove Alliance 2022 report**, between 2010 and 2020, around 600 sq. km of mangroves were lost of which more than 62% was due to direct human impacts.
- II) Infrastructure projects — industrial expansion and building of roads and railways, and natural processes — shifting coastlines, coastal erosion and storms, have resulted in a significant decrease in mangrove habitats.

About Mangrove Cover (Worldwide)

- I) As per **Global Forest Resource Assessment, 2020 (FRA 2020)**, world over, 113 countries have Mangrove forests covering an estimated 14.79 million hectares. **The largest Mangrove area is reported in Asia (5.55 million hectares), followed by Africa (3.24 million hectares).**
- II) More than 40 percent of the total area of Mangroves was reported to be in just four countries: Indonesia (19 percent of the total), Brazil (9 percent), Nigeria (7 percent) and Mexico (6 percent).

About Mangrove Cover (India)

- I) According to the **Forest Survey report 2021**, mangroves cover in the country is 4,992 square

km, which is 0.15 percent of the country's total geographical area. Since 2019, the cover has risen by only 17 sq. km.

- II) India **accounts for about 3% of South Asia's mangroves.**
- III) West Bengal has 42.45% of India's mangrove cover (mainly because of Sundarbans), followed by Gujarat (23.66%) and Andaman and Nicobar Islands (12.39%). Other states that have mangrove cover are Maharashtra, Odisha, Andhra Pradesh, Tamil Nadu, Goa and Kerala.
- IV) Important species of Mangrove ecosystems in India include *Avicennia officinalis*, *Rhizophora mucronata*, *Sonneratia alba*, *Avicennia alba*, *Bruquiera cylindrica*, *Heritiera littoralis*, *Phoenix paludosa*, *Morinda citrifolia* & *Ceriops tagal*.

WHAT WILL IT TAKE FOR AN INDIAN CITY TO BECOME LOW CARBON?

(This article can be used as a 'fodder' for essays and general studies related topics also)

Why is it in the news (Introduction)?

- I) By 2050, seven billion people will be living in cities. In 2020 itself, these cities dumped a whopping **29 trillion tonnes of carbon dioxide** into the atmosphere. This carbon dioxide along with other greenhouse gases poses a serious health hazard. It also manifests as extreme weather events, leading to the loss of lives, livelihoods, assets, and social wellbeing.
- II) Given the significant impact that cities have on the environment, **low-carbon cities are crucial to mitigate the effects of climate change.**
- III) Transitioning to low-carbon or even net-zero cities requires us to integrate mitigation and adaptation options in multiple sectors, including energy, buildings, transportation, industry, and

urban land-use. This is called the '**sector-coupling approach**', and it is necessary to decarbonise urban systems.

Why are energy-system transitions key?

- I) An energy-system transition could reduce urban carbon dioxide emissions **by around 74%**. With rapid advancements in clean energy and related technologies and nosediving prices, we have also crossed the economic and technological barriers to implementing low-carbon solutions.
- II) The transition must be implemented both on the demand and the supply sides.
 - a) Mitigation options on the supply side include phasing out fossil fuels and increasing the share of renewables in the energy mix, and using **carbon capture and storage (CCS)** technologies.
 - b) On the demand side, using the '**avoid, shift, improve**' framework would entail reducing the demand for materials and energy, and substituting the demand for fossil fuels with renewables.
- III) Also, to address residual emissions in the energy sector, we must implement **carbon-dioxide removal (CDR)** technologies. Indeed, we have the appropriate technologies and knowledge base to build net-zero urban systems through energy transitions. The only impediments at this time are social and political in nature.

Different strategies for different cities

- I) Which mitigation and adaptation strategies to implement varies based on some of a city's characteristics. Transitioning to renewable energy sources is not as simple as replacing fossil fuels with clean energy. There are multifarious issues of **energy justice and social equity** to be dealt with. This is a key consideration when we frame energy-transition policies that are socially

and environmentally fair.

- II) The considerations are a city's spatial form, land-use pattern, level of development, and the state of urbanisation.
- III) An **established city** can retrofit and repurpose its infrastructure to increase energy efficiency, and promote public as well as active transport like bicycling and walking.
In fact, walkable cities designed around people can significantly reduce energy demand – as can electrifying public transport and setting up renewables-based district cooling and heating networks.
- IV) A **rapidly growing** city can try to co-locate housing and jobs by planning the city in a way that brings places of work closer to residential complexes, thus reducing transport energy demand. Such cities can also leapfrog to low-carbon technologies, including renewables and CCS.
- V) **New and emerging cities** have the most potential to reduce emissions – using energy-efficient services and infrastructure, and a people-centric urban design. They can also implement building codes that mandate net-zero energy use and retrofit existing buildings, all while gradually shifting to using low-emission construction materials.

How can an energy transition be just?

- I) Energy systems are directly and indirectly linked to livelihoods, local economic development, and the socio-economic well-being of people engaged in diverse sectors. So, a **one-size-fits-all approach** is unlikely to ensure a socially and environmentally just transition.
For example, transitioning to renewable-energy sources could disproportionately affect groups

of people or communities in developing economies and sectors that depend on fossil fuels.

- II) Broadly, the energy supply needs to be balanced against fast-growing energy demand (due to urbanisation, e.g.), the needs of energy security, and exports. Additional justice concerns include -land dispossession related to large-scale renewable energy projects, spatial concentration of poverty, the marginalisation of some communities, gendered impacts, and the reliance on coal for livelihoods.
For instance, developing economies, including Nigeria, Angola, and Venezuela, owe a significant fraction of their **gross domestic products (GDPs)** to fossil-fuel exports. Transitioning away from these industries could devastate their economies, with the consequences landing particularly heavily on the workers employed in the fossil-fuel sector.
- III) Similarly, in economically developed countries, many communities suffer energy poverty, and inequity due to high energy costs, low incomes, and inadequate infrastructure. In the U.S., expenditure on energy bills is a significant chunk of the total income of low-income households. This can crowd out expenses for other amenities like healthcare and nutrition.
- IV) Many communities in the Global North also face environmental injustices related to energy production and distribution. For example, low-income communities and communities of colour in the U.S. are often disproportionately affected by fossil-fuel pollution and climate change. These communities may also have limited access to renewable energy options, exacerbating existing inequalities.

Are there any solutions that foreground justice?

- I) So, ensuring a transition to low-carbon energy systems in cities at different stages of urbanisation, national contexts, and institutional capacities requires strategic and bespoke efforts. They must be directed at **governance and planning, achieving behavioural shifts, promoting technology and innovation, and building institutional capacity.**
- II) We must also adopt a **comprehensive approach** to address the root causes of energy and environmental injustices. This includes mitigation and adaptation responses that engage multiple stakeholders in energy governance and decision-making, promoting energy-efficiency, scaling up investments, and capturing alternate knowledge streams (including indigenous and local lived experiences).
- III) In sum, transitioning to low-carbon cities is essentially a commitment to social equity and justice. This is why we must account for the complex, multifaceted issues in different regions and contexts, and adopt a wholesome approach that is attentive to multiple voices and experiences.

WHY IS THE 1.5 DEGREE CELSIUS TARGET CRITICAL?

Why is it in the news?

- I) The **World Meteorological Organization (WMO)** released two reports titled **“Global Annual to Decadal Climate Update 2023-2027”** and **“State of Global Climate 2022.”**
- II) The decadal predictions of the WMO said that the annual mean global surface temperature between 2023 and 2027 will be **1.1-1.8 degree Celsius higher than the baseline temperature of 1850-1900 or pre-industrial levels.** In 2022, it

was 1.15 degrees above the baseline, and by 2027, the average will exceed 1.5 degrees, a **critical point beyond which there may be no return.**

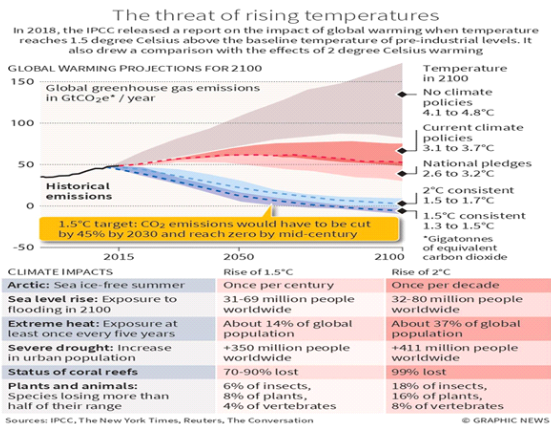
What is the 1.5 Degree Celsius target?

- I) The 1.5 Degree Celsius target is the **global climate target that aims to limit warming to said level by 2100**, in order to prevent the planet from slipping into further climate crises. For decades, 2 degree was an acceptable level of warming. The idea of 1.5 degree was perceived as unrealistic and unachievable. However, the 2 Degree target was unacceptable to small island countries as it implied that their survival was compromised.
- II) In 2010, at the **Cancun COP16**, countries agreed to limit the global average warming to below 2 Degree Celsius.
- III) In 2015, the parties to the **Paris Agreement** pledged to limit the average temperature rise to below 2 Degree, while actively aiming for 1.5 degree above pre-industrial levels. This was endorsed as a global target by the **Intergovernmental Panel on Climate Change (IPCC)** in 2018 and since then has been pursued in all climate dialogues.

Why is the 1.5 Degree target critical?

- I) In 2018, the IPCC released a special report on the impact of global warming when temperature reaches 1.5 Degree Celsius above baseline. It also drew a comparison with the effects of 2 Degree Celsius warming.
- II) It was estimated that anthropogenic activities would have already caused 1 degree of warming, likely to reach 1.5 degree between 2030 and 2052 at the current rate. Frequent and intense heat waves, droughts, heavy precipitation, an additional 10-centimetre rise in sea level,

destruction of ecosystems and mostly irreversible changes can be witnessed at the 2 Degree level.



III) However, discussions on the average temperature rise do not imply that the current warming is uniform across the planet. For example, warming greater than the global average is being experienced in the Arctic, with the term ‘**polar amplification**’ gaining more traction. The regional differences and the vulnerability factors spell more urgency for climate action which must limit the average planetary warming to 1.5 degree.

Why are we missing the target?

- I) Historically, developed countries are responsible for a major chunk of **greenhouse gas (GHG)** emissions. Therefore, they are expected to assume more responsibility and implement climate action. However, the **Climate Performance Index** over the years has shown otherwise. Countries like Australia, the U.S., Japan, Russia and Canada have made little progress in meeting their pledges. Additionally, polluters like China, Iran and Saudi Arabia rank low in climate performance.
- II) The pandemic pushed the world into a **socio-economic crisis**. On the road to recovery, countries pledged measures to **build-back**.

However, in most cases there is little to no consideration for building-back in a sustainable manner. The Ukraine conflict has further added to woes and sparked an energy crisis threatening climate goals.

Are extreme weather events linked to the global rise in temperature?

- I) The predictions of the recently released reports point to precipitation anomalies and an increase in marine heat waves as compared to marine cold spells.
- II) The El Niño, which is currently brewing, will further strengthen this year, resulting in a 98% possibility of witnessing temperatures higher than 2016 at least in one of the years in the 2023-27 period.
- III) The cryosphere is shrinking, and there is a mass loss of glaciers in High-mountain Asia, Western North America, and South America. Due to the alarming rate of warming of the Arctic Ocean, the Greenlandic ice sheet is melting at a faster pace, contributing to the increase in sea level.
- IV) Climate risks and hazards impact human population and the ecosystem depending on exposure, vulnerability, and adaptive capacity. It has exacerbated **food insecurity, displacement, and deaths**. Climate change has been affecting crop yield negatively and the risks posed by agricultural pests and diseases have also increased in the past few years. Countries like Ethiopia, Nigeria, South Sudan, Somalia, Yemen, and Afghanistan are facing acute food shortages resulting in **malnutrition and hunger**, demanding urgent humanitarian assistance. However, food insecurity in these countries is due to the complex interaction of climate conditions with other factors such as

droughts, cyclones, and political and economic instability.

- V) The heatwaves in Pakistan and India in 2022 also resulted in a decline in crop yields. The floods in Pakistan affected croplands in southern and central parts of the country and displaced eight million people within the country.
- VI) The Horn of Africa (Ethiopia, Somalia, and Kenya) has been witnessing extreme drought conditions since 2020, while at the same time, western African countries are seeing floods and heavy rainfall which has pushed millions into acute food insecurity. Such shortage of food has also led to mass displacement within and across borders. In Syria and Yemen, thousands have been displaced owing to the floods, storms, and heavy snowfall.
- VII) Aquatic and terrestrial ecosystems have also not been immune to such changes in climate patterns. Phenological shifts and mismatches have been recorded due to climate change. The population of **migratory species** has declined in Sub-Saharan Africa. Additionally, the warming above 1.5 degree Celsius can prove lethal for coral reefs which are already prone to bleaching.
- VIII) According to the WMO, extreme weather anomalies have caused the **deaths of two million people** and incurred \$4.3 trillion in economic damages over the past fifty years. In 2020-2021, 22,608 disaster deaths were recorded globally.

How is India impacted?

- I) India has been increasingly facing the brunt of climate change. **February 2023 was recorded as the hottest month** since record-keeping began in 1901. In 2022, India witnessed extreme weather events for 80% of the days. Indian monsoons were wetter than usual last year after

recording extreme heat during the pre-monsoon period, resulting in wildfires in Uttarakhand and acute food shortages.

- II) According to the **Climate Change Performance Index 2023**, India ranked eighth with a high-performance after Denmark, Sweden, Chile, and Morocco. Being an emerging economy with development needs, it is attempting to balance its development needs with ongoing climate action both at the domestic and international levels.
 - a) With domestic measures like the **Green Hydrogen Mission and the introduction of green bonds**, India is performing fairly well despite contributing only a miniscule to cumulative GHG emissions.
 - b) At the international level, through the **International Solar Alliance and Coalition for Disaster Resilient Infrastructure**, India can prove to be a responsible climate player keeping in mind that it has a long way to go in very little time.

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INTERNAL SECURITY

WHY ARE YOUTUBE CREATOR ACCOUNTS WITH LARGE FOLLOWINGS TARGETED BY HACKERS?

Why is it in the news?

- I) Recently, according to the veteran Indian journalist the email and YouTube channels of her digital news platform The Mojo Story were hacked by cybercriminals. Upon gaining access to the channel, the hackers deleted the videos. YouTube froze the account after receiving a complaint from the journalist. The account with all its content was later retrieved.
- II) Accounts of a comedian and a YouTuber were also reportedly compromised. While the content of these YouTube channels differ, they had one thing in common — **a high subscriber count.**

Why do hackers target YouTube content creators?

- I) Hackers attack such accounts to demand a ransom in return, or to gain access to the accounts' audience base to distribute scam links or other malware. When hackers intend to use stolen YouTube accounts to distribute links to malicious websites or malware, they change the name, profile, and content of these channels often imitating the accounts of a larger company or well-known individuals to increase the scope of the attack.
- II) Hackers also tend to remove content from the original publisher, posting content that lures subscribers to click on malicious links shared by them.
- III) Attackers also place restrictions or disable

comments entirely on hacked channels. Conditions could include only allowing subscribers who have subscribed to the channel for 15 or even 20 years to post messages. The hackers also ensure the original owner of the channel is unable to warn subscribers in the comments.

How do threat actors hijack YouTube channels?

- I) Hackers do not need to steal any credentials to compromise such channels. They can make use of socially engineered phishing campaigns to access and use session tokens to compromise accounts. Cookie theft or attacks to steal session tokens have been around for some time now, and are also known as **"pass-the-cookie attacks"**.
- II) A typical attack begins with an email, pretending to be from a genuine company to a blogger. The first email does not contain any suspicious links or files and is used to lure victims into a false sense of security by proposing product placement and collaboration opportunities. Subsequent emails are used to share zipped folders or links to a cloud service masquerading as contracts or important information. These zip folders contain malware and are often masked by Word or PDF files, along with fake forms. Malware protection software and mail servers are unable to scan these files for viruses and malware due to their large size. The virus is delivered to the victim's system when the folder is unzipped to access the files within. The malware contained within the files is then used

to steal session tokens from the victim's browsers, which in turn are used to access the victim's account. Most of the shared malware is capable of stealing both user passwords and cookies.

- III) Hackers make use of browsers "remember" feature with the help of stolen session cookies, thereby bypassing the need for login credentials. Thus, they are able to gain control and access the victim's account without the need for credentials or two-factor authentication. Session cookies are composed of data created by a server and shared with the user's browser to authenticate the user. Cookies are stored by the users' browser and shared with the server to authenticate the user removing the need for login credentials every time the user visits their user account.
- IV) Cloud links are similarly used by attackers to gain access to victims' session tokens to bypass the need for login credentials.

What is Google doing to stop such attacks on YouTube creators?

- I) Google, in 2021, said it is continuously trying to improve its detection methods with tools and features that can automatically identify and stop threat actors. YouTube has also implemented features and protections to make channel transfer more stringent.
- II) Additionally, the platform has also implemented features for the auto-recovery of hijacked accounts. However, judging by the reported incidents and comments of YouTubers it seems that these measures may not be enough.
- III) YouTubers have complained that the platform does not require users to enter their password or two-factor authentication code to change

profile pictures and remove all videos from the channel.

How do we improve security?

- I) Content creators can take measures to reduce the probability of their YouTube accounts being hijacked by threat actors.
- II) Some of these measures include knowing and identifying typical signs of phishing attacks, being aware of social-engineering attacks, not following suspicious links, especially those from unverified sources, and not downloading archived attachments from untrusted sources.

VOLT TYPHOON

Why is it in the news?

- ★ Recently, Microsoft has uncovered stealthy and targeted malicious activity focused on post-compromise credential access and network system discovery aimed at critical infrastructure organizations in the United States.

About Volt Typhoon

- I) The attack is carried out by **Volt Typhoon**, a state-sponsored actor based in China that typically focuses on espionage and information gathering.
- II) The Volt Typhoon campaign is pursuing development of capabilities that could disrupt critical communications infrastructure between the United States and Asia region during future crises.
- III) In this campaign, the affected organizations span the communications, manufacturing, utility, transportation, construction, maritime, government, information technology, and education sectors.
- IV) Volt Typhoon has been active since mid-2021 and has targeted critical infrastructure organizations in Guam and elsewhere in the

United States.

- V) Observed behaviour suggests that the threat actor intends to perform espionage and maintain access without being detected for as long as possible.

Espionage

- I) Nearly every country in the world uses hackers to gather intelligence. Major powers like the United States and Russia have large stables of such groups – many of which have been given nicknames by cybersecurity experts, like “Equation Group” or “Fancy Bear.”
- II) Nearly all cyber spies work to cover their tracks. Volt Typhoon was a particularly quiet operator that hid its traffic by routing it through hacked network equipment – like home routers – and carefully expunged evidence of intrusions from victim’s logs.
- III) China routinely denies hacking and has done so again in the case of Volt Typhoon. But documentation of Beijing’s cyberespionage campaigns had been building for more than two decades.

SPECIAL PROTECTION GROUP (SPG)

Why is it in the news?

- ★ Recently, the **Ministry of Home Affairs (MHA)** notified fresh rules for the elite **Special Protection Group (SPG)**.

What are the New Rules?

- I) The Special Protection Group (SPG) will now be handled by an officer not less than the rank of an **Additional Director-General** belonging to the Indian Police Service, while junior officers will be appointed on deputation for an initial period of six years.
- II) The appointment for the 2nd tenure may be done with the prior approval of the central

government for reasons to be recorded.

- III) The SPG, will have its headquarters in **New Delhi** and now be handled by an officer not less than the rank of an Additional Director-General belonging to the Indian Police Service.
- IV) The general superintendence, direction, command and control, supervision, training, discipline, and administration of the SPG will be vested in the **director**.
- V) These parameters were fixed through a new set of rules issued by the Ministry of Home Affairs under the **Special Protection Group Act, 1988 (34 of 1988)**.

About Special Protection Group (SPG)

- I) The SPG is an elite force, specifically raised for the protection of the country’s **Prime Minister, former PMs and their immediate family**.
- II) The force is currently 3,000 strong and it was started in **1985** in the wake of the killing of PM Indira Gandhi in 1984.
- III) After Rajiv Gandhi’s assassination in 1991, the SPG Act was amended, offering SPG protection to all former Prime Ministers and their families for a period of at least 10 years.
- IV) The SPG is highly trained in physical efficiency, marksmanship, combat and proximate protection tactics and is assisted by all central and state agencies to ensure fool proof security. **SPG Special Agents** assigned to the PM security detail wear black, Western-style formal business suits, with sunglasses, and carry a two-way encrypted communication earpiece, and concealed handguns. They wear safari suits on occasions.

Special Protection Group (SPG) Act 1988

- I) The Special Protection Group (SPG) Act 1988 provides the constitution & regulation of SPG to

provide security to the Prime Minister of India and the former prime ministers and members of their immediate families.

- II) The term '**proximate security**' as mentioned in the Act means the protection provided from close quarters, during the journey by road, rail, aircraft, watercraft or on foot or any other means of transport and shall include the places of functions, engagements, residence.

Special Protection Group (Amendment) Act, 2019

- I) The Act amends Special Protection Group Act 1988 which was in application.
- II) The Act reduces Special Protection Group cover to only Prime Minister, former Prime Minister and their immediate family members up to 5 years after ceasing post if they are residing at the residence allotted.



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HISTORY & CULTURE

SENGOL

Why is it in the news?

- ★ Prime Minister Narendra Modi will install the '**Sengol**', a historical sceptre from Tamil Nadu, in the new Parliament building.



About

- I) The 'Sengol' was received by Independent India's first Prime Minister, Jawaharlal Nehru, from **Lord Mountbatten** to symbolically represent the transfer of power from the British and was later kept in a museum in Allahabad.
- II) It was freedom fighter **Rajaji (C. Rajagopalachari)** who suggested to Nehru the ceremonial gesture, a tradition found to have been documented even in the Chola-era as a symbol of the transfer of power to a new king.

What is the "sengol" sceptre?

- I) The "sengol" sceptre is a long, stick-like item (5 feet) made of silver and covered in gold.
- II) The sceptre has a carving of a bull, called a Nandi, at the top. This is done to remind everyone about the importance of fair and just leadership in the country.
- III) 'Sengol' is derived from the Tamil word '**semmai**,' which means '**full of wealth**', the 'Sengol' represents the embodiment of power and authority.

Traditional Chola practice

- I) It was a traditional Chola practice for **Samayacharyas (spiritual leaders)** to lead the coronation of kings and sanctify the transfer of power, which is also considered a kind of recognition for the ruler.
- II) Following the Chola era tradition, the pontiff of the Thiruvavaduthurai Aadeenam presented the Sengol to Nehru signifying the transfer of power from the British to Indian hands.

What is its Significance?

The inclusion of the 'Sengol' in the Parliament building inauguration seeks to **revive this ancient tradition** and commemorate India's independence as the nation enters a new chapter in its democratic journey.

GEOGRAPHY & DISASTER MGT

EL NINO AND ITS IMPACT ON THE MONSOON

Why is it in the news/(Introduction)?

I) Any discussion on Indian monsoon these days invariably has references to the **El Nino phenomenon**. It is almost as if the fate of the Indian monsoon depends on the abnormalities in sea surface temperatures in far-away Pacific Ocean. This year's monsoon is also progressing under the cloud of an El Nino in the Pacific Ocean.

II) **El Nino**, as is commonly known, refers to an abnormal warming of surface waters in equatorial Pacific Ocean. It is known to suppress monsoon rainfall.

The opposite phase, **La Nina**, which is the abnormal cooling of sea surface waters in the same region, is known to aid rainfall over India. There is a third, **neutral phase**, as well in which the sea surface temperatures remain roughly in line with long-term averages.

Together, these three phases in the Pacific Ocean are referred to as **El Nino Southern Oscillation, or ENSO**.

III) El Nino phenomenon was first noticed by the scientists in the 1920s, though local populations in Peru and Ecuador were aware of the periodic warming much earlier. The La Nina phenomenon, on the other hand, was discovered only in the 1980s.

Ocean-Atmosphere system

I) Though ENSO is mostly discussed in terms of temperature abnormalities of sea surface

waters, it is important to understand that it is not just an ocean system. ENSO actually is an **interaction of ocean and atmospheric conditions**.

In fact, the **'southern oscillation'** part in the term ENSO refers to a specific atmospheric condition that is a measure of the difference in sea-level air pressure over western and eastern side of the Pacific Ocean.

Another atmospheric condition that plays a key role in ENSO is the **strength and direction of winds**.

II) Just the abnormal warming or cooling of surface waters in Pacific Ocean does not result in an El Nino or La Nina event. The associated atmospheric conditions also have to be in sync. (A schematic diagram showing water and wind movements during El Nino and La Nina phases)

III) The ocean part of the ENSO is measured by what is known as the **Oceanic Nino Index or ONI**. The atmospheric part is monitored through **Southern Oscillation Index, or SOI**.

IV) The ocean and atmospheric conditions in El Nino or La Nina tend to reinforce each other, producing a cyclic process. That means that the warming of the sea surface waters during an El Nino event influences atmospheric conditions in a way that these, in turn, result in further warming of the waters. Similar processes happen during La Nina event as well. The linkages between waters and wind were unveiled in the 1960s.

V) The playground of this entire system is the **equatorial region in the Pacific Ocean**. On the east are Ecuador and Peru in northwestern South

America and on the west are the islands of Philippines and Indonesia. Between them is nearly 17,000 km of uninterrupted ocean. This region receives the most sunlight anywhere on earth, a lot of which is stored as heat in the ocean (Fluctuations in sea-surface temperatures in the eastern equatorial Pacific Ocean, as represented by Oceanic Nino Index (ONI), since 2000)

ENSO Neutral condition

- I) To understand the processes that lead to abnormal warming or cooling, it would help to know what happens during a normal year, when ENSO neutral conditions prevail. The tropical regions, that is the area immediately above and below the equator, is home to a permanent wind system called **trade winds** that move from east to west at quite low altitudes.
- II) Because of the exposure to sunlight, the sea surface in the Pacific Ocean is quite warm. When the trade winds move over the Pacific Ocean, they push these relatively warm waters, which also become lighter, in the westward direction. So, the surface waters in the eastern Pacific Ocean, that is near the South American coast, get pushed towards the west. It is replaced by the relatively cooler waters from below. The warmer surface waters continue to get pushed till they encounter a landmass in the islands at Philippines and Indonesia. They cannot be pushed any further.
- III) The result of this process is the **accumulation of relatively warm waters near Indonesia, called the Western Pacific Warm Pool, and relatively cold waters near Ecuador and Peru**. This sweeping of surface waters and its accumulation also results in a relative rise in sea levels near Indonesia. The sea levels on the eastern coast of Indonesia

happens to be about half a metre higher than the western coast of Ecuador and Peru.

- IV) The warmer surface waters near Indonesia creates a region of low-pressure area, causing the air to rise upwards. This also results in formation of clouds and heavy rainfall. The air flow also helps in building up the monsoon system which brings rainfall over India.
- V) At higher altitudes, this air starts to move towards eastern Pacific Ocean, that is, in direction opposite to the trade winds that flow at lower altitudes. This wind system, east to west near the surface, and west to east at higher altitudes, creates a loop, and reinforces the temperature gradient between the east and west Pacific Ocean.

The Abnormal behaviour

- I) In some years, for reasons that are not fully understood, the trade winds get weakened. It affects the ability of the trade winds to push warmer surface waters towards the Indonesian coast. Not enough warmer water is swept towards western Pacific Ocean.
That means the central and eastern Pacific Ocean, off the coasts of Ecuador and Peru, becoming warmer than normal. This is the El Nino phase. Because the sea-level at the Indonesian coast is higher, and the trade winds are not very strong to resist the motion, some accumulated warm water begins to flow backwards towards the South American coast under the influence of gravity. This further adds to the warming in the eastern Pacific Ocean.
- II) The air circulation loop also gets affected, as a result. That, in turn, reduces the amount of precipitation over Indonesia and neighbouring regions, and impacts the Indian monsoon as well.

- III) Exactly the opposite happens during a La Nina event. The trade winds become stronger than usual, pushing more warmer waters towards the Indonesian coast, and making the eastern Pacific Ocean colder than normal.
- IV) The amount of energy transferred during the movement of waters and winds in the different phases of ENSO system is massive. Though the most profound impacts of ENSO events are seen in the tropical regions, weather patterns across the world get affected.
- V) Both El Nino and La Nina usually begin to develop in the March to June season, reach their peak strength in the winters and then begin to dissipate in the post winter season. Both these phases typically last for a year, though La Nina, on an average, lasts longer than El Nino. While these phases alternate over a period of two to seven years, with the neutral phase thrown in between, it is possible for two consecutive episodes of El Nino or La Nina to occur.

ENSO and Climate Change

- I) **In general, El Nino has a warming effect on the planet, while La Nina tends to cool it down.** The warmest years in a decade are usually the El Nino years. The warmest-ever year on record, 2016, was part of one of the longest and strongest El Nino episodes ever, dubbed the Godzilla El Nino.
- II) It is important to note that the warming over the planet accounts only for the near-surface temperatures. It does not account for the massive amount of heat trapped in the oceans. El Nino or La Nina years do not alter the overall heat in the system, but these do influence how much of it gets sunk in the ocean.
- III) During the La Nina phase, for example, a larger than normal amount of warm surface water of Pacific Ocean is pushed towards the Indonesian coast. Here the entire column of ocean, several hundred metres deep comprises of relatively warm water. On the other side of the Pacific Ocean, relatively colder water from the deep emerges on the top. A large area over the eastern Pacific Ocean thus contains colder water. This has the ability to absorb some of the heat from the atmosphere, making the atmosphere slightly cooler. This is how La Nina produces a cooling effect.

CYCLONE BIPARJOY AND ITS NAMING

Why is it in the news?

- ★ A cyclonic storm, named **Biparjoy**, has developed in the Arabian Sea. Earlier, it was stationed about 850 km west of Goa and 900 km southwest of Mumbai. The cyclone is predicted to gain in strength over the next three days and develop into a very severe cyclonic storm by June 13.

How did Cyclone Biparjoy get its name and how are cyclones named?

- I) 'Biparjoy' was suggested by Bangladesh and the word means '**disaster**' or '**calamity**' in Bengali. The naming of cyclones is done by countries on a rotational basis, following certain existing guidelines.
- II) Worldwide, there are six **regional specialised meteorological centres (RSMCs)** and five **regional Tropical Cyclone Warning Centres (TCWCs)** mandated for issuing advisories and naming of tropical cyclones.
- III) IMD is one of the six RSMCs to provide tropical cyclone and storm surge advisories to 13 member countries under the WMO/Economic and Social Commission for Asia-Pacific (ESCAP) Panel

including Bangladesh, India, Iran, Maldives, Myanmar, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Thailand, United Arab Emirates and Yemen.

- IV) RSMC, New Delhi is also mandated to name the **Tropical Cyclones developing over the north Indian Ocean (NIO), including the Bay of Bengal (BoB) and the Arabian Sea (AS)**. So, the tropical cyclones forming over different Ocean basins are named by the concerned RSMCs & TCWCs.
- V) The **WMO/ESCAP Panel on Tropical Cyclones in 2000** agreed in principle to assign names to the tropical cyclones in these seas. After deliberations, the naming began in September 2004. This list contained names proposed by then eight member countries of WMO/ESCAP PTC, viz., Bangladesh, India, Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand. It was expanded to include five more countries in 2018 — Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen.
- VI) The list of 169 cyclone names released by IMD in 2020 was provided by these countries — 13 suggestions from each of the 13 countries. Some rules are to be followed while naming cyclones, such as:
- The proposed name should be neutral to (a) politics and political figures (b) religious beliefs, (c) cultures and (d) gender.
- Name should be chosen in such a way that it does not hurt the sentiments of any group of population over the globe.
- It should not be very rude and cruel in nature.
- It should be short, easy to pronounce and should not be offensive to any member.
- The maximum length of the name will be eight letters.

After Bangladesh, the next cyclone will be named 'Tej' based on India's suggestion.

Is it not rare for cyclones to develop in the Arabian sea?

- I) No. There are fewer number of cyclones in the Arabian Sea than the Bay of Bengal, but it is not uncommon. In fact, June is one of the favourable months for the formation of cyclones in the Arabian Sea.
- II) A cyclone is a **low-pressure system that forms over warm waters**. Usually, a high temperature anywhere means the existence of low-pressure air, and a low temperature means high-pressure wind. In fact, that is one of the main reasons why we see greater number of cyclones in the Bay of Bengal compared to Arabian Sea.
- III) Bay of Bengal is slightly warmer. Because of climate change, the Arabian Sea side is also getting warmer, and as a result, the number of cyclones in the Arabian Sea is showing an increasing trend in the recent trend.
- IV) As air warms over hotter regions, it ascends, leading to low pressure at the surface it is covering. When air cools in colder areas it descends, leading to high pressure at the surface. In a depression or low-pressure situation, the air is rising and blows in an anticlockwise direction around the low in the northern hemisphere and in a clockwise direction in the southern hemisphere. This is because of the **Coriolis effect, a result of the earth's rotation on its axis**.
- V) As warm air rises and cools, water vapour condenses to form clouds and this can lead to rains. Weather systems formed over the Bay of Bengal in the peak of summer in May are among the strongest in the North Indian Ocean region.

Warm seas present ripe conditions for the development and strengthening of cyclones and fuel these systems over the water.

- VI) Historically, the Bay of Bengal has been known for tropical cyclones. But over the years there has been an increase in cyclones forming in the Arabian Sea, as well.

Conclusion

- I) An analysis of past data of cyclones over the North Indian Ocean from 1891–2020 indicates that the frequency of extremely severe cyclonic storms has increased in recent years over the Arabian Sea since 1990, and remained the same over the Bay of Bengal.
- II) A 2021 study (‘Changing status of tropical cyclones over the north Indian Ocean’) noted that between 1982 and 2019, a “significant increasing trend in the intensity, frequency, and duration of cyclonic storms and very severe CS” was observed over the Arabian Sea.
- III) Storms intensify and sustain depending on the energy availability through heat load in oceans and moisture. The study has also highlighted that accumulated cyclone energy — total wind energy during the lifespan of a storm — in Arabian Sea has nearly tripled, indicating the extent of warming that it might have undergone in recent years.

HOW EL NINO COULD IMPACT THE WORLD’S WEATHER IN 2023-24

Why is it in the news?

- ★ Countries are racing to prepare for extreme weather later this year as the world tips into an **El Nino a natural climate phenomenon that fuels tropical cyclones in the Pacific and boosts rainfall and flood risk in parts of the Americas and elsewhere.**

More about the news

- I) According to the U.S. **National Oceanic and Atmospheric Administration (NOAA)** an El Nino is now underway. Scientists say this year looks particularly worrying. The last time a strong El Nino was in full swing, in 2016, the world saw its hottest year on record.

Meteorologists expect that this El Nino, coupled with excess warming from climate change, will see the world grapple with record-high temperatures.

- II) Experts are also concerned about what is going on in the ocean. An El Nino means that waters in the Eastern Pacific are warmer than usual. But even before this El Nino began, in May, the **average global sea surface temperature was about 0.1C (0.2F) higher than any other on record.** That could supercharge extreme weather.
- III) According to a study, this year’s El Nino could lead to global economic losses of \$3 trillion, shrinking GDP as extreme weather decimates agricultural production, manufacturing, and helps spread disease.
- IV) **Peru** has set aside \$1.06 billion to deal with El Nino’s impacts and climate change, while the **Philippines** — at risk from cyclones — has formed a special government team to handle the predicted fallout.

What causes an El Nino?

- I) El Nino is a natural climate pattern borne out of unusually warm waters in the eastern Pacific. It forms when the trade winds blowing east-to-west along the equatorial Pacific slow down or reverse as air pressure changes, although scientists are not entirely sure what kicks off the cycle.

Because the trade winds affect the sun-warmed

surface waters, a weakening causes these warm western Pacific waters to slosh back into the colder central and eastern Pacific basins.

- II) During the 2015-16 El Nino — the strongest such event on record — anchovy stocks off the coast of Peru crashed amid this warm water incursion. And nearly a third of the corals on **Australia's Great Barrier Reef** died. In too-warm waters corals will expel living algae, causing them to calcify and turn white.
- III) This build-up of warm water in the eastern Pacific also transfers heat high into the atmosphere through convection, generating thunderstorms.

How does El Nino affect the world's weather?

- I) This shift in storm activity affects the current of fast-flowing air that moves weather around the world — called the **subtropical jet stream** — pushing its path southward and straightening it out into a flatter stream that delivers similar weather along the same latitudes.
- II) During an El Nino, the southern United States experiences cooler and wetter weather, while parts of the U.S. West and Canada are warmer and drier. Hurricane activity falters as the storms fail to form in the Atlantic due to changes in the wind, sparing the United States. But tropical cyclones in the Pacific get a boost, with storms often spinning toward vulnerable islands.
- III) Some parts of Central and South America experience heavy rainfall, although the Amazon rainforest tends to suffer from drier conditions and Australia endures extreme heat, drought and bushfires.
- IV) El Nino could offer a reprieve to the Horn of Africa, which recently suffered five consecutive failed rainy seasons. El Nino brings more rain to the Horn, unlike the triple-dip La Nina which

desiccated the region.

- V) Historically, both El Nino and La Nina have occurred about every two to seven years on average, with El Nino lasting 9 to 12 months. La Nina, which takes hold when waters are cooler in the Eastern Pacific, can last one to three years.

Is climate change affecting El Nino?

- I) According to experts, while climate change is doubling down on the impacts from El Nino — layering heat on top of heat, or excess rainfall on top of excess rainfall — it's less clear if climate change is influencing the phenomenon itself.
- II) Scientists are not sure whether climate change will shift the balance between El Ninos and La Nina, making one pattern more or less frequent. If ocean temperatures are rising across the board, it is unlikely the cycle would change, as the basic mechanics behind the phenomenon stay the same.
- III) However, if some parts of the ocean are warming faster than others, that could influence how El Nino plays out by amplifying temperature differences.

MISCELLANEOUS

KHELO INDIA UNIVERSITY GAMES (KIUG)

Why is it in the news?

- ★ Recently, Prime Minister has inaugurated the **Khelo India University Games**.

More about the news

- I) **Khelo India University Games (KIUG)**, is a national level multi-sport event held in India, where athletes from universities across the country compete in different sports disciplines.
- II) The inaugural edition was held in Odisha in 2020. It is organised by **Sports Authority of India (SAI)** and Ministry of Youth Affairs and Sports along with Association of Indian Universities, Indian Olympic Association and National Sports Federation.
- III) It is the largest university level sports competition in India.
- IV) Khelo India University Games was launched after the success of the **Khelo India Youth Games**.
- V) The Khelo India University Games is intended to

identify and train capable athletes in the age group of 18 to 25 years for the Olympics and the Asian Games.

- VI) The Khelo India programme has been introduced to revive the sports culture in India at the grass-root level by building a strong framework for all sports played in our country and establishing India as a great sporting nation.
- VII) Talented players identified in priority sports disciplines at various levels by the High-Powered Committee will be provided annual financial assistance of **INR 5 lakh per annum for 8 years**.

About KIUG 2023

- I) The Khelo India University Games are being held from May 25 to June 3 in Uttar Pradesh.
- II) Over 4,750 athletes from more than 200 universities will be competing in 21 sports.
- III) The competitions will be organised in Varanasi, Gorakhpur, Lucknow and Gautam Buddha Nagar.

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