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GENERAL STUDIES 1.

SOCIETY

DEMOGRAPHIC TRANSITION AND CHANGE IN WOMEN'S LIVES

CONTEXT

❖ The passage of World Population Day (July 11) is also a time to look at how India's demographic journey has changed the lives of its citizens, particularly its women.

The Statistics

❖ India's population grew from about 340 million at Independence to 1.4 billion.
❖ In 1941, male life expectancy was about 56 years; only 50% of boys survived to age 28.
❖ Today, life expectancy for men is 69 years, and nearly 50% live to see the ripe old age of 75.
❖ This rapid decline in mortality took parents by surprise, who no longer needed to have four children to ensure that at least two would survive, causing population growth until fertility decline caught up with the mortality decline, and the Total Fertility Rate fell from 5.7 in 1950 to 2.1 in 2019.
❖ Women's childhood, adulthood, and old age have been transformed over the course of demographic transition, sometimes positively, sometimes negatively.

Change for Indian women

❖ As families began having fewer children, ensuring at least one son became more difficult.
❖ With four children, the chance of not having a son was barely 6%, but with two children, it grew to 25%.
❖ Social norms and patrilocal kinship patterns combined with lack of financial security reinforce a preference for sons.
❖ The India Human Development Survey (IHDS) found that 85% of women respondents expected to rely on their sons for old age support, while only 11% expected support from their daughters.
❖ Hence, parents who want to ensure that they have at least one son among their one or two child family, resorted to sex-selective abortion, and, in some cases, the neglect of sick daughters.
❖ Consequently, the number of girls per 100 boys, ages under five dropped from 96 to 91 between 1950 and 2019.
❖ With a fertility decline, active mothering occupies a smaller proportion of women's lives, creating space for education and employment.
❖ While women's educational attainment increased, with over 70% of girls enrolling in secondary education, early marriage and childbearing remain the predominant forces defining women's lives.
❖ Early motherhood, perhaps, explains why lower fertility does not translate into higher labour force participation for women.
❖ Women need to establish secure connections to the labour market and gain work experience if they are to get skilled jobs.
❖ By the time peak childcare demands end, they have missed the window for occupations that require specific skills; only unskilled work is open to them.

Affect women older ages

❖ Demographic shifts also affect women's lives at older ages.
❖ With rising life expectancy, the proportion of the female population aged 65 and above increased from 5% to 11% between 1950 and 2022, and is projected to reach 21% by 2050.
❖ While the proportion of older men will also increase, aging for women has unique implications.
❖ Women generally marry men who are older and are more likely to outlive their husbands. The 2011 Census shows that while only 18% of men above age 65 are widowed, about 55% of the women are widowed.
❖ For widowed women, the lack of access to savings and property results in dependence on children, mainly sons, bringing the vicious cycle of son preference to full circle.

Harnessing gender dividend

❖ Changing patriarchal norms may take a long time. Meanwhile, enhancing women's access to employment and assets will reduce their reliance on sons and could break the vicious cycle of gendered disadvantage, stretching from childhood to old age.

❖ However, early marriage and childbearing remain central to Indian women's lives. Hence, any efforts at improving women's labour force participation must be accompanied by access to safe and affordable childcare.

❖ A World Bank evaluation based on a randomised controlled trial in Madhya Pradesh found that the expansion of Anganwadis to include a crèche led to an increase in the work participation of mothers.

Way forward

❖ The best solution would be to make staffing crèche an acceptable form of work under the National Rural Employment Guarantee Scheme (NREGS).

❖ The burgeoning self-help group movement can be harnessed to set up neighbourhood child-care centres in urban and rural areas.

❖ Obtaining the much hoped for demographic dividend cannot be done without fully harnessing the gender dividend.

❖ Improving access to childcare is an important component of achieving this.

DISASTER MANAGEMENT

SAVE THE WATER

CONTEXT

❖ During the last few years, the delay in onset of monsoon is observed, for e.g., recently, it arrived in Mumbai and New Delhi on the same day June 24. The monsoon's onset in these cities is generally around June 10 and June 30, respectively.

❖ As, immediately after its arrival, many places across India received heavy to very heavy rainfall. It is unusual to see flooded rivers and cities in June/early July since most of the flooding usually occurs in the later months of the monsoon.

THERE IS NEED FOR FLOOD MANAGEMENT TO HANDLE THE FLOOD DISASTER

❖ Studies and expert appraisals have concluded that citizens, properties, and infrastructure in India cannot be provided with complete flood protection.

❖ As, after the end of the flood season in October, many parts of the country begin to face scorching summers and droughts.

❖ Therefore, there is need to shift attention and efforts from flood control to flood management.

❖ But the hydro-infrastructure for river regulation in India is inadequate for effective flood management. If a large part of the flood flows can be safely conserved, damages would reduce.

❖ The saved water would help partially mitigate the upcoming droughts. Storage to manage river flow variability and mitigate droughts is an attractive opportunity for India.

IMPACT OF FLOOD AND TOOLS FOR ITS MANAGEMENT

❖ In recent times, India has faced at least one major flood event each year and floods are beginning to repeat the pattern of damage and destruction.

❖ According to the National Disaster Management, every year 1,600 lives on average are lost due to floods, Authority. Floods also affect 75 lakh hectares of land and inflict damage worth Rs 1,805 crore to crops, houses and public utilities.

❖ In order to handle it, a range of tools are available to manage floods, Broadly, these are classified as structural and non-structural.

❖ Structural measures include

❖ storage reservoirs, embankments, and diversions.

- ❖ These reduce flood hazards by keeping damage-causing waters away from agricultural areas, cities, industries, etc.
- ❖ Storage reservoirs moderate the flood peak by storing water during high-flow periods and releasing it after they have subsided.
- ❖ They also conserve water for irrigation, electricity generation, water supply, etc. Their effectiveness in flood moderation depends on the space available.
- ❖ In addition, tanks and ponds are traditional means of water conservation in India. They also aid in groundwater recharge and promote biodiversity.
- ❖ Non-structural methods such as flood forecasting, warnings, and flood plain zoning, help in the timely evacuation of people and regulate the use of floodplains.
- ❖ A forecasting and warning system provides a priori estimate of approaching floods so that people and movable assets are relocated to safer places in time.
- ❖ India has more than 5,500 large dams. Accurate inflow forecasts help moderate floods by estimating the space needed for storage in reservoirs.
- ❖ As s common saying goes: "Floods are acts of God but flood losses are largely acts of man".
- ❖ Non-structural methods don't involve construction and hence don't create an adverse impact on the environment or otherwise. However, the resource (water) is neither conserved nor put to alternate use.
- ❖ Large and medium water conservancy projects can save huge quantities of damage-causing water. So, to manage increasing variabilities, existing infrastructure should be upgraded or new infrastructure created.

THERE IS NEED TO CONSERVE WATER DURING FLOOD TIME

- ❖ In India, most of the water comes from the Indus, Ganga, Brahmaputra, Godavari, Krishna, Cauvery, Mahanadi, Narmada and Tapi river basins. The monsoon's presence makes Indian rivers highly seasonal.
- ❖ During the four months of monsoon, Indian rivers carry about 75 per cent of their annual flows
- ❖ Therefore, there is need for water conservation during the high flow of water in river basin
- ❖ However, Options for water conservation vary in size from large storage to farm ponds and the impact also varies local in scale to a large region based on its advantages, limitations, concerns and requirements.

CLIMATE CHANGE ADDS A NEW DIMENSION TO FLOOD MANAGEMENT

- ❖ Climate change will add a new dimension to flood management — rainfall patterns, intensities, and durations are likely to change.
- ❖ Recently IPCC released Assessment Report 6 where they noted that intense rains are likely to become more common in this warming world.
- ❖ Therefore, flows in Indian rivers and their variabilities will increase in the future. This will lead to more instances of floods and droughts.
- ❖ It is prudent we upgrade the hydro-infrastructure in the country now so that the tools to manage increased variabilities are available in time.

CONCLUSION

- ❖ Therefore, the entire suite of measures structural and non-structural, appropriate mix of grey, blue and green infrastructure needs to be considered for flood management.
- ❖ Along with it, there is need for mindset and behavioural change as flood flows should be seen as a resource to be conserved for subsequent use and water security. Hence, a river basin approach should be adopted for flood management while taking care of the environment

GENERAL STUDIES 2.

POLITY AND CONSTITUTION

INDIA NEEDS A UNIFORM CIVIL CODE

INTRODUCTION

- ❖ India, being a diverse nation, is home to many religions, each with its distinct personal laws governing marriage, divorce, adoption, inheritance and succession. It would be accurate to say that the absence of a Uniform Civil Code (UCC) has only served to perpetuate inequalities and inconsistencies in our land of rich diversity. In fact, this has been a hindrance in the nation's progress towards social harmony, economic and gender justice.

IN THE CONSTITUENT ASSEMBLY

- ❖ The debate on the UCC goes back to the Constituent Assembly debates.
- ❖ Constituent Assembly debates shed light on the need and the objective behind promoting a common civil code.
- ❖ Babasaheb Ambedkar, the chief architect of the Indian Constitution, had made a strong case in the Constituent Assembly for framing a UCC. He stressed the importance of a UCC in ensuring gender equality and eradicating prevailing social evils.
- ❖ Since a consensus on a UCC could not be reached in the Constituent Assembly, the subject found a place under Article 44 of the Directive Principles.
- ❖ Thus, Article 44, in a sense, is the Constitutional mandate which requires the state to enact a UCC that applies to all citizens cutting across faiths, practices and personal laws.

THE APEX COURT'S CALL

- ❖ It would be also pertinent to point out here that the Supreme Court had dwelt on the matter on more than one occasion.
- ❖ The top court had observed in the Shah Bano case that "It is a matter of regret that Article 44 has remained a dead letter."
- ❖ The Court had pointed out that a UCC would help the cause of national integration.
- ❖ However, despite articulating its views clearly on the subject in many cases, the Supreme Court refrained from issuing any clear directive to the government being mindful of the fact that the framing of laws falls within the exclusive domain of Parliament.

THE ESSENCE

- ❖ The UCC is, therefore, a step in the right direction, long overdue, to safeguard the fundamental rights of all citizens and reduce social inequalities and gender discrimination.
- ❖ It should be seen and understood as an attempt at creating a unified legal framework that upholds the principles enshrined in the Constitution and reaffirmed by Supreme Court judgments.
- ❖ The doubts in the minds of some and the opposition to this initiative stemming from unfounded apprehensions need to be addressed through enlightened debate and constructive engagement.
- ❖ It will serve as a powerful instrument for the promotion of equality and justice for all citizens. Seen in this light, every citizen should welcome it.
- ❖ A UCC would eliminate discriminatory practices that deprive women of their rights and provide them with equal opportunities and protections.
- ❖ Our diverse society calls for a unified legal framework to foster social cohesion and national integration.
- ❖ Personal laws should have a two-dimensional acceptance — they should be constitutionally compliant and consistent with the norms of gender equality and the right to live with dignity.

WAY FORWARD

- ❖ Finally, fellow citizens, leaders of religious groups and political parties should rise above all differences and support implementation of the UCC.

- They should contribute to making it an instrument of social reform, a legislative framework fully aligned with principles of justice and equity underscored by the Constitution.
- It will be a yet another step, a very significant one, towards building a new, inclusive, egalitarian India that we all want.

THE RIGHT APPROACH

CONTEXT
- Bail should not be denied merely because police object to it strongly and Courts should adopt a clear-headed and common-sense approach while considering the grant of bail, and should eschew the tendency to keep someone in prison merely because the police oppose bail with great vehemence.

DEFINING BAIL
- A bail is a legal procedure granted to an accused before their trial in court.
- Through the means of this legal agreement, an accused can pay a sum of money to the court in the assurance of their presence in court on the decided date and time.
- Bail is considered an important criminal procedure in democratic countries like ours.

TYPES OF BAIL (IN INDIA)
- The Indian Constitution has a provision that offers every accused a fundamental right to apply for bail. It can be offered to the accused after determining the seriousness of their offence. Here are the types of bail in India.
- **Interim Bail:** This is a temporary bail where the higher court calls for documents before a final decision regarding the bail application can be taken. After getting the documents, the higher court can decide if the accused will get permanent bail, an extension of the interim bail, or if the bail application will be completely rejected.
- **Regular Bail:** This type of bail is granted to a person who is in police custody. People who are accused of minor offences (criminal or civil in nature) usually apply for this type of bail. People can apply for regular bail under sections 437 and 439 of CrPC.
- **Anticipatory Bail:** This type of bail is granted by the Session Court or High Court, under section 438 of CrPC. Any person who believes that he/she will be arrested for a non-bailable offence can apply for anticipatory bail.

LEGAL POSITION OF BAIL
- **Article 21 of Indian Constitution:** Article 21 of the Constitution of India guarantees the protection of life and personal liberty to all persons.
- It guarantees the fundamental right to live with human dignity and personal liberty, which in turn gives us the right to ask for bail when arrested by any law enforcement authority.
- Section 438 of Code of Criminal Procedure in 1973: The provision of anticipatory bail under Section 438 was introduced in the Code of Criminal Procedure in 1973.
- The term 'Bail' has not been defined under the Criminal Procedure Code, 1973.
- Only the term 'Bailable Offence' and 'Non-Bailable Offence' has been defined under Section 2(a).
- It is based on the recommendation of the Law Commission of India, which in its 41st report recommended the incorporation of a provision of anticipatory bail.
- Universal Declaration of Human Rights under Article 11: The Bail provision, especially anticipatory bail, is based on the legal principle of presumption of innocence which means that every person accused of any crime is considered innocent until proven guilty.

SIGNIFICANCE OF BAIL PROVISIONS
- Bail is an essential element of any criminal justice system, as it guarantees the right to a fair trial for the accused.
- It is needed to safeguard the fundamental right to liberty, as mentioned under Article 21 "No person shall be deprived of their liberty unless prescribed so by a reasonable, fair, and just procedure".
- According to the Supreme Court of India, Bail is a measure to balance the personal freedom of the accused and the public interest. Therefore the release is conditional.

WAY FORWARD

❖ Bail is a mechanism that secures liberty to the accused without providing any unjustified benefit to them. However, it has been scrutinised that the practice of granting bail is quite irregular and unclear.

❖ There are several judgments where the Supreme Court has observed that each case needs to be examined for its facts and circumstance before granting bail.

❖ The rationality behind granting or refusing bail petitions must be to establish a balance between individual rights and the interest of society.

GOVERNANCE

THE GOVERNOR'S MOVE IS DANGEROUS, UNCONSTITUTIONAL

CONTEXT

❖ The Tamil Nadu Governor's move to 'dismiss' a Minister highlights the point that the pleasure of the Governor under the Constitution of India insofar as it relates to Ministers is not the same as that of the colonial Governor.

THE UNDERLYING ISSUE

❖ This unprecedented and deliberately provocative act of dismissing a Minister of a government which enjoys an absolute majority in the State legislature, without the recommendation of the Chief Minister of the State, is going to set a dangerous precedent and has the potential to destabilise State governments putting the federal system in jeopardy.

❖ If Governors are allowed to exercise the power of dismissal of individual Ministers without the knowledge and recommendation of the Chief Minister, the whole constitutional system will collapse.

THE POWERS

❖ What needs to be examined first is whether Governors have the power to dismiss an individual Minister without the advice of the Chief Minister.

❖ Under Article 164 of the Constitution, the Chief Minister is appointed by the Governor without any advice from anyone.

❖ But he appoints the individual Ministers only on the advice of the Chief Minister.

❖ The Article implies that the Governor cannot appoint an individual Minister according to his discretion. So, logically, the Governor can dismiss a Minister only on the advice of the Chief Minister.

❖ The reason is simple. The Chief Minister alone has the discretion to choose his Ministers. He decides who the Ministers of his Council will be. He also decides who will not remain as a Minister in his Council.

❖ This is a political decision of the Chief Minister, who is ultimately answerable to the people. The Constitution has not transferred the discretion of the Chief Minister to the Governor.

❖ Articles and clarity

❖ This point would become absolutely clear on looking at the Government of India Act, 1935 which says that the Governor's Ministers shall be chosen and summoned by him, shall be sworn as members of the council and shall hold office during his pleasure.

❖ The Section in the Act makes it clear that the Ministers shall be chosen by the Governor. So, they hold office during his pleasure.

❖ Further, sub-section of the Section 51 says that the functions of the Governor under this section with respect to the choosing and summoning and the dismissal of Ministers and with respect to the determination of their salaries, shall be exercised by him in his discretion.

❖ A mere constitutional head

❖ Independent India has a constitutional system under which a Governor is a mere constitutional head and he can act only on the aid and advice of the Council of Ministers headed by the Chief Minister.

❖ B.R. Ambedkar had stated unambiguously in the Constituent Assembly that there is no executive function which a Governor can perform independently under the Constitution.

❖ It is true that the pleasure doctrine has been brought into the Constitution of India from the Government of India Act, 1935. But these words simply refer to the formal act of issuing the order of dismissal which is to be done by the Governor, but only on the advice of the Chief Minister.

❖ Judicial clarification

❖ The position of the Governor in India's Constitutional setup has been clarified by the Supreme Court of India in a number of cases.

❖ In Shamsher Singh and Anr vs State Of Punjab (1974), a seven- judge Constitution Bench declared that the President and Governor, custodians of all executive and other powers under various Articles, shall exercise their formal constitutional powers only upon and in accordance with the advice of their Ministers.

❖ Similarly, in Nabam Rebia vs Deputy Speaker, a Constitution Bench of five judges reaffirmed the law laid down in Shamsher Singh and further held that the discretionary powers of the Governor are limited to the postulates of Article 163(1).

CONCLUSION

• In sum, the dismissal of a Minister of the Tamil Nadu Government by the Governor of the State without the advice of the Chief Minister is constitutionally wrong. Newspaper reports suggest that the Governor later held back his order of dismissal for legal consultation. But the issue of dismissal of a Minister without the advice of the Chief Minister is one which clearly destabilises the constitutional system.

THE MASTER PLAN AND THE SLAVES

CONTEXT

❖ Master Plans may not be the panacea. India must reimagine spatial planning to address the growing and emerging governance challenges of urbanisation.

ABOUT

❖ Amitabh Kant, India's G20 Sherpa, stressed at a recent Urban-20 City Sherpas' meet that a master plan is crucial for any city to manage urbanisation. There have been similar calls in the past.

❖ A master plan is an instrument of governance for urban local bodies (ULBs).

❖ It has recently received extensive attention in national policy discussions, and rightly so.

❖ The Ministry of Housing and Urban Affairs has recommended that master plans in cities should be revisited for the improved governance of cities.

❖ The National Mission for Clean Ganga has been advocating such a step to protect urban water bodies; yet, the idea has not advanced beyond exhortations.

❖ Much needs to be understood, for the scholarship on master plans is puzzlingly shallow.

❖ Statutory and spatial

❖ The renewed focus on the concept of a master plan is to be welcomed. But few acknowledge its distinct status as the sole statutory instrument of governance.

❖ Many plans to improve sanitation, infrastructure and social inclusion are dependent on particular programmes, but these are at best ephemeral and incremental as they are centrally funded.

❖ The discourse tends to blur this distinction and, as a result, obscures the significance of the master plan as the instrument of governance.

AN ARCHAIC CONCEPT

❖ A further complication is that the master plan is an archaic concept whose sales-pitch is more spectacular than its performance. There are at least four reasons for this.

❖ **First, the master plan instrument is dated.**

❖ The concept, configuration and rationalities of this instrument as well as the institutional structures surrounding it are conceived by template legislations drafted in the 1950s. These were then replicated by States as laws of town planning.

❖ While this is a central legislation focused on industrial pollution, the legal and institutional frame of the master plan remained unchanged with its archaic conceptions of land development for urban service rationalities.

❖ Second, a master plan is simply a spatial plan of land-use allocation supported by bye-laws and development control regulations. Thus, it essentially embodies a spatial vision for cities.

❖ Third, this spatial vision is at the core of institutional structures, cultures and practices of ULBs.

❖ The edifice of urban governance is built around this spatial vision and provision of urban services.

❖ The ULBs are cultivated and shaped by the agenda of regulating spatial growth and remain slaves to these ideas and conceptions.

❖ As a result, the demands imposed on them by the new visions (of programmatic plans) suffer.
SEP

❖ Fourth, the statutory and spatial nature of the master plan can pose constraints on the programmatic plans, especially the spatially associated ones such as the plans for protection of water bodies.

❖ Most water-body related projects negotiate the challenges of encroachment of floodplains as encroachments in ex-post.

REIMAGINE SPATIAL PLANNING

❖ Urban planning in India must be reimagined urgently. First, we must acknowledge that the master plan instrument may be limited by its archaic conceptions and entrenched institutional cultures. To assume that it would serve the expanded scope of urban governance is far-fetched and can be self-defeating.

❖ Second, there is no need to go far for lessons to do this. Indian cities offer enough experiences to learn from. For instance, many States have tried supplementing the inadequacies of the master plan with innovative bye-laws. Much of this experimental and experiential understanding is, however, dispersed, and is restricted to the domain of praxis.

❖ Third, the incapacities in urban planning and governance highlighted by the 2021 report of the NITI Aayog must receive priority. And it should begin with an elevated attention to the spatial (town) planning profession and education.

WAY FORWARD

❖ The era of planetary urbanisation brings spatial planning into sharp focus, and calls for reimaging the spatial planning framework in India.

❖ Recent moves such as Gati Shakti and Model Rural Transformation Acts are a reflection of this growing demand. But these are too feeble, remote and limited.

❖ The Centre must work with the States to reconsider the spatial planning framework in India.

THE POLITICS OF THE UNIFORM CIVIL CODE

CONTEXT

❖ On June 27, in Bhopal, Prime Minister Narendra Modi advocated that a Uniform Civil Code (UCC) be implemented,

EGALITARIAN PURSUIT

❖ The fate of India's egalitarian pursuit would ultimately depend on the resolutions of these two inter-twined questions.

❖ Though the Constitution recommends a UCC, the fact is that a UCC has been seen as a communal agenda for a long time.

❖ Even well-known, secular public intellectuals have chosen to shy away from taking a clear stand in its favour.

PERSONAL LAW AND GENDER

❖ India may be moving towards majoritarianism, but the arc of democracy is increasingly bending towards multiculturalism.

❖ Many Western liberal democracies, and not just India, are wrestling with the issue of gender equality, which is at the crux of a UCC.

❖ For instance, the French courts deal with such cases that often come from Muslim immigrants from Morocco and Algeria. Canada, Australia, and the U.S. often use religious-based alternative dispute resolutions. India could learn from such efforts.

❖ Another key issue of UCC is Muslim personal law. The All-India Muslim Personal Law Board (AIMPLB) came into existence in 1973 mainly to preserve Muslim personal law.

❖ But the history of personal law can be traced to as early as 1772, when the colonial state used religious doctrines to formulate personal laws.

❖ The Muslim Personal Law (Shariat) Application Act, 1937 and the Dissolution of Muslim Marriage Act, 1939 form the foundation of Muslim personal law.

❖ The triple talaq bill, passed in 2019, is one of the recent major changes to personal law.

ADVANTAGES OF UNIFORM CIVIL CODE
EQUALITY AND UNIFORMITY

❖ Elimination of gender-based discrimination.

❖ Ensuring equal rights and opportunities for all citizens.

❖ Unifying diverse personal laws to promote social harmony and national integration.

WOMEN'S EMPOWERMENT
❖ Protection of women's rights and interests.
❖ Countering regressive practices and promoting gender justice.
❖ Encouraging education, employment, and independence among women.

LEGAL CERTAINTY AND SIMPLICITY OF UNIFORM CIVIL CODE
❖ Simplification of complex legal systems.
❖ Avoidance of conflicting judgments and legal ambiguities.
❖ Enhancing access to justice and promoting the rule of law.
❖ Equality and Non-Discrimination

PROGRESSIVE SOCIAL REFORMS
❖ Discouraging outdated customs and practices.
❖ Promoting modernization and social progress.
❖ Addressing issues related to child marriage, divorce, inheritance, etc.
❖ **Disadvantages of Uniform Civil Code**

CULTURAL AND RELIGIOUS SENSITIVITIES
❖ Potential erosion of cultural and religious identities.
❖ Opposition from minority communities regarding interference in personal matters.
❖ Preserving diversity and multiculturalism in a pluralistic society.

IMPLEMENTATION CHALLENGES
❖ Resistance from conservative groups and political parties.
❖ Logistical difficulties in enacting a comprehensive and uniform code.
❖ Balancing uniformity with region-specific customs and traditions.

LEGAL AND ADMINISTRATIVE BURDENS
❖ Overhauling existing personal laws and legal frameworks.
❖ Establishing mechanisms for dispute resolution and enforcement.
❖ Potential strain on the judiciary and administrative systems.

SOCIOECONOMIC IMPLICATIONS
❖ Disruption of established social and economic structures.
❖ Unequal impact on different sections of society.
❖ Ensuring safeguards to protect vulnerable groups.

WAY FORWARD
❖ Recap the advantages and disadvantages of implementing a Uniform Civil Code.
❖ Emphasize the need for a balanced approach considering both the benefits and challenges.
❖ Highlight the importance of public discourse, consensus building, and careful consideration of social, cultural, and legal implications in any decision regarding the Uniform Civil Code.

NEEDLESS MOVE

CONTEXT
❖ By allowing ED chief's continuance, the SC has undermined its own authority.

DETAILS
❖ The order allowing Sanjay Kumar Mishra, head of the Enforcement Directorate (ED), to continue till September 15 at the Centre's request is needlessly accommodative.
❖ Yet, without any submission that the process to select his successor has been set in motion, the Court has invoked an undefined "larger national interest" to allow him to go on up to September 15. It was a self-serving application in the first place.
❖ The ostensible reason that the government finds his services indispensable is that he is helming the country's efforts to demonstrate its framework to counter money laundering and the financing of terrorism during a country review before the Financial Action Task Force (FATF).

ENFORCEMENT DIRECTORATE (ED)

❖ The Enforcement Directorate (ED) is a specialized financial investigation agency under the Ministry of Finance.
❖ It is responsible for enforcing the provisions of the Prevention of Money Laundering Act, 2002 (PMLA) and the Foreign Exchange Management Act, 1999 (FEMA) in cases of economic offences and cross-border crimes.
❖ The ED was established in 1956 as a wing of the Department of Revenue to deal with foreign exchange violations under the Foreign Exchange Regulation Act 1947 (FERA).
❖ Over the years, it has evolved into a multi-disciplinary agency with expertise in financial intelligence, cyber forensics, legal analysis and international cooperation.

THE ENFORCEMENT DIRECTORATE DEALS WITH 4 LAWS

❖ The Prevention of Money Laundering Act, 2002 (PMLA).
❖ The Foreign Exchange Management Act, 1999 (FEMA).
❖ The Fugitive Economic Offenders Act, 2018 (FEOA).
❖ Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974 (COFEPOSA)

SIGNIFICANCE

❖ The ED plays a vital role in combating economic crimes and safeguarding the national security and economic interests of the country.
❖ It works closely with other agencies such as the Central Bureau of Investigation (CBI), the Income Tax Department (ITD), the Reserve Bank of India (RBI), the Securities and Exchange Board of India (SEBI), the National Investigation Agency (NIA), the Financial Intelligence Unit (FIU) and the Narcotics Control Bureau (NCB).
❖ The ED also represents India in various international forums such as the Financial Action Task Force (FATF), the Asia/Pacific Group on Money Laundering (APG) and the G20 Anti-Corruption Working Group.
❖ It participates in bilateral and multilateral dialogues and joint investigations with foreign agencies on issues related to money laundering, terrorist financing, tax evasion, black money, cybercrime and other cross-border offences.

CHALLENGES

❖ Used as a Political Tool by the ruling party
❖ Poor track record of conviction and recovery
❖ Lacks adequate resources and manpower

ADDRESSING THE CHALLENGES

❖ Strengthening the autonomy
❖ Enhancing the Professionalism
❖ Expanding the infrastructure
❖ Improving the coordination and cooperation
❖ Streamlining the legal framework

CONCLUSION

❖ As the agency that administers the law against money laundering, the ED may have a key role in preparing the country's presentation, but it is difficult to believe that the process depends on one individual. The Court's permissiveness detracts from its resolve to hold the government to account for actions that it had itself declared illegal.
❖ By implementing necessary reforms and improvements, the ED can enhance its credibility and reputation as a professional and independent agency that works for the public interest.

CHARTING THE PATH FOR THE SIXTEENTH FINANCE COMMISSION

CONTEXT

❖ The Sixteenth Finance Commission is due to be set up shortly. Many critical changes have taken place since the constitution of the Fifteenth Finance Commission in November 2017 that includes COVID-19 and the subsequent geopolitical challenges.

THE VERTICAL AND HORIZONTAL DIMENSIONS

❖ The Fourteenth Finance Commission had raised the share of States in the divisible pool of central taxes to 42% from 32%.

❖ This was revised to 41% when the number of States in India was reduced to 28.

❖ During 2020-21 to 2023-24 (BE), the effective share of States in the Centre's gross tax revenues (GTR) averaged close to 31%, which was significantly lower than the corresponding share of nearly 35% during 2015-16 to 2019-20.

❖ This was due to the inordinate increase in the share of cesses and surcharges to 18.5% of the Centre's GTR during 2020-21 to 2023-24 from 12.8% during 2015-16 to 2019-20.

❖ This heavy reliance on cesses and surcharges requires scrutiny by the Sixteenth Finance Commission. One option is to freeze the share of cesses and surcharges to some base number.

❖ An issue of concern in recent years has been the poor performance of the Goods and Services Tax (GST) and the consequent decline in total divisible pool. Fortunately, this is not an issue now as GST collections have maintained good buoyancy in the last two years. GST still needs restructuring to make it a good and simple tax.

❖ The share of individual States in the Centre's divisible pool of taxes is determined by a set of indicators that includes population, per capita income, area, and incentive-related factors such as forest cover and demographic change.

❖ In the case of per capita income, it is the distance of a State's per capita income from a benchmark, usually kept at the average per capita income of the top three States that is used as a determining factor.

❖ However, due attention needs to be paid to the needs of the lower income States. These States are expected to provide a relatively larger share of 'demographic dividend' to India in future provided attention is paid to the educational and health needs of their populations.

❖ In fact, equalisation of the provision of education and health services should be prioritised in the overall scheme of resource transfers.

❖ Instead of using a large number of tax devolution criteria, the transfer of resources to individual States may be guided by the equalisation principle using a limited number of criteria such as population, area and distance, supplemented by a suitable scheme of grants.

❖ The equalisation principle is consistent with both equity and efficiency. It is used in federations such as Canada and Australia.

RECOMMENDATIONS

❖ The debt-GDP ratio for the combined account of central and State governments had peaked at 89.8% in 2020-21, of which the Centre's debt-GDP ratio amounted to 58.7%, and that of States was 31%.

❖ While these numbers have begun coming down, these are still considerably above the corresponding Fiscal Responsibility and Budget Management (FRBM) norms of 40% and 20%, as in the 2018 amendment.

❖ The Twelfth Finance Commission had recommended a target of 28% consistent with an underlying nominal GDP growth of 12%.

❖ It is also clear that the adjustment needed for the central government is larger than that for State governments.

❖ At the same time, a few State governments appear to have relatively larger debt and fiscal deficit numbers relative to their GSDPs.

❖ In this context, two concerns appear: these relate to the proliferation of subsidies and the re-introduction of the old pension scheme in States without a clear identification of the sources of financing and the resultant fiscal burdens.

WAY FORWARD

❖ One innovation which may be relevant in this context is to set up a loan council, as recommended by the Twelfth Finance Commission. This independent body should oversee the loan magnitudes and profiles of the central and State governments.

❖ The Sixteenth Finance Commission should examine the subject of non-merit subsidies in detail.

❖ The Finance Commission should be strict about States maintaining fiscal deficit within limits. It should provide carrots to States maintaining fiscal deficit.

INTERNATIONAL RELATIONS

A NEW CHAPTER IN INDIA-AFRICA TIES CAN BE WRITTEN

INTRODUCTION

❖ There is a slow realisation that Africa, a continent, accounting for nearly 17% of the world's population today and reaching 25% in 2050, needs to be studied closely because India's rise as a global player is inevitably linked to the kind of partnership it enjoys with Africa.

THE BACKGROUND

❖ In the past 15 years and especially since 2014, India- Africa relations have developed steadily but more progress is achievable.

❖ In this context, the 20-member Africa Expert Group (AEG), established by the Vivekananda International Foundation, recently presented the VIF Report entitled 'India-Africa Partnership: Achievements, Challenges and Roadmap 2023'.

AFRICA IN TRANSITION

❖ The report examines the transitions unfolding in Africa: demographic, economic, political and social.

❖ From this blend of changes, stamped by the adverse impact of the pandemic and complicated geopolitics, emerges a continent that is set to transform itself.

❖ It is slowly heading toward regional integration and is devoted to democracy, peace and progress, even as Ethiopia, Sudan, the Central African Republic and other countries continue to battle with the challenges posed by insurgency, ethnic violence and terrorism.

❖ Superimposed on this landscape is the sharpening competition among at least half a dozen external partners such as China, Russia, the United States, the European Union, Japan, Türkiye and the United Arab Emirates for strengthening their relations with parts of Africa to ensure market access, gain energy and mineral security, and increase political and economic influence.

❖ The VIF report notes that India has a substantive partnership with Africa and a rich fund of goodwill, but it is essential for New Delhi to review its Africa policy periodically, stay resilient by making the required changes, and place a razor-like focus on its implementation.

GIST OF RECOMMENDATIONS

❖ The central part is 'Roadmap 2030', a set of nearly 60 policy recommendations that are designed to deepen and diversify the India-Africa partnership. They cover four areas.

❖ First, political and diplomatic cooperation should be strengthened by restoring periodic leaders' summits through the medium of the India-Africa Forum Summit; the last summit was in 2015.

❖ Another recommendation relates to forging consensus among G-20 members on the AU's entry into the G-20 as a full member.

❖ Action is now under way, following Prime Minister Narendra Modi's recent communication to G-20 leaders requesting support for this proposal.

❖ Second, on defence and security cooperation, the government needs to increase the number of defence attachés deployed in Africa, expand dialogue on defence issues, widen the footprint of maritime collaboration, and expand lines of credit to facilitate defence exports.

❖ Third, India-Africa trade touching $98 billion in FY22–23 is an encouraging development. This figure can go up if access to finance through the creation of an Africa Growth Fund (AGF) is ensured.

- ❖ A special package of measures to improve project exports and build up cooperation in the shipping domain has been suggested.
- ❖ Fourth, socio-cultural cooperation should be increased through greater interaction between universities, think tanks, civil society and media organisations in India and select African countries.
- ❖ Setting up a National Centre for African Studies will be the right step. Indian Technical and Economic Cooperation (ITEC) and Indian Council for Cultural Relations (ICCR) scholarships awarded to Africans should be named after famous African figures.
- ❖ Visa measures for African students who come to India for higher education should be liberalised.

WAY FORWARD

- ❖ Finally, the report suggests a special mechanism for implementing the 'Roadmap 2030'. This can best be secured through close collaboration between the MEA and the National Security Council Secretariat through a team of officials working under the joint leadership of the Secretary, Africa in the MEA, and a designated Deputy National Security Adviser.

INDIA SHOULD REFUSE AMERICA'S 'NATO PLUS' BAIT

CONTEXT

- ❖ Recently the United States and the Chinese Communist Party (CCP), in May recommended strengthening the 'NATO-Plus' framework by including India in the grouping. India's External Affairs Minister S. Jaishankar had rejected this idea by saying that "NATO template does not apply to India".

NATO AND NATO PLUS

- ❖ NATO is a transatlantic military alliance of 31 countries, with the majority of members from Europe.
- ❖ After the dissolution of the Soviet Union and the end of the Cold War, many thought that NATO would lose its relevance.
- ❖ On the contrary, NATO has not only survived but also expanded, with Finland joining as its 31st member and Sweden waiting in the wings.
- ❖ NATO appears to be getting the much-needed ground for survival, thanks to Russia's tirade against it and the invasion of Ukraine.
- ❖ With NATO swelling its expanse, some analysts even see the onset of Cold War 2.0.

- ❖ NATO plus refers to a security arrangement of NATO and the five treaty allies of the U.S. — Australia, New Zealand, Japan, Israel, and South Korea as members — to enhance "global defence cooperation" and win the "strategic competition with the Chinese Communist Party".
- ❖ Interestingly, the term 'NATO Plus' is not an officially recognised or established concept within NATO itself, but has been used in discussions and debates regarding the potential expansion of the alliance.
- ❖ The inclusion of these countries as members would require a complex process of negotiation and assessment of their compatibility with NATO's principles, obligations, and defence commitments.[SEP]
- ❖ India on joining NATO The pros
- ❖ While NATO's earlier target was the Soviet Union and now Russia, the focus of NATO Plus is clearly on containing China. Therefore, considering its disputes with China, India remains a missing link in the framework.
- ❖ In light of increasing regional security challenges, India joining the NATO Plus framework could provide it with a security umbrella, with protection and deterrence against potential threats.
- ❖ India could also gain access to advanced military technologies, intelligence-sharing platforms, and inter-operability with other member-states.

THE CONS

- ❖ This could potentially strengthen India's defence capabilities and modernisation efforts. But this bait needs to be assessed in the larger context of India's strategic autonomy.
- ❖ First, getting into any NATO framework will annoy Russia and China. Apart from the robust strategic partnership, Russia has been useful to India in dealing with regional security challenges and, importantly, moderating the stance of China.

- ❖ Even though Russia is getting over-dependent on China, Moscow remains a valuable partner for India.
- ❖ Should it join, in one stroke, India's solidified strategic partnership with Russia will crumble. Balancing these relationships and managing potential geopolitical consequences would be a significant challenge for India.
- ❖ Second, while aligning with a U.S.-led alliance system may be tempting due to the threats posed by China, it could ultimately prove counterproductive and detrimental.
- ❖ Having a military framework will limit India's freedom of action and prevent it from pursuing an independent policy towards China.
- ❖ Moreover, at a time when India has its own bilateral issues with China and a strategy for the Indo-Pacific, hopping into the Taiwan strategy of the U.S. under NATO Plus will complicate India's security, with the possibility of Chinese justification for further military build-up along the India-China border and frequent intrusion.
- ❖ Third, India has traditionally maintained a policy of strategic autonomy, allowing it to engage with various nations and blocs based on its own interests.
- ❖ Joining a NATO framework would require India to align its defence and security policies with the objectives and strategies of the alliance, thereby potentially undermining India's autonomy.
- ❖ While the non-aligned policy will get a quick death, it could strain relationships with countries, especially neighbours and regional organisations that value India's independent stance, and could also limit its flexibility in engaging with other regional powers.

INDIA'S PRIORITIES
- ❖ India's priorities lie in addressing its own regional dynamics that includes a unique set of security challenges such as border disputes, terrorism, and regional conflicts.
- ❖ While NATO has certain competencies to deal with such issues, its larger geopolitical agenda starting from Eurasia to the Indo-Pacific may divert resources and attention away from these pressing issues and, therefore, will not be of much help to India.

CONCLUSION
- ❖ For the time being, India's posturing through the Quad (India, Japan, Australia and the U.S.; the Asian NATO as per China) looks more promising than the NATO Plus bait.

BILATERAL, REGIONAL AND GLOBAL GROUPINGS AND AGREEMENTS INVOLVING INDIA AND/OR AFFECTING THE INDIAN INTERESTS

CONTEXT
- ❖ India benefited as a member of the SCO, but the future is not bright

THE SCO
- ❖ The Shanghai Cooperation Organisation-Council of Heads of State meeting, hosted by Prime Minister Narendra Modi on Tuesday, marked the first time India chaired the summit of regional countries.
- ❖ India became a full SCO member in 2017, along with Pakistan.
- ❖ During this 23rd Summit, Iran officially joined the SCO as the Ninth Member Country.
- ❖ The theme of India's chairperson-ship of SCO is 'Towards a SECURE SCO', which stands for: S: Security, E: Economic development, C: Connectivity, U: Unity, R: Respect for sovereignty and territorial integrity, E: Environmental protection.

THE IMPORTANCE OF SCO
- ❖ The government has held that joining the originally Eurasian group was important as member-countries make up a third of the global GDP, a fifth of global trade, a fifth of global oil reserves and about 44% of natural gas reserves.
- ❖ Also important is its focus on regional security and connectivity — areas key to India's growth and making up its challenges, such as terrorism in Pakistan, and Chinese aggressions as well as the Belt and Road Initiative.
- ❖ Being "inside the tent" is important, especially as Pakistan is a member, even if that means conducting joint exercises under the SCO Regional Anti-Terrorist Structure.
- ❖ The SCO also gives India an interface with Central Asian markets and resources.

❖ Finally, joining the SCO was a key part of India's stated ambitions on "multi-alignment" and "strategic autonomy" while becoming a "balancing power" in the world,

❖ Over the past year, this has become an economic necessity as India has chosen to be neutral on the Ukraine war, benefiting from fuel and fertilizer purchases from Russia.

INDIA'S CHAIRMANSHIP

❖ It was expected that India's turn to chair the SCO this year would be a major event, rivalling the expected pomp around the G-20 meet in September.

❖ In addition, given Russia's and China's blocks on the G-20 joint communiqué that India is keen to find consensus on, the SCO summit would have been a convenient venue for Mr. Modi to negotiate a resolution with his counterparts.

❖ However, India's decision to postpone the SCO summit due to the Prime Minister's U.S. State visit, and then to turn it into a virtual summit may have been a dampener on the SCO outcomes.

❖ India's concerns with hosting Xi Jinping given the LAC hostilities, or Pakistan Prime Minister Sharif's possible 'grandstanding', or even the optics of welcoming Russian President Vladimir Putin may have been factors.

❖ Whatever the reason, while the members hammered out a New Delhi declaration and joint statements on radicalisation and digital transformation, the government was unable to forge consensus on other agreements including one on making English a formal SCO language, while India, despite being Chair, did not endorse a road map on economic cooperation, presumably due to concerns over China's imprint.

CONCLUSION

❖ With its SCO chairpersonship ending, the government may now be feeling the law of diminishing returns over its SCO engagement — one that might make its task of hosting the G-20 even more difficult.

SOBRIETY AFTER THE EUPHORIA OF THE U.S. STATE VISIT

CONTEXT

❖ The euphoria stemming from Prime Minister Narendra Modi's state visit to the United States in June is yet to subside. Those with long memories of U.S.-India relations in the past are, hence, left to wonder whether this is the same U.S. that had let India down in the past at crucial moments.

BACKGROUND

❖ Two U.S. Presidents in particular, Lyndon B. Johnson in 1963 and Richard Nixon in 1971, are still remembered for their infamous roles in this respect.

❖ Johnson for denying aid to India in the wake of China's perfidious attack on India in 1962, and Nixon during the India-Pakistan conflict in 1971 for sending the U.S. Seventh Fleet steaming up the Bay of Bengal in a show of force intended to deter India from supporting the 'liberation struggle' in East Bengal, which ultimately led to the birth of a new nation, Bangladesh.

❖ This time, there was no room, whatsoever, to doubt in which corner the U.S. stands in relation to India.

❖ The promise of the transfer of technology in several areas, most conspicuously in terms of producing fighter jet engines for the Indian Air Force, and holding out the promise of the initiative on Critical and Emerging Technology (iCET) marks a remarkable turn in the American attitude.

❖ All this, and with the many more agreements on critical technologies on the anvil, could lead to a quantum jump in India's military and aerospace capabilities.

INDIAN VISITS THEN AND NOW

❖ A good visit to the U.S. by an Indian Prime Minister is generally viewed as one clear index of India's standing in the comity of nations. It is, hence, tempting to compare Mr. Modi's latest visit with that of other Indian Prime Ministers since Independence.

❖ There were visits by Jawaharlal Nehru and Lal Bahadur Shastri's visit never happened in the end, while Indira Gandhi's visit to Washington as Prime Minister was a disaster of sorts, with both India and the U.S. having their own versions of what transpired.

❖ Prime Minister Rajiv Gandhi's visit was by all accounts deemed a success, breaking many previous shibboleths.

❖ Admittedly, none of them matched the euphoria created by the visit of two latter day Prime Ministers, Manmohan Singh and Mr. Modi.

THE CIVIL NUCLEAR DEAL MARKED A SHIFT

❖ Admittedly, the opening up of civil nuclear cooperation between India and the U.S. marked the beginning of a tectonic shift in global affairs at the start of the 21st century, unmatched before or since.

❖ Securing a waiver under the Nuclear Non-Proliferation Treaty, and obtaining the approval of the U.S. Congress for the iconic 123 Agreement that paved the way for an India-specific Safeguards Agreement with the International Atomic Energy Agency (IAEA)

❖ As a result, India today has the freedom to maintain a select number of reactors outside IAEA Safeguards, enabling it to utilise them for military purposes.

❖ The freedom India currently enjoys for reprocessing and enrichment are other critical outcomes that stemmed from the visit.

BEING CAUTIOUS, LOOKING AT HISTORY

❖ The United States of the 21st century is certainly different in many respects from the U.S. in the late 20th century.

❖ In the euphoria that exists following Mr. Modi's visit, it is, however, desirable for India to be cautious and heed the lessons of history.

❖ India certainly is not, at least at this stage, the kind of ally that the U.S. seeks or demands.

❖ Moreover, U.S. politics is currently in a state of flux — more so than at most times in the past.

❖ The individual preferences of the U.S. President in office and the 'swing factor' in U.S. foreign policy are other aspects that foreign countries, India included, can seldom comprehend adequately.

❖ India again is not unfamiliar with the way the U.S. changes its priorities, and friends.

❖ Sober leaders on both sides must also understand that the current euphoria in relations notwithstanding, the situation has been dictated due to circumstance rather than conviction.

❖ This must not be lost sight of by India in particular. For instance, India cannot possibly be part of an arrangement such as the AUKUS Pact that binds the U.S. with the United Kingdom and Australia.

❖ The fundamentals underlying the Quad (India, Japan, Australia and the U.S.) and AUKUS are very different.

WAY FORWARD

❖ India must, instead, use the outcome of the Prime Minister's visit to skilfully function as a 'bridge power'. It is eminently suited to play such a role, and should not be inveigled — through blandishments such as defence ties — to play the role of a subordinate to the U.S. in the politics of the Asia-Pacific.

THE GLOBAL SOUTH: ORIGINS AND SIGNIFICANCE

Context

❖ The unwillingness of many leading countries in Africa, Asia and Latin America to stand with NATO over the war in Ukraine has brought to the fore once again the term "Global South."

Global South

❖ The term "Global South" is not geographical. Rather, its usage denotes a mix of political, geopolitical and economic commonalities between nations.

❖ It refers to various countries around the world that are sometimes described as 'developing', 'less developed' or 'underdeveloped'.

❖ Many of these countries — although by no means all — are in the Southern Hemisphere, largely in Africa, Asia and Latin America.

❖ In general, they are poorer, have higher levels of income inequality and suffer lower life expectancy and harsher living conditions than countries in the "Global North" — that is, richer nations that are located mostly in North America and Europe, with some additions in Oceania and elsewhere.

Going beyond the 'Third World'

❖ The term Global South appears to have been first used in 1969 by political activist Carl Oglesby.

❖ But it was only after the 1991 breakup of the Soviet Union — which marked the end of the so-called "Second World" — that the term gained momentum.

❖ Until then, the more common term for developing nations — countries that had yet to industrialise fully — was 'Third World'.

- ❖ The term 'First World' referred to the advanced capitalist nations; the 'Second World', to the socialist nations led by the Soviet Union; and the 'Third World', to developing nations, many at the time still under the colonial yoke.
- ❖ Eventually 'Third World' became a synonym for banana republics ruled by tinpot dictators — a caricature spread by Western media.
- ❖ The fall of the Soviet Union — and with it the end of the so-called Second World — gave a convenient pretext for the term 'Third World' to disappear, too.
- ❖ Meanwhile 'developed', 'developing' and 'underdeveloped' also faced criticism for holding up Western countries as the ideal, while portraying those outside that club as backwards.
- ❖ Increasingly the term that was being used to replace them was the more neutral-sounding "Global South."

Geopolitical, not geographical

- ❖ The term 'Global South' is not geographical. In fact, the Global South's two largest countries — China and India — lie entirely in the Northern Hemisphere.
- ❖ Rather, its usage denotes a mix of political, geopolitical and economic commonalities between nations.
- ❖ Countries in the Global South were mostly at the receiving end of imperialism and colonial rule, with African countries as perhaps the most visible example of this.
- ❖ It gives them a very different outlook on what dependency theorists have described as the relationship between the centre and periphery in the world political economy — or, to put it in simple terms, the relationship between "the West and the rest."
- ❖ By 2030 it is projected that three of the four largest economies will be from the Global South — with the order being China, India, the U.S. and Indonesia.
- ❖ Already the GDP in terms of purchasing power of the the Global South-dominated BRICS nations — Brazil, Russia, India, China and South Africa — surpasses that of the Global North's G-7 club. And there are now more billionaires in Beijing than in New York City.

Conclusion

- ❖ Countries in the Global South are increasingly asserting themselves on the global scene — be it China's brokering of Iran and Saudi Arabia's rapprochement or Brazil's attempt to push a peace plan to end the war in Ukraine.
- ❖ **One thing is for sure:** the Global South is flexing political and economic muscles that the 'developing countries' and the 'Third World' never had.

VIRTUAL SUMMIT, VIRTUAL SILENCE

CONTEXT

- ❖ India's lack of a credible explanation in hosting a virtual Shanghai Cooperation Organisation (SCO) summit indicates New Delhi's diplomatic drift as far as the SCO is concerned.

ABOUT

- ❖ At a media briefing on July 4, India's Foreign Secretary Vinay Kwatra vehemently asserted that the fact that the Shanghai Cooperation Organisation (SCO) summit was held virtually in no way signifies, hints, insinuates the dilution in the objectives that we are trying to seek of the SCO Summit.
- ❖ He did not disclose, however, any reason for not holding the summit physically or in hybrid mode.
- ❖ Mr. Kwatra's failure to give even one credible reason for having a virtual summit indicates that India is moving away from the approaches which led it to become an SCO full member in 2017.

CHINA'S ACTS AS REASON

- ❖ China's actions towards India in 2020 and the evolving international order have obviously compelled a re-appraisal of Indian interests in the SCO.
- ❖ This is evident from the point of not only holding a virtual summit but also Mr. Modi's combative assertiveness on issues of concern to India (terrorism and connectivity) on which it rightly has fundamental differences with China and Pakistan.
- ❖ While neither Pakistan nor China will change course on terrorism, the issue resonates in the Central Asian Republics that continue to have deep concerns of terrorist groups using Afghanistan.
- ❖ On connectivity, though, which is a core issue for the SCO, India's isolation in the organisation is apparent.

- ❖ Prime Minister reiterated India's position that connectivity projects should respect national sovereignty.
- ❖ His target was China's Belt and Road Initiative (BRI) and its flagship China-Pakistan Economic Corridor (CPEC) which violates Indian sovereignty.

THE BRI AND THE EURASIAN GAME

- ❖ The BRI's negative consequences have not inhibited the enthusiasm of SCO members for it.
- ❖ India, therefore, needs to be alive to the danger of China integrating Eurasia and shutting it out of the region with Pakistan's active support.
- ❖ This is not to suggest that India should endorse the BRI, which is an instrument of Chinese expansionism, but it has to find ways to maintain close ties with Eurasia.
- ❖ Certainly, the promotion of Buddhist heritage, however laudable the endeavour, will not help in drawing SCO members towards India and prevent their growing links with China.
- ❖ Besides, the Chabahar project (Iran) has not moved ahead as it needs to.
- ❖ India has to devote far greater resources and energy to develop connectivity through Iran though it is not easy to deal with it.
- ❖ Active air corridors with the Central Asian Republics and a pragmatic policy towards Afghanistan are also essential to remain, howsoever tenuously, in the Eurasian game.

A SILENCE ON THE UKRAINE WAR

- ❖ Expectedly, the SCO Declaration was silent on the Ukraine war.
- ❖ India, Pakistan or China also did not refer to it in their summit statements.
- ❖ The virtual summit ensured that Mr. Modi did not have to meet any of the leaders, including Pakistan's Shehbaz Sharif, personally.
- ❖ That avoided ripples of the kind the SCO Foreign Ministers meeting generated in Goa, in May 2023.
- ❖ The price though paid in avoiding controversies and embarrassment including what would have been caused by the optics of Mr. Putin in India was in the demonstration of where India currently stands in Eurasia and its western neighbourhood.

CONCLUSION

- ❖ Many eyes will now be on the BRICS summit in South Africa in August where Mr. Xi and perhaps Mr. Putin will be present. Many wait to see if India goes to South Africa or prefer to avoid any chance of muddying the waters before his great moment in the diplomatic sun — the G-20 summit in Delhi in September.

THE INDIA-UAE DEAL TO TRADE WITH RUPEES

CONTEXT

- ❖ During Prime Minister Narendra Modi's recent visit to the UAE, the Reserve Bank of India (RBI) and its Abu Dhabi-headquartered counterpart the Central Bank of the UAE signed two memoranda of understanding (MoUs). While the first established a framework to promote the use of local currencies for cross-border transactions, the other was for interlinking payment systems.

PROMOTION OF LOCAL CURRENCIES

- ❖ The first of the two MoUs aims to establish a Local Currency Settlement System (LCSS) to promote the use of rupee and the dirham bilaterally. It will cover all current and permitted capital account transactions.
- ❖ This, the RBI said, would enable exporters and importers to send invoices and pay in their respective domestic currencies, which in turn would help the development of the INR-AED foreign exchange market.
- ❖ It would also help promote investments and remittances between the two countries.
- ❖ Broadly, the arrangement would help optimise transaction costs and settlement time for transactions, including for remittances from Indians residing in UAE.

SIGNIFICANCE TO EXPORTERS

- ❖ The focus on denominating export contracts and invoices in the local currency helps avert exchange-rate risks (such as when a third currency is being used as a standard), which further facilitates the scope to discover competitive pricing.
- ❖ Moreover, it could also lead to enhanced avenues for cooperation among the banking systems of the two countries, thereby contributing to the expansion of trade and economic activity for both.

- ❖ The major items of export from India to the UAE include mineral fuels, mineral oils and products, bituminous substances, mineral waxes, followed by pearls, precious stones and metals, electrical machineries and equipment, among other things.
- ❖ The major items imported by India are petroleum crude and petroleum related products.
- ❖ India-UAE trade rose to $85 billion in 2022. Furthermore, the UAE was India's third largest trading partner and second-largest export destination in FY2022-23. Conversely, India was the UAE's second largest trading partner.

INTERLINKING OF PAYMENT SYSTEMS

- ❖ The second of the two MoUs links India's Unified Payments Interface (UPI) with its UAE-counterpart Instant Payment Platform (IPP).
- ❖ This is alongside the linking of card switches, that is, RuPay switch and UAESWITCH. Card switches entail facilitating communications and transactions between different payment service providers.
- ❖ The agreement would also explore linking of payment messaging systems of the two countries.
- ❖ The apex banking regulator in India said that the UPI-IPP linkage would enable users in either country to make fast, convenient, safe, and cost-effective cross-border fund transfers.
- ❖ As for card switches, the regulator stated, it will facilitate mutual acceptance of domestic cards and processing of card transactions.
- ❖ This is relevant to 3.5 million resident Indians living in the UAE.

THE IMPORTANCE

- ❖ One of the several issues with sending remittances back home, especially for low wage earners, is the high costs of transactions.
- ❖ The World Bank noted in the 2023 Migration and Development Brief that India experienced a 24.4% increase in remittances to $111 billion in 2022 on a year-over-year basis.
- ❖ This represented 3.3% of the GDP. It further stated that at present, remittance inflows from GCC (Gulf Cooperation Council) countries, which accounts for about 28% of the country's total remittance inflows, also soared in 2022.
- ❖ High energy prices favoured the employment and incomes of the less-skilled Indian migrants in the GCC countries, while the GCC governments' special measures to curb food price inflation shielded migrants' remitting potential.
- ❖ About 36% of the remittances were attributed to high-skilled and largely high-tech Indian migrants in the U.S., the U.K., and Singapore.

CONCLUSION

- ❖ Continued collaboration in areas such as technology, renewable energy, infrastructure development, tourism, and healthcare can further strengthen the bilateral relationship between India and the UAE.

MORE THAN COURT ACTION, REVISIT THE INDUS WATERS TREATY

INTRODUCTION

- ❖ The Indus Waters Treaty (1960), or IWT, that regulates the Indus water courses between the two riparian states of India and Pakistan, is cited by many as an example of cooperation between two unfriendly neighbours for many reasons. These include the IWT having survived several wars and phases of bitter relations, and its laying down of detailed procedures and criteria for dispute resolution.

CURRENT STATUS

- ❖ In the last decade, exercising judicial recourse to settle the competing claims and objections arising out of the construction and design elements of the run-of-river hydroelectric projects that India is permitted under the IWT to construct on the tributaries of the Indus, Jhelum and Chenab before these rivers flow into Pakistan, has increased.
- ❖ In January this year, Pakistan initiated arbitration at the Hague-based Permanent Court of Arbitration to address the interpretation and application of the IWT to certain design elements of two run-of-river hydroelectric projects — on the Kishanganga (a tributary of the Jhelum) and Ratle, a hydro-electric project on the Chenab.
- ❖ India raised objections as it views that the Court of Arbitration is not competent to consider the questions put to it by Pakistan and that such questions should instead be decided through the neutral expert process.

❖ On July 6, 2023, the court unanimously passed a decision (which is binding on both parties without appeal) rejecting each of India's objections. The court determined that it is competent to consider and determine the disputes set forth in Pakistan's request for arbitration.

FUTURE SUPPLY OF WATER

❖ In an atmosphere of a lack of trust, judicial recourse appears to be the only rational strategy by the IWT parties.

❖ But it is not likely to address the rapidly growing industrial needs of the two countries, apart from food and energy needs.

❖ The IWT provides only some element of predictability and certainty with regard to the future supplies of water to the riparian states, but it needs to incorporate mechanisms that allow flexibility to changes in the quantity of water available for allocation among the parties.

❖ Bilateral water agreements are vulnerable to climate change as most of them include fixed allocation of amounts of water use that are concluded under the assumption that future water availability will remain the same as today.

❖ Under the partitioning logic in the IWT, envisaging a vesting of proprietary rights does not take into account future water availability.

PRINCIPLES OF WATER COURSE

❖ The partitioning of the rivers goes against the logic of treating the entire river basin as one unit which is needed to build its resource capacity.

❖ The thrust of the IWT is optimal use of the waters which India believes to be the object and purpose of the IWT as opposed to Pakistan's understanding to be the uninterrupted flow of water to its side.

❖ Reconciling this divergent approach can be sought with the help of two cardinal principles of international water courses law accompanying binding obligations, i.e., equitable and reasonable utilisation (ERU) and the principle not to cause significant harm or no harm rule (NHR).

❖ Although there is no universal definition of what ERU amounts to, the states need to be guided by the factors mentioned in the Convention on the Law of the Non-navigational Uses of International Watercourses 1997, including climate change.

❖ The NHR is a due diligence obligation which requires a riparian state undertaking a project on a shared watercourse having potential transboundary effect to take all appropriate measures relating to the prevention of harm to another riparian state, including carrying out a transboundary environmental impact assessment.

❖ In order to ensure rapid development, the states prioritise the ERU over the NHR.

WAY FORWARD

❖ In an atmosphere of a lack of trust between the two neighbours, the World Bank, a party to the IWT, may use its forum to forge a transnational alliance of epistemic communities (who share a common interest and knowledge to the use of the Indus waters), to build convergent state policies, resulting in the ultimate inclusion of these two principles in the IWT. Thus, revisiting the IWT is a much-needed step.

SOCIAL ISSUES, EDUCATION, HEALTH

GENOME-SEQUENCING SCREENING FOR BABIES UNLOCKS BLUEPRINT OF HEALTH

CONTEXT

❖ Newborn screening programmes are now in vogue in different countries, and have been deployed in India as well. They are based on the fact that an early diagnosis could allow use of effective treatments and save an infant from death or disability.

ABOUT

❖ There are 6,000 or so genetic diseases, of which around 3,500 diseases have been documented, and a much smaller number have had their molecular and/or genetic defects mapped.

❖ A significant number of diseases in the population are also treatable but are nevertheless prevalent.

❖ Newborn screening programmes now in vogue in different countries, and which have been deployed in some states in India as well, are based on the fact that an early diagnosis could allow us to use effective treatments and save an infant from death or disability.

❖ Then again, in many cases, they lose the window of opportunity because standard newborn-screening programmes are limited on the menu of genetic tests they cover.

❖ Thanks to recent advances, genomic-sequencing is now available, accessible, and in many ways more affordable.

❖ It also offers a much better coverage of genetic diseases to screen for.

❖ Importantly, this could help healthcare workers make a fast and effective diagnosis, helped by the fact that sequencing is also a 'single' test, versus the multitude of tests performed as part of routine newborn-screening.

IT'S IMPORTANCE

❖ The rarity of many genetic diseases, the narrow window of opportunity, the long diagnostic paths, and the unfortunate deaths of ill babies makes it very difficult to document and understand these diseases.

❖ However, population-scale genome-sequencing efforts have provided insights into the prevalence of many of these diseases in an unbiased manner.

❖ Discoveries in the past three decades have also allowed a small but significant number of diseases to be treated or managed effectively.

❖ This in turn opened up a newer opportunity: to diagnose and treat genetic diseases through genomic-sequencing in newborn babies, especially sick ones.

SCREENING HEALTHY BABIES

❖ The benefits of sequencing may not just be limited to babies who are unwell.

❖ One recent study conducted by the project, and published in the American Journal of Human Genetics, evaluated the sequences of 127 apparently healthy and 32 sick infants.

❖ It found that just over 10% of infants had an unanticipated risk of genetic diseases.

❖ When these infants were followed up for three to five years, sequences revealed the causes of disease in three infants; in the remaining 14, a better picture of the risk made way for better medical surveillance.

❖ The sequencing also warranted additional at-risk family members of 13 infants to have their genes sequenced. Three of them benefited from subsequent surgeries.

ETHICS AND HOPE

❖ Newborn whole genome sequencing presents multiple ethical challenges.

❖ Such as the issue of disclosing and managing incidental and secondary findings raises concerns about privacy and the psychological impact on families.

❖ The equitable distribution of benefits and burdens associated with accessing and utilising this technology also invoke issues of justice and fairness .

WAY FORWARD

❖ As the vast potential of rapid newborn whole-genome sequencing unfolds, we stand at a crossroads of hope and introspection.

❖ There is no doubt that this technology will help clinicians with the means to detect rare genetic disorders, anticipate susceptibility to disease, and give them the evidence required to prescribe better treatments and shape a healthier future.

❖ Yet we must also tread carefully, considering the delicate balance between benefits and harm.

UNDERSTANDING LEPTOSPIROSIS, A DISEASE THAT SURGES DURING THE MONSOON

CONTEXT

❖ Leptospirosis has emerged as an important infectious disease in the world today. It is a potentially fatal zoonotic bacterial disease that tends to have large outbreaks after heavy rain or flooding.

ABOUT

❖ The disease is more prevalent in warm, humid countries and in both urban and rural areas.

❖ It affects an estimated 1.03 million people every year, killing around 60,000.

❖ In India, thousands of people are affected by leptospirosis every year.

❖ However, the numbers at the global and regional levels are not exact because of misdiagnosis (its symptoms mimic those of dengue, malaria, and hepatitis), limited access to reliable diagnostics, lack of awareness among treating physicians, and lack of environmental surveillance.

❖ Within India, studies have found that leptospirosis is more common in the south, although this could be due to the region's better healthcare and thus better disease detection.

CAUSES

❖ The disease is caused by a bacterium called

❖ Leptospira interrogans, or leptospira.

❖ It is a contagious disease in animals but is occasionally transmitted to humans in certain environmental conditions.

❖ The carriers of the disease can be either wild or domestic animals, including rodents, cattle, pigs, and dogs.

❖ The cycle of disease transmission begins with the shedding of leptospira, usually in the urine of infected animals.

PEOPLES AT RISK

❖ Humans become part of the cycle when they come in direct contact with this urine or indirectly, through soil and water that contain leptospira bacteria.

❖ A person is more likely to contract leptospirosis if they have cuts or abrasions on their skin.

❖ The disease is also considered an occupational hazard for people working in agricultural settings, with animals, or in sanitary services that bring them into contact with contaminated water.

❖ Recreational activities in contaminated lakes and rivers are also reported to increase the risk of leptospirosis.

THE SYMPTOMS

❖ The severity of a leptospirosis infection ranges from a mild flu-like illness to being life- threatening.

❖ The infection can affect many organs, reflecting the systemic nature of the disease. This is also why the signs and symptoms of leptospirosis are often mistaken for other diseases.

❖ In milder cases, patients could experience a sudden onset of fever, chills, and headache – or no symptoms at all.

❖ But in severe cases, the disease can be characterised by the dysfunction of multiple organs, including the liver, kidneys, lungs, and the brain.

❖ Animals exhibit a variety of clinical symptoms and indications. In cattle and pigs, the disease can potentially cause reproductive failure, stillbirths, and weak calves or piglets.

THE MISCONCEPTIONS

❖ The disease has been called "ili jwara" in Kannada and "eli pani" in Malayalam, both meaning "rat fever".

❖ This usage has fed the common belief that rats are the sole cause of the disease, which is not true as Leptospirosis has a spectrum of reservoir hosts, including pigs, cattle, water buffaloes, goats, dogs, horses, and sheep.

❖ Further, seasonal patterns such as the onset of the monsoon can also potentially facilitate the disease's incidence and transmission.

❖ Ambient air that is more humid can help the pathogenic leptospira survive longer in the environment, thus increasing the risk of disease exposure in the community.

❖ The incidence of the disease is also linked to extreme weather events like floods and hurricanes, when people are exposed to contaminated water.

❖ Similarly, poor waste management, a high density of stray animals, faulty drainage systems, and unhygienic sanitation facilities are major drivers of the disease in urban areas.

❖ In rural parts, these are contaminated paddy fields, dirty livestock shelters, and poor water- quality and sanitation.

PREVENTING LEPTOSPIROSIS

❖ Leptospirosis control can benefit from a 'One Health' approach.

❖ 'One Health' is an interdisciplinary approach that recognises the interconnections between the health of humans, animals, plants, and their shared environment.

❖ People who frequently interact with animals or their urine should exercise particular caution, such as by wearing personal protective equipment like gloves and boots.

❖ Preventing animals from getting infected is also important to reduce the risk of leptospirosis spreading and to limit farmers' economic losses.

❖ This in turn requires sanitary animal-keeping conditions, which is also desirable to improve the animals' health and to prevent the spread of many diseases.

❖ Given the spike in leptospirosis during the monsoons, it is best to take precautions, including washing one's arms and legs with an antiseptic liquid after handling animal waste and after working in water.

WAY FORWARD

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

THE IRREVOCABLE CONNECTION BETWEEN ANAEMIA AND MATERNAL HEALTH

CONTEXT

❖ A study conducted on anaemic pregnant women of low-and middle-income countries has found that there is a strong link between anaemia and postpartum haemorrhage, with the risk of death or near miss very high.

❖ **Anaemia and Pregnancy**

❖ Of late anaemia has been in the news in India, what with the government proposing to remove a question on it from the National Family Health Survey (NFHS) and instead do a more elaborate test to determine haemoglobin levels in the blood as part of the Diet and Biomarker (DAB) survey.

❖ Anaemia has a very strong link with postpartum haemorrhage (excessive vaginal bleeding after delivery), and the risk of death or near miss is very high.

❖ As per the study, by the WOMAN (World Maternal Antifibrinolytic)-2 trial collaborators, worldwide, more than half a billion women of reproductive age are anaemic.

❖ Each year, about 70,000 women who give birth die from postpartum haemorrhage, almost all of them in low-and middle-income countries.

BLOOD LOSS AND SHOCK

❖ There was clear evidence from the study that lower haemoglobin values had a direct relationship with volume blood loss, and clinical postpartum haemorrhage.

❖ Anaemia reportedly reduces the oxygen- carrying capacity of blood, and therefore, women with anaemia cannot tolerate the same volume of bleeding as healthy women, and become shocked after a smaller volume blood loss.

❖ The study also eventually found that a clinical diagnosis of postpartum haemorrhage was highly specific for clinical signs of shock and irrevocably associated with worse maternal function.

PREVENTING ANAEMIA- GOVERNMENT INITIATIVES

❖ Health is a State subject and the primary responsibility for strengthening health care services including implementation of national programs lies with the respective State/UT government.

- ❖ The Ministry of Health and Family Welfare provides financial and technical support to States/UTs under the National Health Mission.
- ❖ In 2018, the Government of India launched the Anaemia Mukt Bharat (AMB) strategy with the target to reduce anaemia in the vulnerable age groups such as women, children and adolescents.
- ❖ Weekly Iron and Folic Acid Supplementation (WIFS): This Programme is being implemented to meet the challenge of high prevalence and incidence of anaemia amongst adolescent girls and boys.
- ❖ Health Management Information System & Mother Child Tracking System: It is being implemented for reporting and tracking the cases of anaemic and severely anaemic pregnant women.
- ❖ Universal Screening of Pregnant Women for Anaemia: It is a part of Ante-Natal Care (ANC) and all pregnant women are provided iron and folic acid tablets during their ante- natal visits through the existing network of sub-centres and primary health centres and other health facilities as well as through outreach activities at Village Health & Nutrition Days (VHNDs).
- ❖ Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA): It has been launched to focus on conducting special ANC check up on 9th of every month with the help of Medical officers to detect and treat cases of anaemia.

CONCLUSION

- ❖ However, the rising levels of anaemia in the country is a source of concern and mandates that any project to bring down anaemia in the country must be on mission mode.
- ❖ Any public outreach programme must be mindful of the cultural, social realities and have a sense of the attitudes of the people they are targeting.
- ❖ If these factors are not sewn into a public health programme, the outcomes may be far from what was sought or planned.

DON'T WASTE THE WASTEWATER

Context

- ❖ Wastewater surveillance for known or new health threats offers many benefits for enhancing public health efforts.

A public health tool revisited

- ❖ This hypothetical scenario is now a tangible reality. A recently published study in The Lancet Global Health reiterated the promise of using wastewater for public health surveillance.
- ❖ This strategy, originally proposed more than 80 years ago to monitor the spread of poliovirus within communities, played a role in confirming India's victory over poliovirus.
- ❖ It gained fresh relevance during the COVID-19 pandemic, when it was identified as an approach for tracking the spread of SARS-CoV-2.

Wastewater surveillance

- ❖ Wastewater surveillance for known or new health threats offers many benefits for enhancing public health efforts.
- ❖ It is a cost-effective approach that does not rely on invasive samples from individuals with clinical symptoms.
- ❖ While our public health surveillance system has improved in recent years, it still faces many implementation challenges.
- ❖ For instance, according to a recent report by Niti Aayog, the system grapples with issues like uneven coverage and siloed disease-specific efforts.
- ❖ Incorporating wastewater surveillance will not fix these issues, but it could help reduce the reliance on any one source of data.
- ❖ In practical terms, wastewater surveillance in India could involve systematic sampling and analysis of samples from varied sources such as wastewater ponds in rural areas and centralised sewage systems in urban localities.
- ❖ These samples would undergo testing at designated laboratories to identify markers of disease-causing agents, such as genetic fragments of bacteria or viruses.
- ❖ These data could be compiled together with other source of health data to provide real-time insights into community-level disease patterns, sometimes earlier than clinical data.

- ❖ The integration of wastewater surveillance with existing surveillance mechanisms could help amplify India's epidemiological capabilities and could strengthen the capacity to detect diseases at an early stage, including in areas where access to healthcare facilities and diagnostic testing might be limited.
- ❖ Additionally, the Ayushman Bharat Digital Mission, which aims to create a seamless online platform for healthcare services, offers an opportunity for the integration of wastewater surveillance.
- ❖ Successful integration will rely on public health professionals trained not only in traditional epidemiological methods, but also in the management and interpretation of data derived from wastewater surveillance.

Data sharing

- ❖ The promise of wastewater surveillance hinges on data sharing.
- ❖ This is not just a domestic issue, but also an international consideration.
- ❖ It is crucial to cultivate an environment of accessibility and cooperative strategies among appropriate agencies, within and beyond borders.
- ❖ Internally, providing access to wastewater surveillance data to health departments at all levels of government can amplify our capabilities for disease monitoring and response.
- ❖ Sharing wastewater surveillance data with global health agencies could foster collaborative efforts in disease tracking and mitigation.
- ❖ This can be a key element in building a robust global health infrastructure capable of rapidly responding to public health threats.

Political backing and funding

- ❖ It is encouraging that India has already championed public health surveillance and mobilised resources accordingly.
- ❖ Current discussions have noted the importance of innovation and implementation.
- ❖ The integration of wastewater surveillance is fully aligned with Niti Aayog's current vision.
- ❖ Other innovative forms of disease surveillance include social media surveillance and occupational health surveillance.

Way forward

- ❖ India's leadership at international platforms like the G20 could serve as an opportunity to elevate the significance of innovative approaches to disease surveillance.
- ❖ With the world's attention focused on global health security in the wake of recent pandemics, these forums provide an opportunity to advocate for enhanced public health surveillance that integrates wastewater sampling as an essential component of health infrastructure.
- ❖ Through strategic collaborations and proactive leadership, India can lead the way in integrated public health surveillance, offering a model that is alert, predictive, responsive, and robust.

WELFARE SCHEMES MAY HELP POOR CHILDREN'S BRAINS GROW NORMALLY

CONTEXT

- ❖ The relationship between brain development and low income is relatively well-established, but the role of anti-poverty policies in this relationship is not. A recent study, based on the brain scans of over 10,000 children aged 9-11, located in 17 U.S. states, filled this gap.

POVERTY'S EFFECT ON THE BRAIN

- ❖ In 2015, three studies reported that human children and young adults growing up in low-income families had lower cortical volume and did relatively poorly in tests for academic performance. The cortex is the outer layer of the brain.
- ❖ Together with the cortex, one of the 2015 studies focused on another area: the hippocampus and found that the volume of this deep-seated convoluted structure, widely regarded by scientists as the "seat for learning and memory", correlated positively with a family's socioeconomic status, but not parental income.
- ❖ Now, a study by researchers from Harvard University and Washington University, published in May 2023 in the journal Nature Communication, has demonstrated that children growing up in low-income families indeed risk a smaller hippocampus and showed that generous anti-poverty policies substantially lower this risk.

❖ The finding highlights how state-level public policies can potentially address the correlation between brain development and low income and how Children from low-income families might have a smaller hippocampus, which in turn might relate to later inequities in [their] physical and mental health outcomes.

THE STUDY

❖ The researchers found that the hippocampal volume was indeed larger for participants belonging to families with relatively higher income.

❖ Impaired hippocampal development has been associated with higher risk of psychopathologies, such as major depressive disorder and post-traumatic stress disorder.

❖ So the researchers also tested the relationship between family income and the incidence of internalising (e.g. depressive disorders, anxiety, etc.) and externalising psychopathologies (e.g. drug abuse, violent behaviour, etc.) in children.

❖ They found that family income was "negatively associated" with the incidence of these psychopathologies: higher the family income, lower the incidence of internalising and externalising psychopathologies in the children.

❖ So the study found that poverty could shape biological properties, like brain development, and highlighted the role governments and public policy could have in ameliorating the biological effects of poverty.

WELFARE CAN HELP!

❖ The brain is a complex and adaptable organ, and compensatory mechanisms can sometimes mitigate these effects. According to the new paper, more generous anti-poverty policies could amplify or reduce stressors associated with low income.

❖ That is, having access to more financial resources could shield families from experiencing some of the chronic stressors associated with low income that can influence hippocampal development.

❖ Finally, generous' anti-poverty policies don't just increase family income; they can also allow families to make decisions that lead to a decrease in wages but that also reduce stress, such as working fewer hours.

CONCLUSION

❖ The study also illustrated how investments in social safety net programs could lower the high cost of addressing mental health, educational, and economic challenges resulting from socioeconomic disparities in neurodevelopment tomorrow.

INDIA'S DIABETES EPIDEMIC IS MAKING ITS WIDESPREAD TB PROBLEM WORSE

CONTEXT

❖ Diabetes mellitus is a major risk factor that increases the incidence and severity of tuberculosis. Also tuberculosis co-infections adversely affect tuberculosis treatment outcomes in a patient. Among people with TB, the prevalence of DM was found to be 25.3% while 24.5% were pre-diabetic.

THE DOUBLE BURDEN

❖ Long before COVID-19 devastated us, India has been experiencing the double burden of two debilitating and severe epidemics – type 2 diabetes (a.k.a. diabetes mellitus, DM) and tuberculosis (TB).

❖ Currently, India has around 74.2 million people living with diabetes while TB affects 2.6 million Indians every year. Yet few know how deeply these diseases are interlinked.

❖ **The evidence is clear:** DM increases the risk of developing respiratory infections.

❖ We also know DM is a major risk factor that increases the incidence and severity of TB.

❖ Also, DM and TB co-infections adversely affect TB treatment outcomes in a patient.

❖ The worry is that among people with TB, the prevalence of DM was found to be 25.3% while 24.5% were pre-diabetic, in a 2012 study in tuberculosis units in Chennai.

DM INCREASES RISK OF TB

❖ DM not only increases the risk of TB, it also delays the sputum smear and culture conversion of an individual affected by both diseases.

❖ DM impairs cell-mediated immunity; uncontrolled DM affects the cytokine response and alters the defences in the alveolar macrophages.

❖ As people with diabetes have already compromised immune function, the risk of TB infection is high. They will also have a higher bacterial load.

- Individuals with TB and DM are more likely to have cavitary lesions in lower lung fields.
- A 2016 study revealed that the TB-DM group showed reduced lung functioning after TB treatment completion compared with the TB non-DM group.
- DM also increases the likelihood of unfavourable TB treatment outcomes, such as treatment failure, relapse/reinfection, and even death.
- So people with DM and TB suffer more severely and must fight harder to survive – illustrating the greater impact of the twin burden of DM and TB not just on patients but also on the healthcare system, their families, and their communities.

DM MAKES TB DIFFICULT TO CURE

- In individuals affected by both diseases, the lungs are severely affected.
- Persistent inflammation has also been seen in people with DM and TB – even after they have completed their TB treatment.
- Experts have reported that TB-related respiratory complications have been a common cause of death among people with TB and DM, but which wasn't the case with people with TB only.
- DM directly affects the outcomes of those affected by both diseases. A higher fraction of unfavourable TB treatment outcomes occurred among people with low body-mass indices and with low glycated haemoglobin levels (better known as HbA1c) compared to people with low BMI and high HbA1c.
- This indicates that one's nutritional status is important for favourable TB treatment outcomes.
- It also showed that the most common cause of deaths were respiratory complications (50%) followed by events related to cardiovascular disease (32%) in those affected with TB DM as compared to TB only (27% and 15%).

SUGGESTIONS

- For starters, we need to provide integrated and patient-centred (i.e. more individualised) care for people suffering from both TB and DM, as well as other comorbidities.
- It is time to turn to evidence from studies to establish mechanisms to coordinate DM and TB diagnosis and treatment, including bidirectional screening of TB and DM, patient education and support, and DM treatment in new TB cases.
- An important part of this is to improve the nutritional status of people with TB as well as DM, as this can help increase the chances of favourable TB-treatment outcomes.
- It is important to intensify high-quality care for TB, DM and other associated comorbidities as part of holistic treatment plans, and to strengthen individual programmes for TB and DM as a priority.
- We need to build and scale up resilient and integrated health systems.
- This will require increased commitment from stakeholders, develop stronger policy guidance as well as the mobilisation of additional resources to be able to support the development of such systems.
- Also we need to build on the TB-DM research literature, since better decision-making will require access to better data.

WAY FORWARD

- Studying the nature of interactions between the two diseases and developing appropriate response strategies must be a priority for health professionals, and will benefit patients suffering from both diseases as well as help make communities at large more aware of the impact of their interrelated impact.

ACCIDENTAL DROWNING: RESTRAINT AND AWARENESS AT THE WATERS EDGE

CONTEXT

- World Drowning Prevention Day is on July 25, here is an attempt to study the subject and implement various expert advisories on safe spaces; in 2021 there were36,362drowning deaths reported of which children were a large number.

DROWNING DEATHS

- Drowning deaths capture headlines from time to time, when they involve large numbers, or larger-than-life people, but what is less frequently mentioned, is the many drownings, predominantly of children that take place in India every day.
- According to the National Crime Records Bureau's statistics for 2021, there were 36,362drowning deaths reported, forming 9.3% of accidental deaths in the country.

- ❖ Prevention, say experts, is the key to curbing drowning deaths in India as rescue and resuscitation efforts may not always be timely or feasible.
- ❖ And prevention involves several measures, at the safe behaviouralism's infrastructural levels.

CHILDREN AT HIGH RISK

- ❖ Children are at the largest risk of drowning in India, and even reported figures are an underestimate, as most cases never make it to the hospital and are not recorded.
- ❖ The risk is highest in the one to six year age group, followed by the 6 -14 age group in India, especially in rural and remote areas.
- ❖ There is this perception that if a child grows up near a waterbody, he or she will automatically learn how to swim, but this is emphatically not true as there are two key aspects-in the drowning deaths of children: the lack of supervision and the lack of physical barriers on waterbodies.

REASONS ASSOCIATED AND MITIGATION

- ❖ Safe space- Access to and availability of safe spaces could go a long way in preventing drowning.
- ❖ Barricading - The other issue is the safe storage of water and barricading access to it where necessary. Safe storage needs to begin at home. Actionable awareness on this, for communities, is essential.
- ❖ The barricading of wells and, ponds and other small water bodies by government authorities and the prevention of unauthorised access are also necessary steps towards building safer environments and communities..
- ❖ Awareness- While accidental falls into water bodies account for-about 70%of all drowning deaths as per the NCRB, there have also been multiple cases of young people and families going for a pleasure dipor to bathe, with these outings ending in tragedy.
- ❖ Avoiding selfies- Selfies, she says, are another hazard: in an effort to get the best photograph of a scenic dam or a brimming river, many young persons have tragically lost their lives.
- ❖ The highest number of 'selfie-deaths', from a global search has been reported in India and drowning was amongst the topmost reasons for deaths caused while taking selfies states the World Health Organisation (WHO)'s status of drowning in South-East Asia: Country reports',2022.
- ❖ Flood casualties- Another major cause of concern is drowning due to floods. A total of 656 people in India lost their lives due to flooding in data of NCRB.
- ❖ There is urgent need for better civic infrastructure and measures to tackle climate change.
- ❖ Post-event recovery and rehabilitative measures are also important as drowning deaths may even occur due to water-logging..
- ❖ State-specific policies that can be targeted to regions where interventions are needed like coastal villages, low-lying areas and wetland regions for instance.

CONCLUSION

- ❖ It may not always be accessible as a drinking source, but there's water everywhere in the country: along our long coastline, in our meandering rivers and lakes and pooling in our wetlands, all crucial for survival. While we rightly work hard to safeguard these natural resources, we must also, simultaneously, safeguard people around them.

HOW SLAKED LIME FOUND IN PAAN IS A MAJOR CAUSE OF OCULAR BURNS IN CHILDREN

CONTEXT

- ❖ A new study found that while the physical or chemical agents responsible for eye injuries varied between children and adults, chuna was the most common alkali agent in both groups, causing 32% of all alkali burns among children.

ABOUT

- ❖ Slaked lime (chuna) is an alkali compound widely used as a binding agent, along with betel nut and other ingredients, to make paan in the Indian subcontinent.
- ❖ A new study has found that chuna is a major cause for ocular burns among children, along with household chemicals and fireworks.
- ❖ Loosely sold in plastic packets, the quicklime can puff out of the packet on to a child's eyes.

- ❖ The alkali then burns the ocular surface and can result in eye injury. They are a tragic cause of ocular morbidity, even vision loss, especially among children.

CHUNA AND ITS RISKS

- ❖ Indian paan contains slaked lime, or chuna which is smeared onto a betel leaf and chewed along with the areca nut.
- ❖ Tobacco is also added to the paan and the alkali quickens its absorption.
- ❖ Paan consumption, especially in South and South East Asia, has been a practice from prehistoric times.
- ❖ The alkali chemically burns through the delicate tissue, causing extensive damage.
- ❖ The rim of the cornea, called the corneal limbus, is home to specialised stem cells that replenish the cornea.
- ❖ Chemical burns can destroy the limbus, compromising the cornea's ability to repair itself.
- ❖ The risk of chemical injury to the eye is not limited to slaked lime. Household cleaning agents like toilet cleaners and other acids, as well as fireworks and even super-glue in tubes, are all liable to cause ocular injury.
- ❖ Chemical burns to the eye results in ocular burns or, in worse cases, severe loss of vision.
- ❖ They may require extensive surgical intervention, including stem-cell transplantation and corneal grafts, and will need lifelong management.
- ❖ Children with access to household chemicals like chuna, adults who work with such agents without protective eye glasses, and individuals of both age-groups when they play with firecrackers are at risk of ocular burns.

THE NECESSARY PREVENTIVE MEASURES

- ❖ Such injuries can be avoided if the substance causing them is stored safely, away from the reach of children.
- ❖ Adults who are at risk of workplace injuries — since lime is also present in whitewash, for example — will benefit from protective eye glasses.
- ❖ The study also underscores the need to improve the packet integrity of chuna sold over the counter.
- ❖ Better quality plastic and sealing and clear warning messages on the packet may help reduce the risks to children.
- ❖ People should only purchase adequately sealed packets of alkalis and acids, and insist on using them with protective glasses.

WAY FORWARD

- ❖ Finally, a key finding of this study is that close to 60% of all patients with ocular burns did not present to a hospital within 24 hours. It also found that more than 20% of the patients did not receive any eye wash when they reached, or before reaching, emergency care.
- ❖ It is imperative that the chemical is immediately washed off the burnt eye as soon as the injury happens. When the patient visits a hospital, the eye must be thoroughly irrigated to remove any substances that may be lodged in the eye.

GENERAL STUDIES 3.

ECONOMY

CHOOSE A NEW PALETTE FOR INDIA'S CREATIVE ECONOMY

INTRODUCTION

❖ Digital platforms and technology have enabled Indian artists and artisans to reach wider audiences. However, they face challenges that are related to economic sustainability, market access, the digital divide, crime in the art world and preservation.

THE CREATIVE ECONOMY

❖ The creative economy is one of the youngest and fastest-growing sectors, with unique challenges that often go unnoticed by public and private investors.

❖ There is now growing recognition of the economic importance of the arts sector as it helps in the creation of jobs, economic growth, tourism, exports, and overall societal development.

❖ Recognising the economic importance of culture, the UNESCO World Conference on Cultural Policies and Sustainable Development (MONDIACULT 2022) was held to address contemporary issues in multicultural societies.

❖ The goal was to share a vision for the future of cultural policies and to reaffirm the international community's commitment to leveraging culture's transformative power for sustainable development.

STATUS OF ARTISTS

❖ Online platforms, social media, and digital content creation enable artists, writers, film-makers, musicians, and other creatives to engage with audiences, and monetise their talents.

❖ While Indian artists and artisans play a vital role in preserving traditional art forms and creating contemporary artworks, they face challenges that are related to economic sustainability, market access, and the preservation of traditional art forms in a rapidly changing society.

❖ Government support, cultural institutions, and initiatives provide financial assistance, training programmes, and opportunities for artists to exhibit their work

❖ However, more efforts are needed to promote contemporary artists as brands and ensure equal representation and financial assistance.

CHALLENGES, EFFECT AND SOLUTION

❖ There are challenges in the selection of artists for financial assistance in organising cultural events.

❖ Lack of transparency in the selection process creates inequality in representation.

❖ There is no systematic or rotational mechanism in place to provide this assistance, and the selection process is often random or based on subjective criteria.

❖ Additionally, unlike in other countries, there are no serious efforts by private or public institutions to promote contemporary artists as brands.

❖ Crime in the art world includes art theft, copyright infringement, forgery, fraud, and illicit trafficking. Addressing these crimes requires increased security measures, international cooperation, public awareness, and advanced technology for authentication and tracking.

❖ There is no institutional infrastructure, expertise and technology to verify the original artwork. The gap is leading to injustice towards genuine artists.

❖ These offences affect cultural heritage and cause financial harm and erode public trust.

❖ Exploitation of Indian artists, unaccounted money preserved through artworks, and the dissemination of disinformation about cultural history through various media only compound the issue.

❖ Solutions include increased security measures, international cooperation, public awareness, and advanced technology for authentication.

❖ Regular audits of acquired artworks can enhance trust and preserve a collection's integrity.

A WORKABLE SOLUTION

- Having a collaborative model promoting the cultural economy is an effective solution to address the challenges faced by the creative economy and promote the economic contribution of culture.
- To promote economic growth, a solution can be to encourage India's soft power by having a capacity-building centre.
- The needs of artists must be bridged through training, professional development, market access, and participation in larger communities and networks.
- A facilitation centre would help foster knowledge sharing, economic empowerment, and sustainable livelihood solutions for artists and artisans.
- Data analytics should be used to foster creative ecosystems that contribute to a sustainable world.
- The government along with private players can empower artists, help bridge industry gaps, and contribute to the overall development of the creative economy by providing support, resources, and opportunities for innovation and entrepreneurship.

WAY FORWARD

- The centre should also be a platform to provide sustainable livelihood solutions for artists and artisans through participatory models, leveraging the latest ICT tools to enhance their participation in the business ecosystem.
- It is also time for new data that shed light on emerging trends at a global level as well as putting forward policy recommendations to foster creative ecosystems that contribute to a sustainable world.

INTERNATIONALISING THE RUPEE WITHOUT THE 'COIN TOSSING'

CONTEXT

- The government's announcement of a long-term road map for further internationalisation of the rupee can turn out to be a positive exercise.

BACKGROUND

- In the 1950s, the Indian rupee was legal tender for almost all transactions in the United Arab Emirates (UAE), Kuwait, Bahrain, Oman and Qatar, with the Gulf monarchies purchasing rupees with the pound sterling.
- In 1959, to mitigate challenges associated with gold smuggling, the Reserve Bank of India (Amendment) Act was brought in, enabling the creation of the "Gulf Rupee", with notes issued by the central bank for circulation only in the West Asian region.
- However, by 1966, India devalued its currency, eventually causing some West Asian countries to replace the Gulf rupee with their own currencies.
- Flagging confidence in the Indian rupee's stability combined with an oil-revenue linked boom, slowly led to the introduction of sovereign currencies in the region.
- The move, in 2023, to withdraw the ₹2,000 note has also impacted confidence in the rupee.
- The demonetisation of 2016 also shook confidence in the Indian rupee, especially in Bhutan and Nepal.
- The rupee's internationalisation cannot make a start without accounting for the concerns expressed by India's neighbours.

VERY LITTLE INTERNATIONAL DEMAND

- The rupee is far from being internationalised — the daily average share for the rupee in the global foreign exchange market hovers around ~1.6%, while India's share of global goods trade is ~2%.
- India has taken some steps to promote the internationalisation of the rupee (e.g., enable external commercial borrowings in rupees), with a push to Indian banks to open Rupee Vostro accounts for banks from Russia, the UAE, Sri Lanka and Mauritius.
- However, such transactions have been limited, with India still buying oil from Russia in dollars.
- Ongoing negotiations with Russia to settle trade in rupees have been slow-going, with Russia expected to have an annual rupee surplus of over $40 billion.
- For a currency to be considered a reserve currency, the rupee needs to be fully convertible, readily usable, and available in sufficient quantities.
- India does not permit full capital account convertibility (i.e., allowing free movement of local financial investment assets into foreign assets and vice- versa), with significant constraints on the exchange of its currency with others.

PURSUE THESE REFORMS

- ❖ Many reforms can be pursued to internationalise the rupee.
- ❖ It must be made more freely convertible, with a goal of full convertibility by 2060 – letting financial investments move freely between India and abroad.
- ❖ This would allow foreign investors to easily buy and sell the rupee, enhancing its liquidity and making it more attractive.
- ❖ Additionally, the RBI should pursue a deeper and more liquid rupee bond market, enabling foreign investors and Indian trade partners to have more investment options in rupees, enabling its international use.
- ❖ Indian exporters and importers should be encouraged to invoice their transactions in rupee.
- ❖ Additional currency swap agreements (as with Sri Lanka) would further allow India to settle trade and investment transactions in rupees, without resorting to a reserve currency such as the dollar.
- ❖ Additionally, tax incentives to foreign businesses to utilise the rupee in operations in India would also help.
- ❖ The RBI and the Ministry of Finance must ensure currency management stability and improve the exchange rate regime.
- ❖ More demonetisation (or devaluation) will impact confidence.
- ❖ A start could be made to push for making the rupee an official currency in international organisations, thereby giving it a higher profile and acceptability.
- ❖ The Tarapore Committees' (in 1997 and 2006) recommendations must be pursued including a push to reduce fiscal deficits lower than 3.5%, a reduction in gross inflation rate to 3%-5%, and a reduction in gross banking non-performing assets to less than 5%.

CONCLUSION

- ❖ The government's road map for further internationalisation of the rupee will make it easier for Indian businesses to do business/invest abroad and enhance the rupee's liquidity, while enhancing financial stability. It must also benefit Indian citizens, enterprises and the government's ability to finance deficits. It is a delicate balance to trade off rupee convertibility for exchange rate stability.

INTERNATIONALISATION OF RUPEE: WHY AND WHAT ARE THE BENEFITS?

CONTEXT

- ❖ Recently, India is aiming to make the rupee a global currency.
- ❖ In order to internationalisation of the rupee, the Reserve Bank of India's (RBI) inter-departmental group (IDG) said that India remaining one of the fastest-growing countries and showing remarkable resilience in the face of major headwinds and the rupee has the potential to become an internationalised currency.
- ❖ And These recommendations are significant, in light of the economic sanctions imposed by the US on Russia for invading Ukraine and the growing clamour for finding an alternative to the US dollar for international transactions.

WHAT DOES INTERNATIONALISATION OF THE RUPEE MEAN?

- ❖ Internationalisation is a process that involves increasing the use of the rupee in cross-border transactions.
- ❖ It involves promoting the rupee for import and export trade and then other current account transactions, followed by its use in capital account transactions. These are transactions between residents in India and non-residents.
- ❖ The internationalisation of the currency, which is closely interlinked with the nation's economic progress, requires further opening up of the currency settlement and a strong swap and forex market.
- ❖ More importantly, it will require full convertibility of the currency on the capital account and cross-border transfer of funds without any restrictions. But currently. India has allowed only full convertibility on the current account as of now.
- ❖ Currently, the US dollar, the Euro, the Japanese yen and the pound sterling are the leading reserve currencies in the world. China's efforts to make its currency renminbi has met with only limited success so far.

THE RELEVANCE OF INTERNALISATION OF RUPEE

- ❖ Currently, the US dollar is said to enjoy an 'Exorbitant Privilege', which refers to the innumerable benefits that accrue to the US on account of all other countries of the world are using US dollar as their currency in most of their international transactions, among global currencies.

❖ The dollar's position is supported by a range of factors, including the size of the US economy, the reach of its trade and financial networks, the depth and liquidity of US financial markets, and a history of macroeconomic stability and currency convertibility.

❖ Dollar dominance has also benefited from the lack of viable alternatives.

❖ According to the RBI's working group, the obvious challenger to the US dollar dominance is the Chinese Renminbi.

❖ However, its ability to rival the US dollar will depend on future policies in both the US and China and the ability of the Chinese economy and its financial system to demonstrate the same long-term resilience, integrity, transparency, openness and stability, which are characteristics of the US economy.

❖ In the wake of the sanctions imposed on the Russian government, its public sector and even individuals linked to the government, many countries have become cautious of the price they may have to pay if they are subjected to similar sanctions by the Western government

❖ They are making effort to reduce their reliance on the US dollar and its financial markets as well as their dependence on dominant international payment mechanisms based on the Society for Worldwide Interbank Financial Telecommunications (SWIFT) messaging system.

❖ Even the Asian crisis of 1997-1998 underscored the necessity of emerging market economies having strong foreign exchange reserves to manage external shocks, in an increasingly polarised world, it no longer seems a sufficient defence against the threat of economic sanctions.

ADVANTAGES OF INTERNATIONALISATION OF THE RUPEE

❖ The RBI-appointed group feels that it is imperative for India to continue exploring alternatives to both the USD and the Euro.

❖ The use of the rupee in cross-border transactions mitigates currency risk for Indian businesses.

❖ Therefore, Protection from currency volatility not only reduces the cost of doing business but also enables better growth of business, improving the chances for Indian businesses to grow globally.

❖ While reserves help manage exchange rate volatility and project external stability, they impose a cost on the economy.

❖ Internationalisation of the rupee reduces the need for holding foreign exchange reserves. Reducing dependence on foreign currency will make India less vulnerable to external shocks.

❖ As the use of the rupee becomes significant, the bargaining power of Indian businesses would improve, adding weight to the Indian economy and enhancing India's global stature and respect.

The major recommendation made by the working group for internalisation of rupee: (Way forward)

❖ The working group, headed by RBI Executive Director Radha Shyam Ratho, has recommended a slew of short to long term measures to accelerate the pace of internationalisation of the rupee.

❖ For the short term, the group has suggested adoption of a standardised approach for examining the proposals on bilateral and multilateral trade arrangements for invoicing, settlement and payment in the rupee and local currencies, encouraging the opening of the rupee accounts for non-residents both in India and outside India and integrating Indian payment systems with other countries for cross-border transactions.

❖ Strengthening the financial market by fostering a global 24×5 rupee market and recalibration of the FPI (foreign portfolio investor) regime.

❖ Over the next two to five years, the group has recommended a review of taxes on masala (rupee-denominated bonds issued outside India by Indian entities) bonds, international use of Real Time Gross Settlement (RTGS) for cross-border trade transactions and inclusion of Indian Government Bonds in global bond indices.

❖ For the long term, the group has recommended that efforts should be made for the inclusion of the rupee in IMF's (International Monetary Fund) SDR (special drawing rights).

❖ The SDR is an international reserve asset created by the IMF to supplement the official reserves of its member countries. The value of the SDR is based on a basket of five currencies ; the U.S. dollar, the euro, the Chinese renminbi, the Japanese yen, and the British pound sterling.

CONCLUSION

- ❖ Therefore, Internationalisation of Indian rupee will help in mitigates currency risk for Indian businessmen and will also provide protection from currency volatility which will not only reduces the cost of doing business but also enables better growth of business, improving the chances for Indian businesses to grow globally.
- ❖ However, there is need for delicate balance to trade off rupee convertibility for exchange rate stability.

ROILING RESURGENCE

CONTEXT

- ❖ The latest Consumer Price Index data showing a resurgence in retail inflation proves exactly why the RBI's monetary authorities have reiterated the need to keep the policy approach firmly tilted towards ensuring price stability.

THE INFLATION FIGURES

- ❖ With food prices becoming unmoored and spiralling up, June's CPI-based provisional inflation reading accelerated by half a percentage point to a three-month high of 4.81%.
- ❖ Inflation in the food and beverages group, the single-largest constituent of the CPI that contributes almost 46% of its weight, led the resurgence, quickening from May's level to 4.63%.
- ❖ The food price inflation was broad-based with 10 of the 12 sub-groups witnessing year-on-year increases: cereals registered 12.7% price gains, eggs logged 7%, dairy experienced 8.56% inflation, pulses posted 10.5% and spices saw gains exceed 19%.
- ❖ Month-on-month, vegetable price inflation soared to 12.7%, the highest sequential rate of price gains in the essential food group since October 2021.
- ❖ With the exception of three vegetables, including lady's finger and lemon, in the 19-member basket, all the others including the most widely used potatoes and onions registered sharp sequential inflation.
- ❖ Of the non-food items, clothing and footwear, as well as health and personal care saw price gains that exceeded 6% in June.
- ❖ Education prices too continued to keep rising steadily.

TACKLING INFLATION

MONETARY POLICY MEASURES

- ❖ Using contractionary monetary policy, the money supply in the economy can be decreased. This leads to decrease in aggregate demand in the market and thereby reduces inflation.
- ❖ Decrease in supply of money → rate of interest increases → Investment decreases → Aggregate demand decreases → prices decline → rate of inflation is lower
- ❖ Rates like CRR, SLR, Repo Rate and Reverse Repo Rate are increased to impact the money supply in the economy by the RBI to control inflation.

FISCAL POLICY MEASURES

- ❖ Fiscal Policy refers to the revenue and expenditure policy of the government. Contractionary Fiscal Policy can be useful to tackle high inflation rates.
- ❖ The process is as follows: Increased taxes (keeping government spending constant) → disposable personal income decreases→ consumption decreases → aggregate demand decreases → prices decline → rate of inflation is lowered
- ❖ Similar process follows if the government cuts down on its expenditures without raising taxes (or reduces its deficit/ increases surplus).
- ❖ Some of the fiscal policy measures are – reducing import duties, banning exports or Imposing minimum export prices, suspending the futures trading of commodities, raising the stock limit for commodities, etc.

SUPPLY MEASUREMENT MEASURES

- ❖ Supply Management Measures aims to increase the competitiveness and efficiency of the supply chain, putting downward pressure on long-term costs.
- ❖ Some of the supply management measures taken are- Restricting exports of commodities in short supply and increasing their imports.
- ❖ Effective implementation of the Essential Commodities Act, 1952 to prevent hoarding and speculation.

- ❖ Incentivizing the increase in production of commodities through tax concessions, subsidies, institutional support etc.
- ❖ Higher MSP has been announced to incentivize production and thereby enhance the availability of food items which may help moderate prices.
- ❖ Fixing the ceiling prices of the commodities and taking measures to control the black marketing of those goods.
- ❖ Reforming the supply chain through infrastructure development, foreign investments etc.

CONSTRAINTS IN CONTROLLING INFLATION

- ❖ India imports more than 80 percent of its oil requirements. Oil prices are volatile owing to the various Political and Economic events in the international arena.
- ❖ Long overdue supply-side reforms.
- ❖ Inefficiencies in the monetary policy transmission.
- ❖ Limited control of Government and RBI in controlling rupee depreciation.
- ❖ Political compulsion in reducing expenditure and fiscal deficit.
- ❖ Populist measures of the government.

CONCLUSION

- ❖ Policymakers must tighten their grip over prices to prevent the broader economic recovery from floundering.

WHY ARE TOMATO PRICES STILL HIGH?

CONTEXT

- ❖ As prices of tomatoes hover between ₹100 and ₹200 in various parts of the country, the Reserve Bank of India's latest monthly bulletin has highlighted that the volatility of tomato prices has historically contributed to overall inflation levels in the country.

TOMATO PRODUCTION IN INDIA

- ❖ Tomato production in the country is concentrated regionally in the States of Andhra Pradesh, Madhya Pradesh, Karnataka, Odisha, and Gujarat, which account for close to 50% of total production, according to Ministry of Agriculture and Farmers Welfare figures.
- ❖ There are two major crops of tomato annually — kharif and rabi.
- ❖ The rabi crop hits the market between March and August annually while the kharif crop comes to markets from September.
- ❖ Some regions in Maharashtra and Himachal Pradesh's Solan are able to grow tomatoes during the monsoon months, while in the summer, Andhra Pradesh's Madanapalle region alone accounts for tomato cultivation in the entire country.
- ❖ As for tomato production, it peaked in 2019-20 and has been declining since.

REASONS FOR PRICE HIKE

- ❖ There are multiple factors for the dip in overall tomato production this year, with the two key reasons being extreme weather conditions and low commercial realisation of the crop for farmers in the months before June as well as last year.
- ❖ The heatwaves and high temperatures in April and May along with delayed monsoon showers in southern India and Maharashtra led to pest attacks in tomato crops.
- ❖ A lot of farmers resorted to selling whatever crop they had at these prices while some abandoned their crops.
- ❖ This led to a crunch in supply. Later, incessant rains in tomato-growing regions further affected the new crop.
- ❖ The fact that July-August is a lean production period for tomato, as it falls between yields, compounded the problem.
- ❖ Reports show that many farmers in the Kolar district of Karnataka, which is usually responsible for sizeable tomato supplies, shifted to beans owing to the higher prices it fetched last year.

WHETHER A SEASONAL ISSUE OR TEMPORARY

- ❖ The Centre has called this sudden and sharp price rise in tomatoes a "seasonal" and temporary issue.
- ❖ Consumer Affairs Ministry Secretary Rohit Kumar Singh stated that there is a seasonality to tomatoes.

- ❖ However, policy experts over the years, and now the RBI and the National Bank for Agriculture and Rural Development (NABARD), have expressed concerns over this high seasonal price volatility of tomatoes and its impact on the overall Consumer Price Index (CPI).
- ❖ A NABARD study from last month notes that tomato is the most volatile out of all the three TOP (tomato, onion, potato) agri-commodities.
- ❖ While the weightage of the food and beverages component in the combined CPI is 45.86, vegetables account for a relatively small part of this at 6.04, and the TOP commodities are even lesser at 2.20.
- ❖ Even with such a low weightage, the contribution of TOP to the overall CPI has been quite volatile.
- ❖ There are multiple reasons behind this starting with how it is more perishable than onion and potato.
- ❖ Supply chain issues in transporting the vegetable from areas where it is grown to regions where it is not compound the problem.

CONTROLLING VOLATILITY

- ❖ Policy experts say high volatility can be tamed by making some improvements.
- ❖ First, since tomato is highly perishable, improved value and supply chains can help with the problem.
- ❖ An organised value chain involves a market-focussed collaboration of a set of entities working in tandem to produce, process and market products and services in an effective and efficient manner.
- ❖ An ICRIER study suggests increasing the processing capacity for tomatoes. Building more processing units and linking tomato value chains to processing of at least 10% of tomato production into tomato paste and puree during peak seasons, and using them in the lean season when fresh tomato prices spike can be a solution.
- ❖ The development of integrated cold chains has also been suggested.

WAY FORWARD

- ❖ A 2022 study estimated that farmers' share of what consumers pay for tomatoes is only 32%. Eliminating middlemen and encouraging Farmer Producers Organisations to sell produce directly, as well as amending rules of Agricultural Produce Market Committees to reduce commission and other fees has been suggested.

MOVING AWAY FROM THE 'TAKE-MAKE-DISPOSE' MODEL

Context

- ❖ Recognising the need to switch from the 'take-make-dispose' to 'reduce-reuse-recycle' model, India has prioritised 'Resource Efficiency and Circular Economy' as one of the three core themes for deliberations in the G-20 forum.

Circular economy

- ❖ A Circular Economy is the one where products are designed for durability, reuse and recyclability and thus almost everything gets reused, remanufactured, and recycled into a raw material or used as a source of energy.
- ❖ It includes 6 R's - Reduce, Reuse, Recycle, Refurbishment, Recover, and Repairing of materials.
- ❖ India has embraced four priority areas for the circular economy during its G-20 presidency: circularity in the steel sector; Extended Producer Responsibility (EPR); circular bioeconomy and establishing an industry-led resource efficiency and circular economy industry coalition.
- ❖ There is now heightened recognition of resource efficiency and circular economy strategies within the G-20 community.

Moving to a circular steel sector

- ❖ Most G-20 member countries have committed to net zero ambitions and are working to mitigate greenhouse gas emissions.
- ❖ Given the crucial role of steel in infrastructure development, its efficient utilisation is important.
- ❖ The demand for steel is poised to grow especially in growing economies such as India.
- ❖ Globally, about 7% of energy sector emission is attributed to iron and steel production.
- ❖ Transitioning towards a circular steel sector is a key strategy to tackle steel sector emissions.
- ❖ The key lies in ensuring collaboration among the G-20 member countries for knowledge sharing, technology co-development and technology transfer.

❖ Under India's G-20 presidency, there is an emphasis on the significance of the EPR framework in integrating circularity throughout the value chain.

Recycling, a bioeconomy and biofuels

❖ Effective implementation of EPR plays a pivotal role in promoting the growth of the recycling infrastructure and establishing a streamlined waste collection system.

❖ With over 20,000 registered Producers, Importers, and Brand Owners (PIBOs) and over 1,900 plastic waste processors on the centralised EPR portal, India boasts one of the largest frameworks for EPR.

❖ India has also notified comprehensive rules for e-waste and battery waste management.

❖ Biowaste such as municipal and industrial waste and agricultural residue has become a global issue as much of it is burned, causing pollution, biodiversity loss and global warming.

❖ Combined with crops well-suited for degraded lands, biowaste can serve as valuable primary raw materials and viable substitutes for mineral resources.

❖ Adopting a circular bioeconomy approach will reduce the need for extracting virgin resources and provide an effective waste disposal solution.

Government initiatives

❖ The Government of India has been working towards the adoption of biofuels. The Pradhan Mantri JI-VAN Yojana provides financial support to integrated bio-ethanol projects to set up second generation (2G) ethanol projects.

❖ 2G bioethanol technology produces bioethanol from waste feedstock such as crop residues and municipal solid waste that would otherwise have no value.

❖ Additionally, India has also made it mandatory for coal-burning thermal power plants to use a 5% blend of biomass pellets along with coal.

❖ The Galvanizing Organic Bio-Agro Resources (GOBAR) Dhan scheme was launched by the Government of India to convert cattle dung and other organic waste into compost, biogas, and biofuels to promote sustainable agriculture and reduce pollution.

❖ With over 500 functional biogas plants, the scheme has also helped create rural livelihoods and ensured improved sanitation.

❖ The Sustainable Alternative Towards Affordable Transportation (SATAT) Scheme, launched in 2018 to promote the use of Compressed BioGas (CBG) as an alternative green transportation fuel, has aided the bioenergy sector by accelerating the development of infrastructure for the production, storage and distribution of CBG.

Way forward

❖ As industries are crucial in advancing resource efficiency and circular economy practices, India has envisioned an industry coalition in these areas.

❖ The coalition will also aim to achieve enhanced technological collaboration, build advanced capabilities across sectors, mobilise de-risked finance, and facilitate a proactive private sector engagement.

Conclusion

❖ Global platforms such as the G-20 play an important role in addressing key issues and presenting solutions by adopting a collaborative approach. Resource efficiency and circular economy have emerged as key solutions in collective efforts in tackling triple planetary challenges.

SHEDDING MORE LIGHT ON THE DEBT DILEMMA

INTRODUCTION

❖ The elevated levels of India's fiscal deficit and public debt have been a matter of concern for a long time in India. Even before the COVID-19 pandemic, debt levels were among the highest in the developing world and emerging market economies. The pandemic pushed the envelope further and relative to GDP, the fiscal deficit in 2020-21 increased to 13.3% and the aggregate public debt to 89.6%. As the economy recovered after the pandemic, the deficit and debt ratios have receded to 8.9% and 85.7%, respectively.

FINANCIAL REPRESSION

- ❖ The debt-dynamics equation states that when there is no primary deficit, if the growth rate of GDP exceeds the effective interest rate paid on government bonds, the overall debt will decline.
- ❖ However, what is missed in these discussions are the distortions caused by financial repression to keep the interest rates on government borrowing low to reduce the cost.
- ❖ The statutory liquidity ratio (SLR) stipulated by the Reserve Bank of India (RBI) requires the banking system to hold 18% of their demand and time liabilities in government securities.
- ❖ Besides, the RBI intervenes in the market through open market operations around the time when government borrowing is taken up to keep the interest rates on government borrowing repressed.
- ❖ When the interest rate on government debt is lower than the growth of GDP, the debt may decline but the financial market gets distorted.
- ❖ Thus, even when the sustainability of debt may not be threatened in the medium term, the costs of carrying high deficits and debt to the economy are heavy.
- ❖ First, on average, interest payments constitute over 5% of GDP and 25% of the revenue receipts, this is more than the government expenditure on education and health care put together.
- ❖ Second, high levels of debt make it difficult to calibrate counter-cyclical fiscal policy and constrain the ability of the government to respond to shocks.
- ❖ Third, the debt market in India is largely captive with mainly the commercial banks and insurance companies participating in it to meet SLR requirements.
- ❖ Furthermore, the rating agencies keep the sovereign rating low when deficits and debt are higher, and this increases the cost of external commercial borrowing.
- ❖ Finally, 'today's borrowing is taxing tomorrow' and the burden of large deficits and debt will have to be borne by the next generation.

ON THE DEBT BURDEN
- ❖ It is clear that in the present fiscal environment, even achieving a consolidated debt-to-GDP ratio of 58.2 recommended by the 14th Finance Commission for 2019-20 would be unfeasible in the medium term.
- ❖ The Finance Commission had recommended that the Union government bring down its deficit relative to GDP from 43.6% in 2015-16 to 36.3%, and the States maintain their deficit at about 22%.
- ❖ The issue is of critical importance; therefore, the fast pacing of fiscal consolidation is imperative.
- ❖ Fortunately, after six years, Goods and Services Tax (GST) has stabilised and has shown high growth potential.
- ❖ The technology has helped to improve tax administration and improved compliance.
- ❖ With the cross-matching of GST returns with income-tax returns, income-tax compliance too is expected to improve.

ROLE OF STATE AND CENTRE
- ❖ In terms of policy interventions, this is the time to rethink the role of the state and vacate activities that should really belong to the market rather than competing with it.
- ❖ At the central level, even after much talk about disinvestment, progress has been slow.
- ❖ Equally disturbing are the employment melas to fill so-called vacant posts which have been found to be redundant.
- ❖ At the State level, it is important to guard against the return to the old pension scheme and indulge in large-scale giveaways for electoral reasons.
- ❖ Of course, redistribution is a legitimate government activity, and that is best done through cash transfers rather than subsidising commodities and services.
- ❖ Giving subsidies alters relative prices, resulting in unintended resource distortions.
- ❖ Equally important is the need to impose hard budget constraints by enforcing Fiscal Responsibility and Budget Management rules in allowing States to borrow.

WAY FORWARD
- ❖ Macroeconomic stabilisation is predominantly a Union government responsibility. Therefore, the Union government should follow the rules it makes, and enforce the rules on the States effectively.

INTERNAL SECURITY

IS IT POSSIBLE TO HAVE PARTIAL APP BANS?

CONTEXT

❖ Last week, the Telecom Regulatory Authority of India (TRAI) sought inputs on whether it would be possible to have "selective" app bans instead of internet shutdowns, in order to reduce the impact that a wholesale communications lockdown can entail.

INTERNET SHUTDOWNS IN INDIA

❖ Internet shutdowns are imposed in States and districts across India from time to time in order to prevent the rapid spread of provocative content during communally charged periods.

❖ The Indian government considers Internet shutdowns a legitimate tool of maintaining law and order.

❖ Shutdowns can be prolonged, with access to education, work, banking, and information strained.

❖ As such, the government has sought to stay the course on imposing restrictions but not at the scale of a shutdown.

❖ In Jammu and Kashmir as well as in Manipur, authorities and courts have gradually loosened long-term restrictions by allowing wired internet connections and limited wireless internet access.

THE TRAI

❖ The approach suggested by TRAI would require telecom operators and messaging app firms like WhatsApp to cooperate with each other and stop access to services during a shutdown.

❖ The telecom regulator has sought inputs on licensing messaging apps in India, which may require firms to be subjected to surveillance and blocking requirements.

❖ In 2015 and 2018, the TRAI had held consultations on regulating messaging apps, a process that led to wide-ranging protections for net neutrality — the concept that all internet traffic should be treated equally.

❖ Telecom operators had then called for regulation because they argued that messaging apps provide the same service without going through the stringent security and surveillance regulations that telecom operators go through.

❖ Telcos were also wary of their revenues being undercut by online calls and messages, which were cheaper than calling and SMS rates then.

❖ However, from 2016 onwards, the Department of Telecommunication (DoT) and the TRAI have rejected this argument, holding that telcos cannot discriminate between categories of data used by consumers.

❖ Since then, regulating messaging apps has become more a matter of security and policing.

❖ Seeking a deterrent against communal misinformation and provocative content spreading online, the Ministry of Electronics and Information Technology added a requirement of 'traceability' to the IT Rules, 2021, wherein one can find the original sender of a forwarded message.

❖ However, civil society groups and tech firms said that such requirements were impossible without breaking end-to-end encryption.

VPNS

❖ It is possible to block websites and certain apps by ordering telecom operators to do so.

❖ However, Virtual Private Networks (VPNs) make these blocks trivial to bypass.

❖ VPNs tunnel a user's internet traffic through another server. While these tools are mostly used for completely innocuous purposes, the government has been showing a growing distrust of VPNs.

❖ This is because VPNs are often encrypted, leaving the government with little visibility into what goes on in users' connections.

❖ VPN firms usually route data through servers located in another country, and frequently cycle the IP addresses these servers use to evade detection and blocking.

❖ Some VPN firms promise that they do not maintain logs of their customers' usage.

❖ Since the government has not publicly stated what procedural safeguards it exercises when intercepting web traffic of users, these services are used by both privacy-conscious users and, the government argues, terrorists and cybercriminals.

CONCLUSION

❖ Internet rights activists say that blocking VPNs would be a damaging move for online privacy. VPNs help secure digital rights under the Constitution of India specially for journalists, whistle-blowers and activists. The encrypted nature of information transfer over VPNs allows them to not only secure confidential information but also to safeguard their own identity, thus protecting them from surveillance and censorship.

INDIA'S DATA PROTECTION LAW NEEDS REFINEMENT

INTRODUCTION

❖ India is no Europe, and this seems especially true in the face of a task such as drafting and conceptualising a data protection law for over 1.4 billion Indians. The European Union's (EU) data protection law, i.e., the General Data Protection Regulation (GDPR), came into force in the middle of 2018 and achieved widespread popularity as arguably the most comprehensive data privacy law in the world. Although the EU's challenges may be due to its unique legal structure, India must guard against the risks of enacting a law that is toothless in effect.

ISSUES AROUND DATA USE

❖ This deliberation becomes increasingly relevant as the Indian government is likely to table India's fresh data protection law in the ongoing monsoon session of Parliament (July 20-August 11).

❖ Late last year, the government released the Digital Personal Data Protection (DPDP) Bill, 2022 for public consultation.

❖ Considering this, critical gaps remain in the DPDP Bill that would affect its implementation and overall success.

❖ In its scope and definition, the DPDP Bill only protects personal data, that is any data that has the potential to directly or indirectly identify an individual.

❖ In the modern data economy, entities use various types of data, including both personal and non-personal data to target, profile, predict, and monitor users

❖ Often, this non-personal data when combined with other datasets can help identify individuals, and in this way become personal data, impacting user privacy.

❖ This process of re-identification of non-personal data poses significant risks to privacy.

❖ Such risks were accounted for in previous versions of India's draft data protection Bill, in 2018 and 2019, but do not find a place in the latest draft.

❖ By not recognising these risks, the DPDP Bill is very limited in its scope and effect in providing meaningful privacy to Indians.

❖ A simple and effective solution — as in the earlier versions — would be to add a penal provision in the Bill that provides for financial penalties on data-processing entities for the re-identification of non-personal data into personal data.

LIMITED REACH OF DATA PROTECTION BOARD

❖ Another gap is the inability of the proposed data protection board to initiate a proceeding of its own accord.

❖ Under the Bill, the board is the authority that is entrusted with enforcing the law.

❖ The board can only institute a proceeding for adjudication if someone affected makes a complaint to it, or the government or a court directs it to do so.

❖ The only exception to this rule is when the board can take action on its own to enforce certain duties listed by the Bill for users.

❖ This is for the adjudication of disputes between the law and users — for example, an obligation on users not to register a false or frivolous complaint with the board, and not between users and data-processing entities.

WAY FORWARD

❖ In the data economy, users have diminished control and limited knowledge of data transfers and exchanges.

❖ Due to the ever-evolving and complex nature of data processing, users will always be a step behind entities which make use of their data.

❖ The Competition Commission of India, which is responsible for the enforcement of India's antitrust law, has the power to initiate inquiries on its own (and utilises it frequently).

❖ These are not the only gaps in the DPDP Bill, but finding solutions to them would help address challenges in implementation in a significant way and make for a more future-proof legislation.

AN INTERNET BAN WILL NOT RESTORE PEACE IN MANIPUR

INTRODUCTION
❖ Manipur is going through internal disturbance and ethnic conflict over the last 2.5 months, and we as the people of India failed to demand accountability from our institutions to protect the fundamental rights of Manipuris. A large section of the Indian population is unaware of the scale of violence in Manipur because of the internet shutdowns and media censorship.

INTERNET SHUTDOWNS IN INDIA
❖ Since 2016, India has accounted for approximately 58% of all shutdowns documented in the Shutdown Tracker Optimization Project (STOP database).
❖ India has also beaten Ukraine, which is at number 2 this year. India is the only G20 country that has imposed an internet shutdown more than twice.
❖ Data reveals that India implemented at least 84 shutdowns in 2022, the most of any country for year.

CRITICISM FOR INTERNET SHUTDOWN
❖ Internet shutdown orders are governed under the Temporary Suspension of Telecom Services (Public Emergency or Public Safety) Rules, 2017, under the Indian Telegraph Act, 1885.
❖ The 2017 Rules provide for temporary shutdown of telecom services in a region on grounds of public emergency and give senior bureaucrats from the Home Ministry at the central and state levels the power to order shutdowns.
❖ The 1885 Act empowers the Central government to regulate various types of telecom services including internet services and grant licenses for them.
❖ Using Section 144 of the Code of Criminal Procedure: It justifies the communications blockade and the continuance of it, has been a rising trend.
❖ Section 144 gives a magistrate the powers to enforce a general shutdown of the area if he or she believes that there could be violence in the area.

CRITICISM FOR INTERNET SHUTDOWN
❖ The internet blackout and restrictions on movement has severely disrupted the lives of millions.
❖ It has impacted everything, from college admissions to businesses filing tax returns.
❖ The unavailability of internet has also severely impacted businesses.
❖ According to ICRIER, internet shutdown had cost the Indian economy about $3.04 billion.
❖ According to Cellular Operator Association of India (COAI), mobile carriers lost about $8 million a day for shutdown in any of the 22 circles where they operate in the country.

RELATED COURT JUDGEMENTS:
❖ In Faheema Shirin versus the State of Kerala, 2019, the Kerala High Court declared "the right to Internet access as a fundamental right forming a part of the Right to Privacy and the Right to Education under Article 21 of the Constitution."
❖ In Anuradha Bhasin versus the Union of India, 2020, the Supreme Court ruled "that an undefined restriction of internet services would be illegal and that orders for internet shutdown must satisfy the tests of necessity and proportionality."

VARIOUS TECHNIQUES USED TO SHUT DOWN THE INTERNET
❖ **DNS Tampering:** By tampering with Domain Name System (DNS), authorities can redirect or block access to specific websites or services. This can be achieved by altering DNS records, redirecting DNS queries to different IP addresses, or blocking access to certain DNS servers altogether.
❖ **IP blocking:** IP blocking is a technique where specific IP addresses are targeted for blocking. Authorities can maintain a blacklist of IP addresses associated with particular websites, platforms, or services, and instruct network infrastructure to deny access to those addresses.
❖ **URL filtering:** It involves selectively blocking or allowing access to specific URLs (web addresses). Authorities can employ filtering systems or firewalls that examine the requested URLs and decide whether to allow or block access based on predefined criteria.

- ❖ **Content filtering and keyword blocking:** Governments can employ advanced filtering systems to monitor and block specific keywords, phrases, or content that they deem sensitive or threatening.
- ❖ **Throttling or slowing down internet speeds:** It involves deliberately slowing down internet speeds to the extent that it becomes impractical or impossible to access certain websites or services.

IMPACTS OF INTERNET SHUTDOWNS
- ❖ **Economic impact:** Data from global tracker Top10VPN shows that India suffered a loss of $ 184.3 million in 2022.
- ❖ Disruption of communication
- ❖ Limitations on education and research
- ❖ Impediment to healthcare services
- ❖ Impact on fundamental rights
- ❖ An internet shutdown can hamper the reach of the on-ground-reporting and cause underreporting of local issues.
- ❖ Disrupts political transparency

CONCLUSION
- ❖ In an Internet ban, misinformation spreads rather than abates.
- ❖ For Manipur, the video clip is a vital moment for a national awakening that must be achieved without any reputational and social harm to survivors of sexual violence and communal hatred.
- ❖ Information flows are also necessary to ensure the accountability of the State and central governments in taking steps to ensure truth, justice and reconciliation.

SCIENCED AND TECHNOLOGY

UNTANGLING THREADS

CONTEXT

- ❖ Multiple outages plagued the platform while billionaire owner Elon Musk cited data scraping by other organisations as his reason for limiting the number of tweets both paying and non-paying accounts could view every day. In response to complaints,

THE THREADS

- ❖ Launched by Facebook, Instagram, and WhatsApp-parent Meta on July 5, Threads is a text-based public conversation app that was built by the team behind the photo-sharing app Instagram.
- ❖ Both iOS and Android users in over 100 countries could access the app this week.

WORKING

- ❖ Threads is part of a user's Instagram account.
- ❖ Threads users will need to sign up through Instagram, and can cross over with their original username and the accounts they were following on Instagram. A number of settings such as blocking, restricting users, and hiding words are synced between the two platforms.
- ❖ However, if a user decides they don't like Threads, they can only deactivate the account.
- ❖ Deleting Threads would mean deleting their Instagram account as well.
- ❖ There are also plans to let users choose to see only the accounts they follow. There is also no way to privately message others on Threads yet.
- ❖ According to Google's Play Store, Threads can collect data such as a user's location, their personal information, financial information, health and fitness, messages, photos and videos, files and documents, calendar events, and more.

SIMILARITY BETWEEN THREADS AND TWITTER

- ❖ Threads is similar to Twitter in terms of its user interface and basic features.
- ❖ Threads users can make posts and comment in response. They can also heart posts, repost and quote them, or share posts on Instagram, Twitter, and other platforms.
- ❖ News organisations and other professionals often rely on Twitter for instant updates and official statements or comments.
- ❖ However, Threads does not yet support the keyword searches which are necessary for these users. Threads also does not display trends in the way Twitter does.
- ❖ Threads does not have advertisements yet. It remains to be seen how the platform will evolve in response to user and advertiser demands.

CONCERNS

- ❖ Meta's Threads app, designed to provide a platform for discussions and community engagement, is currently not being launched in the EU.
- ❖ The company's decision stems from regulatory concerns regarding compliance with the DMA, a framework introduced to address the dominance of large digital platforms and ensure fair competition within the digital market.

UNDERSTANDING THE DIGITAL MARKETS ACT

- ❖ It applies to the 'gatekeepers' in the online space. These companies will have to comply with the new rules.
- ❖ The Digital Markets Act (DMA) entered into force in the European Union (EU) on November 1 2022.
- ❖ It introduces quantitative thresholds and penal provisions to keep a check on large digital platforms.
- ❖ It opens up possibilities of an equal market – based on the merits of their products and services.
- ❖ As for consumers it ensures access to a wider array of options as well as a lower price of services by enforcing competition and de-exclusivities.
- ❖ The Act designates companies with sizeable dominance in any of the 'core platform services' as 'gatekeepers'.

- These services include app stores, online search engines, social networking services, certain messaging services, video sharing platform services, virtual assistants, web browsers, cloud computing services, operating systems, online marketplaces and advertising services.

CONCLUSION

- With the new evolving apps it is not only for the individuals but even for the enterprises - social media policies must be used and prepared, and third-party experts must be hired to monitor their employees' online activities.
- When somebody has access to an individual's social media accounts, the potential for abuse and invasion of privacy is simply too high.
- The use of social media can reveal information that may lead to privacy violations if not properly managed by the user which could have a devastating impact for the employer.

SCIENTISTS NEED THE OXYGEN OF FREE SPEECH

CONTEXT

- It is important for scientific research institutions to encourage social and political discussions, rather than seeking to shut them down like the IISc and IISER administrations have done.

RESEARCH INSTITUTES

- Scientific research institutes are part of the broader society; and so their members have the same constitutional right as others to participate in social discussions.
- Researchers at such institutions are offered the leisure and the training to pursue critical inquiry into a variety of subjects.
- This privilege, which relies on the public support that these institutions receive, means that they have an added responsibility to educate and express themselves on matters of public interests.
- For scientific researchers to fail to stand up for justice, especially at a time of great social turmoil, would be an abdication of this responsibility.

SCIENCE HAS MULTIPLE LINKS

- A narrow perspective might suggest that scientists should restrict themselves to science and stay away from social questions.
- However, it is artificial to erect intellectual silos around what is considered "science" and proscribe discussions outside those limits.
- For instance, an investigation of the science of climate change can naturally flow into complex geopolitical issues about colonialism and historical responsibility.
- These issues are not peripheral to the subject but help to determine which scientific questions deserve focus.
- As another example, research on energy policy cannot be separated from environmental concerns or questions about the usage and equitable distribution of energy.
- Most recently, research on artificial intelligence has thrown up a host of ethical dilemmas.
- Some scientific fields, such as quantum physics, are further separated from current affairs.
- But the generous public support for research in these areas — the recently announced "national quantum mission" — arises from the expectation that this research, either directly or through spinoffs, will lead to public benefit.
- However, scientific and technological advances do not automatically lead to social progress; they can also facilitate oppression or entrench inequality.
- So, it is important for scientists to involve themselves in decisions of how science is deployed, and not cede this ground entirely to capitalists or the government.
- Therefore, a broader political and historical perspective on scientific research is helpful even in pure science.

AN ENGAGEMENT WITH SOCIAL ISSUES

- India has a rich and unique tradition of scientists who have engaged with social issues.
- The All-India Peoples Science Network has consistently advocated that science be used for social benefit rather than private profit.
- To be clear it is possible for individual scientists to focus on narrow scientific topics and ignore larger questions.

- ❖ My argument is that scientific issues are often related to broader political issues, and that society has benefited from the participation of scientists in these discussions.

THE PRESSURES
- ❖ Administrators worry that they might be seen as promoting views that are hostile to the government of the day and might incur its wrath.
- ❖ Often, they do not even wait for instructions from the government but proactively censor discussions deemed to be controversial.
- ❖ This attitude predates the current government. However, it is no secret that the pressure to conform and the level of self-censorship has increased significantly under the current dispensation.

CONCLUSION
- ❖ Unless this censorship is resisted robustly, academic freedom in scientific institutions is likely to come under further attack. A key value in science is to challenge the arbitrary use of authority. It is time for members of the Indian scientific community to put this value into practice in their own institutions.

HOW GAPS IN CLOUD SYSTEM CONFIGURATION COULD EXPOSE SENSITIVE USER DATA

CONTEXT
- ❖ According to a 2023 survey by Thales Cloud Security, which included responses from nearly 3,000 IT and security professionals across 18 countries, 35% of organisations in India note that their data was breached in a cloud environment last year. Moreover, 68% of businesses in India, and 75% globally, say that more than 40% of data stored in the cloud is classified as sensitive.

CLOUD STORAGE AND IT'S USES
- ❖ Cloud storage is a method through which digital data, including files, business data, videos, or images, are stored on servers in off-site locations.
- ❖ These servers may be maintained by the companies themselves or by third-party providers responsible for hosting, managing, and securing stored data.
- ❖ These servers can be accessed either by the public or through private internet connections, depending on the nature of the data.
- ❖ Companies use cloud storage to store, access and maintain data so that they do not need to invest in operating and maintaining data centres.
- ❖ An added advantage of cloud storage is its scalability — organisations can expand or reduce their data footprint depending on its needs.
- ❖ Most cloud providers offer security features like physical security at data centres, in addition to zero-trust architecture, identity and access management, and encryption to ensure the security of data on their servers.

RISK ASSOCIATED WITH CLOUD STORAGE
- ❖ The risks arise from the deployment of incompatible legacy IT systems and third-party data storage architecture.
- ❖ Additionally, the use of weak authentication practices and easily guessable passwords can allow unauthorised individuals to access sensitive data.
- ❖ Data stored in the cloud also faces the risk of exposure due to insecure APIs, poorly designed or inadequate security controls, internal threats due to human error and inadequate encryption during transfer or storage.

LEGACY SYSTEMS WEAKENS STORAGE SETUP

- ❖ Though cloud security may appear similar to legacy IT security, the difference in their architecture necessitates different strategies.
- ❖ Due to the lack of support or upgrades, legacy IT security may have known vulnerabilities that are yet to be fixed.
- ❖ Such vulnerabilities make them an appealing target for hackers who may use the gaps to gain unauthorised access to cloud resources connected with these legacy systems.

❖ Additionally, legacy systems may not be capable of supporting more advanced encryption techniques such as secure boot methods or hardware-based encryption, which increases the risks to cloud infrastructure.

❖ Therefore, updating and auditing legacy systems when used in tandem with cloud infrastructure is important.

SYSTEM MISCONFIGURATIONS

❖ A system misconfiguration arises when there is a lack of thorough security configurations on the devices accessing the cloud data and the servers, or a weakness in the software used.

❖ Misconfigurations can expose user data, making it accessible to unauthorised individuals, and compromising security.

❖ Many times, companies using cloud storage leave security configuration to the cloud vendor, but the cloud vendor is just a vendor and the plans companies opt for may not include access encryption or firewall rules on the cloud.

DATA PROTECTION

❖ The onus of ensuring data security lies with the companies even though they grant access to data to vendors and partners.

❖ If the data is sensitive in nature, it is the company's responsibility to make sure that a selected vendor has all the right checks in place and has conducted due diligence.

❖ This includes checking cloud compliances like ensuring passwords have two-factor authentication, monitoring access to the database, ensuring it is encrypted, and ensuring all firewall rules are set so that only access through certain places and certain departments is allowed.

❖ Data encryption is seen as one of the most effective approaches for securing sensitive information in the cloud.

❖ However, it comes with its own set of challenges which include encryption before data is stored, ensuring the security of encryption keys, and changing the encryption keys periodically to ensure continued safety.

RISKS OF DATA MIGRATION IN CLOUD

❖ There is risk involved when switching between vendors for cloud storage or when systems are upgraded.

❖ Without a proper migration plan and process based on thorough assessment of the cloud provider, data could get exposed.

❖ Additionally, ensuring that data is encrypted whenever in transit, and making relevant backups are also key aspects of ensuring data security, he added.

USERS' SAFETY

❖ When users get to know of possible data breaches, they are recommended to change passwords and the two-factor authentication setup, push security question answers, and monitor accounts for unauthorised transactions and SMSs for suspicious activity.

❖ The lifespan of financial data exposed in a breach is short. It is used by threat actors within weeks.

❖ However, for personally identifiable data, the lifespan can be longer, with data sold on the dark web to target users for phishing scams and other illicit activities.

WAY FORWARD

❖ Data breaches and data exposure incidents in the cloud should be treated identically.

❖ While in a data breach, confidential or protected information is exposed to unauthorised individuals, data exposure is often depicted as the unintentional disclosure or accidental disclosure of data, resulting from misconfiguration or human error.

❖ Both data breaches and data exposure incidents require close monitoring to ensure the confidentiality and availability of sensitive information housed in the cloud.

TO THE MOON AND BACK: SMALL STEP TO MOON, GIANT LEAP FOR INDIA'S SPACE JOURNEY

CONTEXT

❖ Recently, India's third Moon mission, Chandrayaan-3 was launched from the Srihari Kota launching range.

❖ The spacecraft is in an elliptical orbit, going as far as 41,762 km from Earth and coming as close as 173 km.

- While conducting various tests and calibrations, before it is transferred, free from the Earth, to be captured in orbit around the moon (translunar injection) a few days later.
- This orbit will gradually shrink, bringing the spacecraft closer and closer to the moon and finally, it will attempt a soft landing at a location near the South Pole of the moon, from a circular orbit of about 100 km from the surface.

ABOUT CHANDRAYAAN-3 MISSION
- Chandrayaan-3 is a follow-on mission to Chandrayaan-2 to demonstrate end-to-end capability in safe landing and roving on the lunar surface. It consists of Lander and Rover configuration. It is launched by LVM3 from SDSC SHAR, Sriharikota.
- Lander payloads:
- Radio Anatomy of Moon Bound Hypersensitive ionosphere and Atmosphere (RAMBHA)
- Chandra's Surface Thermo physical Experiment (ChaSTE)
- Instrument for Lunar Seismic Activity (ILSA)
- Laser Retroreflector Array (LRA) Rover:
- Alpha Particle X-Ray Spectrometer (APXS)
- Laser Induced Breakdown Spectroscope (LIBS) Propulsion Module:
- Spectro-polarimetry of Habitable Planet Earth (SHAPE)
- The mission objectives of Chandrayaan-3 are:
- To demonstrate Safe and Soft Landing on Lunar Surface
- To demonstrate Rover roving on the moon and
- To conduct in-situ scientific experiments

SIGNIFICANCE OF CHANDRAYAAN-3 MISSION
- The significance of Chandrayaan-3 for the Indian space programme is immense.
- The mission is a major step forward in India's lunar exploration programme, and it is sure to make significant contributions to our understanding of the moon.
- More importantly, it will showcase India's capabilities and build its reputation in the global space community, which will help attract more investment in the country's space industry.

PROMOTING THE PARTICIPATION OF PRIVATE SECTOR IN SPACE PROGRAMMES

- Private sector in India, despite being capable, is engaged in only a tiny fraction of the space enterprise in the international industrial sector, currently valued at about $500 billion. This has to change and the Indian industry must become a major global player.
- As, the government's newly-unveiled Space Policy 2023 states that
- India's space programme should "enable, encourage and develop a flourishing commercial presence in space".

CHANDRAYAAN-3 MISSION REPRESENTS THE COLORATION OF PRIVATE AND PUBLIC SECTOR IN SPACE PROGRAMMES
- Chandrayaan-3 is a clear example of how India's space programme is helping achieve this goal. The mission is a joint project between ISRO and the Indian private sector.
- This is the first time that India has partnered with the private sector on a major space mission and it demonstrates the government's commitment to the new Space Policy.
- The lander and rover that will be deployed on the Moon were developed by a consortium of Indian companies in collaboration with ISRO laboratories.
- The mission's ground control systems were also developed by ISRO with the help of the industry, and much of the mission's data will be processed and analysed by the private sector.

ISRO JOINS INTERNATIONAL SPACE ACCORD TO ENHANCE ITS ROLE IN SPACE SECTOR
- India is now a signatory to the Artemis Accords, an agreement with the other leading Space Agencies of the world – NASA (US), ESA (Europe), JAXA (Japan) and the CSA (Canada) — for moon exploration with a view to colonise it.

- ❖ If Chandrayaan-3 can lead the way in this challenging region, future Artemis astronauts, based on ISRO's pioneering work, will be able to collect core samples and volatiles from these regions.
- ❖ This could have a profound impact on the future of deep space exploration and eventual commercial activities.
- ❖ India's scientists are now taking part in a few frontline worldwide projects that are pushing technological boundaries
- ❖ . India has dealt with hardware and software challenges in the Thirty Meter Telescope project, in collaborations at the Large Hadron Collider at CERN, and in the preliminary stages of the recently-approved Laser Interferometric Gravitational Wave Observatory in India (LIGO-India) and the Square Kilometre Array in Radio Astronomy.
- ❖ The technological achievements in the astrophysics and space sectors strengthens Inda's position globally.

CHANDRAYAAN-3 MISSION AIMS TO EXPLORE SOUTH POLE OF MOON

- ❖ Landing site of Chandrayaan-3 mission is more or less the same as the Chandrayaan-2: near the south pole of the moon at 70 degrees latitude.
- ❖ AS, there are many geographical variations on the surface of the moon, and many are worth exploring.
- ❖ The southern hemisphere has many high mountains, and deep craters, which are more extreme in nature than those in the north.
- ❖ These block sunlight, and so, there are large areas of permanently shadowed regions near the poles, where temperatures can go down to -200 degrees Celsius.
- ❖ These are home to volatiles, which are chemical elements or compounds that melt or vaporise at moderately warm temperatures. This includes water, which, we suspect, exists in large quantities in supercooled ice form.
- ❖ Therebefore, extremely cold temperatures here mean that anything trapped in the region would remain frozen in time, without undergoing much change.
- ❖ The rocks and soil in Moon's north and south poles could therefore provide clues to the early Solar System, Hence the mission is expected to provide valuable insights into the history of the solar system.

CONCLUSION

- ❖ The missions such as Chandrayaan-3 will inspire the next generation of scientists and engineers.
- ❖ It was so wonderful to see the beaming faces of the youngsters at the launch, at our campus, and on the streets.
- ❖ Therefore, the success of Chandrayaan-3 will send a message to young people across the country that it is possible to do quality scientific research, and make a difference, here, on Indian soil.

A PUSH FOR GM MUSTARD DISREGARDING SCIENCE, THE LAW

CONTEXT

- ❖ A determined battle by environmentalists in the Supreme Court of India against Delhi University's genetically modified (GM) herbicide-tolerant (HT) mustard is all that stands between GM food and Indian farmers and consumers.

GM CROPS

- ❖ GM crops are quite different from conventional varieties and hybrids, such as those developed by farmers, agricultural research institutions and companies.
- ❖ Biotechnologists insert select genes at a random location in the DNA of a plant to develop a GM crop.
- ❖ The insertion makes a GM crop express traits that it ordinarily would not.
- ❖ For instance, GM mustard has been altered to withstand the broad-spectrum plant-killer or herbicide glufosinate.
- ❖ This makes it easier to develop hybrid mustard seeds for higher yields.
- ❖ And farmers growing GM mustard can spray the herbicide to kill all plants except the mustard.

THE DEBATE ON GM CROPS IN INDIA

- ❖ India has seen a robust debate on GM crops in the last two decades.

❖ Environmentalists, scientists, politicians, farmers, consumers and the higher judiciary have asked probing questions about the safety, efficacy and even the very necessity of GM food.

❖ Many have been alarmed by the experience with Bt cotton, the first and only GM crop approved in the country.

❖ Long-term research suggests that Bt cotton has provided only fleeting benefits to farmers, while enormously increasing their costs of cultivation and risk.

❖ On the other hand, some seed companies have profited handsomely from the expensive GM seeds.

❖ In the wake of the fierce debate, two Standing Committees of the Parliament independently and comprehensively examined GM crops and food.

❖ The Supreme Court also appointed a Technical Expert Committee (TEC) in the public interest litigations filed separately by the non-government organisation Gene Campaign.

CONVERGENCE IN RISK ASSESSMENT

❖ The Committee on Science and Technology, Environment and Forests made a specific reference to GM mustard, and asked the government to conduct a thorough, independent, and transparent assessment of long-term biosafety, environmental risk and socio-economic impacts.

❖ Five of the six TEC members found HT crops completely unsuitable in the Indian context and warned of serious harm to the environment, rural livelihoods and sustainable agriculture if they were released.

❖ Given the overwhelming political and technical consensus, the government needs to approach the issue of HT crops transparently and robustly with an emphasis on precaution.

MISLEADING THE COURT

❖ In recent hearings in the Supreme Court, to get around the growing evidence of long-term ecological and health risks of HT crops, the government has argued that GM mustard should not be considered HT at all — since the objective for developing it was to improve yields.

❖ In fact, a crop that can withstand herbicides is an HT crop. As far as the science of biotechnology and ecology go, there is no doubt that GM mustard is an HT crop.

CONCLUSION

❖ The apparent disregard with which the government is steamrolling science-based concerns and opposition to GM mustard is horrifying. If the Supreme Court allows GM mustard to go through, it will likely pave the way for the release of other HT crops such as cotton, rice, and maize. The future of farming and India's food culture and heritage hangs in the balance.

SEMICONDUCTORS: WHAT EXACTLY IS INDIA GOING TO MANUFACTURE?

INTRODUCTION

❖ Sand plays a vital role in our daily lives. Used in its raw form, it is the foundation material for building homes. Purify the sand a little more and it becomes the foundation of the semiconductor industry. India is currently waking up to its opportunities vis-à-vis semiconductors: access to the underlying technologies has been a long-standing dream of our nation. Success on this front would place India among a small, elite group of nations that have access to the tech as well as provide thousands of highly skilled jobs.

A SEMICONDUCTOR CHIP

❖ At its core, a semiconductor chip is composed of transistors, which in turn are meticulously crafted from a specially selected material, typically silicon.

❖ One major function of a transistor is to encode information in the form of 0s and 1s, and to manipulate them to produce new information.

❖ These transistors have three parts: the source, the gate, and the drain (or the sink).

❖ The flow of current between the source and the drain points is regulated by the voltage applied to the gate.

❖ This arrangement gave rise to the specific meaning of 'gate' in computing – analogous to a physical gate, but operating with electrical means rather than mechanical ones.

❖ By manipulating the gate to 'open' or 'close', the transistor stores and manipulates the data in a semiconductor chip.

❖ The semiconductor stores information in the form of bits.

❖ Each bit is a logical state that can have one of two values at a time.

❖ The more bits a semiconductor can store and the more quickly it can manipulate them, the more data transistors can process.

❖ The three parts of a transistor are connected to multiple metal layers on top of them that apply voltages, forming a complex mesh of electrical connections with the transistors.

❖ The metal layers allow selective access to a transistor and provide the versatility required for the chip to execute multiple tasks.

NODE NUMBER

❖ Through history, the names of semiconductor nodes have been based on two numbers: the length of the gate and the distance between adjacent metal strips connected to the gate; the latter, when measured centre to centre, is called the pitch.

❖ These dimensions were often equal. The size of transistors has progressively shrunk over the years.

❖ The smaller a transistor becomes, the more of them can be fit on a semiconductor chip, the more data the chip can store, the more computing power there will be.

❖ Yet as transistors continued to become smaller, researchers spotted a discrepancy between the gate length and the metal pitch, rooted in the fact that while smaller transistors generally resulted in faster operation, reducing the size of metal wires created different problems, including not being able to transport data fast enough.

❖ From a technical standpoint, node names hold no significance vis-à-vis the actual physical dimensions. Instead, marketers use them to mean one node is better than a previous iteration.

NEED OF LEGACY NODES TO INDIA

❖ The choice of nodes, just like our choices in life, involve compromises.

❖ While advanced nodes range from 10 nm to 5 nm, India's current focus is around 28 nm or higher.

❖ However, this doesn't mean we are attempting to develop outdated chips.

❖ Starting with legacy nodes can offer numerous advantages, including equipping us for long-term success.

❖ While the most advanced nodes are used in devices like smartphones and laptops, many applications require legacy nodes, including robotics, defence, aerospace, industry automation tools, automobiles, Internet of Things, and image sensors – because they are more cost-effective.

❖ The principal revenue source for any fabrication facility, or 'fab', is its most advanced node.

❖ But almost every commercial fab also maintains the production of legacy nodes to fulfil demands in the aforementioned areas.

WAY FORWARD

❖ Indeed, as the demand for electric cars – together with the ever-increasing demand for complementary electronics in the car, like music players – increases, the demand for legacy nodes will also increase.

❖ Given these facts, the Indian government and private players are sensible to begin their semiconductor journey with the legacy nodes, improving their game over time.

❖ Who knows – maybe one day India will be the semiconductors hub of the world.

NEW CLUE TO FRBs, MYSTERIOUS RADIO FLASHES FROM SPACE

CONTEXT

❖ Mysterious emissions of radio light from the far reaches of the universe are the next big thing in modern radio astronomy. Fleeting flurries of radio waves, called fast radio bursts (FRBs) reach Earth from faraway galaxies, emitting as much energy in a millisecond as the sundowns over weeks.

FRBS

❖ We know almost nothing about the precise origins of FRBs and why they appear in such short, sharp bursts – other than that these celestial electromagnetic impulses probably come from the embers of dying stars.

❖ Some FRBs are 'one-off' phenomena: spotted just once and never detected again; others are repeaters, flashing Earth intermittently like some ghostly lighthouse in the depths of space.

❖ An international team of astronomers has now published the results of its exhaustive study on a repeating FRB from a distant galaxy that offers new clues about the origins of these mysterious radio flashes.

❖ They targeted a repeating FRB, called FRB 20190520B using the Green Bank Telescope in the U.S. and the Parkes Observatory in Australia, and recorded hundreds of bursts from it.

FINDINGS
❖ They discovered that the FRB's Faraday rotation measure – an indicator of its magnetic field strength – was highly variable and that it reversed direction twice.
❖ This magnetic reversal, they believe, has to do with the FRB source orbiting a binary star system where the companion star is probably a massive star or a black hole.
❖ They saw that the value of the magnetic field and electron density was also found to vary around this source which indicates a very turbulentmagnetisedplasma environment.

CONCLUSION OF THE FINDINGS
❖ This conclusion ties in with an older discovery of a strikingly similar binary system in the Milky Way galaxy, including the magnetic field reversal.
❖ This FRB, called FRB 20190520B, is very similar to other repeating FRBs in energy scales, narrow banded emission, temporal widths etc.
❖ They concluded that it is possible that all repeating FRBs could be in binaries but differ in their local conditions, like the orbital period or the orbital inclination.
❖ Constant long-term monitoring of these FRBs is necessary to make a final call on this.
❖ Cosmologists believe that learning more about such changes in the magnetised environment around FRBs could eventually help track down their origins.
❖ To do this, astronomers have a whole new generation of radio telescopes at their disposal.

RADIO TELESCOPES
❖ Until the early 1930s, astronomers depended on the limited visible part of the electromagnetic spectrum to make observations, unaware of the enormous potential of the radio band lying at one end of the spectrum.
❖ Their long wavelengths allow radio waves to traverse intergalactic space without interruption, making them an ideal tool to identify radio emissions from faraway heat sources.
❖ Fortunately, scientists pioneering findings endured and inspired others to develop radio astronomy, thanks to which we know about intergalactic phenomena like pulsars (fast spinning neutron stars), dark matter, the cosmic microwave background (signals left over from the universe's birth) and, of course, FRBs.
❖ Radio astronomers today are much better off with telescopes that can even localise FRBs with arc-second precision, so that observations in other wavelengths could hunt for the FBR's host galaxy.

CONCLUSION
❖ By connecting dots like these, astronomers try to unravel cosmic mysteries and better understand the universe, of which hardly a fraction is known.

WHAT IS SAM ALTMAN'S BIOMETRIC PROJECT?
Context
❖ On July 24, OpenAI CEO Sam Altman took to Twitter to formally re-introduce Worldcoin, a project of his that was eclipsed by the popularity of ChatGPT.

Worldcoin
❖ Worldcoin is an initiative to create a digital network in which everyone can claim some kind of stake, and join the digital economy.
❖ Using a device called "Orb," Worldcoin volunteers known as 'Orb operators' scan a person's iris pattern to collect their biometric data and help them get a World ID through the World app.
❖ Worldcoin claims it is building the "world's largest identity and financial public network" open to people worldwide.

The working
❖ The users need to be willing to scan irises and/or get their own irises scanned.

- Volunteers sign up to be "Orb operators" in their locality and receive basic training and a biometric device with which to scan irises.
- Orb operators can even rent out the Orb to others to let them scan eyeballs as well.
- Those who have their irises scanned and collect a World ID can use this to claim the WLD crypto, which they may use for transactions or hold on to the asset in the hope that its price might rise, as it did after launching.
- However, users can also buy or sell WLD without getting scanned or using the app.
- In return for signing up more people to the Worldcoin network, Orb operators get WLD, which is a token based on the Ethereum blockchain.
- Ethereum has a native coin, Ether, which is the second-largest crypto by market capitalisation.
- However, anyone can create a token which runs on the Ethereum blockchain. WLD is one such cryptocurrency.

Scanning irises

- Worldcoin explained that it wanted to include everyone in its network and that using biometric information to avoid duplication was a valid method for this.
- The company claimed that India had "proven the effectiveness of biometrics" through its Aadhaar system.
- Worldcoin notes that Aadhaar IDs stopped people from signing up multiple times to benefit from social welfare schemes.
- The company said that it uses a technology known as zero-knowledge proofs (ZKPs) to maintain users' privacy.
- Worldcoin has also said it is fully compliant with Europe's General Data Protection Regulation (GDPR).
- Individuals who want to receive a World ID are not required to share their name, phone number, email address, or home address. Images collected by the Orb are used to generate a unique iris code.
- By default these images are immediately deleted once the iris code is created, unless the user opts in to Data Custody.

The Criticism

- Worldcoin was criticised long before its re-launch.
- A whistleblower ointed out that even if a person's biometric scans were deleted for privacy reasons — as Worldcoin said it would do — the unique identifier for the scan would match future scans of the same person's eyes.

Worldcoin and India

- According to the company website, it has. Worldcoin lists 18 locations, largely in Delhi, Noida, and Bangalore, where Orb operators are scanning people's eyes. Some locations include popular malls and metro stations in these cities.

Conclusion

- While the Worldcoin project's ambition to create a secure digital identity system is commendable, it has also given rise to legitimate privacy concerns. The collection and storage of biometric data, such as iris scans, raise questions about the potential misuse of this sensitive information. Additionally, the idea of a global identification system may lead to fears of surveillance and centralized control over personal data.

CELL-FREE DNA PROMISES TO TRANSFORM HOW WE FIND DISEASES IN ADVANCE

Introduction

- In the human body, most of the DNA in a genome is neatly packed inside cells with the help of specific proteins, protecting it from being degraded. However, in a variety of scenarios, some fragments of DNA are 'released' from their containers and are present outside the cell, in body fluids. These small fragments of nucleic acids are widely known as cell-free DNA (cfDNA).

A useful tool

- cfDNA can be generated and released from a cell in a number of possible situations, including when a cell is dying and the nucleic acids become degraded.
- Since an array of processes modulates the degradation, the amount, size, and source of the cfDNA can vary across a range as well.

- ❖ The release of cfDNA could occur together with a variety of processes, including those required for normal development, those related to the development of certain cancers, and those associated with several other diseases.
- ❖ One of the initial reports of the levels of cfDNA in diseases came from studies that were taking a closer look at an autoimmune disease: systemic lupus erythematosus – where the body's own immune system attacks specific cells.

Checking the baby

- ❖ By far, one of the most widely used applications of cfDNA has been in screening foetuses for specific chromosomal abnormalities, an application known as non-invasive prenatal testing.
- ❖ The availability of affordable genome-sequencing approaches will allow clinicians to sequence cfDNA fragments that correspond to foetal DNA.
- ❖ They can then use it to understand specific chromosomal abnormalities that involve changes in the chromosomal copy number.
- ❖ Such changes can lead to conditions such as Down's syndrome, which is due to a change in chromosome 21 .
- ❖ As a result, thanks to a cfDNA-based technique, clinicians can now screen mothers from a few millilitres of blood, obtained after nine or ten weeks of pregnancy, to ensure the developing foetus is devoid of such chromosomal abnormalities.
- ❖ The test is almost 99% accurate for trisomy 21 or Down's syndrome and a bit less so for other common trisomies (of chromosomes 13 and 18).
- ❖ Screening for such abnormalities before the genome-sequencing era would have entailed inserting a fine needle into the body to retrieve the amniotic fluid and cells covering the developing foetus, and analysing them in the lab. This method carries risks to both the foetus and the mother.

Catching a cancer

- ❖ Another emerging application of cfDNA is in the early detection, diagnosis, and treatment of cancers.
- ❖ Last month, researchers reported developing a new test they have dubbed 'Genome-wide Mutational Incidence for Non-Invasive detection of cancer', or 'GEMINI'. They adopted a whole-genome-sequencing approach to cfDNA extracted from patients.
- ❖ Specifically, the researchers examined a type of genetic mutation that, when combined with machine-learning approaches, could provide a way to detect cancer early.
- ❖ Using a particular machine-learning model, some genomic data, and data from a computed tomography (CT) scan, the researchers could successfully detect lung cancer.
- ❖ It has also been found to detect over 300 individuals who were at high risk of developing lung cancer.

Almost infinite applications

- ❖ There are a number of emerging applications of cfDNA, including in understanding why a body is rejecting a transplanted organ.
- ❖ Here, some cfDNA obtained from the donor of the organ – called donor-derived cfDNA, dd-cfDNA – could provide an early yet accurate estimate of how well the organ is being taken up.
- ❖ Indeed, cfDNA seems to have an almost infinite number of applications, especially as nucleic-acid sequencing becomes rapidly democratised and finds more applications of its own in clinical settings.
- ❖ There have already been some reports suggesting that cfDNA could be used as a biomarker for neurological disorders like Alzheimer's disease, neuronal tumours, stroke, traumatic brain injury, and even metabolic disorders such as type-2 diabetes and non-alcoholic fatty liver disease.

Conclusion

- ❖ In a true sense, cfDNA genomics promises to set us on the path of more effective disease-screening and early diagnosis, and on course for a healthy world.

ENVIRONMENT

WAS INDIA'S HOT SUMMER OF 2023 A PORTEND OF THINGS TO COME?

INTRODUCTION

- ❖ It will be fair to say that many of us have been looking forward to the monsoon this year, eager to put behind us one of the hottest summers ever on record. With each passing year, India has been experiencing more and more instances of severe heatwaves, rendering these months more and more dreadful.

THE REPORTS

- ❖ A recent report from the India Meteorological Department (IMD) indicated an increasing trend in the number and duration of heatwaves, based on data from March to June from 1961 to 2020.
- ❖ This year, heatwaves started as early as on March 3, and many areas reported temperatures that were higher than average. The number of days with temperatures exceeding 30 degrees Celsius has also increased of late.
- ❖ The U.N. Intergovernmental Panel on Climate Change's Sixth Assessment Report warned of prolonged rain-free periods along with excessive rainfall in many parts of the world. In recent decades, India has recorded several such extreme events.
- ❖ An October 2017 study conducted by the Indian Institute of Tropical Meteorology (IITM), Pune, reported that there was a three-fold increase in widespread extreme events from 1950 to 2015.

CHANGING WEATHER PATTERNS

- ❖ Climate change is increasing both the frequency and the intensity of extreme weather events.
- ❖ In India, for one, normal monsoon patterns have given way to, among others, delayed onset, short but intense bursts of rain, and delayed withdrawal.
- ❖ Some weather events have also become drier and others wetter thanks to the effects of climate change on the water cycle, which leads to more evaporation and eventually causes more precipitation.
- ❖ Some areas also experience heavier than normal precipitation while others are becoming prone to unexpected droughts.
- ❖ High monsoon rainfall variability and continuous warming raise the probability of dry and hot extremes, with profound implications for agriculture, water resources, and India's overall economy.
- ❖ There is also a strong connection between land and ocean heatwaves, driven by atmospheric circulation, increase in sea-surface temperature, and feedback mechanisms that exacerbate the intensity and duration of extreme temperatures.

ROLE OF MARINE HEATWAVES

- ❖ The oceans play a key role in the formation of monsoon winds and in keeping the monsoon alive.
- ❖ When extreme heat warms their waters, the change in temperature can lead to cascading effects, such as marine heatwaves, ocean acidification, sea-level rise, and ice melting faster at the poles.
- ❖ Marine heatwaves are periods of temperature much higher than the average seasonal temperature in that region.
- ❖ The Indian Ocean recorded six marine heatwaves over a period of 52 days in 2021. They used to be rare in this water-body but today are an annual occurrence.
- ❖ A low pressure develops over the Indian subcontinent when the land heats up during the summer. The moisture for monsoon rains is thus carried by the winds as they blow in from the Indian Ocean.
- ❖ However, rainfall over the land decreases when ocean heatwaves occur, as the winds are drawn to areas over the ocean instead of land.

CLIMATE RISK AMPLIFICATION

- ❖ Amplification is what happens when certain climate- related factors and/or events interact with each other or happen at the same time, intensifying or exacerbating the overall risks and consequences associated with climate change.
- ❖ A good example is the warm and dry conditions that have put Canada on course for its worst-ever wildfire destruction this year.

- ❖ Such amplification happens in the form of various feedback loops and interconnected processes in the earth's climate system and also occur as a result of an El Niño, prolonged hot days, dry monsoons, and/or ocean heatwaves occurring together, compounding risks across sectors.
- ❖ Such a combination will also affect water availability, soil moisture, and crop output while increasing food prices and lowering incomes.
- ❖ The co-occurrence of heatwaves and droughts can also lead to wildfires, tree mortality, and a higher risk of thermal power-plant failures.
- ❖ Ultimately, the risks can push sensitive and vulnerable systems over a tipping point, ultimately avalanching into drastic consequences for socio-ecological systems.

WAY FORWARD

- ❖ Amplified climate risks underscore the urgency of taking proactive measures to mitigate greenhouse gas emissions, adapt to changing conditions, and enhance resilience in both natural and human systems.
- ❖ Identifying compound event hotspots and monitoring them are important to frame suitable adaptation strategies.
- ❖ By understanding and addressing these amplification mechanisms, we will be able to reduce the overall risk associated with climate change and build a more sustainable and resilient future.

GLOBAL TROPICAL PRIMARY FOREST COVER CONTINUED TO DECLINE UNABATED IN 2022

CONTEXT

- ❖ Tropical areas lost 4.1 million hectares of forest cover – equivalent to losing an area of 11 football fields per minute – in 2022, new research quoted by the World Resources Institute's (WRI) Global Forest Watch has said.

THE PRIMARY FORESTS

- ❖ Primary forests are mature, natural forests that have remained undisturbed in recent history.
- ❖ They often store more carbon than other forests and are rich sources of biodiversity.
- ❖ Primary forest loss is almost irreversible in nature: even if the green cover regrows, a secondary forest is unlikely to match the extent of biodiversity and carbon sequestering capabilities of a primary forest.
- ❖ Rainforests are also called "Primary Forests" thanks to their pristine untouched vegetation because unaffected by any human activity.
- ❖ As the population of the country grows, there is more demand for food, which in turn is leading to an expansion of area under agriculture and encroachment of land hosting primary forests.
- ❖ Primary forests are burned for short-term cultivation and then left fallow for regeneration of soil nutrients.

DISTRIBUTION

- ❖ Tropical rain forests can be found in Asia, Australia, Africa, South America, Central America, Mexico, and several Pacific Islands, all of which are around 28 degrees north or south of the equator.
- ❖ They cover about 6-7 percent of the earth's surface and are home to half of the planet's biodiversity.
- ❖ Brazil (South America), the Democratic Republic of Congo (Africa), and Indonesia are home to the world's largest rainforests.
- ❖ South America's Amazon rainforest is the world's largest, occupying an area almost two-thirds the size of the continental United States.

GLOBAL FOREST WATCH FINDINGS

- ❖ According to Global Forest Watch, India lost 43.9 thousand hectares of humid primary forest between 2021 and 2022, which accounts for 17% of the country's total tree cover loss in the period.
- ❖ The total global tree cover loss in 2022 declined by 10%. This includes primary, secondary, and planted forests.
- ❖ This decrease, according to Global Forest Watch, is a direct result of a decrease in fire-related forest losses which decreased 28% from 2021. Non-fire losses in 2022 increased by slightly less than 1%.
- ❖ Brazil and the Democratic Republic of Congo are the two countries with the most tropical forest cover, and both registered losses of this resource in 2022.

SUGGESTIONS

- ❖ We need to reduce global deforestation by at least 10% every year to meet the 2030 target. In 2022, although the global deforestation rate was 3.1% lower than the baseline from 2018-2020. This puts the world off track to meet the 2030 goal.
- ❖ To meet the target of restoring 350 mha of forests globally by 2030, the world needs to increase tree cover by 22 mha per year, between 2021 and 2030.
- ❖ Reducing deforestation will strengthen the resilience of the Amazon rainforest and safeguard its threatened areas.
- ❖ The Brazilian government's current administration is in the spotlight, and it is being urged to implement a zero-deforestation policy to change the situation.
- ❖ Constructing knowledge about the role of trees in the Amazon ecosystem and creating awareness among students and youths of the importance of trees to the Amazon ecosystem.
- ❖ To protect them, it is also necessary to limit global greenhouse gas emissions.
- ❖ Corporates are required to follow corporate responsibility guidelines which bans them from taking part in endeavours that harm Amazon.

CONCLUSION

- ❖ The solution of saving Tropical forests must be based on what is feasible, not overly idealistic, and depends on developing a conservation approach built on the principle of sustainable use and development of rainforests.

NORTH INDIA'S MONSOON MAYHEM

Introduction

- ❖ Every year, the entire country awaits the onset and evolution of monsoon with baited breath. Each year tends to be different, and this year has managed to produce a rather unique onset and evolution thus far. The onset this season was delayed by unforeseen interactions between typhoons and cyclones. Cyclone Biparjoy was born after the onset and lingered for longer than normal to delay the arrival of monsoon over Mumbai by nearly two weeks. For the first time in over half a century, the city saw monsoon arrive together with Delhi. The monsoon trough thus ended up with an exaggerated curvature over northwest India.

Monsoon Distribution

- ❖ The deficit due to the delayed onset has been all but wiped out but the distribution of rainfall remains as patchy as ever, with excess rainfall over the northern Western Ghats into northwest India and deficits extending in a horseshoe pattern from Uttar Pradesh into Odisha and back to the east into Chhattisgarh, Madhya Pradesh, and Maharashtra. Extreme heat has also been reported in parts of Himachal Pradesh, even as some areas of the State received heavy rainfall.

Climate change and Monsoon

- ❖ The impact of climate change has always been of great interest, but it is worth remembering that everything today happens in a warmer world that is also more humid.
- ❖ With global warming, a warm and humid atmosphere acts like a steroid for the weather. Every weather event now has some contribution from global warming.
- ❖ At the same time, one must also pay close attention to weather patterns that emerge due to other factors.
- ❖ While the El Niño has been grabbing many headlines this year, it is not yet clear how much the current monsoon mayhem has had to do with the El Niño.
- ❖ Additionally, wildfires thus far this year have burned over three-times the normal area and have also emitted about three times as much carbon dioxide. This has also had a contribution to the warming.

Other Factors

- ❖ The Indian subcontinent is like a popcorn kettle that gets heated up as the Sun crosses over into the northern hemisphere in March.
- ❖ Rainfall is like the kernels of corn popping randomly around the kettle. That is, monsoon rainfall distribution always tends to be patchy.
- ❖ Excess rainfall over northwest India is consistent with the Arabian Sea having warmed by about 1.5 degrees Celsius since January.
- ❖ The instabilities in the atmosphere that drive convection are not strong enough to drive large-scale rainfall during the pre-monsoon season.

- Rainfall this pre-monsoon was above normal due to a combination of the warm Arabian Sea and an unusually high number of western disturbances.
- As a result, soils were left moister than normal, which in turn affected the evolution of the monsoon.
- However, the mystery is that, despite averaging rainfall over a month, a season or even multiple seasons, rainfall distribution remains uneven.
- Di uniform terrain and heterogeneous land-use patterns are the likely culprits.
- The Atlantic Ocean and the upper atmospheric circulation also tinker with the monsoon.
- The entire Atlantic Ocean has been warmer than normal since March. While the so-called Atlantic Niño, with a warm tropical Atlantic, generally tends to suppress monsoon rainfall, it is not clear what the impacts are when the entire Atlantic is as warm as it has been this year.
- The strongest winds that occur in the upper atmosphere can spontaneously break into clockwise and anticlockwise patterns, especially when they run into mountainous terrain, such as the Himalaya.
- Strong clockwise winds, with air flowing out from the centre, in the upper atmosphere demand an anticlockwise circulation near the surface, in order to feed the upper-level outflow. Such a convergence near the surface can drive excess rainfall.
- Finally, the warming over the Himalaya has not been uniform either. Some parts of the mountain chain are amplifying global warming, leading to rapid local warming.
- Irregular weather patterns during the monsoon superpose on these local features as a result of the winds expanding or compressing as they race up and down the narrow valleys.
- The results can be cloudbursts, heavy rains or even heatwaves — depending on the local flow patterns.

Conclusion

- The conclusion is that the Indian subcontinent is a veritable popcorn kettle that can throw up many surprises.
- Everything is not directly attributable to global warming — even as every little weather event is happening in a warmer and wetter world.
- Only improved forecasts with sufficient granularity in space and time can reduce the element of surprise resulting from these weather monsters

HOW ARE CHEETAHS FARING IN INDIA?

CONTEXT

- As more deaths of cheetahs have been reported last week from the Kuno National Park (KNP), Madhya Pradesh, an expert committee charged with managing the Project Cheetah programme has recommended that all animals undergo a thorough medical review.

PROJECT CHEETAH

- Project Cheetah is India's cheetah relocation programme and is perhaps among the most ambitious of its kind in the world.
- The attempt is to, over the next decade, bring in 5-10 animals every year until a self-sustaining population of about 35 cheetahs is established.
- Unlike cheetahs in South Africa and Namibia that are living in fenced reserves, India's plan is to have them grow in natural, unfenced, wild conditions.
- As of today, 11 of the translocated cheetahs are in the true wild with four in specially designed one-square-kilometre enclosures called 'bomas,' to help the animals acclimatise to Indian conditions.
- Five of the translocated animals and three of four cubs born in India have died.

THE NEED OF MEDICAL REVIEW

- One of the cheetahs, nicknamed Surya, was found dead in KNP last week.
- Veterinarians examining the animal saw a wound on its neck, infected with maggots.
- The larvae of the maggots were also found on the radio-collar fitted onto the cheetah's neck.
- There was a chance that chafing from the collar may have indirectly sickened the cheetah.
- The collars that the cheetahs wear are made from polystyrene and equipped with a radio-frequency tracking chip that helps monitor the animals.

- ❖ Coupled with the moisture from the monsoon season — something that South African cheetahs aren't acclimatised too — the animal may have been unable to lick itself clean which allowed parasites to fatally lodge inside the wound.
- ❖ There is also a hypothesis that via the wound the African animal may have been exposed to parasites that Indian big-cats are usually resistant too.
- ❖ However, the Environment Ministry in a note on July 16 dismissed these suggestions as hearsay…in the absence of scientific evidence.
- ❖ To investigate these points, the expert committee has recommended that all surviving animals be subject to a thorough physical examination.

SUCCESS RATE OF PROJECT CHEETAH

- ❖ In September 2023, it will be one year since a batch of eight cheetahs from Namibia arrived in India.
- ❖ They were followed by 12 others from South Africa in February 2023. While conceived as an experiment that is susceptible to failure in the initial years, independent critics have argued that there are some basic flaws in the project.
- ❖ For one, it is a mistake to have had all 20 cheetahs in KNP as it's too little space and prey, given that the animal is a courser and needs large distances.
- ❖ Moreover, having cheetahs for extended periods in quarantine have affected their adaptive capabilities and caused them to have psychological adjustment problems, making them more vulnerable.
- ❖ Unlike tigers and leopards, cheetahs are relatively delicate animals and are more likely to be fatally injured in the wild.
- ❖ Currently, Indian cheetahs face no competition from other comparable predators such as lions and leopards. So, it remains to be seen if the animals can successfully establish themselves in India, over time.

WAY FORWARD

- ❖ While officials say that there is enough space and prey in the Kuno reserve, there are plans to develop a second reserve in Gandhisagar, Madhya Pradesh and also establish a cheetah rehabilitation centre.

CLIMATE TARGETS ARE BECOMING OUTDATED: INDIA NEEDS ITS OWN

CONTEXT

- ❖ The target in the Paris Agreement, to keep the planet's surface from warming by 2 degrees Celsius by 2100, has been touted as a monumental goal. However, despite negotiations for more than two decades, global carbon emissions have not slowed. Also, the target was not derived scientifically.

SURFACE TEMPERATURE RISE

- ❖ The 1.5 degrees Celsius warming target has received considerable press along with the El Niño this year.
- ❖ Reports claim that the planet could soon cross this temperature threshold due to this natural climate phenomenon.
- ❖ But even if the world's average surface temperature warms by more than 1.5 degrees Celsius for a year, nothing dramatically different may happen – other than the heatwaves, floods, droughts, and similar events that are already happening.
- ❖ It is a serious challenge today, yes, but a constant drumbeat of alarmist messages may only exacerbate climate anxiety and leave people feeling helpless – especially the young ones, who should be dreaming about saving the planet (or space travel) instead.

A QUESTIONABLE TARGET

- ❖ The target agreed to in the Paris Agreement, to keep the planet's surface from warming by 2 degrees Celsius by the end of this century, has been touted as a monumental achievement, and it may well be if we actually manage to achieve this goal by 2100.
- ❖ But we must bear two things in mind. First, despite negotiations among the representatives of the world's countries for more than two decades, global carbon emissions have shown no signs of slowing down.
- ❖ Second, the 2 degrees Celsius target was not derived scientifically. The economics Nobel laureate William Nordhaus cautiously noted in the 1970s that a warming of 2 degrees Celsius above the pre-industrial level could render the planet warmer than it has ever been in several hundred-thousand years.

- ❖ Indeed, no sooner was this figure enshrined in the Paris Agreement than the Alliance of Small Island States demanded that it be lowered to 1.5 degrees Celsius.
- ❖ Once again, the climate community, now together with the socioeconomic-modelling community, retrofitted future scenarios to meet this so-called "aspirational" target.

EARTH SYSTEM MODELS

- ❖ It is also not entirely clear whether the earth system models (ESMs) that scientists use to prepare climate projections can reliably reproduce the consequences of a world that has warmed by 2 degrees Celsius but at the scale of the Indian subcontinent.
- ❖ As of today, they certainly cannot do so accurately at scales smaller than the subcontinent, particularly for rainfall.
- ❖ The uncertainties in climate projections will be dominated by ESM deficiencies for the next decade or two.
- ❖ For the decades beyond two, the assumed scenarios for radiative forcing, resulting from greenhouse gas emissions and socioeconomic choices, determine the warming levels and rates.

UNCERTAINTIES FOR INDIA

- ❖ This brings us to the next point: the impacts of the COVID-19 pandemic and Russia's invasion of Ukraine have made it abundantly clear that it is very difficult for us to imagine all the possible socioeconomic and geopolitical events that matter to the well-being of our world, including its people.
- ❖ The inherent uncertainties, however, leave India, and the economically developing world, with some tough choices.
- ❖ This group of countries needs to develop its own tools to determine the crisis's local impacts, especially for adaptation plans that deal with unavoidable consequences.
- ❖ India's engagement with the international community on climate mitigation, to try and avoid the unmanageable, should also keep an eye on any Frankenstein's-monster experiments by richer countries, such as spraying dust in the upper atmosphere (a climate geoengineering solution that scientists know carries an unreasonable risk of droughts and crop losses).

WAY FORWARD

- ❖ More importantly, India should continue its leadership role by demanding that the community centred on the U.N. Intergovernmental Panel on Climate Change (IPCC) be prepared to improve projections that quantify impacts at local scales.
- ❖ The IPCC and India must also track climate change and its consequences continuously at the socially relevant timescale of a few years.
- ❖ The country must consider non-market goods such as equity, well-being, and biodiversity more deliberately.
- ❖ Decarbonising the system is more likely to save us from ourselves.
- ❖ India can cash in on these opportunities and grow its economy by focusing on green technologies to decarbonise the future.

HIMACHAL FLOODS: A MAN-MADE DISASTER?

Context

- ❖ Flash floods during this year's monsoon season have caused unprecedented damage to both lives and assets in Himachal Pradesh. Although climate change is expected to have played a hand in causing the high precipitation leading to these flash floods, human induced disasters resulting from planned development have played a significant role in causing such colossal losses.

Climate change

- ❖ The IPCC (Intergovernmental Panel on Climate Change) VI report has clearly stated that the Himalayas and coastal regions of India will be the hardest hit by climate change.
- ❖ In the Himalayas, there is a noticeable pattern of increased precipitation occurring in shorter periods of time.
- ❖ This year, the precipitation so far has been attributed to the combined effect of the south-west monsoon with western disturbances. The total rainfall from June to date was 511 mm.

Reworking of the development model

- ❖ Apart from climate change, anthropogenic factors have also significantly contributed to the disaster.

- ❖ The State's development model initiated after it came into being in 1971 had been successful in transforming Himachal Pradesh into an exemplar of development for mountain States.
- ❖ This model, known as the Dr. Parmar model, focused on exemplary land reforms, robust state-led investment in social welfare, and a strong emphasis on human resources.
- ❖ However, the advent of liberalisation led to significant changes, with the Central government demanding stringent fiscal reforms and mountain States being forced to generate their own resources for fiscal management.
- ❖ The exploitation of natural resources, including forests, water, tourism, and cement production, became a major focus for development.

Building hydropower projects

- ❖ The pursuit of hydropower projects became a dominant focus for hill States, with their capacity measured in terms of megawatts (MW) to attract investments.
- ❖ One of the main reasons for the devastating impact of floods in the region is the uncontrolled construction of these hydropower projects, which have essentially transformed mountain rivers into mere streams.
- ❖ The technology employed, known as "run of the river" dams, diverts water through tunnels burrowed into the mountains, and the excavated material (muck) is often disposed of along the riverbeds.
- ❖ During periods of higher precipitation or cloudbursts, the water returns to the river, carrying the dumped muck along with it.
- ❖ This destructive process is evident in rivers like Parvati, Beas and Sutlej, as well as many other small hydropower dams.
- ❖ Moreover, long tunnels spanning 150 km have been planned or commissioned on the Sutlej river causing significant harm to the entire ecosystem.

Impacts of tourism

- ❖ The development-driven road expansion is aimed at promoting tourism and attracting a large number of visitors.
- ❖ The road-widening projects, often carried out by the National Highway Authority of India (NHAI), involve transforming two-lane roads into four-lane roads and single lanes into two- lane roads.
- ❖ The development model follows a public-private-partnership (PPP) approach, emphasising the need to complete these projects rapidly.
- ❖ However, this has resulted in bypassing essential geological studies and mountain engineering skills.
- ❖ Traditionally, mountainous regions are not cut with vertical slits but are terraced, minimising the damage to the environment.
- ❖ Unfortunately, in both the four-lane projects in Manali and Shimla, the mountains have been cut vertically, leading to massive landslides and damage to existing roads.
- ❖ Restoring these roads after such disasters is a time-consuming process, often taking months or even years.
- ❖ The consequences of such road expansions are evident during even normal rainfall, as it leads to slips and slides, amplifying the magnitude of the destruction during heavy rain or floods.
- ❖ The establishment of massive cement plants have resulted in significant land use changes that contribute to flash floods during rainfall.
- ❖ The cement plants alter the natural landscape, and the removal of vegetation leads to reduced capacity of land to absorb water.

Solutions

- ❖ A Commission of Inquiry must be instituted to bring the major stakeholders — the people — on board and discuss both the policy framework failures, as well as the peculiar aspects of the projects undertaken.
- ❖ A new architecture is required to empower local communities over their assets.
- ❖ The losses faced in the forms of culverts, village drains, small bridges, schools, other social infrastructure must be compensated; and this can be done if the assets are insured and the custodians are local communities.
- ❖ This will help to rebuild the assets quicker.

Conclusion

❖ With climate change a reality, humans should not add to the problem, but make adequate changes in infrastructure planning to avert disasters.

THE ANATOMY OF THE YAMUNA FLOODPLAINS

INTRODUCTION

❖ Battered by heavy rains, the Yamuna looks slow, sluggish and swollen. Last week, the water levels hit a 60-year-high, gushing through elite neighbourhoods built close to the floodplains. Waters advanced towards the Taj Mahal for the first time in half a century.

IMPORTANCE OF YAMUNA

❖ We talk about rivers in isolation, but floodplains are inseparable from the river channel.
❖ The river system includes both water and land. Yamuna is a lifeline to five States, and its floodplains are a charging point.
❖ Yamuna courses east of Delhi, entering the city from Palla village and exiting at the Okhla barrage.
❖ Farmers near Palla and Hiranki villages traditionally grow rice, wheat, and flowers on the rich silt deposited by the river.
❖ The floodplains are two km wide on each side. The floodplain along Yamuna's 22 km run in Delhi, designated as the O zone by the Delhi Development Authority, has an area of approximately 9,700 hectares.
❖ Zone O supports a large variety of nature-based livelihoods with a low ecological footprint.
❖ Between Palla and Okhla, the composition of the floodplains changes from farmlands to slums, colonies, flyovers and bridges.
❖ A river has the "right to expand" and needs to breathe through its flood plains. Any attempt to concretise constricts its air supply.
❖ As part of river systems, floodplains slow water runoff during floods, recharge groundwater and store excess water, replenishing the city's water supply.
❖ When you have sluggish flow, the surplus water stored in the floodplain is released back during the non-monsoon season.
❖ If you lose the floodplain, you also lose the storage of water.
❖ Delhi recorded similarly devastating floods in 1978, 1988 and 1995 which inundated floodplains, adversely impacting their health.

DELHI'S MASTER PLAN OUTLINE

❖ The Yamuna floodplain was designated as a protected area free from construction in the Delhi Masterplan of 1962.
❖ The Central Ground Water Authority in 2000 also notified the floodplains as 'protected' for groundwater management.
❖ The draft Master Plan For Delhi 2041 divides Delhi into 18 zonal areas, designating Yamuna's floodplains as 'Zone O', delineated in two parts: river zone (active floodplain) and riverfront (regulated construction is allowed).
❖ The South Asia Network on Dams, Rivers and People (SANDRP) in 2020 found large parts of the Yamuna floodplains and riverbed were "grossly abused" due to lax implementation
❖ The areas proposed under the Yamuna Riverfront Development (YRDF) plan — which proposes biodiversity parks and 'recreational' activities — were within the active floodplain, which could affect the topography, increase pollution and affect flood-carrying capacity.
❖ The layers of sediments of floodplains create aquifers contributing to the river channel, which in turn rejuvenates the groundwater. But encroachments stop this two-way exchange.
❖ The river is unable to transport flood waters downstream during monsoons, wet the lands or deposit soil along its banks to preserve the riverine ecosystem.

ROLE OF ENCROACHMENTS

- ❖ Floodplains also protect against devastating flash floods by allowing excess water to spread out and storing that surplus.
- ❖ However, encroachments restrict the river to a small channel. Any intense rainfall activity swells the river, expanding in height not in width, eventually spilling over with devastating intensity.
- ❖ Climate change has intensified rains in frequency and severity, and seen in the Yamuna floods, runoff water comes as a huge gushing flow in a small span of time.
- ❖ Floods are inseparable from the hydrological cycle and are required for sediment transport, cleaning the riverbed, rejuvenating the river itself.

WAY FORWARD
- ❖ The concept of floodplain zoning is not mainstreamed in the Master Plan and authorities haven't yet taken cognisance of the river's right to expand.
- ❖ This gap, along with poorly implemented policies, frees up river land for private and public real estate.
- ❖ A model draft Bill for defining floodplains and zoning was circulated in 1975. Only four States have drafted a National Floodplains Zoning Policy so far.
- ❖ Action can be focused on creating climate-resilient infrastructures, de-silting drains, creating green areas and improving drainage systems.

THE HORNETS' NESTS IN THE FOREST AMENDMENT BILL

CONTEXT
- ❖ The Lok Sabha passed the Forest (Conservation) Amendment Bill, 2023, on July 26, with no substantive changes from the original version introduced in March.

THE PROBLEM AREAS
- ❖ The 2023 Bill commences with a promising Preamble, expressing a commitment to achieving net zero emissions by 2070, creating a carbon sink, increasing forest cover, and improving the livelihoods of forest-dependent communities.
- ❖ The Forest Conservation Act of 1980, which this Bill aims to amend, admittedly and justifiably adopted a rather protectionist stance which made forest clearances time consuming and costly to obtain.
- ❖ Three points that emerge from the Bill have caused considerable consternation among environmental experts: the narrowed definition of forests under its scope; the exclusion of significant tracts of forest areas; and the granting of sanction to additional activities that were regulated earlier.
- ❖ The Bill will significantly restrict the application of the landmark Godavarman judgment of 1996 which had extended the scope of the 1980 Act to the dictionary meaning of 'forest' — that is, areas with trees rather than just areas legally notified as forest.
- ❖ The present Amendment restricts the Forest Conservation Act to only legally notified forests and forests recorded in government records on or after October 25, 1980.
- ❖ This change could potentially impact around 28% of India's forest cover, encompassing almost 2,00,000 square kilometres.
- ❖ Perversely, States that have refused to identify important forest areas despite the Godavarman judgment, may now be free to allow the destruction of these forests for construction and development.
- ❖ Furthermore Bill excludes some of India's most fragile ecosystems as it removes the need for forest clearances for security-related infrastructure up to 100 km of the international borders.
- ❖ These include globally recognised biodiversity hotspots such as the forests of northeastern India and high-altitude Himalayan forests and meadows.
- ❖ Also the Bill introduces exemptions for construction projects such as zoos, safari parks, and eco-tourism facilities.
- ❖ What is worrying is that the Bill also grants unrestricted powers to the Union government to specify 'any desired use' beyond those specified in the original or amended Act.
- ❖ Such provisions raise legitimate concerns about the potential exploitation of forest resources without adequate environmental scrutiny.

DISENFRANCHISING FOREST PEOPLE
- Another important concern is that the Bill makes no reference to other relevant forest laws.
- For instance, the Scheduled Tribes and Other Traditional Forest-dwellers (Recognition of Forest Rights) Act, 2006 finds no mention.
- Instead, the exclusion and ease of diversion of forest areas will mean that forest people's institutions no longer need to be consulted.
- If India is to meet its net zero carbon commitments and increase forest cover (as the Bill envisages in its Preamble), it would be wise to further the participation of forest people, rather than disenfranchise them.

EXCLUSIONS THAT RAISE EYEBROWS
- The system of forest clearances under the FCA (1980) may have been flawed but this Bill does little to rectify these deficiencies. Instead, it just excludes certain privileged sectors from its ambit.
- When democracy's gears grind a little too slowly, it is better to fix them than to dismantle them.
- These systems provide an essential check to assess the impact of projects which change land use and to mitigate the impacts resulting from environmental destruction.

CONCLUSION
- The objective of fast-tracking strategic and security related projects is a fair ask. Administrative processes can and should be speeded up and needless delays in environmental clearance avoided. However, giving blanket exemptions from regulatory laws is not the answer. Forests and other natural ecosystems cannot be considered a luxury. They are an absolute necessity.

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