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POLITY AND GOVERNANCE

THE NEW BILLS TO OVERHAUL CRIMINAL JUSTICE SYSTEM

Why is it in the news?

- I) Recently, the Centre introduced three new Bills in the Lok Sabha that propose a complete overhaul of the country's criminal justice system. The three Bills are set to replace the **Indian Penal Code (IPC), 1860; the Code of Criminal Procedure (CrPC), 1973 and the Indian Evidence Act, 1872.**
- II) The IPC, which was introduced by the British in the year 1860, has been the bedrock of India's criminal justice system for more than 160 years. It is set to be replaced by the Bharatiya Nyaya Sanhita, 2023.
The CrPC of 1973 will be replaced by the Bharatiya Nagarik Suraksha Sanhita, 2023 whereas the Indian Evidence Act of 1872 will be replaced by the Bharatiya Sakshya Bill, 2023.
- III) The **department-related Parliamentary Standing Committee on Home Affairs** in its 146th report had recommended that there is a need for a comprehensive review of the criminal justice system of the country. Also, the **Parliamentary Standing Committee in its 111th and 128th reports** had also highlighted the need for reforms in criminal laws through the enactment of a comprehensive legislation instead of piecemeal amendments in existing acts.

Has the offence of sedition been repealed?

- I) According to the Home Minister, the new Bill on IPC completely repeals the offence of sedition which is reflected in **Section 124A of the IPC.** However, upon closer inspection, it can be seen

that the provision has been introduced under a new name and with a more expansive definition for the offence.

- II) **Part VII of the Bharatiya Nyaya Sanhita Bill** is titled 'Of Offences against the State' and includes **Section 150** which expressly criminalises 'acts endangering sovereignty unity and integrity of India.'

Section 150 of the Bill reads as —'Whoever, purposely or knowingly, by words, either spoken or written, or by signs, or by visible representation, or by electronic communication or by use of financial mean, or otherwise, excites or attempts to excite, secession or armed rebellion or subversive activities, or encourages feelings of separatist activities or endangers sovereignty or unity and integrity of India; or indulges in or commits any such act shall be punished with imprisonment for life or with imprisonment which may extend to seven years and shall also be liable to fine.'

- III) In a significant change to the existing definition of sedition, Section 150 criminalises aiding through financial means any acts of 'subversive activities or those encouraging 'feelings of separatist activities.' This is a wider definition than that recommended by the **22nd Law Commission of India** in its report.
- IV) With regards to punishment, Section 150 enhances the alternative punishment to 7 years imprisonment from the 3 years imprisonment provided under Section 124A of the IPC.
- V) The Bharatiya Nagarik Suraksha Sanhita, 2023



(replacement for CrPC) also includes a corresponding provision for Section 150 in the form of **Section 127**. The provision outlines the procedure for when an Executive Magistrate receives information concerning 'dissemination of any seditious matters' as punishable under Section 150.

What are the Key highlights of the Bills?

- I) The Bharatiya Nyaya Sanhita Bill, 2023
 - a) This Bill, which seeks to replace the IPC by repealing 22 of its provisions, proposes changes to 175 existing provisions and introduces eight new sections. It contains a total of 356 provisions.
 - b) The new provisions include — Section 109: Organised crime; Section 110: Petty organised crime or organised crime in general; Section 111: Offence if terrorist act; Section 150: Acts endangering sovereignty, unity and integrity of India and Section 302: Snatching.
 - c) The punishment for all types of gang rape will now include 20 years of imprisonment or life imprisonment. The punishment for the rape of a minor will include the imposition of the death penalty. Various offences have also been made gender neutral.
 - d) Notably, for the first time **Capital punishment has been introduced for the offence of mob lynching apart from the offence being made punishable with 7 years of imprisonment or life imprisonment.**

The **offence (Section 101)** has been defined as — 'When a group of five or more persons acting in concert commits murder on the ground of race, caste or community, sex, place of birth, language, personal belief or any other ground, each mem-

ber of such group shall be punished with death or with imprisonment for life or imprisonment for a term which shall not be less than seven years, and shall also be liable to fine.'

- e) The new Bill omits the provision for the offence of adultery. This is in line with the **Supreme Court's ruling in 2018 in the case of Joseph Shine v. Union of India**, where Section 497 of the IPC, which criminalized adultery, was held to be unconstitutional.
 - f) Similarly, pursuant to the Supreme Court unanimous reading down of **Section 377 of the IPC** as far as it criminalised same-sex relations between consenting adults in **Navtej Singh Johar v. Union of India (2018)** —the proposed legislation **does not include any punishment for 'unnatural sexual offences against men.'** Sexual offences such as rape have been defined under the Bill as an act by a man against a woman or a child.
 - g) The provision legalising marital rape has however been retained. Exception 2 to Section 63 (which defines the offence of rape) reads—'Sexual intercourse or sexual acts by a man with his own wife, the wife not being under eighteen years of age, is not rape.'
 - h) A batch of petitions challenging the constitutional validity of Exception 2 to Section 375 of the IPC, which provides an exception to non-consensual matrimonial sex from the offence of rape, is currently pending adjudication before the Supreme Court.
- II) Bharatiya Nagarik Suraksha Sanhita Bill, 2023
 - a) The Bill will replace the CrPC by repealing nine of its provisions. It proposes changes to 160 provisions and introduces nine new provisions. It contains a total of 533 sec-



tions.

- b) A **formal provision (Section 230)** has been introduced to ensure that a copy of the FIR is made available to the accused and the victim free of cost and within fourteen days from the date of production or appearance of the accused.

The Bill also permits the filing of a zero FIR from any part of the country — when a police station receives a complaint regarding an alleged offence committed in the jurisdiction of another police station, it registers an FIR and then transfers it to the relevant police station for further investigation; this is called a **zero FIR**.

- c) Other Changes to expedite the procedure include the facility for an accused person to be examined through electronic means, like video conferencing. Summary trials have been made mandatory for petty and less serious cases. The magisterial system has also been streamlined.

III) Bharatiya Sakshya Bill, 2023

- a) The Indian Evidence Act will be replaced by Bill which proposes changes to 23 provisions and introduces one new provision. It contains 170 sections in total.
- b) The Statement of Objects and Reasons of this Bill highlights that the Indian Evidence Act has been repealed because it fails to 'address the technological advancement undergone in the country during the last few decades.'
- c) The Bill permits the admissibility of an electronic or digital record as evidence and will have legal validity as documentary evidence. The ambit of what constitutes secondary evi-

dence has also been expanded to include the following: copies made from the original by mechanical processes, copies made from or compared with the original, counterparts of documents as against the parties who did not execute them and oral accounts of the contents of a document given by some person who has himself seen it.

CENTRE'S NEW BILL ON ELECTION COMMISSION MEMBERS' APPOINTMENTS

Why is it in the news?

- I) With the view of overturning the effect of the Supreme Court verdict on the appointment of the **Chief Election Commissioner (CEC) and Election Commissioners (ECs)**, recently a bill was listed to be introduced in the Rajya Sabha.
- II) The Centre's Bill **seeks to establish a committee of the Prime Minister, the Leader of Opposition in the Lok Sabha and a cabinet minister nominated by the PM for selecting members of the Election Commission of India (ECI)**.

What was the SC ruling?

- I) Recently, a five-judge bench of the Supreme Court unanimously ruled that a high-power committee consisting of the Prime Minister, Leader of Opposition in Lok Sabha, and the Chief Justice of India must pick the CEC and ECs. The judgement came in a **2015 public interest litigation**, challenging the constitutional validity of the practice of the Centre-appointed members of the Election Commission.
- II) In 2018, a two-judge bench of the SC referred the case to a larger bench since it required a close examination of **Article 324 of the Constitution**, which deals with the role of a Chief Election



Commissioner.

- a) According to the **Article 324(2)**, the Election Commission shall consist of the Chief Election Commissioner and such number of other Election Commissioners, if any, as the President may from time-to-time fix and the appointment of the Chief Election Commissioner and other Election Commissioners shall, subject to the provisions of any law made in that behalf by Parliament, be made by the President.
- b) However, since there was no law made by Parliament as prescribed by the Constitution, the Court stepped in to fill the “**constitutional vacuum.**”
- c) The Court went through the debates of the Constituent Assembly to conclude that the Founding Fathers “did not intend the executive exclusively calling the shots in the matter of appointments to the Election Commission.”
- III) The Bill now seeks to address this vacuum and set up a legislative process to make appointments to the EC.

What is a new process under the Bill?

- I) Currently, the Law Minister suggests a pool of suitable candidates to the Prime Minister for consideration. The President makes the appointment on the advice of the PM.
- II) As per the Bill, a Search Committee headed by the Cabinet Secretary and comprising two other members, not below the rank of Secretary to the government, having knowledge and experience in matters relating to elections, shall prepare a panel of five persons who can be considered for appointment.
- III) Then, as per the Bill, a Selection Committee

consisting of the Prime Minister, the Leader of Opposition in the Lok Sabha, and a Union Cabinet Minister to be nominated by the Prime Minister will appoint the CEC and other ECs.

Can the Parliament undo a decision of the Supreme Court?

- I) Parliament has the power to nullify the effect of a Court ruling by addressing the concerns flagged in the judgement. The law cannot simply be contradictory to the ruling.
- II) In this case, the arrangement prescribed by the Supreme Court was specifically because the Court noted that there was a “**legislative vacuum.**” Filling that vacuum is well within the purview of the Parliament.
- III) However, the idea of an independent body that conducts elections permeates through the judgement. The Court repeatedly stated that to be the objective of the framers of the Constitution.
- IV) The composition of the Selection Committee in the Bill raises questions on whether the process is now independent or still rigged in favour of the Executive. With the PM and a Cabinet Minister nominated by the PM in the three-member panel, the LoP is outvoted even before the process begins.

KERALA ASSEMBLY ADOPTS RESOLUTION AGAINST UNIFORM CIVIL CODE (UCC)

Why is it in the news?

- I) Recently, the **Kerala Legislative Assembly unanimously adopted a resolution** expressing its concern and anxiety over the “**Union Government move to impose a uniform civil code (UCC).**”



- II) Over the last year, several states have voiced opinions on the proposal for a common personal law code. While some states have set up panels to formulate a law, others have expressed concerns.

What does the Kerala resolution on UCC say?

- I) The Kerala Assembly resolution essentially strikes a cautious note that a proposed UCC **could harm the secular nature of the country**. The resolution also talks about **federalism** – that the Centre could make a unilateral move on the contentious issue without consulting states.
- II) The resolution states that the **Constitution refers to civil code only in its Directive Principles**. It is critical to note that the Uniform Civil Code was limited to Directive Principles. Implementation of Directive Principles is not mandatory. The court may order to enforce Fundamental rights. But the Directive Principles of Article 44 of the Constitution cannot be enforced even by the courts.
- Hence, it is essential to understand how much thought the founders of the Constitution put into their decision.

Can the Centre make a law unilaterally on UCC?

- I) The issue of personal laws falls in **List III –the Concurrent List of the Seventh Schedule to the Constitution**. While subjects in the Union lists fall within the purview of the Parliament, states can legislate on subjects in the State List.
- II) For entries in the Concurrent List, **Article 162 of the Constitution** gives state governments the power to legislate on subjects where a central law does not occupy the field. If there is a central law, it automatically gains precedence over the state law on the subject.
- According to Article 162 of the Constitution,

extent of executive power of State Subject to the provisions of this Constitution, the executive power of a State shall extend to the matters with respect to which the Legislature of the State has power to make laws Provided that in any matter with respect to which the Legislature of a State and Parliament have power to make laws, the executive power of the State shall be subject to, and limited by, the executive power expressly conferred by the Constitution or by any law made by Parliament upon the Union or authorities thereof Council of Ministers.

- III) According to the Entry 5 of the Concurrent lists “Marriage and divorce; infants and minors; adoption; wills, intestacy and succession; joint family and partition; all matters in respect of which parties in judicial proceedings were immediately before the commencement of this Constitution subject to their personal law.”
- This allows states the power to legislate on the subject but only in the absence of a central law.
- IV) The Hindu Marriage Act, 1955; the Shariat Act of 1937, are central legislations on Hindu and Muslim personal laws. When the Hindu personal laws were codified in 1955, it replaced several provincial legislations that existed on the issue.

Does that mean states can bring their own personal laws again?

- I) State laws on the issues mentioned in Entry 5 of the Concurrent List will not have precedence over central legislation. On specific areas not covered by central legislation, states can legislate.
- But central legislation already covers all aspects of marriage, divorce, inheritance and succession. However, it does not prevent states from exploring the feasibility of such a law.

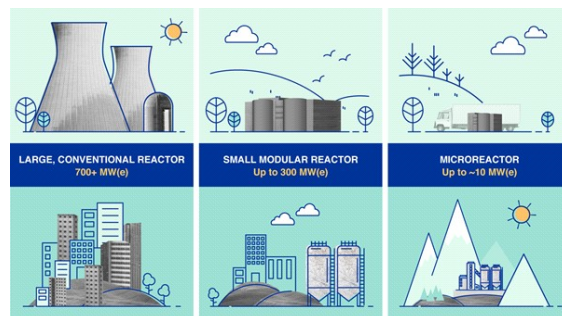


- II) Recently, a bench headed by Chief Justice of India refused to hear a batch of petitions challenging the move by certain states to set up committees to explore the feasibility of implementing a uniform civil code in their respective administrative jurisdictions.
- a) According to it, Article 162 of the Constitution indicates that the executive power of a State extends to matters with respect to which the Legislature of the State has power to make laws. In view of the provisions of Entry 5 of the Concurrent List of the Seventh Schedule, the constitution of a committee per se cannot be challenged as ultra vires.
- b) Take the case of Uttarakhand. Last year, it set up a five-member panel headed by former Supreme Court judge Ranjana Desai for preparing a draft on the implementation of a uniform civil code in the state. The committee is learnt to have finalised a draft framework.
- c) Last year, the Gujarat government said it would form its own committee for the implementation of the UCC. Also, Madhya Pradesh Chief Minister made a similar announcement.
- d) Recently, this year, Uttar Pradesh Deputy CM said the Uttar Pradesh government was thinking seriously in the direction of the implementation of the Uniform Civil Code in the state.
- II) The Nagaland Tribal Council has also written to the Law Commission that if implemented, the UCC will dilute the provisions of **Article 371A of the Constitution which states special provisions for the state.**
- III) The ruling party in Tamil Nadu, has also opposed the UCC. The party wrote to the 22nd Law Commission this year that a UCC could violate an individual's religious freedom.

SMALL MODULAR NUCLEAR REACTORS TO HELP INDIA ACHIEVE NET-ZERO

Why is it in the news (Context)?

- I) The world's quest to decarbonise itself is guided, among other things, by the **U.N. Sustainable Development Goal 7**: to ensure access to affordable, reliable, sustainable and modern energy for all.
- II) Since the world still depends on fossil fuels for 82% of its energy supply, decarbonising the power sector is critical; the share of electricity in final energy consumption will also increase by 80-150% by 2050.



The recent uptick in coal consumption in Europe, despite the increase in solar and wind power, suggests that reliable, 24/7 low-carbon electricity resources are critical to ensure the deep decarbonisation of power generation, along with grid stability and energy security.

Which other states have opposed the idea of UCC?

- I) Recently, Mizoram Assembly unanimously adopted a resolution opposing any move to implement the UCC in the country. Mizoram's concerns about the proposed common code are primarily that it could clash with the customs and social practices of Mizo's in the state.

III) **Small modular reactors – a type of nuclear reactor** – can be helpful to India in this regard.

What are the Challenges of decarbonisation?

- I) The transition from coal-fired power generation to clean energy sources poses major challenges for all countries, and there is a widespread consensus among policymakers in several countries that **solar and wind energy alone will not suffice to provide reliable and affordable energy for everyone.**
- II) In decarbonised electricity systems with a significant share of renewable energy, the addition of at least one firm power-generating technology can improve grid reliability and reduce costs.
- III) According to the **International Energy Agency**, the demand for critical minerals like lithium, nickel, cobalt, and rare earth elements, required for clean-energy production technologies, is likely to increase by up to 3.5x by 2030. This jump poses several global challenges, including the large capital investments to develop new mines and processing facilities.
- IV) The environmental and social impacts of developing several new mines and plants in China, Indonesia, Africa, and South America within a short time span, coupled with the fact that the top three mineral-producing and -processing nations control 50-100% of the current global extraction and processing capacities, pose geopolitical and other risks.

What are the issues with nuclear power?

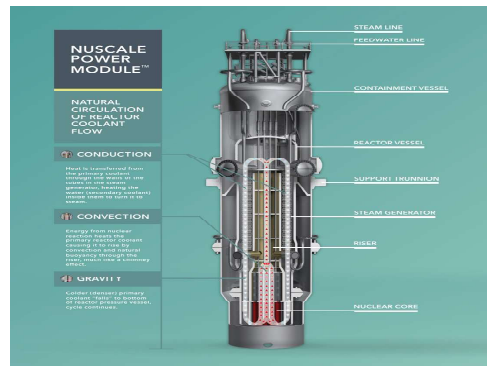
- I) **Nuclear power plants (NPPs)** generate 10% of the world’s electricity and help it avoid 180 billion cubic metres of natural gas demand and 1.5 billion tonnes of CO₂ emissions every year. Any less nuclear power could make the world’s

journey towards net-zero more challenging and more expensive.

- II) NPPs are efficient users of land and their grid integration costs are lower than those associated with **variable renewable energy (VRE)** sources because NPPs generate power 24x7 in all kinds of weather. Nuclear power also provides valuable co-benefits like high-skill jobs in technology, manufacturing, and operations.
- III) However, conventional NPPs have generally suffered from time and cost overruns. As an alternative, several countries are developing **small modular reactors (SMRs) – nuclear reactors with a maximum capacity of 300 MW** – to complement conventional NPPs. SMRs can be installed in decommissioned thermal power plant sites by repurposing existing infrastructure, thus sparing the host country from having to acquire more land and/or displace people beyond the existing site boundary.

What are the advantages of SMRs?

- I) SMRs are designed with a **smaller core damage frequency (the likelihood that an accident will damage the nuclear fuel) and source term (a measure of radioactive contamination)** compared to conventional NPPs. They also include enhanced seismic isolation for more safety.



(A diagram depicting a NuScale reactor)

- II) SMR designs are also simpler than those of

conventional NPPs and include several passive safety features, resulting in a lower potential for the uncontrolled release of radioactive materials into the environment.

- III) The amount of **spent nuclear fuel** stored in an SMR project will also be lower than that in a conventional NPP. Studies have found that SMRs can be safely installed and operated at several brownfield sites that may not meet the more stringent zoning requirements for conventional NPPs. The power-plant organisation can also undertake community work, as the Nuclear Power Corporation did in Kudankulam, Tamil Nadu, before the first unit was built.
- IV) SMRs are designed to operate for 40-60 years with capacity factors exceeding 90%. Since the first-of-a-kind SMR projects will be commissioned by 2030, the current capital costs for SMRs in the U.S. are about \$6,000 per MW. The overnight costs will come down rapidly after 2030, especially once the many SMR projects that have already been ordered by European countries come online by 2035.
- V) The costs for India will decline steepest when reputed companies with experience in manufacturing NPPs, such as BHEL, L&T or Godrej Industries, manufacture SMRs for India, and the world with technology transfer from abroad. This will allow **zero-carbon nuclear power** to expand by attracting **“green” finance from the Green Climate Fund and international investors**, without unduly burdening the government exchequer. This at least was the reason SMRs were included in the U.S.-India joint statement after Prime Minister Narendra Modi met U.S. President Joe Biden in June 2023.

What is the need for an efficient regulatory regime?

- I) Accelerating the deployment of SMRs under

appropriate international safeguards, by implementing a coal-to-nuclear transition at existing thermal power-plant sites, will take India closer to net-zero and improve energy security because **uranium resources are not as concentrated as reserves of critical minerals**.

Most land-based SMR designs require low-enriched uranium, which can be supplied by all countries that possess uranium mines and facilities for such enrichment if the recipient facility is operating according to international standards.

- II) Since SMRs are mostly manufactured in a factory and assembled on site, the potential for time and cost overruns is also lower.

Further, serial manufacture of SMRs can reduce costs by simplifying plant design to facilitate more efficient regulatory approvals and experiential learning with serial manufacturing.

- III) However, an efficient regulatory regime comparable to that in the civil aviation sector – which has more stringent safety requirements – is important if SMRs are to play a meaningful role in decarbonising the power sector. This can be achieved if all countries that accept nuclear energy direct their respective regulators to cooperate amongst themselves and with the International Atomic Energy Agency to harmonise their regulatory requirements and expedite statutory approvals for SMRs based on standard, universal designs.

How can SMRs be integrated with national grid?

- I) India’s **Central Electricity Authority (CEA)** projects that the generation capacity of **coal-based thermal power plants (TPPs)** in India must be increased to 259,000 MW by 2032 from the current 212,000 MW, while enhancing the



generation capacity of VRE sources to 486,000 MW from 130,000 MW.

Integrating this power from VRE sources with the national grid will require additional energy storage – to the tune of 47,000 MW/236 GWh with batteries and 27,000 MW from hydroelectric facilities.

- II) The CEA also projects that TPPs will provide more than half of the electricity generated in India by 2031-2032 while VRE sources and NPPs will contribute 35% and 4.4%, respectively.
- III) Since India has committed to become net-zero by 2070, the country's nuclear power output needs a quantum jump. Since the large investments required for NPP expansion can't come from the government alone, attracting investments from the private sector (in PPP mode) is important to decarbonise India's energy sector.

What are the legal and regulatory changes required?

- I) The **Atomic Energy Act** will need to be amended to allow the private sector to set up SMRs. To ensure safety, security, and safeguards, control of nuclear fuel and radioactive waste must continue to lie with the Government of India.
- II) The government will also have to enact a law to **create an independent, empowered regulatory board** with the expertise and capacity to oversee every stage of the nuclear power generation cycle, including design approval, site selection, construction, operations, certification of operators, and waste reprocessing.
- III) The security around SMRs must remain under government control, while the Nuclear Power Corporation can operate privately-owned SMRs during the hand-holding process.
- IV) The **India-US '123 agreement'** allows India to

develop a strategic reserve of nuclear fuel to guard against supply disruptions. It also permits India to set up a facility to reprocess spent fuel from SMRs under safeguards of the International Atomic Energy Agency (IAEA). Hence, the Indian government can negotiate with foreign suppliers to reprocess nuclear waste from all SMRs in a state-controlled facility under IAEA safeguards. The reprocessed material may also be suitable for use in other NPPs in India that use imported uranium.

- V) Finally, the **Department of Atomic Energy** must improve the public perception of nuclear power in India by better disseminating comprehensive environmental and public health data of the civilian reactors, which are operating under international safeguards, in India.

THE CHIPS ACT OF THE U.S.

Why is it in the news?

- ★ Recently, the United States' Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022 completed one year as a law.

What do you mean by Semiconductors?

- I) Semiconductors are the thumbnail-sized building blocks of almost every modern electronic device from smartphones to connected devices in the **Internet of Things (IoT)**.
- II) The basic component of a semiconductor chip is a sliver of silicon, which is etched with billions of microscopic transistors and projected to specific minerals and gases, forming patterns to control the flow of current while following different computational instructions.

What is the Current status of Semiconductor Industry?

- I) The global semiconductor industry is currently valued at \$500-\$600 billion and caters to the



global electronics industry currently valued at about \$3 trillion.

- II) The chip-making industry is a highly-concentrated one, with the big players being Taiwan, South Korea and the U.S. among others. 90% of 5nm (nanometre) chips are mass-produced in Taiwan, by the Taiwan Semiconductor Manufacturing Company (TSMC).
- III) U.S.-China tensions over Taiwan, and the supply chain blockages owing to the Russia-Ukraine conflict have led major economies to enter the chip-making sector with a renewed push.

IV) India:

- a) India's electronics and semiconductor products manufacturing sector has witnessed a quantum growth in the last almost a decade.
- b) In 2014 some 92% of the mobile devices sold in the country were imported while in 2022 some 97% of mobile devices were manufactured in the country.

What is CHIPS Act?

- I) The Act authorises \$52.7 billion over five years to boost American competitiveness, innovation and national security in semiconductors.
- II) As industrial policy has become a default policy of choice for nation-states, the Act provides a clear window into the capabilities and structures needed to execute such policies.

What India can learn from the CHIPS Act?

I) Cooperation & coordination between different arms of the government:

a) US:

- ◆ Four separate funds have been created for the execution of the Act.
- ◆ The Department of Commerce is the lead agency administering the \$50 billion CHIPS for

America Fund for accelerating semiconductor manufacturing and research.

- ◆ But there are also allocations for the Department of Defence for defence-unique technologies, the Department of State to coordinate with foreign partners on semiconductor supply chain security, and the National Science Foundation to promote the growth of the semiconductor workforce.
- ◆ This structure highlights the priority accorded to semiconductors.

b) India:

- ◆ India's semiconductor industrial policy is being managed mainly by the **Ministry of Electronics and Information Technology (MeitY)**.
- ◆ The schemes for manufacturing, assembly, displays and compound semiconductors have been assigned to an independent division called **India Semiconductor Mission (ISM)** within a non-profit company set up by MeitY.
- ◆ The policy for chip design is being administered by C-DAC, an R&D organisation again under the MeitY.
- ◆ The ISM Committee comprises largely MeitY bureaucrats. While the committee is a good beginning, ensuring that the semiconductor strategy survives beyond government terms requires a whole-of-government approach along the lines of the CHIPS Act.

II) Companies seeking funding:

a) US:

- ◆ Companies seeking funding under the CHIPS Act are required to submit workforce development plans.
- ◆ A nodal agency, the **National Semiconductor Technology Centre (NSTC)**, has been created to collaborate with industry and educational institutions. This must become a focus area for India as well.



- ◆ A competent semiconductor engineering workforce is India's quickest route to gaining leverage in the semiconductor industry.

b) India:

- ◆ Keeping this in mind, MeitY has begun a **Chips2 Startup (C2S) programme**, collaborating with over 100 universities and colleges. Like the NSTC, C2S aims to scale up workforce expansion by supporting existing quality training programmes.
- ◆ In the Indian case, however, many private training centres prepare chip designers outside the conventional university system.
- ◆ Hence, it is important for C2S to focus on certifying good programmes of universities or private training institutes rather than running them.

III) Structuring accountability:

a) US:

- ◆ The CHIPS Act has also created a **CHIPS Program Office (CPO)** to lay down the guidelines for assessing the financial viability of a project.
- ◆ The CPO is hiring Investment Principals and Financial Structuring Directors to catalyse private sector investments.

b) India:

- ◆ India also has guidelines for assessing the viability of proposals, a lot remains to be done concerning transparency.
- ◆ The government needs to put out regular monthly progress reports on its semiconductor programme.
- ◆ This will help manage expectations and instil reassurance in India's plans.

IV) Research in future technologies:

a) US:

- ◆ The CHIPS Act is not just about bringing semiconductor manufacturing back to the U.S.

The Department of Commerce also invests \$11 billion focused on future research.

- ◆ Packaging was considered a labour-intensive and low-margin component of the supply chain only a few years ago.
- ◆ However, as downscaling transistors becomes difficult, researchers have zoomed in on advanced packaging techniques that combine multiple semiconductors in a multi-dimensional arrangement on a single substrate, all in one package.

b) India:

- ◆ In India's semiconductor strategy, advanced manufacturing and packaging research are not priority areas of focus.
- ◆ This makes sense to the extent that India is currently nowhere in the picture in high-volume chip manufacturing.
- ◆ However, the lesson from the CHIPS Act is that India's strategy needs to identify and invest in research on future technologies.

Way Forward

- I) The CHIPS and Science Act is a useful template for industrial policy in semiconductors.
- II) The administrative capacity that the U.S. has marshalled together institutionalised the Act in a manner that will ensure its continuity beyond governments.
- III) India's semiconductor strategists should study the positives and drawbacks of this Act deeply. Nothing matters more in industrial policy than effective implementation.

**SKILL INITIATIVE IN NORTH-EAST
LAUNCHED**

Why is it in the news?

Recently the skill initiative "Transforming Lives,



Building Futures: Skill Development and Entrepreneurship in the North-East” was launched.

More about the news

- I) The initiative was launched with financial allocation of Rs 360 crore to benefit the 2.5 lakh youth.
- II) It will create a robust, skill-centric and industry ready ecosystem in the **North-Eastern Region (NER)**.
- III) The Skill Development and Entrepreneurship in North-East initiative lays emphasis on alignment of courses with **National Skills Qualifications Framework (NSQF)** bolstered by a digital infrastructure to develop well-rounded professionals.

What are the key features of the initiative?

- I) Two Lakh skill training under **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**.
- II) 30,000 Apprenticeship Engagement under **National Apprenticeship Promotion Scheme (NAPS)**.
- III) 20,000 to be skilled under **Jan Shikshan Sansthan (JSS)**.
- IV) Quality enhancement of ITIs under **skill strengthening for industrial value enhancement (STRIVE)**.
- V) Strengthening of Polytechnics.
- VI) Special projects will be taken up for the special needs of the North-East region under **Skills Acquisition and Knowledge Awareness for Livelihood (SANKALP)**.
- VII) Skill India International Centre to be set up to promote overseas job opportunities.

MEDIATION BILL, 2023

Why is it in the news?

- ★ Recently, the Parliament has passed

the **Mediation Bill 2023** to reduce pendency of court cases.

- II) The bill was first introduced in Rajya Sabha in 2021 and referred to the parliamentary committee on law and personnel for its detailed study.
- III) Following the report of the committee, the government made certain amendments to the Mediation Bill.

What do you mean by Mediation?

- I) Mediation is an alternative dispute resolution (ADR) method in which a neutral third party, known as a mediator, helps parties in a dispute reach a mutually agreeable resolution.
- II) Mediation is considered a more cost-effective, efficient, and less adversarial method compared to traditional court litigation.

What are the Key Provisions of the Bill?

- I) Its aim is to promote, encourage, and facilitate mediation, especially institutional mediation, to resolve disputes, commercial and otherwise.
- II) Parties must attempt to settle civil or commercial disputes by mediation before approaching any court or certain tribunals. Even if they fail to reach a settlement through pre-litigation mediation, the court or tribunal may at any stage refer the parties to mediation if they request for the same.
- III) The Bill contains a list of disputes which are not fit for mediation. These include disputes relating to claims against minors or persons of unsound mind, involving criminal prosecution, and affecting the rights of third parties. The central government may amend this list.
- IV) Mediation proceedings will be confidential, and must be completed within 180 days (may be extended by 180 days by the parties).



- V) Mediators may be appointed by the parties by agreement, or a mediation service provider (an institution administering mediation).
- VI) The central government will establish the Mediation Council of India. The Council will consist of a chairperson, two full-time members (with experience in mediation or ADR), three ex-officio members (including the Law Secretary, and the Expenditure Secretary), and a part-time member from an industry body. Functions of the Council include registration of mediators, and recognising mediation service providers and mediation institutes (which train, educate, and certify mediators).
- VII) Agreements resulting from mediation (other than community mediation) will be final, binding, and enforceable in the same manner as court judgments. They may be challenged on grounds of fraud, corruption, impersonation, or relating to disputes not fit for mediation.
- VIII) Community mediation may be attempted to resolve disputes likely to affect the peace and harmony amongst residents of a locality. It will be conducted by a panel of three mediators.

What are the amendments made on committee recommendations?

- I) Voluntary Pre-litigation: The amended bill makes pre-litigation voluntary, leaving parties with the choice to participate in a pre-litigation mediation process instead of litigating. The change is in line with the suggestions of the standing committee, which had said that mediation must remain voluntary, and that restraining parties from approaching courts or tribunals may amount to denial of access to justice.
- II) Reducing the Time Period: While the 2021 draft

contemplated a period of 180 days with a further extension for an additional period of 180 days with the consent of parties, the amendment brings this down to 180 days in total. The parliamentary panel had recommended reducing the time limit from 180 days to 90 days, and further an extension period of 60 days.

STUDY IN INDIA PORTAL

Why is it in the news?

- ★ Recently, the **Study in India (SII) Portal** was launched to re-establish India as a global hub of education.

About Study in India Portal

- I) Study in India Portal is a dedicated website that will provide comprehensive information about the **Indian Higher Education Institutions (HEIs)**.
- II) The website will illustrate academic programs i.e., undergraduate (UG), postgraduate (PG), Doctoral level programs as well as courses in Indian Knowledge System like Yoga, Ayurveda, classical arts etc.
- III) The website-portal will present information about the academic facilities, research support, and related information. The Website will have the provision for students to apply in more than one institute/course of their choice.
- IV) The portal will provide an integrated one-stop solution for student registration and visa application process.

What is its significance?

- I) Portal will help in making India a preferred destination for higher education.
- II) SII will establish a strong international footprint of brand 'India' in the education sphere.
- III) The presence of international students will also



benefit the domestic students by connecting them more closely to the globalizing world and preparing them better from the global workplace.

THE PUSH TO BRING THE PRIVATE SECTOR INTO MINERAL EXPLORATION

Why is it in the news?

- I) Recently, the Parliament passed the **Mines and Minerals (Development and Regulation) Amendment Bill, 2023**, in a bid to attract private sector investment in the exploration of critical and deep-seated minerals in the country.
- II) The Bill puts six minerals, including lithium used in electric vehicle batteries and other energy storage solutions into a list of “**critical and strategic**” minerals. The exploration and mining of these six minerals, previously classified as atomic minerals, were restricted to government-owned entities.

How much of its critical and deep-seated minerals does India import?

- I) The Russian invasion of Ukraine over the past year has made it clear more than ever how global supply chains of a range of commodities are vulnerable to shocks leading to a lack of availability and skyrocketing prices.
- II) A variety of minerals, besides those used in creating fuel, are crucial to a country’s manufacturing, infrastructure, and advancement.

Moreover, the clean energy transitions of countries including India, seeking to meet their net-zero emission goals, are contingent on the availability of critical minerals such as **lithium, which has also been called ‘white gold’**, and others including cobalt, graphite, and **rare earth**

elements (REEs).

These are also crucial for the manufacture of semiconductors used in smart electronics; defence and aerospace equipment; telecommunication technologies and so on.

- III) According to the World Bank, the demand for critical metals such as lithium (Li) and cobalt is expected to rise by nearly 500% by 2050.

- IV) The lack of availability of such minerals or the concentration of their extraction or processing in a few geographical locations leads to import dependency, supply chain vulnerabilities, and even disruption of their supplies.

For instance, China has majority ownership of cobalt mines in the **Democratic Republic of Congo, where 70% of the world’s cobalt is mined**. China also has by far the largest amount of reserves of Rare Earth Elements (REEs) of any country in the world, followed by Vietnam, Brazil and Russia; it produces of 65% of the world’s REEs, which are crucial in making wind turbines, solar panels etc. **India, meanwhile, has 6% of the world’s rare earth reserves but it only produces 1% of global output.**

- V) Major economies including the United States, United Kingdom, and European Union in the recent past have moved to secure supply-chain resilience for such minerals and to reduce reliance for their availability on countries like China.

This has been done by way of the **Mineral Security Partnership (MSP)**, which India became party to this year. Countries like the U.S., Australia, Japan, and the EU bloc have also created lists of critical minerals based on their specific economic needs and the supply risk of the minerals.

- VI) Recently, the Ministry of Mines came out with a



list of 30 minerals critical to the country's economic development and national security. However, India is highly dependent on imports for a majority of minerals on this list.

- a) For instance, India is 100% import-dependent on countries including China, Russia, Australia, South Africa, and the U.S. for the supply of critical minerals like lithium, cobalt, nickel, niobium, beryllium, and tantalum.
- b) In the case of lithium, India's imports were worth \$22.15 million in 2021-2022. As for the finished product lithium-ion batteries used in electric vehicles, India imported 5,486.18 lakh units of lithium-ion batteries, spending \$1,791.35 million.
- c) Also, for deep-seated minerals like gold, silver, copper, zinc, lead, nickel, cobalt, platinum group elements (PGEs) and diamonds, which are difficult and expensive to explore and mine as compared to surficial or bulk minerals, India depends largely on imports. For instance, in 2022-23, India imported close to 12 lakh tonnes of copper (and its concentrates) worth over Rs. 27,000 crores. It imported 32,298.21 tonnes of Nickel worth Rs. 6,549.34 crore.

Why is private sector participation needed for the exploration of critical and deep-seated minerals?

- I) According to organisations such as the **Atomic Minerals Directorate for Exploration and Research** and the **Centre for Social and Economic Progress (CESP)**, India's unique geological and tectonic setting is conducive to hosting potential mineral resources and that its geological history similar to the mining-rich regions of Western Australia and Eastern Africa.

II) However, the primary step to discovering mineral resources and eventually finding economically viable reserves is mineral exploration, which comes in various stages before mining.

With each stage of mineral exploration, starting from **reconnaissance (preliminary survey to determine mineral resources)**, followed by **prospecting (exploring, locating, or proving mineral deposits)**, and **detailed exploration (estimating of mineral ore and grade)**, the knowledge of about mineral's availability improves.

The stages of exploration are also divided as per the United Nations Framework for Classification of Resources into **G4 (Reconnaissance)**, **G3 (Prospecting)**, **G2 (General Exploration)**, and **G1 (Detailed Exploration)**.

III) It is estimated that India has explored just 10% of its Obvious Geological Potential (OGP), less than 2% of which is mined and the country spends less than 1% of the global mineral exploration budget.

Not many significant mineral discoveries have taken place in the country in the last couple of decades and a majority of exploration projects have been carried out by the government agency Geological Survey of India and other PSUs like Mineral Exploration Corporation Limited (MECL), with very little private sector participation.

IV) India's mining policy had kept greenfield exploration of minerals out of the purview of private-sector explorers for some years which meant they could only get licences to further prospect and mine resources that had been explored by a government entity. Companies also saw a lack of adequate incentives.

V) Exploration requires techniques like aerial

surveys, geological mapping, and geochemical analyses and is a highly specialised, time-intensive and monetarily risky operation with less than 1% of explored projects becoming commercially viable mines.

- VI) According to the Union Minister of Mines, while Indian PSUs were in a relatively better position to explore surficial and bulk minerals like coal and iron ore, they had not fared well when it came to deep-seated and critical minerals owing to the high expenditure and long duration of risky projects while being under pressure to increase the supply of bulk minerals.

The New Bill seeks to bring exploration processes in India at par with that of developed countries by getting private sector capacity into exploration, for instance, Australia and multiple other jurisdictions globally, private mining firms called junior explorers, engage in risk-taking by putting their expertise and limited financials into explorations to find potential mines. Once discovered, these private companies can sell these to bigger mining companies who then develop and run these mines. This helps multiply exploration projects and accelerate the pace of exploration owing to private participation.

Has India's existing mining policy been conducive to private participation?

- I) The **MMDR Act 1957**, the primary legislation governing mining in the country has been amended several times since its enactment including recently in 2015, 2020, and 2021.
- II) Though India recognised the need for private and foreign investment in the mining sector including mineral exploration back in 1993, amending the Act next year to allow interested parties to apply for mineral concessions through a **First Come**

First Served (FCFS) basis.

Later, private companies could also get **Prospecting Licences (PL) or Mining Leases (ML)**, and could even apply for early-stage or greenfield exploration through **Reconnaissance Permits (RPs)**. Holders of RPs or PLs were also given the preferential right to get a PL or ML respectively. This encouraged Private investment in the sector between 1993 and 2011, with companies including Rio Tinto India, Hindustan Zinc, and De Beers India, engaging in exploration projects for diamonds, zinc, copper, and base and bulk metals.

- III) However, mineral exploration in the country halted almost completely after 2010 as none of the states issued RPs and PLs to any company. In the early 2010s, as the mining industry seemed to be gathering momentum, concerns about favouritism and misuse started coming up in the allocation of 2G spectrum and natural resources like coal blocks and the Supreme Court intervened.

- IV) The Court ruled in 2012 that the FCFS method of resource allocation was vulnerable to manipulation, favouritism, and misuse, asking the government to adopt a transparent and reasonable method. It noted that an auction which was duly published and fair would be the best method for resource distribution.

It also held later that auctions were not the only available method and the test for an efficient method should be that it is "fair, reasonable, non-discriminatory, transparent, non-capricious, unbiased, and without favouritism or nepotism, in pursuit of promoting healthy competition and equitable treatment".

- V) In 2015, the MMDR Act was amended so that

private companies could get either **Mining Leases or Composite Licences (CLs)** which are prospecting licence-cum-mining leases, through government auctions. However, owing to the usage of the **Evidence of Mineral content (EMT)** rule to keep the process fair, only projects whose early-stage exploration was already done by the government could be auctioned, meaning the private sector was once again kept out.

- VI) However, the amendment also allowed private firms to get registered as exploration agencies and get funding for G4 to G1 levels of exploration from the authority called the **National Mineral Exploration Trust (NMET)** with an incentive of 10% of the approved costs reimbursed. However, this also did not attract significant private-sector participation. In all, the NMET approved 118 projects for G4 exploration and just one was carried out by a private agency.

How does the Mines and Minerals Bill 2023 aim to encourage private players?

- I) The Bill omits at least six previously mentioned atomic minerals from a list of 12 which cannot be commercially mined. Being on the atomic minerals list, the exploration and mining of these six- lithium, beryllium, niobium, titanium, tantalum, and zirconium, was previously reserved for government entities.
- II) The Act prohibits pitting, trenching, drilling, and sub-surface excavation as part of reconnaissance, which included mapping and surveys. The Bill allows these prohibited activities.
- III) The Bill also proposes a new type of license to encourage reconnaissance-level and or prospective stage exploration by the private sector. This exploration licence (EL), for a period

of five years (extendable by two years), will be granted by the state government by way of competitive bidding.

In these auctions, eligible explorers would bid on their desired percentage share of the auction premium which will be paid eventually by a mining lease holder up the sale of a successfully explored mind by the state government. The lowest bid by an explorer would win the EL auction. This license will be issued for 29 minerals specified in the Seventh Schedule of the amended Act, which would include critical, strategic, and deep-seated minerals.

- IV) It also specifies the maximum area for exploration; activities in up to 1,000 square kms will be allowed under a single exploration licence. It also states that the licensee will be allowed to retain up to 25% of the originally authorised area after the first three years after submitting a report to the state government stating reasons for retention of the area.
- V) While most auctions are reserved for state governments in the Act, the Bill also reserve the conduct of auctions for composite licence and mining lease for specified critical and strategic minerals for the central government.

What are some of the possible issues with the Bill's proposals?

- I) The primary way of generating revenue for a private company that has an exploration license would be a share of the premium paid by the miner, which would come only after a successfully discovered mine is auctioned and operationalised.
- II) Trends show that such a process could take years to materialise owing to government timelines for clearances or may not happen at all considering



depending on the complexity of the deposit and geography.

For example, the **Ghorabhurani-Sagasahi Iron Ore Mine**, a greenfield captive mine, which was auctioned in 2016. Even though it was a bulk mineral, production started only in late 2021, taking close to six years to receive the necessary clearances.

Further, the explorer would not know how much revenue they will receive as the auction premium would be known only when a mine is successfully auctioned.

- III) Another issue with the auction method of allocation for exploration licences is that while it's feasible to auction something that has a known value (like a spectrum or a discovered mineral deposit), it is difficult to auction something for which exploration has not begun.

AMRIT BHARAT STATION SCHEME

Why is it in the news?

Recently, Prime Minister Narendra Modi laid the foundation stone for the redevelopment of 508 railway stations as a part of the **Amrit Bharat Stations scheme**.

Plan for the Amrit Stations

- I) All the Amrit stations will be built to meet the standards of green buildings. Government visions that by 2030, India will be a country whose railway network will run on net zero emissions.
- II) Every railway station will be a symbol of the modern aspirations of the country along with its ancient heritage.
- III) Jaipur Railway Stations will have glimpses of Hawa Mahal and Amer Fort from Rajasthan, Jammu Tawi Railway Station in Jammu and

Kashmir will be inspired by the famous Raghunath Mandir and Dimapur Station of Nagaland will showcase the local architecture of 16 different tribes from the region.

About Amrit Bharat Station Scheme

- I) The scheme is set to transform and revitalize 1309 railway stations across the nation.
- II) It envisages to take up 76 railway stations over Central Railway for upgradation/modernization and out of that, foundation stone will be laid at 38 stations.
- III) It involves preparation of Master Plans and their implementation in phases to improve the amenities at the stations like improvement of station access, circulating areas, waiting halls, toilets, lifts/escalators as necessary, cleanliness, free Wi-Fi, kiosks for local products through schemes like 'One Station One Product', better passenger information systems, Executive Lounges, nominated spaces for business meetings, landscaping etc.
- IV) The scheme also envisages improvement of building, integrating the station with both sides of the city, multimodal integration, amenities for Divyangjans, sustainable and environment friendly solutions, provision of ballastless tracks, 'Roof Plazas' as per necessity, phasing and feasibility and creation of city centres at the station in the long term.

REVISED MANUFACTURING RULES FOR DRUG FIRMS

Why is it in the news?

- I) Recently, the government directed all pharmaceutical companies in the country to implement the revised **Good Manufacturing Practices (GMP)**, bringing their processes at par



with global standards.

- II) Larger companies with a turnover of over Rs 250 crore have been asked to implement the changes within six months, while medium and small-scale enterprises with turnover of less than Rs 250 crore have been asked to do so within a year.
- III) This comes at a time when India is promoting itself as the global manufacturing hub for generic medicines.

What was the need for the improved standards?

- I) The implementation of the new norms will **bring the Indian industry on par with global standards.**
- II) There has been a string of incidents where other countries have reported alleged contamination in India-manufactured syrups, eye-drops, and eye ointments. The deaths of 70 children in the Gambia, 18 children in Uzbekistan, three persons in the United States, and six deaths in the Cameroon have been linked to these products.
- III) A risk-based inspection of 162 manufacturing units by the government found several deficiencies — incoming raw materials not being tested before use, product quality not being reviewed, absence of quality failure investigation, infrastructure deficiency to prevent cross-contamination, faulty design of manufacturing and testing areas, missing qualified professionals, and poor documentation.

This is also important seeing only 2,000 of the 10,500 drug manufacturing units in the country at present meet global standards, being WHO-GMP certified.

- IV) The improved standards will ensure that pharmaceutical companies follow standard processes, quality control measures, and do not cut corners, improving quality of medicines

available in India as well as sold in global market.

- V) Implementation of the revised good manufacturing practices (GMP) as listed in the 2018 draft schedule M of the drugs and cosmetics rules was one of the measures suggested. The stakeholders had also suggested creating a country-wide IT platform that can bring in uniformity across states on processes followed for licensing and inspection, among others, ensuring that the quality of medicine manufactured anywhere in the country would be the same.

What are the major changes?

- I) The revised GMP guidelines focus on quality control measures, proper documentation, and IT backing to maintain quality of medicines produced.
- II) The new guideline introduces pharmaceutical quality system, quality risk management, product quality review, and validation of equipment. This will mean companies will have to carry out regular quality reviews of all its products, verify consistency of the quality and the processes, thorough investigation of any deviation or suspected defect, and implementation of any preventive actions. It also suggests a change control system to evaluate all changes that may affect the production or quality of the product.
- III) The companies will also have to carry out stability studies as per the climate conditions. Most companies at present keep their samples stored under recommended conditions and test for various parameters from time to time. Now, they will be needed to mandatorily maintain the drugs in a stability chamber, set the proper



temperature and humidity, and carry out an accelerated stability test as well.

- IV) The guidelines also state that companies should have GMP-related computerised systems, which ensure that there is no tampering of data related to the processes. Such GMP systems will prevent unauthorised access and changes to the data. There will also be controls against omission of data. In case sensitive data is entered manually to the system, there will be additional checks to validate the accuracy of the data. Backups would also be created to ensure there is no loss of data.
- V) In addition, the new schedule M also lists out the requirements for additional types of products, including biological products, agents with radioactive ingredients, or plant-derived products. The new schedule also lists the requirement for investigational products being manufactured for clinical trials.

How will the changes help?

- I) Instituting the same quality across the industry will give confidence to regulators from other countries. In addition, it will improve the quality of drugs in the domestic markets.
- II) It will ensure that all the manufacturing units in the country are at par with global standards, reducing the need for repeated inspections by different regulators. It will make India a quality pharmaceutical hub of the world. In addition, it will ensure that citizens receive export-quality medicines.

A PRIVILEGE MOTION AND THE COMMITTEE OF PRIVILEGES IN PARLIAMENT

Why is it in the news?

- I) Recently, the Rajya Sabha Chairman has referred

complaints against MPs to the privileges committee.

- II) The Rajya Sabha chairman has referred the matter under **Rule 203 of Rules of Procedure and Conduct of Business in the Council of States (Rajya Sabha)** to the Committee of Privileges for examination, investigation and report.
- III) Under this rule, the Chairman can refer any question of privilege to the Committee of Privileges for examination and investigation.

What is a privilege motion?

- I) The two rules referred here relate to the concept of **parliamentary privilege**, which are certain rights conferred to the Members of Parliament for conducting the business of the Parliament. There is no codified list of the exact privileges, but it includes the right of free expression in the course of Parliamentary debates and Members of Parliament will not be liable for court proceedings for this.
- II) If there is a belief that such a privilege has been breached, a motion can be raised by any member. It can be admitted by the Chairman. They can then refer it to the Privileges Committee. The Chairman can, from time to time, nominate such a Committee, consisting of ten members. It will also have a Chairman appointed by the Rajya Sabha Chairman.
- III) The right to raise a question of privilege is based on satisfying two conditions, namely:
- a) The question shall be restricted to a specific matter of recent occurrence, and
- b) The matter requires the intervention of the Council.
- IV) Similar provisions exist in Lok Sabha with the Speaker having the power to make such decisions. The Speaker/RS chairperson is the first level of



scrutiny of a privilege motion. Therefore, the Speaker/Chair can decide on the privilege motion himself or herself or refer it to the privileges committee of Parliament.

What action can the privileges committee take?

- I) The mandate of the committee is to examine such cases and “make such recommendations as it may deem fit”.
- II) It can call the relevant people as part of its examination and look at related documents.
- III) It has to then make a report and if the Council has not fixed any time for its presentation, the report shall be presented within one month of the date on which reference to the Committee was made.
- IV) A motion has to be passed for the consideration of the report and amendments can be suggested.
- V) The Chairman or any member of the Committee or any other member can move that the Council agrees, disagrees, or agrees with amendments, with the recommendations contained in the report.

Are privilege notices rejected often?

A large number of notices are rejected, with penal action recommended in only a few cases.

- I) The most significant case was in 1978 when Indira Gandhi, who had just won the Lok Sabha elections from Chikmagalur, was expelled from the House. Then home minister Charan Singh moved a resolution of breach of privilege against her following observations made by the Justice Shah Commission, which probed excesses during the Emergency.
- II) Another case was the expulsion of Subramanian Swamy from the Rajya Sabha in 1976. Swamy was charged with bringing disrepute to Parliament through his activities through

interviews in foreign publications that were construed as “anti-India propaganda”.

- III) In December 2005, 11 “tainted” MPs, who were caught in a sting over the cash for query scandal, were expelled from the House.

OFFSHORE AREAS MINERAL (DEVELOPMENT AND REGULATION) AMENDMENT BILL, 2023

Why is it in the news?

Recently, the Parliament passed the **Offshore Areas Mineral (Development and Regulation) Amendment Bill, 2023**.

What are the Key Provisions of the Bill?

- I) Introduction of composite licensing: The amendment has brought in a new composite licensing regime where an explorer would also have the right to develop and mine the mineral under a single licence.
- II) Introduction of Auction: The government aims to introduce auctions as the route to award production leases for offshore minerals.
- III) Mining of atomic minerals: Moreover, certain critical and sensitive minerals including atomic minerals would be allocated only to government entities or PSUs so far.
- IV) Validity of concessions: Under the Act, a production lease is granted for a period of up to 30 years. It may be further renewed for up to 20 years.
- V) Setting up a non-lapsable Offshore Areas Mineral Trust under the Public Account of India: To ensure the availability of funds for exploration, mitigation of adverse impact of offshore mining, disaster management and research.
- VI) Mining in reserved areas: The Act allows the government to reserve offshore areas that are

not held under any operating right.

VII) Strengthened Penalties: The Bill proposes an increase in fines for illegal mining and other related offenses to deter illegal activities.

VIII) Ease of doing business: The enhance transparency in the allocation of minerals seated in country's offshore basins, with a provision for granting production lease only through auction.

What is the need for Amendment Bill?

I) Lack of Activity in Offshore Areas:

a) Despite the enactment of the **Offshore Areas Mineral (Development and Regulation) Act, 2002**, there has been no mining activity in offshore areas.

b) This indicates a lack of interest or effective utilization of the vast maritime resources available to India.

c) The Amendment Bill seeks to **address the underlying issues and incentivize exploration** and mining in these offshore areas.

II) Discretion and Lack of Transparency:

a) The current Act suffers from the problem of discretion and lacks transparency in the allocation of **operating rights for mining in offshore areas**.

b) The Amendment Bill aims to introduce a transparent auction mechanism to allocate operating rights, inspired by the successful amendments to the **MMDR Act for onshore areas**.

III) Harnessing Maritime Resources:

a) India holds a unique **Maritime Position**, with an **Exclusive Economic Zone (EEZ) covering over two million square kilometres**, rich in recoverable resources. Geological Survey of

India (GSI) estimates **significant reserves of lime mud, construction-grade sand, heavy mineral placers, phosphorite, and polymetallic ferromanganese nodules** and crusts in various offshore areas.

b) However, the potential of these resources remains largely untapped. The Amendment Bill seeks to **harness the full potential of these maritime resources** to support India's high-growth economy by promoting exploration and mining through the participation of both the public and private sectors.

How it benefits India?

I) As India aims to become a high-growth economy, it needs to harness its maritime resources to its optimal capacity.

II) Extraction of minerals from these areas will serve India's strategic interests and give it a stronger hold on its territorial waters.

III) It will encourage the participation of the public-private sector.

IV) The private sector will bring a high level of technology & expertise in the exploration sector.

STARTUPS UNDER STARTUP INDIA INITIATIVE

Why is it in the news?

I) Recently, an **'Action Plan' for Startups** was unveiled to create a vibrant startup ecosystem.

II) It comprises 19 action items spanning across areas such as "Simplification and handholding", "Funding support and incentives" and "Industry-academia partnership and incubation".

What is the growth story of India's startup ecosystem?

I) India has experienced tremendous growth in its startup ecosystem, with the number of recognized startups increasing from 500 in 2016 to over



92,000 in February 2023.

- II) This growth is evident in every state and UT, spanning over 660 districts and more than 55 sectors.
- III) The inclusiveness and diversity of the ecosystem are evident, with 47% of recognized startups having at least One Women Director.

What is Startup India?

- I) It was launched on 16th January 2016 to build a strong ecosystem for nurturing innovation, startups and encouraging private investments in the startup ecosystem of the country.
- II) As per eligibility conditions prescribed, entities are recognized as 'startups' by the **DPIIT (Department for Promotion of Industry and Internal Trade)**.

What are the eligibility conditions for Startups?

- I) The Start-up should be incorporated as a private limited company or registered as a partnership firm or Limited Liability Partnership.
- II) Turnover should be less than Rs. 100 Crores in any of the previous financial years.
- III) An entity shall be considered as a Start-up to 10 years from the date of its incorporation.
- IV) The Start-up should be working towards innovation/ improvement of existing products, services and processes and should have the potential to generate employment/ create wealth.
- V) It must obtain certification from the Inter-Ministerial Board set up for such a purpose.
- VI) An entity formed by splitting up or reconstruction of an existing business shall not be considered a "Start-up".

What are the various Government Initiatives to promote startups?

- I) Fund of Funds for Startups (FFS) Scheme: The

Government has established FFS with a corpus of Rs. 10,000 crores, to meet the funding needs of startups. DPIIT is the monitoring agency and Small Industries Development Bank of India (SIDBI) is the operating agency for FFS.

- II) Credit Guarantee Scheme for Startups (CGSS): It provides credit guarantees to loans extended to DPIIT recognized startups by Scheduled Commercial Banks, Non-Banking Financial Companies (NBFCs) and Venture Debt Funds (VDFs) under SEBI registered Alternative Investment Funds.
- III) Start-ups Intellectual Property Protection (SIPP): It facilitates the startups to file applications for patents, designs and trademarks through registered facilitators in appropriate IP offices by paying only the statutory fees.
- IV) Self-Certification under Labour and Environmental laws: Startups are allowed to self-certify their compliance under 9 Labour and 3 Environment laws for a period of 3 to 5 years from the date of incorporation.
- V) Income Tax Exemption for 3 years: The recognized startups that are granted an Inter-Ministerial Board Certificate are exempted from income-tax for a period of 3 consecutive years out of 10 years since incorporation.
- VI) Faster Exit for Startups: The Government has notified Startups as 'fast track firms' enabling them to wind up operations within 90 days vis-a-vis 180 days for other companies.

- VII) National Startup Advisory Council: It advise the Government on measures needed to build a strong ecosystem for nurturing innovation and startups in the country to drive sustainable economic growth and generate large scale employment opportunities.
- VIII) Startup India Seed Fund Scheme (SISFS): To facilitate easy availability of capital at the early stages of growth of an enterprise.
- IX) National Startup Awards (NSA): National Startup Awards is an initiative to recognize and reward outstanding startups and ecosystem enablers.
- X) National Mentorship Portal (MAARG): In order to facilitate accessibility to mentorship for startups in every part of the country, the Mentorship, Advisory, Assistance, Resilience, and Growth (MAARG) program has been developed and launched under the Startup India Initiative.
- XI) ASCEND (Accelerating Startup Caliber & Entrepreneurial Drive): Sensitization workshops on startups and entrepreneurship were conducted for all eight North Eastern States.
- XII) Startup20 Engagement Group: Under India's G20 Presidency the group has been institutionalised which is working towards harmonisation and cross collaboration amongst the largest global economies.



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SCIENCE AND TECHNOLOGY

FEDIVERSE, THE SOCIAL NETWORKING SERVICES

Why is it in the news?

- I) Meta, the parent company for Facebook, Instagram, and WhatsApp, recently launched its Twitter, now X, rival Threads. Currently available as a standalone app, but can only be used through an Instagram account, **Threads will be the company's first app to join the fediverse - a network of servers operated by third parties.**
- II) While Meta's move to join the fediverse may have brought the network some coverage, the social network firm is yet to reveal how it plans to use the fediverse to build a decentralised social network.

What is the fediverse?

- I) The fediverse is a group of federated social networking services that work on decentralised networks operated using open-source standards.
- II) Essentially, the fediverse is a network of servers run by third parties. These servers are not controlled by any one entity and can be used by any member of social media platforms to facilitate communication between their users. Enabling cross-platform communication while making it easier for users of one social media platform to communicate with users of a different platform, provided they are of the fediverse.
- III) Users of social media platforms which use the fediverse can communicate seamlessly with each other, without the need to create or maintain

separate accounts for each platform.

For example, once Threads becomes part of the fediverse, users on the platform will be able to communicate and interact with users of other social media platforms which use the fediverse like Mastodon, without making a new account on it.

- IV) Meta, described the fediverse as "a social network of different servers operated by third parties that are connected and can communicate with each other".

Which other social media platforms use the fediverse?

While Meta's Threads plans to join the fediverse, other platforms which currently make use of it include Pixelfed, a photo-sharing platform like Instagram; PeerTube, a decentralised video-sharing platform, Lemmy, Diaspora, Movim, Prismo WriteFreely, and others.

Why do social media platforms use the fediverse?

- I) One of the main reasons for social media platforms to use the fediverse is to tap into its decentralised nature.
- II) This allows users more control over the content they want to view, and the accounts they want to interact with along with the ability to enable cross-platform communications.
- III) The fediverse also separates the user interface from the underlying data. It means that users are not bound by the servers of the social media platform which hosts their online data and can freely transport their data to another platform. For example, if a user on Threads, once it enables use of the fediverse, is unable to use their profile



for some reason, they can transport all their data to another platform. This data would include their follower list, profile information, and posts. This kind of cross-platform communication is not facilitated by traditional social media platforms like Facebook, Instagram, and Twitter.

- IV) Additionally, if the servers for an existing platform go down, users of platforms on the fediverse can retain and shift their data to another platform that is part of it.

Why is the fediverse not used by most social media platforms?

- I) While the fediverse comes with its own set of benefits for users, there is little incentive for social media platforms to adopt the open standard. One of the main reasons behind this is the very idea of a decentralised network and the problems it poses.
- II) The lack of a centralised network leads to the **problem of scalability** since decentralised servers might not be able to handle large amounts of traffic. Also, with the expansion of the number of servers, the propensity for failure and glitches could increase.
- III) Another problem is **content moderation** as it would be difficult to decide content-moderation policies and their effective implementation due

to the decentralised nature of the fediverse.

Traditional social media platforms like Facebook, TikTok, and X have unifying content moderation policies that prevent hate speech. It will be difficult to impose these policies universally across servers in the fediverse.

- IV) Similarly, due to the lack of a decentralised network, enforcement of data privacy policies will also be difficult as data once posted on a server might not be deleted due to the lack of data deletion policies on other servers.

Is the fediverse a new idea?

- I) The idea of a fediverse has been around for decades. In the past, companies like Google have tried to embrace the idea of a decentralised network.
- II) In 2008, Evan Prodromu founded the microblogging platform Identi.ca, which used a protocol used in the fediverse.
- III) In 2016, Mastodon and Pleroma both of which are part of the fediverse emerged as two notable social media networks.
- IV) In 2018, the W3 (Worldwide Web Consortium) created the ActivityPub protocol, which is currently one of the more commonly used protocols used by applications on the fediverse.



ENVIRONMENT & BIODIVERSITY

THE BRIDGETOWN INITIATIVE

Why is it in the news?

- I) The Bridgetown Initiative is a proposal to reform the world of development finance, particularly how rich countries help poor countries cope with and adapt to climate change.
- II) **Barbados sets out three key steps in the Bridgetown Initiative.** The first involves changing some of the terms around how funding is loaned and repaid. The aim is to stop developing nations spiralling into a debt crisis when their borrowing is forced up by successive disasters like floods, droughts and storms.

Why is the Bridgetown Initiative needed?

- I) Development banks – financial institutions that provide loans and grants to developing countries to fund economic and social development – are outdated and need reform.
For example, rich countries are able to borrow capital with interest rates of between 1 to 4%. But for poorer countries – which are seen as riskier investments – interest rates are around 14%.
- II) Without access to concessional funding – finance offered below market rates – there is “no way” developing countries can fight climate change.
- III) There is a need for **reform of the World Bank and the International Monetary Fund, which were both set up in 1944** to repair economies and promote co-operation after World War II and the Great Depression of the 1930s.

- IV) Barbados and other so-called “small island developing states” aren’t the only ones in the frontline of tackling climate change. There are around 3.3 billion people between the Tropics of Cancer and Capricorn are affected.

What are the key demands of the Bridgetown Initiative?

I) Liquidity Support:

- a) UN member states should fast-track the transfer of \$100 billion in so-called ‘**Special Drawing Rights**’, a **monetary reserve currency**, to programmes that support climate resilience and subsidise lending to low-income countries.
- b) The International Monetary Fund should also immediately suspend surcharges – additional interest payments imposed on heavily indebted borrowing countries – for two to three years.
- c) It should also restore “enhanced access limits” established during the COVID pandemic for two emergency financial support instruments, **the Rapid Credit Facility (RCF) and Rapid Financing Instruments.**

II) Debt Sustainability:

- a) G20 creditor countries should redesign their Common Framework for restructuring the debt of poor countries in default, notably by speeding up debt relief talks and allowing middle-income countries to access it.
- b) The IMF should encourage the restructuring of unsustainable debt in a way that is consistent across countries, and change the way

it analyses the debt to incentivise investments that create future savings, such as those for climate adaptation.

- c) Public and private creditors should include disaster clauses in lending deals to allow countries to divert debt payments to disaster relief; and refinance high-interest and short-term debt with credit guarantees and longer maturities.
- d) UN member states should agree to raise \$100 billion a year for a fund to help pay for the climate-related loss and damage suffered by developing countries.

III) **Private Capital:**

- a) The IMF and multilateral development banks should offer \$100 billion a year in currency risk guarantees to help drive private sector investment in projects that would help developing countries make the transition to a low-carbon economy.
- b) Connected to that, they should also expand their support to countries to help them create a pipeline of investable projects, and make greater use of blended finance and other structures where public lenders take on more project risk.

IV) **Development Lending:**

- a) The G20 and other shareholders of the World Bank, IMF & development institutions should fully implement the 2022 recommendations of a panel of experts aimed at boosting lending by the multilateral development banks.
- b) They should commit an extra \$100 billion a year in fresh capital to the various institutions and move the Special Drawing Rights capital to multilateral development banks, starting with the African Development Bank

by September 2023.

- c) Increase the leveraging of the World Bank's International Development Association, which provides concessional finance; fully fund its emergency support facility to \$6 billion by end-2023; and scale up the IDA's funding to \$279 billion.
- d) Raise the access limits to concessional finance through the Poverty Reduction and Growth Trust and the Resilience & Sustainability Trust.
- e) Assess funding eligibility in light of a country's vulnerability and provide low-cost, 50-year loans to help them invest in areas including climate resilience, water security, pandemic preparedness and access to renewable energy.
- f) Simplify and harmonise the way countries can apply to access loans across the world, and provide more support in the process. The international financial institutions should also finance development plans that help protect shared resources.

V) **Trading:**

Groups such as the World Trade Organisation and other major trading partners should work with governments to strengthen supply chains to make them more resilient, ensure they benefit countries that produce raw materials and protect the vulnerable.

VI) **GOVERNANCE:**

The governmental shareholders of International Financial Institutions should change the way they are structured and run – largely by richer nations in the Global North – to make them more “inclusive and equitable”.



BELEM DECLARATION

Why is it in the news?

- ★ Recently, the eight countries that make up the **Amazon Cooperation Treaty Organization (ACTO)** signed the Belém Declaration during the Amazon Summit.

What is Belem Declaration?

- It's an agreement to address the threats to the Amazon rainforest and highlight its significance in confronting the climate crisis. It consolidates the consensus agenda of Brazil, Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela for the region.
- The Belém Declaration contains 113 cross-cutting objectives and principles signed in the Brazilian city of Belém.
- The declaration promotes sustainable use of biodiversity resources in the Amazon.
- It recognises Indigenous knowledge as a condition for biodiversity conservation and calls for ensuring full and effective participation of Indigenous Peoples in decision-making and public policy formulation processes.
- The Belém Declaration also provides for the “creation of financial mechanisms aimed at promoting sustainable development.”
- ACTO will play a central role in implementing the new Amazon cooperation agenda.

What is the need for the declaration?

- The document underscores the urgent need for regional awareness and cooperation to avoid the so-called “**point of no return**” in the Amazon—a term used by experts to refer to the point at which the forest loses its ability to self-regenerate, due to deforestation, degradation, and global warming.

- The eight presidents have committed to launching the Amazon Alliance to Combat Deforestation, based on national goals, such as zero deforestation by 2030.

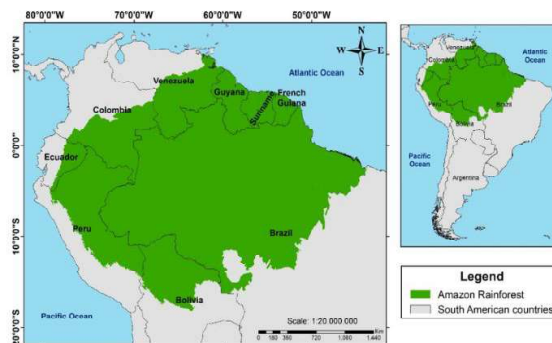
About Amazon Cooperation Treaty Organization (ACTO)

- It is an **intergovernmental organization** formed by the eight Amazonian countries: **Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela**, which signed the Amazon Cooperation Treaty (ACT), becoming the **only socio-environmental block in Latin America**.

- The Amazon Cooperation Treaty (ACT) signed in 1978 gave rise to the ACTO, which is oriented to promote the harmonious development of the Amazonian territories.

In 1995, the eight nations decided to create the Amazon Cooperation Treaty Organization (ACTO), to strengthen and implement the objectives of the Amazon Cooperation Treaty.

- Its permanent secretariat is in Brasilia, Brazil.



About Amazon Rainforest

- Nearly 60% of the rainforest is in Brazil, while the rest is shared among eight other countries—Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela and French Guiana, an overseas territory of France.
- It is located on the South America continent. The **Amazon rainforest is the largest remaining**

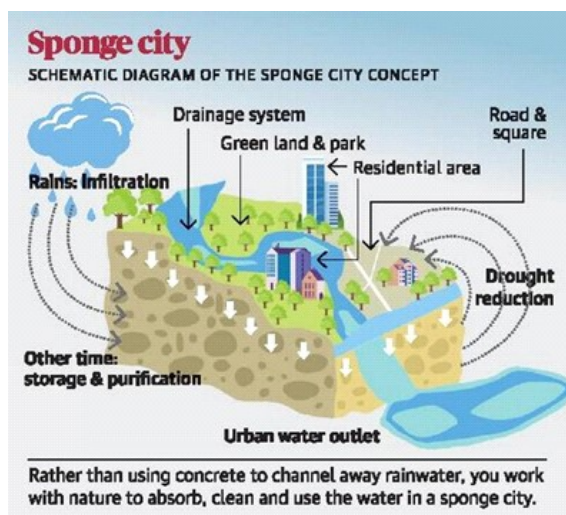
tropical rainforest in the world.

- III) The landscape contains:
- about one in 10 known species on Earth;
 - 1.6 billion acres of dense forests, around half of the planet's remaining tropical forests;
 - 20% of the world's liquid freshwater;
 - 2.7 million square miles in the Amazon basin, about 40% of South America.
- IV) The Amazon rainforest is sometimes called the '**lungs of the Earth**' because it 'breathes in' carbon dioxide and 'exhales' oxygen on a massive scale. There is a clear link between the health of the Amazon and the health of the planet.
- V) Despite covering only around 1% of the planet's surface, the Amazon rainforest is home to 10% of all the wildlife species we know about – and probably a lot that we don't know yet.
- VI) The rain forests, which contain an estimated 150-200 billion tons of carbon, help stabilize the local and global climate.
- VII) Deforestation in the first half of 2022 was 3 times higher than in the first half of 2017. Deforestation has been increasing year on year for the last 5 years, with no signs of slowing down.
- VIII) Increasing global temperature causes the drying up of tropical forests which increases the risk of forest fires. Huge areas of forest are cleared up for farming, timber, roads, hydropower dams, mining etc.
- IX) Rising global food demand, especially meat, has led to Brazil becoming the world's biggest exporter of beef, and the second biggest exporter of soya beans, mainly used for livestock feed.

CHINA'S 'SPONGE CITIES' AND ITS INEFFECTIVENESS

Why is it in the news?

- China has been hit by devastating floods in recent weeks, inundating cities and causing deaths and infrastructural damage, as well as raising questions about the effectiveness of its **2015 "sponge city" initiative aimed at reducing urban flood risks.**
- The initiative was launched to boost flood resilience in major cities and make better use of rainwater through architectural, engineering and infrastructural tweaks.
- However, cities remain vulnerable to heavy rain. In July alone, floods and related geological disasters caused 142 deaths and disappearances, destroyed 2,300 homes and caused direct economic losses of 15.78 billion yuan (\$2.19 billion).



Why was the initiative launched?

- China has long sought to improve the way it handles extreme weather, and make highly populated cities less vulnerable to flooding and



drought. The “sponge city” initiative was **designed to make greater use of lower-impact “nature-based solutions” to better distribute water and improve drainage and storage.**

- II) Those solutions included the use of permeable asphalt, the construction of new canals and ponds and also the restoration of wetlands, which would not only ease waterlogging, but also improve the urban environment.
- III) Breakneck urbanisation has encased vast stretches of land in impermeable concrete, often along banks of major rivers that traditionally served as flood plains. With wetlands paved over and nowhere for surplus water to settle, waterlogging and flooding was commonplace.
- IV) According to 2018 data, 641 out of 654 large- and medium-sized cities in China were vulnerable to flooding and waterlogging, with 180 facing flood risks every year.

What has been done so far?

- I) Studies show that many of the local pilot initiatives launched so far have had a positive effect, with low-impact projects like green roofs and rain gardens reducing run-offs.
- II) But implementation has so far been patchy. A total of 30 pilot sponge cities were selected in 2015 and 2016. By last year, only 64 of China’s 654 cities had produced legislation to implement sponge city guidelines, according to the researchers.
- III) The researchers said the government had so far paid “minimum attention” to sponge city construction, and called for national legislation to be drawn up as soon as possible.

What are the limitations of sponge cities?

- I) Even if sponge city measures had been implemented in full, they would have been

unable to prevent this year’s disasters.

- II) **Zhengzhou in Henan province** was one of the most enthusiastic pioneers of sponge city construction, allocating nearly 60 billion yuan to the programme from 2016 to 2021. But it was unable to deal with its heaviest rainfall in history in 2021.
- III) Experts believe sponge city infrastructure can only handle no more than 200 millimetres (7.9 inches) of rain per day. At the height of the rainstorms that lashed Beijing at the end of July, rainfall at one station reached 745 millimetres over three and a half days. In July 2021, Zhengzhou saw rainfall in excess of 200 mm in just one hour.

HOW A CHANGING MONSOON IS CHALLENGING FORECASTERS AND DISASTER MANAGERS?

Why is it in the news?

- I) Recent catastrophic flood events due to extreme intense spells of rainfall have become a norm in India during monsoon over the last few years.
- II) Although there are a multitude of factors causing them, there is general consensus among scientists that climate change is playing a major role in causing these extreme weather events. This is particularly concerning to India due to the importance of the unique weather system that brings the much- needed rain to the subcontinent.

What is monsoon?

- I) It is the seasonal, inter-hemispherical change in direction of the prevailing winds causing wet and dry seasons throughout the tropics.
- II) For instance, the **Southwest monsoon** that brings rain to the subcontinent during June and July



happens due to the heating up of the Asian landmass in the northern hemisphere during the scorching summer and the relatively cooling of the southern Indian ocean. This results in a low-pressure situation over much of Asia and high pressure near Madagascar in the southwestern Indian ocean.

- III) Naturally wind blows from high to low pressure region, and due to the curvature and the rotation of the Earth, the circulation turns toward India, bringing rainclouds with it.

Why is monsoon so important to India?

- I) The monsoon is the lifeblood of the country's \$3 trillion economy, delivering nearly 70% of the rain that India needs to water farms and recharge reservoirs and aquifers.
- II) The fortunes of the agricultural sector of India heavily relies on the seasonal and properly distributed rains, as planting and harvesting are all planned around them.
- III) Therefore, any drastic change in monsoon rains will severely affect the Indian economy and the livelihoods of millions. This was evident last year when erratic monsoon severely affected the Kharif harvest with the country having to rely on its stock to avert crisis.

How is climate change affecting it?

- I) Since Indian monsoon is an **inter-hemispherical phenomenon**, any significant change in circulation and weather patterns around the world can affect it as well. This year there was the added influence of **Cyclone Biparjoy that formed in the Arabian Sea** and delayed the start of the monsoon. Moreover, scientists are also observing how the declared El Nino will affect the monsoon.
- II) Experts believe climate change as a main culprit

in how monsoon is changing, and that the visible imprints of this change have been observed by climatologists for a while now.

- III) The onset of monsoon itself is showing a lot of changes, mainly due to the warming of Arabian Sea and Indian Ocean. Indian Ocean has been warming at a much higher degree (1.1 degree Celsius over the last 100 years) than other Oceans, and much of this warming has happened in the last 50 years.

This disparity is due to the landlocked nature of the Indian Ocean, which can only dissipate the excess heat through its southern side, while Pacific and Atlantic Oceans can dissipate heat to Polar regions through south and north.

This excess heating of Indian Ocean and Arabian Sea is disturbing the North-South thermal gradient that is causing the monsoon leading to delayed onset due to conditions not being ideal for monsoon winds to occur, as well as erratic rainfall marked by prolonged dry spells, and short extremely intense rains mainly due to the formation of clouds with much more moisture content than usual as a result of deep convection.

- IV) The atmospheric heating due to global warming is also contributing to this disturbance now.

What are the difficulties that forecasters are facing in predicting monsoon rainfall?

- I) Weather forecast agencies, like Indian **Meteorological Department (IMD)**, use large mathematical models called **dynamical models** for making weather predictions. These models, run on supercomputers, are fed with atmospheric and oceanographic data for generating various forecasts, including those related to monsoon rainfall.



The mathematical models have some trouble predicting the short-spell heavy rainfalls that we see during monsoon nowadays. The model does have a kind of a bias. For some rains that are 12 cm, the model doesn't really pick up 12 cm and might only show 7 or 8 cm. However, it gives indications that it would be above that value. So, there is a systematic bias in the model that makes it underestimate the amount of heavy rainfall.

With global warming and climate change, the frequency of these heavy rainfalls is going to increase. Therefore, these kind of errors can get accumulated in future forecasts.

- II) To improve the short-range rainfall forecast that predicts rains for the next four to five days, models have to be improved. This requires a better understanding of cloud physics, especially micro-physical processes happening inside the cloud.
- III) There is also a need to improve the resolution of forecasts and assimilate more data regarding wind movements, especially vertical profile of winds above the ocean, which will require better satellite readings.

How is a changing monsoon challenging disaster management?

- I) These changes to monsoon rainfall pattern are causing severe challenges to disaster management as well.
- II) However, the changes in rainfall pattern is a major factor especially the number of rainy days getting crunched. The difficulty of that is, a large amount of rainfall gets concentrated in a place, causing flash-floods, debris flows and landslides, as against a more evenly distributed rainfall pattern contributing to sub-surface water storage and reservoir water storage.

What is Orange Book?

- I) Containing information on emergency response assets available across Kerala, the '**Orange book of disaster management — Kerala — SOP and emergency support functions plan**' explains the standard operating procedure for rainfall, flood, cyclone, tsunami, high waves (swell waves, storm surges, 'kallakadal'), landslips, petrochemical accidents and even mishaps caused by space debris (meteorites, falling spacecraft parts, etc.).
- II) Meanwhile, the 'Monsoon preparedness and emergency response plan' is season-specific, and meant to be strictly complied with during the south-west and north-east monsoon seasons (June to December).
- III) There has also been considerable decentralisation in disaster response as local bodies have been trained and empowered for disaster management. This shift largely occurred post 2018 floods in Kerala.
- IV) A massive program called 'Nammal Namukkayi' was started to localise disaster management. Aligned to that civil defence was created across the State, making Kerala India's only state to have civil defence notified pan state.
- V) This change is reflected in fund dispersal too with local bodies now being able to access funds to prepare for disasters rather waiting for government funds after an event has occurred. Moreover, those living in disaster prone hilly and coastal areas are being encouraged to shift to safer grounds by providing them with land, housing or financial incentives to relocate.

THE WORLD METEOROLOGICAL ORGANISATION (WMO)'S STATE OF THE CLIMATE IN ASIA REPORT 2022

Why is it in the news?

- I) According to the **World Meteorological Organisation (WMO)**, drought, floods, and high temperatures were the critical disasters that plagued Asia in 2022, causing extensive damage to life and property.
- II) In its **2022 State of the Climate in Asia report**, the **World Meteorological Organisation (WMO)** summarised extreme climate events taking place in Asia last year, and their socioeconomic impact.
- III) The report was prepared in collaboration with the **National Meteorological and Hydrological Services (NMHSs)**, research institutions, and agencies of the United Nations.

About Global climate

- I) Globally, the annual mean near-surface temperature in 2022 was 1.15 °C above the 1850–1900 pre-industrial average.
- II) Ocean heat content, the total amount of heat stored by the oceans, was the highest on record in 2022.
- III) Global mean sea level too reached a new high in 2022 on account of ocean warming and accelerated loss of mass from ice sheets.

Some of the Key findings

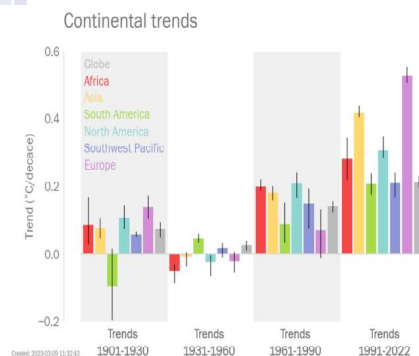
According to the report, **2022 was the second or third warmest year on record**. Temperatures touched new highs, glaciers melted at incredible speeds, and Asia, and the world in general, raced even further towards a point of no return.

I) Temperature:

- a) In 2022, mean surface temperature was either the second or third highest on record –

0.73 °C above the 1991–2020 average (reference period used for computing anomalies in temperature and other indicators) and 1.6°C above the 1961–1990 average (WMO reference period for assessing long-term climate change).

- b) Northern Siberia, northern West Asia, Central Asia, and western and coastal areas of China noted above average temperatures in 2022. The year was also the second warmest year on record for China overall.
- c) Research also shows that a warming trend emerged in Asia in the latter half of the twentieth century. This trend in 1991–2022 was almost double the warming trend during the 1961–1990 period, and much larger than the trends of the previous 30-year periods.



(Trends in mean surface air temperature for the six WMO regions and the global mean (°C) over four sub-periods using the six data sets. (The bars indicate trends in the mean of the data sets, while the black lines indicate the range between the largest and the smallest trends in the individual data sets)

- d) The area-averaged sea surface temperature anomalies in 2022 were the warmest on record in the northwest Pacific Ocean, and were below the record value reached in 2020



in the Indian Ocean. Further, **the Barents Sea in the Arctic Ocean has been identified as a climate change hotspot.**

II) **Precipitation:**

a) Parts of Iraq, the **Hindu Kush (the high mountain range stretching from central to western Afghanistan)**, the lower course of the Ganges and Brahmaputra Rivers (India and Bangladesh), the Korean Peninsula, and Kyushu (the western island of Japan) observed the largest precipitation deficits in Asia in 2022.

Central Asia, the Yangtze River Basin (where a severe drought was reported) and the Huaihe River Basin in China, southwest and northwest Asia, and areas along the Arctic coast also recorded precipitation below normal.

b) On the other hand, south Pakistan, southeast Asia, and northeast China received excessive precipitation in 2022. Siberia, northeast Asia, central India, India's Western Ghats, eastern Himalayas (Nepal and Bhutan), and areas along north China's Yellow River and western Tian Shan (high mountain range in western China) recorded unusually high precipitation.

c) India's Western Ghats and Khasi Hills, and areas along the coast of the South China Sea and East China Sea recorded the highest daily precipitation totals in 2022. Positive anomalies with respect to the highest daily precipitation totals were also detected in parts of Iran and Iraq. This shows that extreme precipitation events can also occur even if the annual total is below normal.

III) **Glaciers:**

- a) Preliminary data shows that in the glaciological year 2021-22, 23 glaciers in the High Mountain Asia region showed continued reduction in their masses.
- b) In the 2021-22 period, **Urumqi Glacier No. 1 in eastern Tien Shan** recorded its second most negative mass balance since measurements began in 1959.

IV) **Cyclones:**

- a) In 2022, 25 named tropical cyclones with maximum sustained wind speeds of 34 knots or more formed over the western North Pacific Ocean and the South China Sea.

Nanmadol typhoon, which made landfall in Japan's Kyushu region on September 18, 2022, was the strongest tropical cyclone of the year. Almost four million people were told to evacuate, while it reportedly affected 1,300 people, killed five, and caused economic damage worth more than US\$2 billion.

- b) Three tropical cyclones, and 15 cyclonic disturbances (where wind speed was greater than 27 knots) formed over the north Indian Ocean in 2022.

V) **Floods:**

- a) Pakistan witnessed severe floods in the 2022 monsoon season between June and September. Almost 14% of the country's population was displaced as a result of the floods, while 1,730 people died and around eight million were displaced. The floods destroyed 1.7 million hectares of agricultural land, forcing millions towards poverty and food insecurity.
- b) Heavy monsoon especially affected North-east India, as well as neighbouring

Bangladesh where the floods cumulatively killed 2,000 people and affected 1.3 million people. This was the worst natural disaster affecting India in 2022.

VI) Droughts

- a) Yangtze River basin in southwest China, home to a third of China's population, experienced its worst drought in six decades in the summer of 2022. An intense heatwave in central-eastern China, along with moderate precipitation deficit, caused the drought.
- b) The water from the Yangtze River is used for crop irrigation, transportation and energy production, and the domino effect from the drought impacted everything. The **Three Gorges Dam, the largest hydropower plant in the world**, is also located along the Yangtze River. The approximate economic loss from droughts in China in 2022 amounted to US\$ 7.6 billion.
- c) Iran was another Asian country adversely impacted by drought in 2022, its third consecutive year of drought. The surface area of Lake Urmia, which has shrunk by 95% over the past three decades, continued to decrease in 2022.

VII) Other extreme events in India:

- a) India and Pakistan experienced unusually warm conditions in the pre-monsoon season, between March and May.

- b) Further, lightning, accompanied by thunderstorms, has become one of the biggest killers in India in the recent years. In May 2022, more than 34 people killed due to lightning in Bihar.

VIII) Impact on the economy:



- a) Economic losses caused by floods in 2022 exceeded the average observed over the past 20 years. The most significant losses were seen in Pakistan (over US\$ 15 billion), China (over US\$ 5 billion) and India (over US\$ 4.2 billion).
(Economic losses in Asia in 2022 from disasters, compared to the 20-year average (2002–2021))
- b) Economic damages associated with drought in Asia were noted to be around US\$ 7.6 billion in 2022. For other disasters, the economic damage was milder. In the case of storms in particular, Asia lost around US\$ 3.3 billion, which was almost 80% lower than the 2002–2021 average of US\$ 16.2 billion.

SOCIAL ISSUES

IS AIR POLLUTION DRIVING THE RISE OF ANTIBIOTIC RESISTANCE?

Why is it in the news?

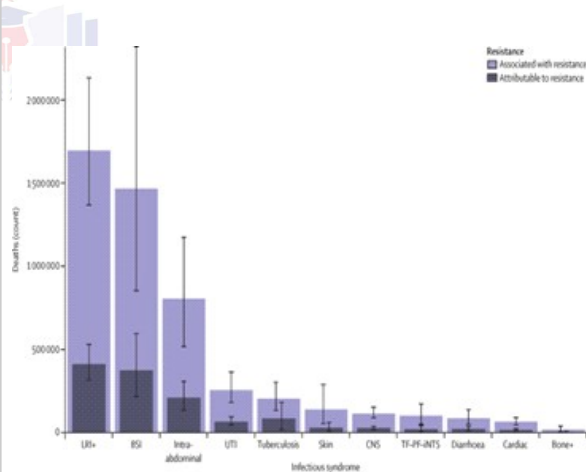
- I) Tiny, invisible particles, smaller than 30 times the breadth of human hair, wreak damage to more than 7.5 billion people's health globally. Now imagine if this microscopic particulate pollution, called **PM2.5**, were to drive the next **global public health threat — antibiotic resistance, when disease-causing bacteria become uniquely immune to drugs.**

Recently, a new analysis suggests a link between the two: for every 10% rise in air pollution, researchers found a correlated increase in antibiotic resistance of 1.1% across countries and continents.

- II) Researchers have, for long, flagged the growing burden of drug-resistant bacteria. Antimicrobial resistance (AMR, when any microbe is resistant to a drug) killed more people globally than malaria or HIV/AIDS, a 2019 survey found; it was directly responsible for 1.27 million deaths and associated with an estimated 4.95 million deaths globally.
- III) The present analysis is **“the first to show how air pollution affects antibiotic resistance globally”** findings which have “substantial policy and environmental implications by presenting a new pathway to combat clinical antibiotic resistance by controlling environmental pollution”.

How big a threat is antibiotic resistance?

- I) Once, ciprofloxacin, an antibiotic, was used to treat urinary tract infections usually caused by **Escherichia coli (E. coli)**, also among the most common bacteria type in India. E. coli's resistance to ciprofloxacin now varies from 8.4% to 92.9%, as per the World Health Organisation.
- II) Multidrug-resistant strains of **TB (MDR-TB)** have also rendered the two most potent TB drugs, isoniazid and rifampin, ineffective, with patients now having less than a 60% chance of recovery.



(Global deaths attributable to and associated with bacterial antimicrobial resistance by infectious syndrome)

- III) Put simply, changes in bacteria cause the drugs used to treat the infection caused by said bacteria to become less effective. In the absence of the right drug, the patient will never recover from the infection or the disease. Antibiotic resistance adds to the disease burden of a nation, making

it harder to treat old enemies such as tuberculosis, cholera, and pneumonia, among other infectious diseases.

- IV) It also risks widening healthcare inequities, where patients contend with delayed recovery and extended hospitalisation. It puts patients undergoing major surgeries and treatments, such as chemotherapy, at a greater risk. Patients often recover from advanced medical procedures but succumb to untreatable infections.
- V) Numerous statistics show India leads the world in antibiotic use. Indiscriminate use of antibiotics among people and animals, poor hygiene and sanitation facilities, and lack of awareness have fuelled this rise. The COVID-19 pandemic only accelerated this trend, as the country witnessed a surge in sales of antibiotics such as **azithromycin (used to treat bronchitis and pneumonia)**.
- VI) In addition, the increased circulation of antibiotic-resistant bacteria and **antibiotic-resistance genes (ARGs)** across channels (such as humans, animals, and environments) further creates new pathways of transmission. A 2019 study found India's rivers, lakes and other water sources were concentrated with antimicrobial-resistant bacteria and their genes (Ganga and Yamuna reported varying degrees of drug-resistant bacteria). Pharmaceutical wastewater and hospital discards, not treated adequately, were the sources.

What does the study show?

- I) The new analysis focuses on the environmental dissemination of ARGs. With every 1% rise in PM2.5 pollution, antibiotic resistance increased between 0.5-1.9% depending on the pathogen — a link which has only intensified with time. The

researchers added that this airborne spread may have also caused premature deaths in India and China, among other countries in South Asia, North Africa and the Middle East which are population dense. An average of 18.2 million years of life was lost in 2018 worldwide, resulting in an annual economic loss of \$395 billion (more than Pakistan's GDP) due to premature deaths.

- II) The researchers recognised air as a **“direct pathway and key vector for disseminating antibiotic resistance”**. For instance, PM2.5 emissions from burning firewood in homes for cooking or heating could carry bacteria and antibiotic-resistant genes, be transmitted over long distances, and eventually be inhaled by individuals.

PM2.5 is known to penetrate the body's defences, entering the bloodstream and lungs, associated with chronic conditions such as cancer, heart disease and asthma. Worryingly, PM2.5's contribution to antibiotic resistance was greater than that of antibiotic use or due to drinking water services.

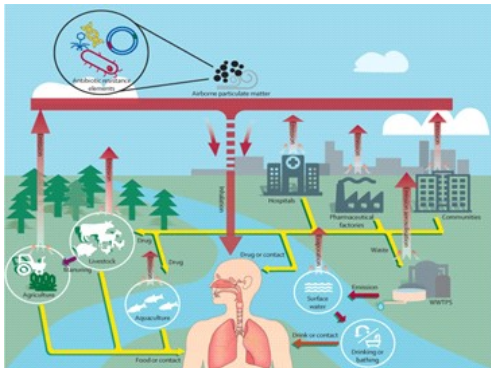
- III) How air pollutants affect antibiotic resistance is “still unclear”. As an observational paper, the analysis could not show a cause-and-effect relationship and acknowledged the need for “more medical evidence to verify this occurrence.” Other limitations include limited datasets provided by countries and overlapping impacts of social, economic, and environmental factors — all of which should be introduced to comprehensively assess the association with antibiotic resistance.

How is air linked to anti-biotic resistance?

- I) Antibiotic-resistant bacteria and genes travel through different pathways: **food, soil, water, air,**

and even direct contact with sources such as animals. The hypothesis is that ARGs, when emitted from, say, hospitals or livestock farming, could latch on to pollutant particles, which were found to contain “diverse antibiotic-resistant bacteria and antibiotic-resistance genes, which are transferred between environments and directly inhaled by humans, causing respiratory-tract injury and infection.”

- II) When suspended in the environment or breathed into the lungs, the ARGs could enter the bacteria found in the human body and solidify its resistance to drugs. PM 2.5 can facilitate the horizontal gene transfer of antibiotic-resistant genes between bacteria.



(Pathways of antibiotic-resistance dissemination)

- III) Think of the air, which is laden with unhealthy amounts of PM_{2.5}, as a hyperspace for antibiotic-resistant bacteria and ARGs to travel. More than 7.3 billion people globally — and 93% of India’s population — are exposed to unsafe average annual levels of PM_{2.5}.
- IV) PM_{2.5} contains a high concentration of antibiotic resistance-determinant genes, and these are particles can travel far and wide due to wind speed, water evaporation, and dust transport. They can also be replenished from the

environment and anthropogenic settings, making the daily intake of ARGs far more than one’s exposure to genes in drinking water. ARGs are also more abundant in urban air particles than in sediment, soil or rivers, the analysis showed.

STATE OF ELEMENTARY EDUCATION IN RURAL INDIA REPORT

Why is it in the news?

- ★ Recently, the State of Elementary Education in Rural India report was released by the Union Education Minister.

About the report

- I) It is based on a survey conducted by the **Development Intelligence Unit (DIU)**, a collaboration between Transform Rural India and Sambodhi Research and Communications.
- II) It covered responses of 6,229 parents of schoolchildren aged six to 16 in rural communities across 21 States.
- III) Of the 6,229 parents surveyed, 6,135 had school-going children, 56 had children who dropped out of school, and 38 had children who had never enrolled in school.

Aspiring for higher education

The table shows parental expectations of a child’s educational attainment. About 78% of parents aspire for their girls to attain graduation or higher degrees



Dropping out: Parents of a section of girls said their daughters dropped out of school to help out in the family’s earnings R. RAGU

| Expected level of education of child | Boy (%) | Girl (%) | Total (%) |
|--------------------------------------|---------|----------|-----------|
| Up to elementary | 4.4 | 3.9 | 4 |
| Up to secondary | 2.4 | 2.8 | 3 |
| Higher secondary | 11.1 | 15.2 | 13 |
| Graduation | 49.6 | 50.3 | 50 |
| Postgraduation/Ph.D. | 32.5 | 27.8 | 30 |

■ About 80% of parents aspire for their children to become graduates or attain higher degrees

■ The survey included responses of 6,229 parents across 21 States of India.

Source: State of Elementary Education in Rural India report

Some of the Key highlights

I) Users Data:

- a) It revealed that more children used smartphones for entertainment rather than for studies.
- b) 49.3% of students in rural India have access

to smartphones.

- c) However, among parents whose children have access to gadgets, 76.7% said the latter primarily used mobile phones to play video games.

II) Learning environment at home:

- a) The survey revealed that 40 percent of parents have age-appropriate reading materials available at home, beyond school books.
- b) Additionally, only 40 percent of parents engage in daily conversations with their children about their school learning, while 32 percent have such discussions a few days a week.

III) Parent participation:

- a) 84% of parents stated that they regularly attend parent-teacher meetings at school.
- b) The top two reasons for parents not attending meetings were short notice and a lack of willingness.

IV) Reasons for dropout and out-of-school children:

- a) Among the parents of 56 students who dropped out of school, 36.8 percent mentioned that their daughters' dropout was due to the need to contribute to the family's earnings.
- b) For boys, the primary reason for dropping out was lack of interest in studies, cited by 71.8 percent of parents.

Some of the Suggestions

- I) The report emphasizes on the importance of recognising and supporting these common and progressive aspirations of parents to foster an inclusive environment in education.
- II) Acknowledging and nurturing this positive trend can lead to sustainable opportunities for both boys and girls in rural India.

- III) There is a hope that policymakers, educational institutions, and other stakeholders will acknowledge these common aspirations to establish an inclusive environment that ensures growth and development for every child in rural India.

HAVANA SYNDROME

Why is it in the news?

- I) Recently, the Central government has told the Karnataka High Court that it will look into the matter of the '**Havana Syndrome**' in India, in response to a Bengaluru resident's recent petition.
- II) The petitioner had approached the court requesting a **writ of mandamus** for an enquiry on Havana Syndrome in India and the prevention of high-frequency microwave transmission in India.

What is Havana Syndrome?

- I) Havana Syndrome **refers to a set of mental health symptoms** that are said to be experienced by **United States intelligence and embassy officials** in various countries. The word 'syndrome' simply means a set of symptoms. It does not mean a unique medical condition, but rather a set of symptoms that are usually experienced together whose origins may be difficult to confirm.
- II) What is known as the Havana Syndrome typically involves symptoms such as hearing certain sounds without any outside noise, nausea, vertigo and headaches, memory loss and balance issues.
- III) As the name suggests, it traces its roots to **Cuba in late 2016**. This was about a year after the US opened its embassy in the capital city of Havana after ties between the two countries were



normalised in 2015. Some US intelligence officials and members of the staff at the embassy began experiencing sudden bursts of pressure in their brains followed by persistent headaches, feelings of disorientation and insomnia.

Where else has Havana syndrome been reported?

- I) Since the Cuban incident, American intelligence and foreign affairs officials posted in various countries have reported symptoms of the syndrome.
- II) In early 2018, similar accusations began to be made by US diplomats in China.
 - a) The first such report was in April 2018 at the Guangzhou consulate. An American employee reported that he had been experiencing symptoms since late 2017.
 - b) Another incident had previously been reported by a USAID employee at the US Embassy in Tashkent, Uzbekistan, in September 2017.
 - c) In 2019 and 2020, such incidents have been reported from within the US — particularly in Washington DC.
- III) According to some reports, in the past few years, its officials have reported more than 130 such experiences across the world including at Moscow in Russia, Poland, Georgia, Taiwan, Colombia, Kyrgyzstan, Uzbekistan, and Austria, among others.
- IV) In India, the first such case was reported in the same year, when a US intelligence officer travelling to New Delhi with CIA director reported symptoms of Havana Syndrome.

What are the causes of Havana Syndrome?

- I) Initially during the Cuban experience, being in a country that had been hostile to the US for over five decades, the suspicion was on Cuban

intelligence or a section within the Cuban establishment that did not want US-Cuba relations to normalise. It was then speculated to be a “sonic attack”.

- II) However, further study by scientists in the US and medical examination of the victims began to suggest that they may have been subjected to high-powered microwaves that either damaged or interfered with the nervous system. It was said to have built pressure inside the brain that generated the feeling of a sound being heard. Greater exposure to high-powered microwaves is said not only to interfere with the body’s sense of balance but also to impact memory and cause permanent brain damage. Low levels of microwaves are also emitted from mobile phones but they are not targeted.
- III) It was suspected that beams of high-powered microwaves were sent through a special gadget that Americans then called a “microwave weapon”.
- IV) The use of microwaves as a counter-intelligence tactic has been experimented with since the Cold War and both Russia and the US have made attempts to weaponize it. There have been reports of US embassy officials in Moscow experiencing mental health issues due to the suspected use of microwaves in the 1970s.

What do US reports say on Havana Syndrome now?

- I) After many years of data collection, experiments and medical examination of victims, the US has as yet not been able to come up with any conclusive evidence suggesting the “microwave weapon” is a reality. No one seems to have an idea what the mechanics of this weapon is and how it functions. There is also a question mark on how the so-called weapon is able to



specifically target individuals and not affect all the people in its range.

- II) Some medical experts in the US have outrightly debunked this theory, calling the syndrome a psychological illness amplified by widespread fear of being targeted.

What do we know of Havana Syndrome in India?

- I) As of July 2023, the 2021 incident was the only reported occurrence of the syndrome in India.
- II) Sources in the Indian security establishment said in 2021 that they were not aware of any weapon with such capacities being in the possession of an Indian agency.



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INTERNATIONAL RELATIONS

WILL THE FEDERAL FUND HIKE IMPACT DEVELOPING COUNTRY DEBT?

Why is it in the news?

- I) In the recently concluded **Federal Open Market Committee meeting**, it was decided to increase the targeted federal funds rate to 5.25- 5.5%, i.e., yet another increase of the cost of funds by 25 basis points. With this, the federal funds rate has reached levels higher than that of 2001, it is at a 21-year high.
- II) According to the Fed Reserve President, the decision has been with the intent of reducing the **rate of inflation to 2%**. The decision has been justified with the argument that the increase in the interest rate, the numbers on the employment front have been on the rise.

What is the federal funds rate?

- I) This is the rate at which banks lend and borrow excess reserves in the overnight market. In any economy, there is a set of banks which want to extend loans far more than the reserves permit and another which have excess reserves to lend. These banks can loan funds among them and the rate in that market is the **federal funds rate**. The Federal Reserve intervenes by buying or selling bonds to maintain the targeted rate range, currently set between **5.25 to 5.5%**. This ensures stability in the financial system.
- II) Following the global financial crisis and a large infusion of liquidity through the expansion of central bank balance sheets, the federal funds' rates were near zero levels for a long period of

time from 2008 to 2015. With the ease of monetary policies being reversed by the advanced country banks, the federal funds rate rose to 2.41% in March 2019.

- III) With the outbreak of the extraordinary pandemic and the huge shortage of liquidity, in the meetings of FOMC in March 2020, the same was reduced to 0.05%. Ever since March 2022, there has been a continual increase in the federal funds rate in all the consecutive FOMC meetings bringing it to 5.25% to 5.5% in the recent meeting.

Will the world economy be able to stand this steep increase of federal funds rate by more than 450 basis points just in the course of a year? What consequences would this have on the rest of the world?

- I) The rest of the world faces a different situation compared to the green shoots of growth seen in the U.S. economy, they are yet to come out of the pandemic and are battling with the rising concerns on climate change and growing debt servicing concerns.
- II) The large-scale expansion of the balance sheets of the advanced country central banks since the global financial crisis had reduced interest rates to abysmally low levels. This has facilitated carry trade, with agents borrowing in dollars and investing in emerging markets to benefit from interest margin i.e., carry trade profits due to the higher interest in developing countries.
- III) Between 2011 and 2016, external debt stocks in low and middle-income countries doubled,



reaching 181.1% of their GDP. By 2020, it exceeded 200% of their GDP.

- IV) In the developing world, non-financial corporations took advantage of low global interest rates to borrow cheap. Approximately \$5.14 trillion of the total outstanding dollar debt of \$13 trillion held by non-financial corporations outside the U.S. is from emerging markets and developing economies. With rising interest rates and currency depreciation, unhedged dollar debts could pose serious problems for these corporations.

Will the rate hike mainly impact corporates, while governments remain unaffected?

- I) It is a fact that there has been a huge increase in **private non-guaranteed (PNG)** debt taken by the corporations in the international economy. But governments continue to be important borrowers.
- II) In developing and least developed countries, as interest rates in the advanced countries increase, given the lower risk associated with the U.S. treasury securities, foreign investors would abandon the government securities of the developing economies, resulting in both exchange rate depreciation as well increase in the cost of borrowing or rollover of the loans. Unlike India, in a number of developing countries, foreigners are major investors in the government securities market. As they sell the domestic securities, the prices of these go down and the rate of interest shoots up, their currency depreciates vis-a-vis the dollar. This makes it impossible for the governments to borrow at the old rate. The debt serving concerns of the developing countries are going to be even worse.
- III) Absent buoyant growth of revenues due to

multiple factors like climate shocks, commodity price decline and lower levels of growth, some of the governments have been forced to default.

It is also important to note that there are a group of vulture funds which purchase the bonds of the defaulting countries at abysmally low levels and further initiate litigation procedures against the governments in international courts seeking payments with higher interest, thus seeking far higher rates of return (The case of Zambia).

- IV) With the debt serving priorities on the borrowings undertaken by the governments accounting for a growing share of their expenditures, developing country governments are forced to cut down on expenditures on health and education, setting limitations on achieving targets on sustainable development goals (SDGs).
- V) In many countries, there has already been a reversal of the modest gains on the social front. A recent report by **UNCTAD** estimates that 3.3 billion people live in countries where the interest payments are far higher than the total expenditure on health and education.

- VI) The recent **International Debt Report of the World Bank** remarks that the poorest countries which borrow through the **International Development Association (IDA) wing of the World Bank** now spend at least 10% of their export earnings to service the external debt incurred by their governments, the highest since 2000.

- VII) Though keen on meeting their nationally determined contributions relating to reduction of emissions, many are forced to cut short on their goals with respect to climate goals. Unless supplemented with alternative sources of accessible finance the tightening of liquidity conditions would come with a lot of planetary



risks. The continual fed funds rate hikes pretend to be unaware of the global concerns.

What could be done?

I) A collective endeavour is required to reform the international financial system replete with asymmetries. The initiative in this regard by Barbados Prime Minister through the **Bridgetown Initiative** presumes importance in this context.

II) The world eagerly awaits as to how the U.S. and others respond to these recent efforts. In the last decade, even the IMF has been supportive of measures relating to capital controls which alone would be able to reduce the risks borne by countries exposed to volatile capital flows.



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