MONTHLY

EPIC!

Supplementary reading material for MGP and Current Affairs classes of ForumIAS Academy

AN EXCLUSIVE CURRENT AFFAIRS MAGAZINE FOR

PRELIMS + MAINS

PREPARATION

DECEMBER 2021

The 20th Edition

Dear Forumites,

The 20th Edition of the EPIC Magazine is here. Main Examination is just over, and Preliminary Examination (2022) is not yet near enough to give you the jitters! This is the transition time when most aspirants will take some time-out to relax before beginning the 2022 examination cycle. This is also the time when many aspirants will fall behind on their newspaper reading which gives all the more reason to pick-up and read the EPIC Magazine!

This edition of EPIC showcases the analysis of the recent issues related to the Functioning of the Parliament like frequent disruption and passage of the Bills. News and Issues related to Demographic Transition as highlighted by the NFHS-5, POCSO Act, Legal Age of marriage for Women, Integrated Theater Commands, Gig Economy, Central Bank Digital Currencies, National River Interlinking Project etc. have been covered among others. The EPIC team has tried to bring you the most relevant content to give you an edge in your Civil Services Examination preparation.

A special shoutout to the aspirants who diligently write to us and provide their valuable feedback. Your opinion is important to us. Topics are regularly included in the subsequent editions of EPIC based on our readers' demands. Keep writing to us at feedback@forumias.academy.

Stay safe and Happy reading!

I was a part of ForumIAS MGP (Mains Guidance Program) and Essay Test Series. The detailed evaluation with remarks helped me immensely in improving my performance over the previous attempt. MGP comprises of sectional tests for each portion of GS papers, this ensured that I didn't leave any part of the syllabus.

I am grateful to the entire ForumIAS team for their help and timely evaluation and uploading of answer sheets.

Mamta Yadav
AIR - 05, CSE - 2020

FORUM IAS has been my friend, philosopher and guide during my tedious UPSC journey.
I joined the Mains Guidance Programme (MGP) and currents affairs (online) classes.
Presence of mentors like Ayush sir and Dipin sir acts as a bonus. I am truly grateful to the entire Forum IAS team for being the building block of my preparation.
THANK YOU !!

APALA MISHRA
UPSC AIR - 09
CSE - 2020.

I had enrolled in the Mains Guidance Programme (MGP) 2020 for GS and Essay. The expansive coverage of questions, prompt correction of papers, toppers' answer copies and valuable feedback on answers, received from forum IAS has helped me in my answer writing.
I'm grateful to forum IAS for the same.

Karishma Nair
AIR 14
CSE 2020
(On a side note, very grateful for the long motivating emails by Neyawn sir as well)

55+ Students in Top 100 Ranks List of CSE 2020 are ForumIAS Academy students. 43+ ranks in Top 100 excluding Interview Guidance Program.

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#1 Functioning of the Parliament

What is the status of Parliamentary sittings and debates? – (1) In the Winter Session (2021) of the Parliament, **Lok Sabha worked for 77% of the scheduled time while Rajya Sabha worked only for 43%. The corresponding figures were 21% (LS) and 29% (RS) in the Monsoon Session; (2)** The number of sittings of the Parliament have also come down considerably. In the 1950s, the **Parliament worked for 120 days/year on average. This has come down to 60-70 days in the last decade**. The UK Parliament works for 150 days while the US Congress works for more than 100 days/year; **(2)** In the Winter Session 2021, **only 26% and 21% of the questions were answered orally** in the Lok Sabha and Rajya Sabha respectively. For the rest of the questions (76% and 79%), there were **neither debates** on the written answers nor the Ministers had to face **any pointed follow-up questions** on their work; **(3)** In 13 Bills passed in the Monsoon Session 2021, no MP spoke on the Bill other than the concerned Minister; **(4)** The Deputy Speaker of the Lok Sabha has not been appointed, for almost 2.5 years since the constitution of the 17th Lok Sabha.

Downward trend: Total hours of work undertaken by Lok Sabha

Note: *less than five years (not full-term Lok Sabhas); **six years term
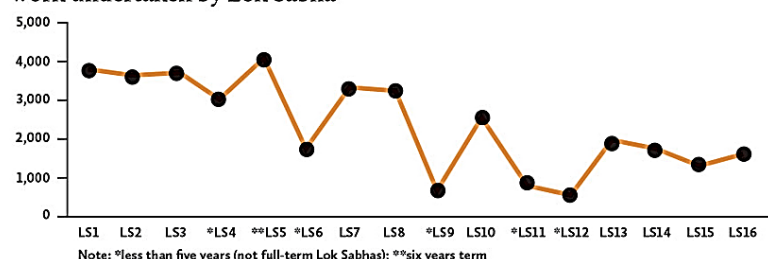
Proportion of bills referred to committees

- Introduced
- Referred to Committees
- % referred to Committees
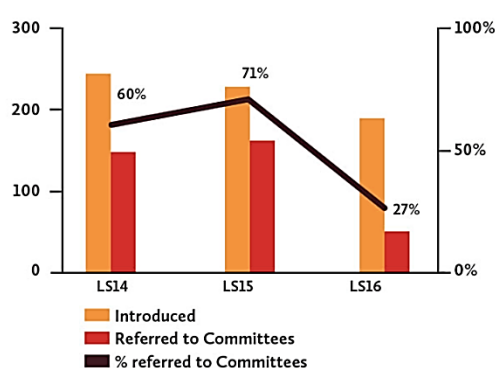
What is the issue with the Passage of Bills? – (1) In the current Lok Sabha (17th) only **13% of the Bills introduced so far have been referred to the Parliamentary Committees**. The corresponding figure was 60% for 14th LS (2004-09), 71% for 15th LS (2009-14) and 27% for 16th LS (2014-19); **(2) 69% of the Bills were passed in the same session in which they were introduced**, while it was only 33% and 18% for 16th and 15th Lok Sabhas respectively. Passage in the same session means there is little debate on the Bills before their passage; **(3)** In the 17th Lok Sabha **35% of the Bills were passed in less than 30 minutes**. This shows remarkable lack of debate before passage of the Bill; **(4)** In the Budget Session of 2021, **76% of the Budget was passed without discussion**. In the past 18 years, on an **average 83% of the demands were passed without discussion** in the Lok Sabha; **(5)** According to the Rules of the Lok Sabha, the last two and a half hours of a sitting on every Friday are generally allotted for transaction of **"Private Members' Business"**. However there has hardly been any discussion on Private Members' Bill. **Only 14 Private Members Bills have become an Act since 1952; (6)**

Disrupted sessions

The Lok Sabha met for under 50 days just twice before—in 2008 for 46 sittings and in 2004 for 48 sittings.

- Lok Sabha Sittings
- Rajya Sabha Sittings

1952   2020*
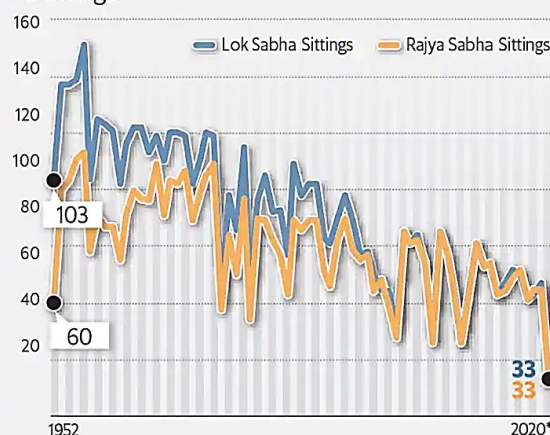
The **number of Ordinances have gone up**. The average number of Ordinance issued has gone up to 10/year in the 16th and 17th Lok Sabha (so far) while it was 6/year in the 14th and 15th Lok Sabha.

What is the significance of Parliamentary Debates? – (1) Accountability of the Executive: In Parliamentary Democracy, the Executive is responsible to the Legislature and the Legislature exercises this right by asking questions about and debating Government's Policies and decisions. In the absence of proper discussions the Legislature is not able to fulfil its function of holding the Executive accountable; **(2) Quality of decisions**: Debates contribute to quality of democratic decision making by brining-in diverse perspectives. Lack of discussion on the laws fails to incorporate all the viewpoints in the legislation. The 3 Farm Reform Laws were also passed without adequate discussion, which led to widespread protests and their subsequent withdrawal; **(3) Issues of Public Interests**: MPs can ask questions to the Ministers and raise concerns and **bring attention towards issues of public interest**. Frequent disruptions prevent discussions on important issues like the response to COVID Pandemic, status of economy etc.; **(4) Clarity about Laws**: Discussions **bring clarity about all the aspects about legislation**. Parliamentary debates help the Judiciary to comprehend the intent and object of the laws in a better way which facilitates Judicial interpretation of statutes. The Chief Justice of India also commented that poor quality of discussions and lack of clarity leads of ambiguity and litigation. **Lack of discussions also lead to increased litigation** e.g., the Farm Laws were challenged in the Supreme Court; **(5) Violation of Parliamentary Processes and Conventions**: The lack of referrals of the Bills to Parliamentary Committees violates the Parliamentary processes can conventions related to passage of law.

What is the significance of Parliamentary Committees in Legislation and functioning of the Parliament? – (1) Parliamentary Committees **meet throughout the year** and hence can deliberate thoroughly on issues for a longer time compared to discussion for a limited time during the Session; **(2)** Parliamentary Committees can **summon external domain experts** (Non-members of the Parliament) like Doctors, Economists, Defence experts to discuss important issues and incorporate their view in the Legislation which is not possible in the floor of the House; **(3)** Committees provide a **forum for building consensus across political parties**. In the Parliament Session, MPs stick to party lines as the debates are televised. Committees have closed door meetings, which allows them to freely question and discuss issues and arrive at a consensus; **(4)** The detailed estimates of expenditure of all Ministries (Demand for Grants) are sent for examination to the Department Related Standing Committees. The DRSCs study the demands to examine the trends in allocations, spending by the Ministries, utilisation levels, and the policy priorities of each ministry; **(5)** Committees examine policy issues related to their respective Ministries, and make suggestions to the Government. The Government has to report whether these recommendations have been accepted or not. Based on this, the Committees table an **Action Taken Report**, which shows status of the Government's action on each recommendation.

> **PT BOX**
> **Article 75**
> Article 75 of the Constitution lists down several provisions related to the Council of Ministers. Art 75(3) states that the **Council of Ministers shall be collectively responsible to the House of the People**. This provision makes the Executive responsible to the Legislature in India.

What are the reasons behind poor status of debates? – (1) Parliamentary Disruptions: The Monsoon Session 2021 lost more than 75% of its time to disruptions. The average lost time was 39% in 15th Lok Sabha (2009-14) while it was only 5% in the 11th Lok Sabha; **(2) Disorderly conduct**: MPs often indulge in disorderly conduct (jumping into the Well of the House, tearing the rulebook), disrupting the proceedings due to various reasons like; **(a)** Dissatisfaction with inadequate allotted time to air their views or grievances; **(b)** Political parties not adhering to Parliamentary norms and disciplining their members; **(c)** The absence of prompt action against disrupting MPs under the legislature's rules. Recently, 12 Opposition members of the Rajya Sabha were suspended for the entire Winter session for their protest on August 11, the last day of the previous Monsoon session; **(d)** The political parties also overlook the unruly behaviour and no whip is issued to check this. This prompts the MPs to continue;

> **PT BOX**
> **Article 85**
> Article 85 of the Constitution is related to the Sessions, Prorogation and Dissolution of the Parliament. Art 85(1) stipulates that two consecutive Sessions of Parliament must be held within 6 months. The power to Summon the Parliament is with the President of India.

(3) High Absenteeism: In the Winter Session 2021, about 350 MPs of Lok Sabha signed the attendance register every day on average, even though **only about 60-70 members were present in the House on average** at any particular time. The highest participation was during discussion on COVID-19 pandemic which was attended by 97 MPs; **(4)** The **unintended impact of 52nd Constitutional Amendment and the Anti-defection law**, which forces the MPs to follow the party's ideology and restricts their freedom to express any contrary opinion.

What can be done to improve the Parliamentary Debates? – (1) Shadow Cabinet Model: Adoption of this model would ensure that **every Minister of the Government is held accountable**. This will bring in more discipline in the Opposition also; **(2)** A Member of Parliament has suggested to amend the Constitution to **mandate minimum sittings/working days of the Parliament per year**; **(3)** Opposition should be given **more opportunity to set the agenda** and debate issues in the Parliament. India can also introduce the concept of Opposition Days, as done in the U.K and Canada; **(4)** The Rajya Sabha Deputy Chairman suggested evolving a '**Parliamentary Disruption Index**' as a measure to monitor

disruptions to reduce 'incidents of indiscipline'; (4) A concept of **no work, no pay** could be adopted for members. Other penal provisions can be made more stringent like suspension for the rest of the term in case of unruly behaviour; **(5) The Anti-Defection Law can be amended** to allow MPs to air views contrary to parties' line. MPs should be dismissed from the House and party membership only if they vote against the Party Whip in certain important matters like No-Confidence motion; **(6)** A **code of conduct for all MPs** can be issued to minimise disruptions, especially relating to suspension for entering and protesting in the well of the House.

A former MP had once remarked that, "*A sense of accommodation by the Treasury Benches and a sense of responsibility by the Opposition benches is the balance essential for the smooth running of Parliament.*" This balance can only be achieved by both sides working together to uphold the dignity of Parliament.

General Studies Paper I

#1 Demographic Transition in India: Trend and Challenges

News: According to NFHS-5 India's Total Fertility Rate has reached 2.0 which is below the Replacement level. This has some associated challenges

What is the Demographic Transition Theory? - The Demographic Transition Theory postulated by Thompson and Notestein proposes 4 stages of Demographic transition; **(a) Stage 1 is high birth** (poverty and no access to family planning) **and death rate** (poor healthcare and medical services) which results in low population level; **(b) Stage 2 is declining death rate** (improving medical facilities) and **high birth rate** causing large expansion in population level; **(c) Stage 3 is declining birth rate** (improving living standards) **and low death rate** resulting in declining growth rate of population; **(d) Stage 4 is low birth and death rate** resulting in stable population level.

The five stages of the demographic transition
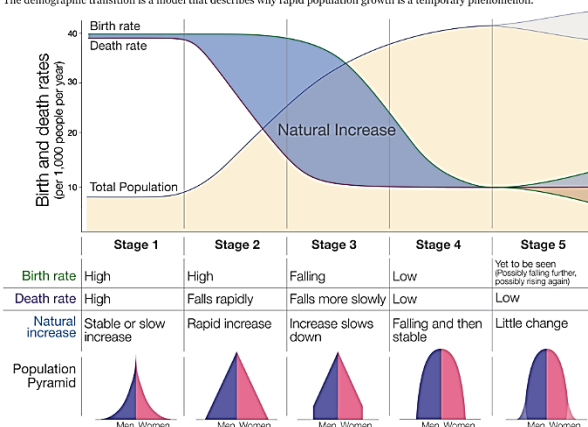
Some models also consider a 5th stage but the trend of population change (increase or decrease) is not conclusive. India is entering the Stage 4 with the TFR falling down to replacement level.

What is the demographic transition trend in India? – **(1)** There still exists a large gap in fertility levels of urban (1.6) and rural areas (2.1); **(2)** Some states which still have TFR above the Replacement level include Bihar, Jharkhand, Manipur, Meghalaya and Uttar Pradesh; **(3)** The **burden of birth control falls largely on women**. 38% married women rely on female sterilization for birth control. Male sterilization is only 0.3% and use of condom is also relatively low at 9.5%.

> **PT BOX**
> **Total Fertility Rate (TFR)**
> The WHO defines TFR as the **average number of children a group of women would have at the end of their reproductive period** if they were subject during their whole lives to the fertility rates of a given period and if they were not subject to mortality. It is expressed as **children per woman**. The total fertility rate is the sum of the age-specific fertility rates for all women multiplied by five. The age-specific fertility rates are those for the seven five-year age groups from 15–19 to 45–49 (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49).

What are the causes behind India's demographic transition? – India's demographic transition has been caused by fall in the birth and death rates; **(1)** India's death rate has declined due to better quality and coverage of healthcare services. Better access to services has ensured declining mortality rates (infant and maternal) and increased life expectancy. Birth rate is declining due to; **(2)** Improving level of education among women; **(3)** Improving awareness and access to family planning; **(4)** Delayed Marriage.

Why a decline in TFR does not mean stabilized population? – The population keeps on increasing due to large share of young population. This is termed as **population momentum**. Moreover, despite the achievement of reducing TFR to below replacement level, considerable disparities exist with regions and population groups. TFR is lower in Southern states while it is nearly 3 in some other states. In the NFHS-5, the proportion of women married before 18 years of age were 23% while the share of women already pregnant in the 15-19 age group was 6.8%. Projections show that India's population will continue to grow for the next 2-3 decades before stabilizing in 2050s.

Should India adopt coercive population control measures? – **(1)** Kerala and Tamil Nadu achieved a control over the birth rate without any coercive measures; **(2)** Coercive measures were adopted in the 1970s like forced sterilization which had resulted in widespread disaffection against the Government. Hence coercive population control measures may not achieve desired results and cause unintended consequences.

> **PT BOX**
> **Demographic Dividend**
> The United Nations Population Fund (UNFPA) defines the Demographic Dividend as the **economic growth potential that can result from shifts in a population's age structure**, mainly **when the share of the working-age population** (15 to 64) **is larger than that of the non-working-age** (14 and younger, and 65 and older). A high share of working population means **higher productivity** and lower expenses on elderly care. To reap the benefits of Demographic Dividend **access to education, skilling and employment are necessary factors**.
> The ratio of working-age population (15-64 years) to non-working population is also called **Dependency ratio**.

What are the challenges associated with demographic transition? – **(1)** The share of ageing population will progressively increase, while that of working population will decrease. The share of population aged greater than 60 years was 12.6% for Kerala and 10.4% for Tamil Nadu in 2011 and are projected to increase to 20.9% and 18.2% respectively by 2031. There will be requirement to address concerns of an ageing population including **provision of healthcare, economic and mental well-being**; **(2)** Ageing states, increasingly rely on a workforce from relatively younger states to maintain their economic prosperity giving rise to challenges related to **increased migration** (social support to migrants, social tensions etc.); **(3)** The disparity in growth rates of population between Northern and Southern States means that the **political representation of the States in the Parliament has to be adjusted** (which has been frozen till Census 2031 by the 84th Constitutional Amendment Act). Southern States already contend that their population control measures will result in penalization in terms of lower representation in the Parliament; **(4) Allocation of Financial Resources**: The **Fifteenth Finance commission** added criteria of demographic performance to reward states with lower TFR. With the overall attainment of TFR, India cannot

continue the allocation of resources based on demographic performance, instead, India should focus on principles of equity; **(5)** One study has found that India might grow old before it becomes rich. This is because of **failure to realize demographic dividend** due to **lower focus on education, lack of skilled manpower and lack of employment opportunities**. China's Labour Force Participation Rate is 80% compared to 43% in India.

What should be the focus of Population Policy in this context? – According to an expert working with Population Foundation of India (an NGO) the Population Policy should focus on; **(1)**

At present **access to family planning** is dependent upon place of residence, age and wealth quintile (or social status). These **disparities need to be reduced**; **(2)** Increasing the age of marriage; **(3) Improving access to education** (including higher education) to women for their empowerment and curbing teen pregnancies; **(4)** Improving awareness about family planning and **driving greater responsibility for men in birth control**; **(5)** Improving healthcare for the elderly population; **(6) Stabilizing the fertility rate near replacement level** so that India doesn't face the situation of China and Japan of supporting a very elderly population; **(7)** India should focus on **realizing the Demographic Dividend by improving access to education, skilling and creating livelihood opportunities**. Migration and the associated concerns should also be an important consideration.
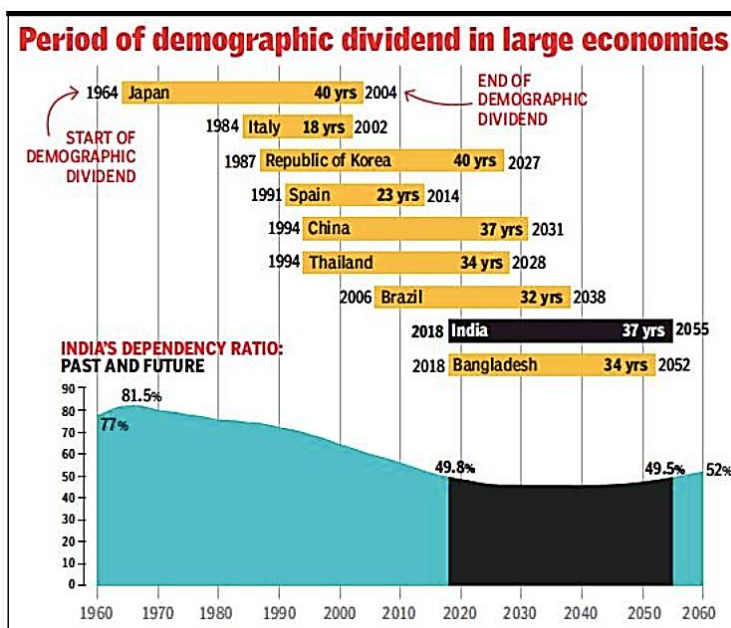
#2 The Decline in the Female Labour Force Participation Rate in India

News: The Labour Force Participation Rate (LFPR) for women has declined in India which has puzzled the researchers.

What is the status of Female Labour Force Participation Rate? – (1) India's FLFPR is declining, and is below the global average of 45%; **(2)** FLFPR has fallen from 31.2% in 2011-12 to 24.5% in 2018-19; **(3)** The **number of working-age women grew by a 25%** over the last two decades, but the **number of women in jobs declined by 10 million**.

What is the paradox with respect to women's education and employment in India? – The paradox is that the improving literacy and education along with falling fertility levels among women is accompanied by a sharp decline in the FLFPR. At the primary level, there is near equality between male and female enrolments in schools. According to the **All India Survey on Higher Education Survey (AISHE)**, GER for higher education for male population has improved from 22.7% (in 2012-13) to 26.9% (2019-20) and for

PT BOX
Gross Enrolment Ratio (GER)
UNESCO defines GER as the **number of students enrolled in a given level of education**, regardless of age, **expressed as a percentage of the population officially corresponding to the same level of education**. In India, the GER for higher education is calculated for the 18-23 age group.
The National Education Policy (NEP) 2020 aims to increase the total GER (including vocational education) to 50% by 2035.

female population from 20.1% (in 2012-12) to 27.3% (in 2019-20).
While the education levels of women have improved, but in terms of employment there has been a sharp decline. With a rising GER in higher education, the LFPR is expected to decline a little due to time spent on education; but in India's case, the decline is much more sharp.

What other factors contribute to decline in the FLFPR? – (1) Domestic responsibilities and **burden of unpaid care**: Women spend between five to 10 times more time on housework compared to men; **(2) Lack of safety and mobility**. Crimes against women and girls (CaW&G) is one of the most important barrier to women's participation in work; **(3)** Interplay of social norms, identities and stereotypes; **(4)** Occupational segregation and limited opportunities to enter non-traditional sectors; **(5)** inadequate supportive infrastructure such as piped water, cooking fuel; **(6)** Fractured nature of work especially in rural areas.

Is there any relation between crime and FLFPR? – (1) A study conducted by the Initiative for What Works to Advance Women and Girls in the Economy (IWWAGE) has shown a **negative correlation between crime against women and FLFPR**; **(2)** The study found a decline in FLFPR by 8% corresponding to a 57.9% jump in crime against women; **(3)** Higher crime rates related to kidnapping, abduction, rape, sexual harassment and molestation deter women from stepping out to work; **(4)** State which have **low crime rate** (like Himachal Pradesh, Meghalaya, Sikkim) **report a higher FLFPR** compared to States with high crime rate (like Bihar, Delhi) and lower FLFPR.

What should be done to address the issue? – The authors of the report suggest; **(1) Adoption of 'SAFETY' approach**: Focus on Services, Attitudes, Focus on community, Empowerment of women, Transport and other infrastructure, and Youth interventions. All stakeholders including the State, Institutions, Communities and Households should come together to address this challenge; **(2) Ensuring conducive and enabling conditions** (like toilets etc.) to facilitate women's participation in work force; **(3)** Reduce the burden of domestic chores and care work, along with increase in paid work opportunities to raise women's participation in the labour force; **(4) Providing meaningful work opportunities to women** commensurate with their rising educational qualifications.

#3 Rethinking the response to Cyclonic Storms and Storm Surges

News: The increased frequency of cyclonic storms in the Bay of Bengal and Arabian Sea poses a threat to India's coastal regions. This calls for relook at India's current management strategy

What are the recent trends with respect to cyclonic activity in the Bay of Bengal and Arabia Sea? – (1) According to a study conducted by the Indian Institute of Tropical Meteorology, the **frequency of cyclones in the Arabian sea has increased by 52%** while that of Bay of Bengal has decreased by 8% during 2001-2019 period. **Very Severe Cyclonic Storms (VSCS) increased by 150% in the Arabian Sea in this period**; **(2)** Another study conducted by the IMD observed a **steep rise of 26% per 100 years in the Severe Cyclonic Storms (SCS) in the Bay of Bengal in the month of November**; **(3)** Scientists attribute the **increase in frequency, duration and intensity of the cyclones to global warming and rising ocean temperature**. Higher Sea Surface Temperature (SST) gives rise to higher humidity levels, which provides necessary energy and moisture for the formation of the cyclones.

What are storm surges? – The National Oceanic and Atmospheric Administration defines **Storm Surge as an abnormal rise of water caused by a storm**, most commonly a cyclonic storm. This rise in water is higher than caused by the tides. Storm Surge when combines with a high tide causes Storm Tide which results in even higher rise in the water levels.
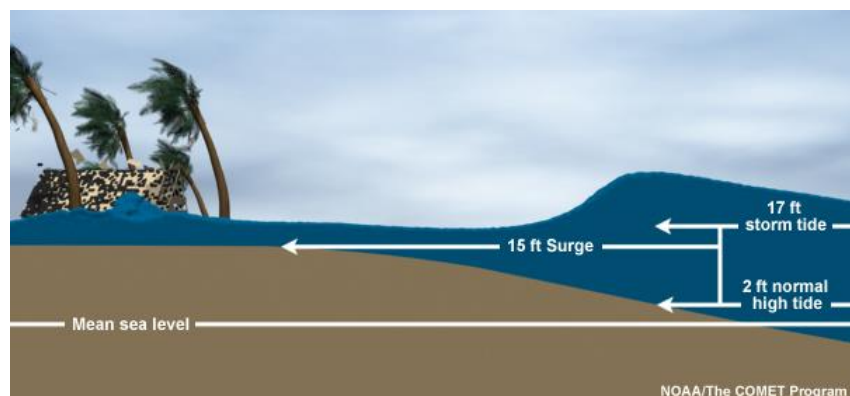
What are the factors influencing Storm Surges? – According to the Indian National Centre for Ocean Information Services, the Storm Surges are influenced by; **(1)** Size and extent of storm's wind field (radius of maximum winds); **(2)** Strength of storm winds and Storm's forward speed; **(3)** Storm track; **(4)** Storm's central pressure (contribution of pressure to total storm surge is small compared to wind); **(5)** Landfall location; **(6)** Coastal elevation; **(7)** Shape and characteristics of the coast.

What is the vulnerability of India's coastline from the point of view of Storm Surge potential? – The INCOIS categorizes Indian coast into following zones; **(1)** Very high risk zones (Surge height > 5m); **(2)** High risk Zone (Surge height between 3-5m); **(3)** Moderate risk zone (Surge height between 1.5 to 3m). **(a)** The coastal areas and off-shore islands of Bengal and adjoining Bangladesh are the most storm-surge prone (~ 10-13m): VHRZ; **(b)** East coast of India between Paradip and Balasore in Orissa (~ 5-7m): VHRZ; **(c)** Andhra coast between Bapatla and Kakinada holding estuaries of two major rivers Krishna and Godavari (~ 5-7m): VHRZ; **(d)** Tamilnadu coast between Pamban and Nagapattinam (~ 3-5m): HRZ; **(e)** Gujarat along the west coast of India (~ 2-3m): MRZ.

What are the shortcomings of India's approach to cyclones? – According to an Academics team at the BITS Pilani, India's current cyclone management approach has two shortcomings; **(1) Overemphasis on evacuation**: The response effectiveness is measured in terms of evacuations undertaken e.g. in case of Cyclone Phailin (2013), the low casualties were attributed to close to 1 million evacuations undertaken by the Odisha Government. Instead of complete evacuations, regions most vulnerable to Storm Surges should be completely evacuated (horizontal evacuation) as is the practice in the US and Australia; **(2) Inadequate focus on response measures other than evacuation**. In case of Cyclone Jawad, many farmers engaged in premature harvesting and distressed selling to minimize losses. There was a delay in financial assistance to the affected population for reconstruction. In many cases, power and water supplies remain disrupted for several days before resumption. Such inadequate response measures increase the costs to society.

What corrective steps are required? – The team at BITS Pilani suggests; **(1)** Immediate financial relief measures for farmers; **(2)** Assistance to the affected population for reconstruction; **(3)** Focus on robustness of infrastructure (like Power Supply lines) and taking steps to ensure immediate restoration after disruption by the storm; **(4)** Media focus and coverage is also limited to emergency period. Media should also cover the rehabilitation measures undertaken to create pressure on the authorities.

General Studies Paper II

#1 Concerns regarding the Functioning of the Constitution

News: There have been several instances of conflict between the various organs of the State in recent times.

What are the recent challenges to the functioning of the Constitution? – **(1)** There seems to be conflict between various organs of the State: **(a)** The President asked the Higher Judiciary to exercise "utmost discretion" in what is said in courtrooms during hearings; **(b)** The Chief Justice of India recently remarked that the **Judiciary faced problems in dealing with poorly framed laws**. The CJI said there should be more discussion in the Parliament so that the Courts could understand the context in which legislation was made; **(2)** Farmer organisations seeking to reverse three farm reform Bills (now repealed without debate) declined to adhere to the Supreme Court's suggestion when they were asked to present their cases before it; **(3)** The dysfunctional Legislature (frequent disruptions, passage of Bills without discussion etc.) and the conflict between the Executive and Legislature has become starker in recent times; **(4)** Some critics have commented on the large number of amendments to the Constitution. There have been 105 amendments to the Indian Constitution in 72 years compared to 27 amendments to the US Constitution in almost 250 years.

What are the concerns regarding the imbalance of power between the Organs? – (1) The Judiciary has the **power the overturn the laws enacted by an elected Legislature** which include some judicially engineered measures like Basic Structure Doctrine; **(2)** The Judiciary has the **power to appoint the Judges** and has overturned the NJAC Act. The Executive is influencing the appointment process by delaying the process; **(3)** Some important matters of **Constitutional importance have been pending before the Judiciary** for a long time. In some cases the **Judicial pronouncements are overturned by the Legislature** e.g., the Judgement by the Supreme Court on the SC/ST Act was overturned by an Amendment to the Act, and the Amendment was subsequently upheld by the Supreme Court; **(4)** The **Executive has much power over the Legislature**, more so because of the Anti-defection Act; **(5)** The laws passed by the Legislature are not getting implemented properly; **(6)** The Union Government has excessive economic power compared to the States. Similarly, the States have excessive power compared to local bodies.

What should be the way forward? – A noted journalist has recommended; **(1)** The Concurrent list should be removed and the subjects should be divided between the Union and the States; **(2)** A third list should be **created for the local bodies and the local bodies should be completely autonomous on these subjects**; **(3)** The power between **the State and Judiciary needs to be rebalanced** and judicial activism needs to be reduced; **(4)** The Higher judiciary needs to be bifurcated into **Courts of Appeal and Constitutional Court**. The **power to adjudicate on PIL's must be exercised sparingly**, and that too by Constitutional Court only; **(5)** There is a need to look beyond a piecemeal approach, an all-inclusive Committee should be formed to take a **comprehensive review of the Constitution**.

#2 Poor Status of Judicial Infrastructure

News: Only 8.6% of the funds were utilized under the Centrally Sponsored Scheme (CSS) for Judicial Infrastructure. The Chief Justice of India has asked for creation of National Judicial Infrastructure Authority of India (NJIAI)

What is the state of Judicial Infrastructure in India? – The judicial infrastructure in India is lacking in several aspects; **(1)** Around 26% of the court complexes do not have separate toilets for females and 16% do not have toilets for males; **(2)** Only 32% of the courtrooms have separate record rooms; **(3)** Only 51% of the court complexes have a library; **(4)** Only 5% of the court complexes have basic medical facilities; **(5)** Only 27% of the courtrooms have a computer placed on the judge's dais with a video conferencing facility; **(6)** The total sanctioned strength of judicial officers in the country is 24,280 but the number of court halls available is just 20,143 including 620 rented halls; **(7)** There are only 17,800 residential units, including 3,988 rented ones, for the judicial officers.

What is the present scheme for managing Judicial Infrastructure? – (1) The Government of India has been implementing a Centrally Sponsored Scheme (CSS) for the Development of Infrastructure Facilities for Judiciary since 1993-94; **(2)** The current fund-sharing pattern of the scheme stands at 60:40 (Centre: State) and 90:10 for the 8 North-eastern and 3 Himalayan States. The Union Territories get 100% funding; **(3)** The funds allocated under this scheme are severely underutilized, since it was introduced. 5 States in 2019-20 did not utilize 90% of the funds allocated.

What solution has been suggested by the CJI? – (1) The Chief Justice of India has proposed the creation of the **National Judicial Infrastructure Authority of India** (NJIAI); **(2)** NIJAI will take control of the budgeting and infrastructure development of subordinate courts in the country; **(3)** The NJIAI could work as a central agency, with each state having its own State Judicial Infrastructure Authority; **(4)** The Chief Justice of India could be the patron-in-chief of the NJIAI and one of the Supreme Court judges nominated by the Chief Justice could be the executive chairman; **(5)** Unlike NALSA which is serviced by the Ministry of Law and Justice, the proposed NJIAI would be placed under the Supreme Court of India.

#3 Linking of Aadhar with Electoral Rolls

News: The Parliament passed the Election Laws Amendment Bills in the Winter Session 2021. The Bill amends certain sections of Representative of People Act, 1950 and 1951 and links the Voter IDs with Aadhar.

What are the key provisions of the Bill? – (1) The 1950 Act provides that a person may apply to the Electoral Registration Officer for inclusion of their name in the electoral roll of a constituency. The Bill adds that the **Electoral Registration Officer may require a person to furnish their Aadhaar number** for establishing and authenticating their identity; **(2) The Aadhar is not mandatory**. The citizens are allowed to furnish alternative documents to establish identity if they are unable to provide Aadhar number **due to sufficient cause; (3)** The government will **define sufficient cause for not linking Voter ID with Aadhar; (4)** The Bill makes the clause of Postal Ballot Gender Neutral by replacing the word 'Wife' with 'Spouse'; **(5)** The qualifying date for registration into electoral rolls has been increased to 4 now, January 01, April 01, July 01 and October 01 from January 01 only earlier.

What has led to the decision for linking Aadhar with electoral rolls? – (1) National Electoral Roll Purification and Authentication Programme (NERPAP), 2015: The programme was started by the ECI to link Aadhar and voter IDs to delete duplicate names from rolls and link the Aadhar and voter databases. The process was put on hold by the Supreme Court due to privacy concerns and was made voluntary later on. In June 2021, the **ECI requested the Ministry of Law to expedite** pending electoral reforms, including the linkage of Aadhar and voter ID cards; **(2) Recommendation of Parliamentary Standing Committee:** The 105th report of the Parliamentary Standing Committee on Personnel, Public Grievances and Law and Justice, suggested linking Aadhaar with electoral rolls to **purify electoral rolls** and consequently **reduce electoral malpractices.**

What are the benefits of linking Aadhaar with electoral rolls? – (1) Ensure authentication of entries in the electoral roll; **(2) Avoid duplication**: Voters change residence many times. So there are multiple entries as old registration is not deleted while creating a new enrolment. Linking with Aadhar will ease the process of de-duplication; **(3) Eliminate proxies casting their votes using multiple voter IDs; (4) Facilitate elector registration in the location** at which they are 'ordinarily resident'; **(5)** Unlike EPIC, Aadhaar captures biometric data, which is useful in **validating uniqueness; (6)** At present, **separate electoral rolls are maintained for elections to the Lok Sabha, Vidhan Sabha and local government bodies**. Since different elections are held at different times, these electoral rolls should be made and updated regularly. Linking

> **PT BOX**
> **Preparation of Electoral Rolls**
> The responsibility of preparation and maintenance of Electoral Rolls for General and State Assembly Elections resides with the Election Commission of India. The power is derived through **Sec 21 of the Representation of the People Act 1950**.
> Under this provision, the process for making electoral rolls is laid down in the **Registration of Electors Rules, 1960**. The primary unit of electoral **rolls is the assembly election constituency**. Electoral Rolls for **Local Body Elections are prepared and maintained by respective State Election Commissions**.

the IDs with Aadhar will enable easy replication and a single electoral rolls can be maintained for all elections.

What are the concerns associated with linking Aadhaar with electoral rolls? – (1) Challenges with Aadhar Database: There have been instances of biometrics (fingerprints/iris) not matching with the database. The Allahabad High Court refused to rely on Aadhar data for evidence as there is no verification of authenticity of the demographic information on Aadhar database; **(2)** Critics argue that linking of Aadhar with voter database **violates the Judgment of the Supreme Court in Puttaswamy case; (3) Burden of Proof**: Burden of proof is on individuals who may be unable/unwilling to link their Aadhaar to justify their retention on the rolls. Earlier, the Government proactively ensured the registration on the electoral rolls (such as through house-to-house verification) to achieve the universal adult franchise; **(4) Aadhaar is not proof of citizenship**. But voting is right of citizens only. Demanding Aadhaar for Voter ID will not prevent non-citizens from voting; **(5)** Critics argue that Governments can use voter identity details for "disenfranchising some people and profile the citizens" and lay the foundation of targeted political propaganda and commercial exploitation of private sensitive data; **(6)** Linking of Aadhar and voter IDs in Telangana and Andhra Pradesh had led to

disenfranchisement of 5.5 million voters and the Government had to roll it back later on; **(7)** As the **linking is voluntary, the benefits of linking the two database may not be realized** making the exercise futile; **(8)** The Government has the power to define 'sufficient cause' to not furnish the Aadhar. **A narrow definition of 'sufficient cause' may make the process coercive instead of voluntary**; **(9)** Aadhar data are in the custody of UIDAI which is under control of the Government. The ECI has no control over enrolment or deduplication of Aadhaar database.

What can be done? – (1) The ECI can use **identification processes other than the Aadhar database**; **(2)** The Bill was passed without due deliberation in the Parliament. The Government can **invite public opinion and allow deeper scrutiny by the Parliament** before implementing the new provisions; **(3)** The ECI has not shown **why traditional verification mechanisms won't work**, or how they can be fixed through technology. The ECI can explore alternatives rather than proposing a restrictive law; **(4)** The ECI should ensure that in case of mismatch, the names are not struck of the rolls, and a cross-verification be undertaken by booth level officers on the ground; **(5)** The Data Protection Bill need to passed and implemented at the earliest. This could ensure better protection of citizens' data, addressing privacy concerns; **(6)** The Judiciary can review that the **right to privacy and a test of proportionality has been fulfilled by the new legislation**.

#4 Erroneous Pronouncements by Judiciary under the POCSO Act

> **News**: The High Courts at Bombay and Allahabad have delivered Judgments under the POCSO Act which have been subject to controversy

What are the Judgements by the High Courts? – (1) The Bombay High Court in *Satish v State of Maharashtra* had acquitted a man charged with assault under the POCSO Act solely on the grounds that he groped the child over her clothes without "skin-to-skin" contact; **(2)** The Judgment was challenged in the Supreme Court which had overturned it; **(3)** The Allahabad High Court had ruled that a penetrative sexual assault on a 10-year-old boy did not fall under the POCSO Act's stringent definition of '**aggravated penetrative sexual assault**' as the victim was subjected only to oral sex. The Allahabad High Court lowered the sentence of a man who was convicted of forcing a 10-year-old boy to perform oral sex from 10 years to 7 years.

What is the issue with the Judgments? – According to a senior IPS Officer, the Judgments had several issues; **(1)** The POCSO was **enacted to specifically protect children from sexual offenses**. The **Statement of Objects and Reasons of the Act reinforce the legislative intent** and the Act provides neutral definitions and enhanced punishments. There is **no ambiguity in the language** used in Section 5 of the Act. So, there was **no reason for the Allahabad High Court to deviate from the law** and award lesser punishment; **(2)** The POCSO **Act does not provide any discretion in awarding punishment** of imprisonment. So, the Court was mandated to adhere to the statutory provisions; **(3)** The Allahabad High Court **did not deliberate on the reasons for not considering the offence as being of aggravated nature**. The Supreme Court has held that recording of reasons by a judge is an exercise of judicial accountability and transparency. This makes the decision available for further scrutiny; **(4)** The Bombay High Court ignored the basic fact that the entire Act is aimed at penalising actions rooted in 'sexual intent'. The judgment is out of sync with the legislative intent behind the enactment of stringent law.

What was the Supreme Court's view in Bombay High Court case? – (1) The Supreme Court said that touching a child with sexual intent—even through clothing—is sexual assault under the POCSO Act; **(2)** The SC said that the most important ingredient for **constituting an offence of sexual assault under Section 7 of POCSO Act is the "sexual intent" and not the "skin-to-skin" contact** with the child. Hence, limiting the ambit of "touch" to a narrow definition would lead to an "absurd interpretation" and defeat the purpose of the act. The Supreme Court quashed the judgement of the Bombay High Court

What are the other challenges associated with the POCSO Act? – **(1)** The conviction rate under the POCSO Act has been abysmally low (14% in 2014, 18% in 2017). **Pendency of cases remains 89%** (NCRB 2016 data). Cases are not disposed within a year due to frequent adjournments, the inability of the police to file investigation report etc.; **(2)** Many **States didn't establish the Special Children Courts** as required by the Act; **(3)** Section 8 of the POCSO Act prescribes a **mandatory minimum sentence** of 3 years. This has caused some unintended consequences. Many Judges think the mandatory minimum punishment prescribed is more compared to the seriousness of the crime. Hence the acquittals tend to be higher; **(4)** Sometimes Courts tend to punish the accused under other provisions of the Law like Section 354 of the IPC as was the case in the *Satish vs State of Maharashtra* Case; **(5)**

PT BOX
Provisions of POCSO Act
Section 3 of the Act defines the **Penetrative Sexual Assault**.
Section 4 of the Act prescribes **the punishment for Penetrative Sexual Assault** as imprisonment of minimum 10 years which can be extended to Life Imprisonment.
Section 5 of the Act defines the **Aggravated Penetrative Sexual Assault** and covers all the possible dimensions of the assault.
Section 6 of the Act **prescribes the punishment** for **Aggravated Penetrative Sexual Assault** as rigorous imprisonment of minimum 20 years which can be extended to Life Imprisonment.
Section 7 of the Act defines the **Sexual Assault committed with a sexual intent including physical contact without penetration**.
Section 8 of the Act **prescribes the punishment** for **Sexual Assault** as imprisonment of 3-5 years.

The highest punishment prescribed under the Act is Death Penalty which has been opposed by some critics; **(6)** The POCSO Act is considered as a victim-oriented statute (i.e., the damage caused to the victim assumes more importance). This makes the Act biased. For example, Section 29 of the POCSO Act mentions If a person is prosecuted under the POCSO Act, the special court "shall presume" the accused to be guilty; **(7)** The Act does not cover all the aspects of sexual violence of children e.g.; cyberbullying and online sexual crimes against children are not covered. The Act is also silent on cases were one child made sexual violence against another child/children.

What can be done to remedy the situation? – **(1)** The Act can be amended to remove the mandatory minimum sentence and include the offences like cyberbullying and online sexual crimes; **(2)** Higher Judiciary can instruct the trial courts not to grant unnecessary adjournments during the trial; **(3) State police can constitute special task forces** investigating cases to prevent the pendency of cases; **(4)** The Supreme Court had issued a direction to set up special courts in the districts with more than 100 pending POCSO cases. This has to be implemented rigorously; **(5)** Sex Education should be introduced in Schools and creating awareness among children about sexual offences. Introduction of Sex Education in school curriculum was recommended by the Parliamentary Committee in 2008-09.

#5 Raising the Legal Age of Marriage for Women

News: Prohibition of Child Marriage (Amendment) Bill 2021 has been introduced in the Lok Sabha which seeks to raise the legal age of marriage for women from 18 to 21 years.

What is the new proposal? – **(1)** The **Prohibition of Child Marriage (Amendment) Bill 2021** proposes to **raise the legal age of marriage for women from 18 to 21 years** and make it the same as men; **(2)** The **definition of a "child" in Section 2(a) of the Act** would be changed to "**a male of a female who has not completed twenty-one years of age**", **(3)** Under the existing act, a person married as a 'child' can petition before the Court to declare such marriage as void withing 2 years of attaining majority (23 for men, 20 for women). The Bill increases this window from 2 years to 5 years (i.e., 26 years for both men and women); **(4)** The Bill also makes the law applicable for all religious communities irrespective of the personal laws; **(5)** The Bill is based on the recommendations of a committee headed by Jaya Jaitly; **(6)** The rationale has been cited as **bringing gender parity and ensuring women's empowerment** and not population control; **(7)** The Bill has been sent to the Parliamentary Standing Committee for further discussion.

What are present legislations on legal age of marriage? – **(1)** The age of marriage for women was increased from 15 to 18 in 1978 by amending the erstwhile **Sharda Act of 1929**; **(2)** For Hindus, **Section 5(iii) of The Hindu Marriage Act, 1955**, sets a minimum age of 18 for the bride and 21 for the groom; **(3)** This is the same for

Christians under the **Indian Christian Marriage Act, 1872**; **(4)** For Muslims, the marriage of a minor who has attained puberty is considered valid under the Personal law. This is assumed when the **bride or groom turns 15**. The Punjab and Haryana Court recently upheld the marriage of a 17 year old muslim bride with a 36 year old groom under personal law; **(5)** The **Special Marriage Act, 1954** and the Prohibition of Child Marriage Act, 2006 also prescribe 18 and 21 years as the minimum age of consent for marriage for women and men, respectively; **(6)** Under the **Child Marriage Prevention Act**, any marriage below the prescribed age is illegal and the perpetrators of forced child marriage can be punished.

For the new age of marriage to be implemented, these laws have to be amended.

What are the rationale to increase the age? – The Jaya Jaitly Committee cites the following reasons; **(1) Gender Parity and Neutrality:** Increasing the age of marriage for women will bring the age of marriage for both men and women at par; **(2) Impact on Health:** Early marriage and consequent early pregnancies have impacts on the **nutritional levels of mothers and children**, **overall health and mental wellbeing, Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR)**; **(3) Impact on Education: Early marriage cuts off women from access to education** and livelihood. With increased age, more women will be able to access higher education; **(4) NFHS Data:** National Family Health Survey (NFHS) has revealed that **child marriage has come down marginally from 27% in 2015-16 to 23% in 2019-20** in the country. This is still very high and steps are required to bring this down. According to UNICEF, **India is home to every third child bride in the world**, with more than 100 million of them getting married before 15 years. Given the aim to eliminate child marriage by 2030 as part of the **Sustainable Development Goals**, this move is in the right direction. Apart from the above there are other arguments in favour; **(5)** There are scientific studies that show that the decision making part of the brain undergoes rapid development between 18-21 years. Emotional development and maturity is also attained in this age. 21 years is appropriate age to make a well thought choice; **(6)** Several studies have shown college-educated women were more **likely to have better nutrition and better access to government services**.

What are the arguments against the proposed amendments? – Increasing the age of marriage for women would result in; **(1) Push a large portion of the population into illegal marriages**: While 23% of marriages involve brides under age 18, far more marriages take place under age 21. The **median age at first marriage for women** aged 20-49 increased to 19 years in 2015-16 from 17.2 years in 2005-06 and is 2 years below 21; **(2) Penal laws don't create social change**: For example, the marriage age at 18 was set in 1978, but child marriage started to decline only in the 1990s. So, the laws might end up being coercive; **(3) Negatively impact marginalized communities**: Experts noted that 70% of early marriages (between

> **PT BOX**
> **Secular Law over Personal Law: Judgments**
> **Supreme Court**
> In *Shayara Bano v Union of India (2017)*, the Supreme Court declared the practice of instant triple talaq as unconstitutional although it is provided for under Muslim law.
> In a 1960 case, the Supreme Court held that the Transfer of Property Act, 1882 would apply over Muslim law on transfer of property.
> **High Court**
> The **Karnataka High Court**, in the case of *Seema Begaum D/O Khasimsab vs State Of Karnataka (2013)* – *no Indian citizen on the ground of his belonging to a particular religion, can claim immunity from the application of the Prohibition of the Child Marriage Act.*

18-20) take place in deprived communities such as the Scheduled Caste and Scheduled Tribes. The increasing legal age will make them law-breakers. According to **NFHS** 4 (2015-16), the median age at first marriage for women aged 25-49 is higher among the social categories of Others (19.5 years), OBC (18.5), ST (18.4) and SC (18.1); **(4) Impact on rural women is more**: According to SRS data, In rural areas, 37.4% were married between the age of 18 and 20, whereas the ratio was 23.2% in urban areas; **(5) Decrease in Child marriage depends on socio-economic factors**: The decrease in child marriages has not been because of the existing law but because of an increase in girls' education and employment opportunities. A study by the **International Centre for Research on Women** has found that girls out of school are 3.4 times more likely to be married or have their marriage already fixed than girls who are still in school; **(6) Reduce self-choice marriages**: An increasing number of young adult couples opt for self-choice marriages across castes and communities, often without the support of parents. If the Bill is adopted, it will deprive this right till she is 21. Women's rights activists point out that parents often use this Act to punish their daughters who marry against their wishes or elope to evade forced marriages. The age limit will increase parents' authority over young adults; **(7)** Some critics

argue that the bill is **violative of Article 25 of the Constitution**, which guarantees the freedom of conscience and free profession, practice and propagation of religion. The Bill interferes with the Religious Personal Laws; **(8)** Globally, the age of 18 is widely regarded as the age of adulthood and is viewed as an upper limit in terms of the physical and reproductive maturity of women. **18 is also the age of majority by child rights conventions** to which India is a signatory. Thus, the proposed move will restrict the rights of already adult women.

What steps are necessary to bring the social change? – (1) Increase access to schools and colleges for girls, including their transportation to these institutes from far-flung areas; **(2)** Skill and business training for women; **(3)** Undertake awareness campaigns on a massive scale to ensure social acceptance of increasing the age of marriage; **(4)** Poverty, unemployment, insecurity due to increasing cases of sexual violence on minors and dowry demands are the main reasons for child marriages. So **focus is required on poverty alleviation programs**. Child marriages have reportedly increased during the pandemic due to poverty and lack of access to schools. The government must ensure the continuation of poverty alleviation programs, especially in rural areas; **(5) Increase Female Labour Participation**: Creating non-farm jobs for women from low-income families will ensure financial empowerment. Further, India can learn from Bangladesh's high women's participation in the labour force and its social change.

#6 21ˢᵗ India-Russia Annual Summit and the India-Russia Relationship

News: The Russian President visited India for 21ˢᵗ India-Russia Annual Summit. The Summit highlighted the "all-weather" partnership between India and Russia.

What discussions were undertaken in the 21ˢᵗ India-Russia Summit? – (1) The Summit highlighted the role of connectivity through the **International North-South Transport Corridor (INSTC)** and the proposed **Chennai–Vladivostok Eastern Maritime Corridor**; **(2) Regarding Afghanistan**: Both countries share common perspectives and concerns on Afghanistan and appreciated the bilateral roadmap charted out at the NSA level for consultation and cooperation on Afghanistan; **(3) International cooperation**: The summit noted that India and Russia share common positions on many international issues and agreed to further strengthen cooperation at multilateral fora, including at the **UN Security Council**; **(4) Defence**: India and Russia agreed on **joint manufacturing in India** of spare parts, components, aggregates and other products for the maintenance of Russian-origin arms and defence equipment **under the Make-in-India program** through the transfer of technology and setting up of joint ventures for meeting the needs of the Indian Armed Forces as well as subsequent export to mutually friendly third countries.

What were the outcomes of the Summit? – (1) India and Russia concluded 28 agreements, including 9 Government-to-Government agreements. They spanned in areas of defence, space, finance, power, culture, scientific research, education and health among others; **(2)** The **Military-technical Cooperation Agreement** was renewed for another 10 years till 2031; **(3)** A deal was signed for the **manufacture of AK-203 assault rifles** in India. Russia dropped the royalty to be charged in the deal; **(4)** Fossil fuel imports from Russia, including coking coal for India's steel industry, investments by Vostok Oil have been renewed and broadened; **(5)** Russia has begun the deliveries of the **S-400 long range air defence systems**.
A bilateral logistics support deal **Reciprocal Exchange of Logistics Agreement (RELOS)**, as well as a Navy-to-Navy cooperation agreement, **was put off**.

What are the areas of cooperation between India and Russia? – (1) Defence: Russia is the key and principal supplier of arms and armaments to the Indian armed forces (All 3 services), accounting for over 60% of weapons. S-400 Triumf missile systems, BrahMos missile, Sukhoi Su-30 fighter aircraft, INS *Vikramaditya*, T-90 tanks, and the Talwar and the Krivak class stealth frigates are some prominent assets supplied by Russia; **(2) Bilateral trade**: The two countries trade in diverse sectors from defence and energy to IT, pharmaceuticals, agro-industries, mineral and metallurgy, fertilizers, and infrastructure projects. India-Russia trade was valued at the **USD 10.11 billion in 2019–20**, and has potential to increase further. Indo-US and Indo-China trade are much higher (~USD 100 billion); **(3) Civil nuclear energy relations:** India and Russia jointly developed Kudankulam Nuclear Power Plant (KKNPP). Both signed agreements on the construction of **12 nuclear power**

plants in India in the coming decades; **(4) Space relations:** 2015 marked the **40th Anniversary** of the launch of India's first satellite "*Aryabhatt*" on a Russian launch vehicle 'Soyuz.' Russia also signed an agreement to **train Indian astronauts** for India's first manned space mission (**Gaganyaan Project**).

What are the challenges in Indo-Russian Relationship? – (1) Expansion of India-US relations: The development of India US defence cooperation has been rapid since 2008. India signed all the Foundational agreements with the US such as **LEMOA**, **COMCASA**, **BECA**. India's improving cooperation including defence cooperation with the US is the biggest issue in India-Russia relationship; **(2) Russia-China Proximity**: China-Russian ties are growing due to their shared interest in opposing the US. The intense geostrategic rivalry between China and the US in the region has brought Russia and China closer. This is evident as Russia joined the **Chinese One Belt One Road** initiative. India is facing border tensions and geopolitical rivalry across the Asia region with China which has strained India-China relationship; **(3) Russian engagement with Pakistan**. Russia has been involved in a few projects in Pakistan, and has increased its military cooperation with Pakistan which is a concern for India; **(4)** Russia is becoming part in the new axis involving Pakistan, China, Iran and Turkey in the wake of US Exit from Afghanistan; **(4)** India-Russia Relations remains **primarily state-led with limited involvement of private players**; **(5)** There are no agreements between India and Russia on the **new-economy front** such as fintech, renewable energy, telecom, etc in the recent times; **(6)** There is **little organic, people-to-people content to the relationship**. Soviet-era cultural and people-to-people contacts have almost disappeared.

How can India-Russia relationship be developed further? – (1) India and Russia can **work together in a trilateral manner** (involving a third partner) or **using other flexible frameworks**, particularly in Southeast Asia and Central Asia. Their growing collaboration can be a force of stability and will bring more diversity to the region while strengthening multilateralism. The involvement of India and Russia in the **Rooppur nuclear plant project** in **Bangladesh** is one such example; **(2) Focus on Eurasia:** India and Russia can explore opportunities in the Eurasian region. India can study the possibility of expanding Russia's idea of an "**extensive Eurasian partnership"** involving the EAEU (**Eurasian Economic Union**) and China, India, Pakistan, and Iran; **(3)** India can cooperate with Russia to increase engagement with the Central Asian countries; **(4) Need to look at peoples' power**: Both nations need to focus on youth exchanges and deeper links in various fields including sport, culture, spiritual and religious studies. For instance, Buddhism can be an area where both countries can expand their interaction.

India can **utilise the scientific and technological base** in Russia to address the problems it faces. Further, India can take advantage of Russia's capacity in helping India to become self-sufficient in Defence.

India should pursue an independent foreign policy to balance its special global strategic partnership with the US and special and privileged strategic partnership with Russia.

#7 India's Relationship with Central Asian Countries

News: India has increased its outreach to the Central Asian countries in recent times. The region has gained importance for India in the context of recent political changes in Afghanistan

What steps have been undertaken by the Government recently? – (1) The leaders of the 5 Central Asian nations (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) have been invited to the 2022 Republic Day Celebrations; **(2)** India also hosted the **ministerial-level meeting of the Foreign Ministers of these 5 countries** in December 2021; **(3)** An **NSA level summit** was held in New Delhi in November 2021 to discuss the security implications of the prevalent situation in Afghanistan. It included the NSAs of these 5 countries (also included Iran and Russia). The region has gained more importance ever since the takeover of Afghanistan by the Taliban in August 2021.

What is the extent of the Central Asian Region?

Central Asian Region stretches from the Caspian Sea in the west to China in the east, and from Afghanistan in the south to Russia in the north. It includes five countries namely Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan which are collectively referred to as the Central Asian Republics (CARs).

How has the India-Central Asia relations

evolve over time? – (1) India has had a long history of cultural and commercial relations with Central Asia, facilitated by its geographical proximity to India and the passage of the Silk Route through them; **(2)** Buddhism was central to this connection in Ancient times. Many rulers of medieval India had their roots in Central Asia, including the Mughals; **(3)** The present Central Asian Countries came into existence after the disintegration of the USSR in 1991. India was one of the first countries to establish diplomatic relationships with the CARs in 1991-92; however, there was a lack of rigour in the ties in the 1990s; **(4)** The situation began to improve in the 2000s and has gained pace since then.

What is the importance of the Central Asian region for India? -

Central Asia's location at the heart of Eurasia, its geographical proximity, and historic linkages, makes the region highly relevant to India's strategic interests; **(1) Mineral and Energy Security:** Central Asian is **rich in energy resources, including, oil, coal, and natural gas.** Kazakhstan is the **largest producer of uranium.** Uzbekistan also has large uranium reserves. India being an import-dependent nation for its energy requirements needs to have a strong relationship with these countries for strengthening its energy security; **(2) Security: Terrorism, drug trafficking and radicalization** have been a matter of concern for India and Central Asian countries alike. This has especially become a major concern in the context of the **Taliban taking over control of Afghanistan**; **(3) Geopolitical significance:** Unstable Central Asia has the potential to affect Russia and China, which have border connectivity to these countries. China is increasing its influence in India's neighbourhood, so a healthy relationship with Central Asian Countries can help India to counter China's strategy (Mandal theory – Your neighbour is your natural enemy and neighbour's neighbour is your friend); **(4) Trade and Investment**: The Central Asian countries provide trade and investment opportunities in multiple sectors like IT, Pharmaceuticals, Tourism etc.

This bolsters the importance of improving India-Central Asia relations.

What initiatives have been undertaken to boost India-Central Asia relations? – (1) International North South Transport Corridor (INSTC): India, Iran and Russia launched INSTC in 2000 to develop a **new trade route that would help in cutting the costs and time in moving cargo between Russia and India.** It is a 7,200-kilometre multi-modal project with thousands of kilometres of all-weather highways. Many countries have now come on board which include Afghanistan, Azerbaijan, Central Asia, and several European countries; **(2) Chabahar port initiative:** In 2003, India and Iran announced the development of the Chabahar port. This was launched to serve as an alternate route to Central Asia. But repeated US sanctions on Iran for its suspected nuclear

programme meant that Indian firms were reluctant to participate in the projects, leading to cost and time overruns; **(3) Ashgabat Agreement:** The pact was signed in 2011 by Uzbekistan, Turkmenistan, Iran, Oman and Qatar and aimed at developing the shortest trade route between the Central Asian republics and Iranian and Omani ports. India joined the Ashgabat agreement in 2018 to diversify its connectivity options with Central Asia; **(4) Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline:** It was launched to transport natural gas from Turkmenistan to India with transit through Afghanistan and Pakistan. However, it has been stalled since 2006 due to a lack of support from Pakistan; **(5) Indian Technical and Economic Cooperation (ITEC):** India launched ITEC programme to provide assistance to the CARs countries in the area of IT, Management, journalism, diplomacy, entrepreneurship, and banking; **(6) Connect Central Asia policy:** It was launched in 2012 and aimed to enhance India's political, economic, historical and cultural connections with Central Asia; **(7) Strategic Partnership Agreements (SPA):** India signed the SPA with three of the five CARs—Kazakhstan, Tajikistan and Uzbekistan—to stimulate defence cooperation and deepen trade relations; **(8)** Multilateral and bilateral forum and organizations: Initiatives like Shanghai Cooperation Organization (SCO) and the Conference on Interaction and Confidence-building Measures in India (CICA) have helped India to maintain regular channels of communication with the CARs; **(9) Military exercises:** New Delhi has engaged with Central Asian Republics in the defence sphere through military exercises. Indian Air force also operates Ayni Airbase in Tajikistan in cooperation with the Tajik Air Force.

What are the factors hindering India-Central Asia relations from reaching their true potential? - (1) Landlocked region: CARs are landlocked countries and India lacks direct connectivity with them which makes the realisation of the true potential of India-Central Asia relations difficult. The progress on the connectivity initiatives has been quite slow because of geopolitical, financial, and security constraints; **(2) Air Connectivity**: Although India has launched projects in the area of Land and Maritime connectivity, there are fewer initiatives in air and digital connectivity; **(3) Chinese presence in the region:** In the past 20 years, Beijing has made considerable inroads into the region, boosting trade and investment. China's trade with the region is worth USD 100 billion. The CAR has also been an enthusiastic supporter of China's Belt and Road Initiative; **(4) Taliban's presence in Afghanistan:** Taliban's presence in Afghanistan and its proximity to Pakistan may become a cause of concern for India's outreach program in Central Asia. India has reached out to CARs to secure its interests in Afghanistan; **(5) India's Foreign policy:** India's foreign policy has been more focused on the bigger powers such as Russia and the United States (US) and in dealing with challenges from China and Pakistan. Thus, CARs got less attention in the past. But recent development like the shifting of power centre from the West to Asia and turnaround in Afghanistan has increased CAR's significance in India's foreign policy; **(6) Trade and commercial bonds:** Trade between India and Central Asia is very low (US $2 billion) compared to Chinese trade with the CARs, which amounts to approx. US $100 billion.

What measures can be undertaken to enhance India-Central Asia relations? – (1) India can undertake steps to **enhance connectivity through the air and digital modes**. Both of these are easily implementable, unlike land and maritime projects that require convergence of interests of several countries; **(2) Countering Chinese Presence:** Although China has the largest regional presence in Central Asia, India's outreach may provide an alternative to CARs. Also, India's commitment to "principles of transparency, local priorities and respect for sovereignty and territorial integrity" makes it a preferred alternative to China in the long run; **(3) Leveraging Soft power**: India has a **lot of goodwill in the CAR countries,** which could be utilised to expand its influence.

Emphasis should be laid on maintaining **cultural and people to people contacts**; **(4)** The **Connect Central Asia Policy** must be implemented speedily with high-level visits, strategic partnerships, comprehensive economic engagement, partnership in the development of energy and natural resources to ensure India's strategic interests; **(5) More cooperation in trade and commerce:** India must improve trade in both goods and services. Cooperation can be enhanced in areas such as FDI, technology, Human resources. Increased access to India's huge markets would be highly beneficial for Central Asian countries that are constantly on the lookout to boost their struggling economies. India would get a chance to diversify its import dependency by investing in this energy and mineral-rich region.

There is certainly a long way to go before India could be designated as one of the most consequential actors in Central Asia. However, the recent initiatives show it is on the right track. India must ensure that the current momentum is maintained.

#8 International Treaty to Combat Pandemic

News: At a session of the World Health Assembly, it was decided to negotiate a new global treaty under the aegis of WHO to strengthen pandemic prevention, preparedness and response.

What is the envisaged treaty? – (1) The World Health Assembly took the decision to form a global treaty to "strengthen pandemic prevention, preparedness and response" in its special session in December 2021. It was only the second special session of the WHA since its inception in 1948; **(2)** The treaty is focused to enhance the healthcare systems to enable them to handle the future pandemics and health emergencies

PT BOX
Article 19 of the WHO Constitution
Article 19 of the WHO Constitution mentions that the Health Assembly shall authority to adopt conventions or agreements with respect to any matter within the competence of the Organization. A $2/3^{rd}$ vote of the Health Assembly shall be required for the adoption of such conventions or agreements.

more efficiently and ensure more coordinated response; **(3)** An **Intergovernmental Negotiating Body (INB)** will be responsible for drafting and negotiating a treaty **under Article 19 of the World Health Organisation's (WHO) Constitution**. *This will be second such initiative taken under Article 19. The first initiative was the* WHO Framework Convention on Tobacco Control, *which came into effect in 2005.*

Why a Global Partnership is necessary? - (1) Infectious diseases like COVID-19 spread rapidly even with minimal contact and exposure. **Coordinated efforts are necessary for containment**; **(2) Strengthening global partnerships will help in building resilience** to cope with the threats posed by pandemics and other man-made and natural disasters; **(3) Global partnerships will help in building mutual trust** and understanding by agreeing upon common rules and standards and sharing of best practices; **(4)** The COVID-19 pandemic has affected growth, trade and investments, and employment, among others. In this context, international cooperation is critical to combat the current & future challenges related to growth.

What is the current mechanism to deal with international health emergencies? – (1) At present Global public health responses are guided by **International Health Regulations (IHR)**; **(2)** IHR was adopted in 1969 and revised in 2005 after the SARS outbreak; **(3)** IHR provide an overarching legal framework that defines **countries' rights and obligations** in handling public health events and **emergencies that have the potential to cross borders**; **(4)** IHR create **rights and obligations for countries**, including the requirement to **report public health events**. The Regulations also outline the criteria to determine whether or not a particular event constitutes a "public health emergency of international concern"; **(5)** IHR are based on 4 pillars, **Detect, Assess, Report and Respond**; **(6)** IHR require countries to **maintain core capacities for surveillance and response**. Additional provisions address the areas of international travel and transport such as the health documents required for international traffic; **(7)** The IHR are an **instrument of international law that is legally-binding** on 196 countries, including the 194 WHO Member States.

COVID-19 Pandemic has led to recognition of the fact that IHR need further revision and that is the reason for the negotiation of new treaty.

Is the treaty sufficient step to fight future pandemics? – (1) The treaty will have limited impact if it covers only narrow aspects like recommendations to tackle particular outbreaks; (2) The treaty should focus on addressing issues facing the healthcare systems especially the need to provide resources and build capacities in the developing countries. At present there has been **no focus on bridging these deficiencies and capacity inequities; (3) This has been evident from the vaccine inequity between the developed and developing countries.** Rich countries have given out far more booster shots in four months than poor countries have given out doses all year; **(4)** Any global effort must ensure distributed capacities so that countries and regions in the south have sovereignty over essential medicines, materials, manufacturing and supply chains.

How has the developed countries responded to this capacity inequity? – **(1)** There has been a **lack of political will** on the part of developed countries to share e**ssential technology and manufacturing know-how** with the developing countries; **(2)** Developed countries are also reluctant to **waive intellectual property rights under TRIPS** in the wake of pandemic and ongoing vaccine shortage in developing countries. A WHO mRNA vaccine tech transfer hub slated to come in South Africa has been constrained by refusal of US and Germany to force vaccine manufacturers to share IP rights with this initiative; **(3)** The developed countries argue that TRIPS waiver will hinder vaccine development in future as private corporations will reduce investments in new technology and vaccine development.

What is the way forward? – Public health interests should be placed before corporate interests. There is need for consistent efforts to address deficiencies in global solidarity and improve access to essential lifesaving technologies.

#9 Integrated Theatre Commands

News: The new Naval Chief remarked that the US took 50 years to achieve the Joint Command structure. This indicates the challenges ahead in operationalizing Joint Command structure in India.

What is an Integrated Theatre Command (ITC)? – (1) An Integrated Theatre Command is a military structure wherein **all the assets of the Army, Air Force and Navy in a particular theatre of war are under the operational control of a single Commander; (2)** In a TC, the logistic resources required to support the operations will be placed at the disposal of the theatre commander. At present the Services have to coordinate with each other to request assets in times of need and urgency; **(3)** These '**unified combat commands**' are organized either on a **geographical basis** *(specific 'geographical area of responsibility')* or on a **functional basis (e.g. logistics).**

What are the existing structure in India? – (1) At present the Indian Armed Forces have **individual Services Commands**; **(2)** The Army has 7 Commands (6 Geographical and 1 Training Command), Air Force has 7 Commands (5 Geographical, 1 Training and 1 Maintenance Command) and the Navy has 3 Commands (3 Geographical Commands). There are 2 Integrated Commands: **Strategic Forces Command (SFC)** and the **Andaman and Nicobar Command (ANC); (3)** The ANC is the **first** and **only tri-service theatre command** of the

Indian Armed Forces. It is based at Port Blair and its objective is to cover India's strategic interests in Southeast Asia and the Strait of Malacca. The SFC is responsible for India's nuclear assets.

What is the global practice? – (1) More than 32 countries in the world, including the US, Russia, and China, have some form of theatre or joint command in place; **(2)** The US was the first country to come up with the theaterization concept. The US military's joint command is the outcome of the **1986 Goldwater–Nichols Defence Reorganisation Act.** It created the unified combatant commands which are headed by four-star generals or admirals. None of the US service chiefs exercise authority over the unified commands.
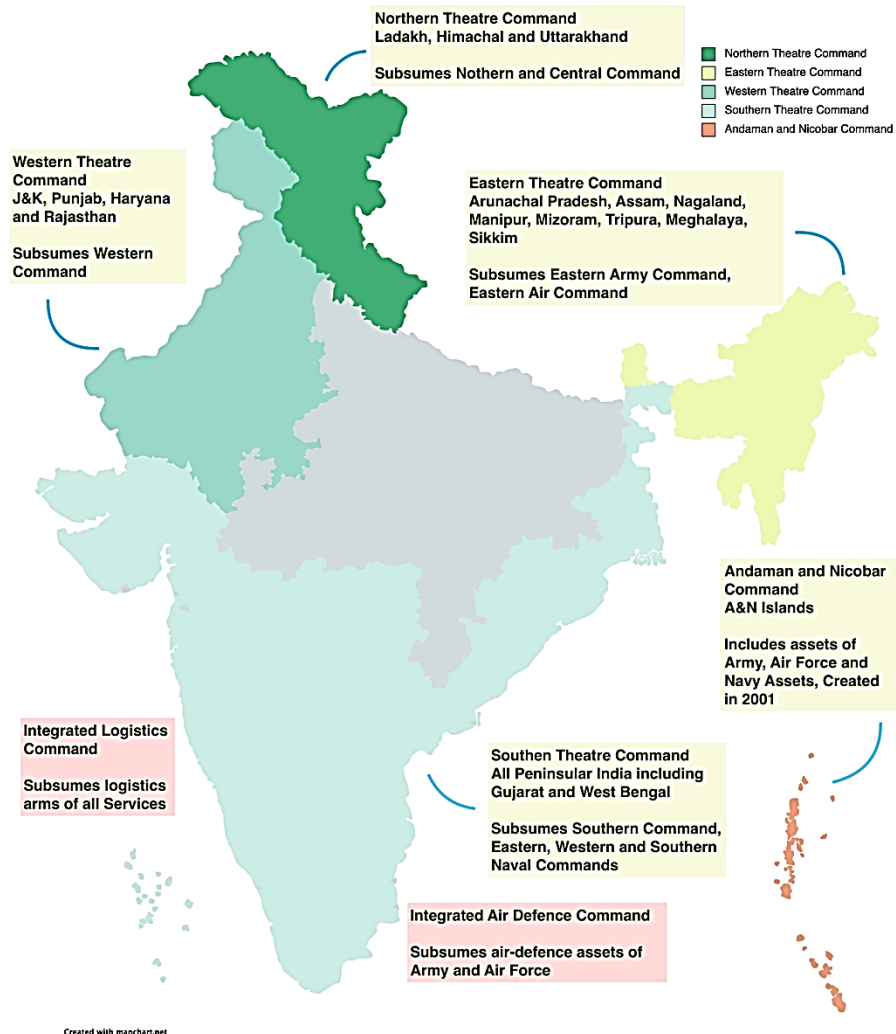
What is the rationale behind theaterization of Commands? – (1) The main objective of theaterization is to have a **unified approach** to fighting future wars in a coordinated manner; **(2) China** has also undertaken major reforms in the structuring of its armed forces and **has moved to Integrated Command structure**. China's Western Theatre Command looks after the entire borders with India, unlike India where there are multiple Commands and structures to respond with different officers at the helm.

What are the Planned Theatre Commands? – According to the current proposal, there will be five theatre commands; **(1)** Northern Theatre *(Ladakh and Central sector)*; **(2)** Western Land Theatre *(Pakistan-centric)*; **(3)** Eastern Land Theatre; **(4)** Southern/Maritime Theatre Command *(merging of the eastern and western naval commands, elements from the Army and the Air Force)*; **(5)** Air Defence Command. In addition there are other functional Commands which include; **(1)** Defence Cyber Agency; **(2)** Defence Space Agency; **(3)** Special Operations Division; **(4)** Air Defence Command; **(5)** Logistics Command; **(6)** Training Command.

What Committees have recommended Integrated Commands? – The need for a unified approach to war fighting was brought out in the deliberations after the 1999 Kargil battle. (1) The **Kargil Review Committee** and the **Naresh Chandra Committee** had called for structural changes in higher defense management; **(2) Shekatkar committee** recommended the creation of the post of CDS and Integrated Theatre Commands. Until this committee, every other panel had only spoken about the need for unified planning; **(3)** The creation and appointment of **Chief of Defence Staff (CDS)** and the decision to create the **Department of Military Affairs (DMA)** within the Ministry of Defence can all be seen as steps in the direction of achieving jointness between the three branches of the armed forces.

What are the benefits of theaterization? – (1) Increased efficiency: It will lead to rationalization of war fighting resources, and efficiency of executions resulting in an **integrated action to counter threats.** It will lead to **consolidation of warfighting assets and streamlining of personnel to make the services leaner, better trained and agile**; **(2) Cost-effective in the long run:** Theaterization will help in better planning and military response and bring down costs. The cost may go up in the immediate future since all theatres would have to be armed with sufficient systems, it will prove to be cost-effective in the long term as all acquisitions will be a unified one; **(3) Rationalization of the command structure**: The present command structure in the Indian armed forces is uneven. The Indian Army has 7 commands, while a much smaller Indian Air Force also has 7 commands. The Indian Navy has only 3 commands. This structure will be rationalized under the theatre command concept.

What are the challenges and concerns associated with integrated commands? – (1) IAF's concerns: While the Army and the Navy are on board on the issue of theaterization, the IAF while supporting the move says there can't be multiple theatres. They argue that a single theatre is what is needed. IAF fears that it will lose control over its assets and operations.; **(2) No need for theaterization**: Experts have said that there has been no occasion during actual warfare when the three services have not operated with commendable cooperation. Hence, there is no need for an integrated theatre command; **(3)** In recent times, no progressive country has created Theatre Commands to defend its home territory. The Western militaries call themselves expeditionary forces (our military is termed as defence forces). Hence, they created joint commands to project their power overseas, not for home-defence; **(4) Different service cultures**: The service culture and way of functioning of the three services is very different. The Indian Army has regimental affiliations and is bound by its legacy. The legacy issues may not be that much in the Indian Air Force or the Indian Navy. Finding the right mix will remain a challenge; **(5) Massive funding**: Creating infrastructure for the Theatre commands will also require huge amounts of funding.

What are the suggestions going forward? – (1) A supportive ecosystem: A supportive ecosystem is required for Theatre Commands. India still remains the 2nd largest arms importer in the world. Hence, indigenous technology and hardware by self-reliance should be a priority; **(2) Managing internal & external security**: Assessment would be required regarding the management of internal and external security under the theatre commands. It is because there are lakhs of paramilitary personnel and the Indian Coast Guard; **(3) Parliament's role**: The Legislature needs to play a far more pro-active role. A dedicated Standing Committee of Parliament should be created. It needs to be staffed with military advisers and other professionals to independently monitor the transition very minutely; **(4) No theatre should 'belong' to any service**, and command appointments should be decided based on merit and experience in joint operations; **(5) Budgetary allocations and the distribution of funds** need to be clearly worked out to enable the setting up of a seamless theatre command system; **(6) Modular structure**: The armed forces can be modularized. The present big hierarchical formations need to be divided into many small networked brigades. Multiple studies have shown

that these are superior to the division-based structure in terms of deployability, employability, and sustainability.

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#1 World Inequality Report 2022

News: World Inequality Report was released by World Inequality Lab. The report has pointed to rapid rise in inequality globally, including in India.

What are the major findings of the Report? – (1) National Income: In India, the top 1% and top 10% hold respectively 22% and 57% of total national income. On the other hand, the bottom 50% share is just 13% in 2021; **(2) Wealth Inequality:** The bottom 50% of the households own just 6% of the wealth. The middle class is also relatively poor owning 29.5% of the total wealth as compared with the top 10% and 1% who hold 65% and 33% of the total wealth respectively; **(3) Gender Inequality:** Gender inequalities in India are very high compared to the regional average. The **female labour income share is equal to 18%**, which is significantly lower than the 21% average in Asia; **(4) Carbon Emissions:** India is a low carbon emitter. The average per capita consumption of

Income inequality, India, 1951-2021

greenhouse gas is equal to just over 2 CO_2e. These levels are typically comparable with carbon footprints in sub-Saharan African countries; **(5) Private Wealth:** There has been a rise of private wealth in emerging countries such as China and India. China has had the largest increase in private wealth in recent decades. The private wealth increase in India over this time is remarkable, up from 290% in 1980 to 560% in 2020; **(6) There was a 35% increase in the net worth of the billionaires in India** during the novel coronavirus disease (COVID-19) pandemic, when India's growth was negative 10%; **(7) Global Income Inequality**: The richest 10% of the global population currently takes 52% of global income, whereas the poorest half of the population earns 8.5%; **(8) Fall in Global Incomes**: The report flags a drop in global income during 2020, with about half the dip in rich countries, and half in low-income and emerging countries; **(9) The rise in private wealth** has also been unequal within countries and at world levels. The poorest half of the global population owns just 2% of the total wealth and the richest 10% own 76% of all wealth; **(10)** The **Middle East and North Africa (MENA) are the most unequal regions in the world**, whereas Europe has the lowest inequality levels; **(11) Global Carbon Emissions**: The top 10% of emitters are responsible for close to 50% of all emissions, while the bottom 50% contributes 12%.

What are the different forms of inequality prevalent in India? – (1) Income and wealth inequality, as mentioned above in the findings of the World Inequality Report; **(2) Digital inequality:** According to **National Sample Survey (2017),** only 6% of rural households and 25% of urban households have a computer. Only 17% in rural areas and 42% in urban areas have access to internet; **(3) Social inequality**: It is the differential access to wealth, power, and prestige. Social inequality may exist on gender, race, age, ethnicity, religion, and kinship. This form of inequality is widely prevalent in India. **For instance**: India's upper caste households earned nearly
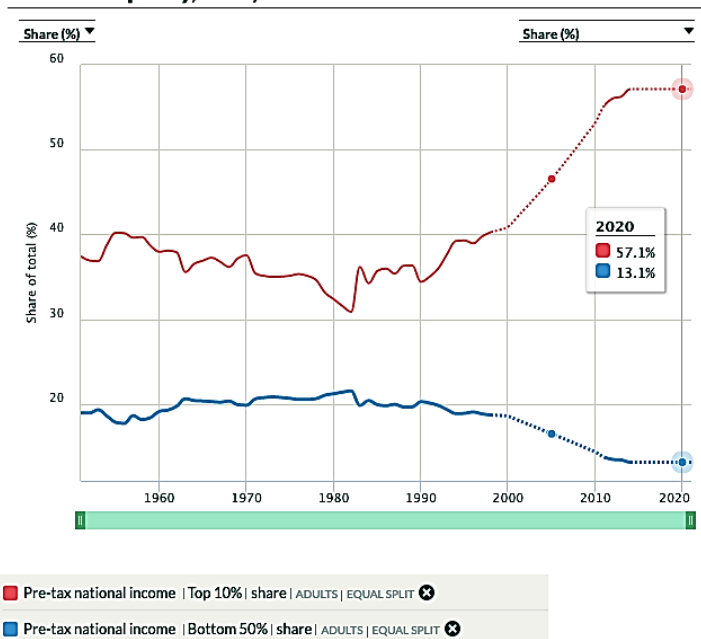
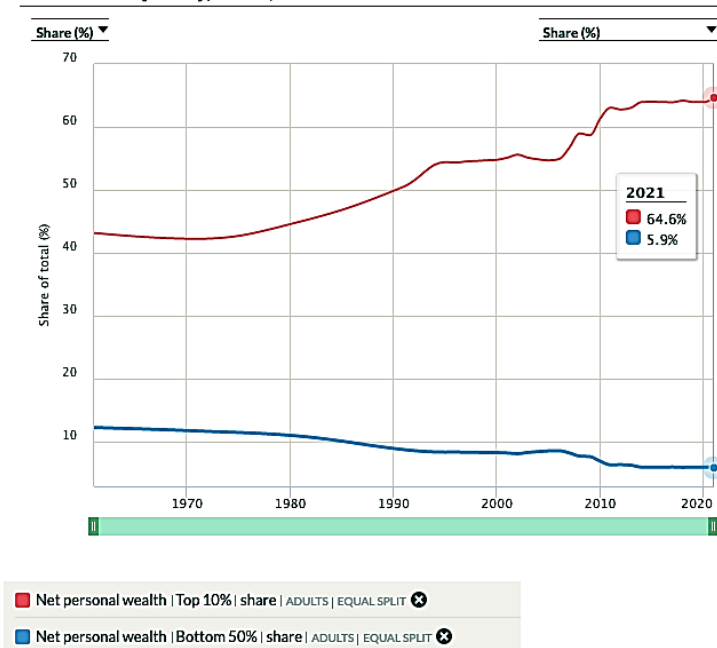47% more than the national average annual household income. The top 10% within these castes owned 60% of the wealth within the group in 2012, as per the World Inequality Database.

What are the reasons behind high inequality in India? – (1) Economic growth can help reduce poverty. GDP growth has been rather slow since the Global Financial Crisis of 2008 and has completely lost its momentum since the start of 2017. For a relatively poor country such as India, the most durable and dependable way to reduce inequality is to increase the size of GDP; **(2) Lack of digital access:** Poor households are not able to afford devices to ensure digital access for their children. According to the **Azim Premji Foundation, ASER and Oxfam** report, between 27% to 60% children could not access online classes, due to lack of devices, shared devices, inability to buy "data packs", etc; **(3) Increased**

Wealth inequality, India, 1961-2021

Share (%) ▼   Share (%) ▼

2021
■ 64.6%
■ 5.9%

Net personal wealth | Top 10% | share | ADULTS | EQUAL SPLIT ⊗
Net personal wealth | Bottom 50% | share | ADULTS | EQUAL SPLIT ⊗

penetration of technology and industrialization: Modern technologies require skill for efficient use. Productivity and wage increase has been limited to skilled workforce; while the unskilled workforce lack the resources to enhance their skills. The increase in productivity leads to the spread of technology, which, in turn, creates a higher demand for skilled workers. This self-reinforcing cycle increases wealth and income inequality; **(4) Large numbers of the labour force work in sectors with low productivity** e.g., agriculture. It provides 53% jobs, while contributing only 17% to the GDP; **(5)** COVID pandemic has also **increased the economic inequality** further.

What are the implications of inequality? – (1) Research by Professor Pickett and Wilkinson found that **inequality causes a wide range of health and social problems** like reduced life expectancy, higher infant and maternal mortality, poor educational attainment, lower social mobility and increased levels of violence and mental illness. This is a **vicious circle** as poor health and educational levels constraint the upward mobility leading to **poverty trap; (2)** High levels of income inequality are associated with **economic instability and crises**, whereas more equal societies tend to have longer periods of sustained growth; **(3)** Inequality limits access to new technologies and skilling opportunities. As technology adoption increases and demand for skilled jobs rises, those lacking access fail to benefit; **(4)** Income inequality strongly **influences people's health and wellbeing**. It further leads to a **societal breakdown** in trust, solidarity and social cohesion, reducing people's willingness to act for the common good e.g., **conflict** among the social groups in India and the **movements for greater reservation and affirmative action; (5)** Increase in wage inequality **decreases productivity; (6)** Digital gap leads to failure of digital initiatives providing basic services (health/education) further perpetuating inequality; **(7)** Greater inequality can lead to **more rapid environmental degradation** because low incomes lead to low investment in physical capital and education.

What is the way forward? – (1) Levying a **progressive wealth tax** on multimillionaires. This can generate a sufficient amount of income which can be redistributed e.g., a global effective wealth tax rate of 1.2% for wealth over $1 million, could generate revenues of 2.1% of global income. This income can be used in health, education and ecological conservation; **(2) Raising the proposed** global minimum tax rate on multinationals from the 15% to 25%. The present tax rate of 15% would lead to a race among countries to reduce their corporation tax rates to that level. An increase in tax rate will lead to a **€1.4-billion tax gain** a year for India; **(3)** In order to reduce inequality in India, Govt needs to take various measures. These include increasing employment opportunities

and wages, improving human development like access to healthcare and education, access to social security net (like direct income support) etc. For this several associated steps are also required e.g., improving tax to GDP ratio, decentralization etc.

#2 Gig Economy and the Status of Gig Workers in India

News: The Supreme Court has agreed to examine a PIL seeking social security benefits for 'Gig Workers' engaged with online platforms

What is Gig Economy and Gig Worker? – (1) Gig Economy is the evolving economic model wherein the **firms hire workers on a part-time flexible basis rather than as full time employees**; **(2)** The workers work as **freelancers or independent contractors** and generally have flexible and adaptable working hours based on individual preferences; **(3)** The jobs in gig economy **typically require interacting with the users through online platforms** e.g., the drivers engaged with cab hailing platforms (Uber, Ola etc.), delivery workers engaged with restaurant aggregators (Zomato, Swiggy etc.), or tutors delivering lectures over online platforms. The workers engaged in such jobs are called Gig Workers; **(4)** There are no social security benefits to the gig workers.

What is the PIL filed in the Supreme Court? – A petition has been filed in the Supreme Court arguing that '**gig workers**' and '**platform workers**' should be recognized as '**unorganized workers**' and not '**independent contractors**' as claimed by the companies. The petitioners are also demanding that they be provided with **social security benefits** such as insurance, provident fund, gratuity, maternity benefits and other welfare schemes.

Top reasons for working in the gig economy

19% Earning while seeking a better job

48% Balancing career and family needs

22% Only way to make an income

48% Autonomy and control

55% Make extra money on the side

What has the Supreme Court said? – The Supreme Court pointed out that the **Code on Social Security 2020** passed by the Parliament has a chapter dedicated for the welfare of 'gig workers'.

The petitioners argued that the Social Security Code 2020 is yet to be implemented. Hence, what they are seeking is that the gig workers should be declared as "unorganized workers" even under the pre-existing laws. The Court has agreed to hear the petition and issued notice to the Central Government.

What are the advantages of Gig Economy? – (1) The **companies are able to save costs** on hiring full time employees and are able to provide services more economically to the users; **(2)** Gig workers have the **flexibility to work according to their convenience and availability**. There are less restrictions related to fixed work-hours, attendance etc. Workers have some flexibility in choosing their work hours. Some workers take gig jobs on a part-time basis to

> **PT BOX**
> **Platform Work**
> The Code on Social Security defines Platform Workers as work arrangement outside of a traditional employer-employee relationship in which **organisations or individuals use an online platform to access other organisations or individuals to solve specific problems or to provide specific services** or any such other activities which may be notified by the Central Government, in exchange for payment.

supplement their income from regular jobs; **(3)** Gig economy **provides jobs to many low and semi-skilled workforce** with minimum conditions; **(4)** It enables the young undergraduates to gather valuable work-experience before joining formal employment; **(5)** Many gig workers work remotely and save costs.

What are the disadvantages of Gig Economy? – (1) Most gig workers work on a day-to-day basis, and can be **terminated from their jobs without any notice.** Many such workers were laid off during the pandemic; **(2)** Gig workers have **no social security benefits** like ESI, PF or insurance. They have no paid leaves so **failure to work**

means loss of wage; **(3) Gig/Platform workers are not covered in all the labour codes**, specifically the 'Code on Wages, 2019' which prescribes minimum wages for various jobs. **There is no wage regulation** and the workers are at the mercy of aggregators; **(4)** Most workers have to **put in long hours of work in order to make the job viable**. A large components of workers' wages consists of **incentive which coerces workers to work for long hours**. This reduces the advantage of 'flexible work' in gig economy. There is **lack of transparency on incentive structures; (5)** Many

IS PLATFORM WORK GOOD?

The definition of gig workers as "delivery partners" or "independent contractors" denies them coverage under the Code of Wages, 2019, which guarantees minimum wages, and non-discriminatory treatment of workers
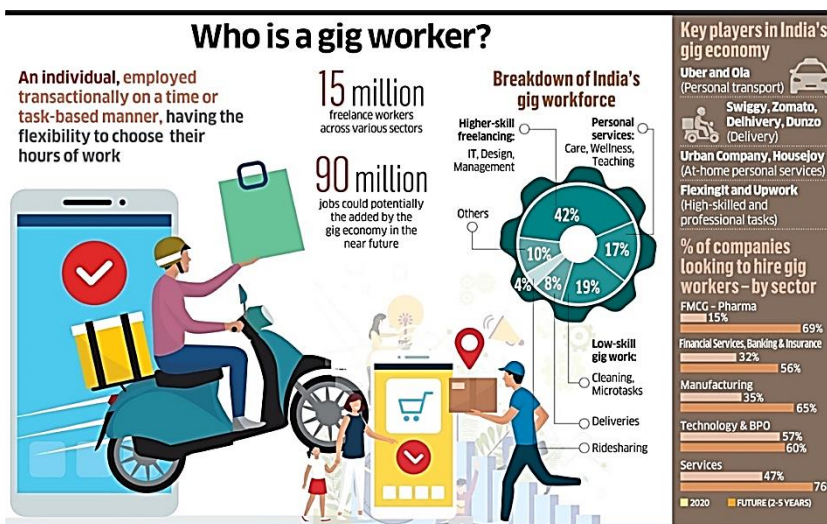
Several companies discourage collective action by workers, in disregard of their fundamental right to Freedom of Association.

The incentive model

- In food delivery platforms, remuneration is premised on a target and incentive model
- Incentives work up to a third of a worker's daily earnings
- Strict log-in times are stipulated to be eligible for incentives. Despite claims of flexibility, workers end up working long hours to gain incentives and make the gig job viable
- Workers on these platforms have little control over when orders are allocated
- Stringent conditions on cancellations also mean the partners have limited ability to deny work.

aggregators/platforms are burning cash by giving large discounts to users in order to capture larger market share. Companies try to sustain this by **charging high commissions on gig workers; (6)** Platform workers have little or no voice. Technology has tilted the **power and bargaining scales strongly in favour of the platform companies; (7)** Platforms have multiple other issues like **(a)** Frequent and random changes to the commission structure, **(b)** Delays in payments, **(c)** Deliberate miscommunication of earnings potential to attract gig workers; **(d)** Lack of access to basic amenities.

What is the size of Gig Economy in India? – (1) According to a report by the Boston Consulting Group low-skill gig workers formed close to 30% of the country's gig workforce, which is currently dominated by the technology sector. India's gig economy could increase to **90 million jobs in the next eight to 10 years** from about 24 million today; **(2)** Another industry report indicates that by 2024, more than 75% of the services industry will be staffed by gig workers; **(3)** A report by Ernst and Young observed that Indian Freelancers hold a **24% share of the global online gig economy;** (4) The PayPal study, 'Insights into the Freelance ecosystem,' states that the **gig economy in India has the potential to grow up to USD 20–30 billion by 2025**.

What are the provisions for Gig Workers in the Code on Social Security 2020? – Code on Social Security, 2020, gives a legal identity to the term gig worker; **(1)** The Code defines gig worker as a **person who performs work or participates in a work arrangement and earns from such activities outside of traditional employer-employee relationship; (2)** Chapter IX of the Code deals with Unorganized, Gig and Platform

Who is a gig worker?

An individual, employed transactionally on a time or task-based manner, having the flexibility to choose their hours of work

15 million freelance workers across various sectors

90 million jobs could potentially the added by the gig economy in the near future

Breakdown of India's gig workforce

Higher-skill freelancing: IT, Design, Management

Personal services: Care, Wellness, Teaching

Others

42%
10%
17%
4% 8% 19%

Low-skill gig work:
- Cleaning, Microtasks
- Deliveries
- Ridesharing

Key players in India's gig economy
Uber and Ola (Personal transport)
Swiggy, Zomato, Delhivery, Dunzo (Delivery)
Urban Company, HouseJoy (At-home personal services)
Flexingit and Upwork (High-skilled and professional tasks)

% of companies looking to hire gig workers – by sector
FMCG – Pharma 15% / 69%
Financial Services, Banking & Insurance 32% / 56%
Manufacturing 35% / 65%
Technology & BPO 57% / 60%
Services 47% / 76%

2020 ▪ FUTURE (2-5 YEARS)

workers. Section 114 of the Code mentions that the **Central Government may frame and notify suitable security schemes for the gig and platform workers; (3)** The matters covered in the section 114 of the code are; **(a)** Life and Disability Cover; **(b)** Accident Insurance; **(c)** Health and maternity benefits; **(d)** Old age protection; **(e)** Creche; **(f)** Any other benefit determined by the Government; **(4)** The Code recommends that schemes may be funded through a combination of contributions from Union and State governments, as well as gig platform aggregators; **(5)** The **National Social Security Board** will have **oversight of the welfare of gig economy workers**, and will include representatives of both aggregator companies and gig workers; **(6)** The Code also mandates that the **Union government establish a Social Security Fund for gig economy workers**.

What are the issues to be addressed in the Code? – (1) The code should **define the employee-gig worker relationship**. The EU law determines this relationship in terms of levels of aggregator supervision. This could be a tricky exercise in India since there are many categories of self-employed workers who typically **divide their time between multiple employers** e.g., food delivery agents or cab aggregators; **(2)** There is a need to **balance the benefits to gig workers against the cost advantages** that platforms and aggregators derive from their low-cost business models; **(3)** There is no clarity on how the costs of social security will be distributed among stakeholders; the workers, the aggregators, Union and State Governments. The law lists various possibilities — Government contribution, a mix of Government and private sector money, Corporate Social Responsibility funds or even a 1 - 2% cess on revenues of these companies. The implementation process must be clarified and codified; **(4)** Another concern is the absence of redress for gig workers in the Code. Labour courts exist, but they are expensive for ordinary workers to access. Instead, a **responsive appeal institution** needs to be created.

What is the status of gig workers globally? – The status of gig workers is also undergoing transition in major global economies; **(1)** In November 2020, the US State of California in a ballot allowed platforms to **classify gig workers as independent contractors**, which meant that they were kept out of obligatory benefits. The ballot was termed unconstitutional by a Court (County Superior Court) in California in August 2021. The verdict might be challenged in the Higher Courts. This shows the contentious nature of the issue; **(2)** The **Supreme Court of the UK** ruled that **Uber must treat its drivers as workers and not self-employed**; **(3)** The **European Commission is considering certain proposals** that could lead to **classification of gig workers as employees and entitle them to security and legal protections** like traditional employees that include minimum wage, collective bargaining, paid leave, unemployment and sickness benefits, and pensions. The Commission also wants to **increase transparency around the management of employees via algorithms**, including the right for workers to contest automated decisions; (4) Spain's Supreme Court in May 2021 gave 90 days to food delivery companies to convert their workers to 'staff'. The Court also asked the companies to provide greater transparency on the working of their App.

Why platform companies are reluctant to assign employee status to Gig workers? – If gig workers are classified as employees, platforms/aggregators will have **high operating costs and low utilization of the workforce**. To rectify, The platforms will have to cut down the number of employees, which will impact the customer experience by increasing waiting time. The power of the platform model lies in the ability to deliver a great customer experience along with high operating efficiency by relying on many gig workers. The **whole business model will fail in absence of these cost efficiencies**.

What is the way forward? – (1) Platform companies need to publicly commit to ensure that every gig worker, irrespective of the number of hours put in every month, will be paid an equivalent living/minimum wages; **(2)** Uber UK has committed to provide the national living wage, paid holiday time equivalent to about 12% of driver's earnings along with a pension plan to its driver. Other companies can replicate this model.

#3 WTO Ruling on India's Sugar Subsidy

News: The Dispute Settlement Body of the WTO has ruled against India's Sugar Subsidies

What were the complaints against India? – Australia, Brazil, and Guatemala had complained that India's domestic support and export subsidy measures were inconsistent with various articles of the WTO; **(1) Agreement on Agriculture**: It was alleged that India's domestic support to sugarcane producers exceeds the de minimis level of 10% of the total value of sugarcane production; **(2) The Agreement on Subsidies and Countervailing Measures** (SCM): Australia accused India of failing to notify its annual domestic support for sugarcane and sugar after 1995-96, and its export subsidies since 2009-10; **(3) Article XVI of the General Agreement on Trade and Tariffs (GATT):** India's export subsidies under the production assistance and buffer stock schemes, and the marketing and transportation schemes violated Article XVI of GATT.

What were the findings of the WTO Panel? – **(1)** India's domestic support to sugarcane producers is inconsistent with its obligations under Article 7.2(b) of the **Agreement on Agriculture.** The panel found that for five consecutive sugar seasons (2014-15 to 2018-19), India provided **non-exempt product-specific domestic support to sugarcane producers in excess of the de minimis level**; **(2)** India had argued that the mandatory minimum prices by sugar mills do not constitute market price support. The panel said that **market price support does not require governments to purchase or procure the relevant agricultural product**; **(3)** On India's alleged export subsidies for sugar, the panel said that since India's WTO Schedule does not specify export subsidy reduction commitments with respect to sugar, such **export subsidies are inconsistent** with Articles 3.3 and 8 of the Agreement on Agriculture; **(4)** With respect to Australia's claims regarding India's notification obligations, the panel's report said that India had violated its obligation under Article 18.2 of the Agreement on Agriculture; **(5)** By failing to **notify to the SCM Committee its export subsidies for sugar** under the Production Assistance, the Buffer Stock, the Marketing and Transportation, and the DFIA Schemes, **India has violated its obligations under Articles 25.1 and 25.2 of the SCM Agreement**. These Articles require that notifications of subsidies should be submitted by June 30 of every year.

> **PT BOX**
> **Agreement on Agriculture**
> The **Agreement on Agriculture (AoA)** is an agreement under the WTO. It entered into force with the establishment of the WTO on January 1, 1995. It has 3 pillars: **domestic support**, **market access** (tariff and non-tariff barriers), and **export subsidies**.
> Domestic support has 2 aspects: **trade distortionary (Green Box) and non-distortionary subsidies (Amber Box)**. Government support to the agricultural research or training is considered to be **Green Box (allowed)**, while government buying-in at a guaranteed price ("market price support") is **Amber Box and must be reduced and eliminated**.
> **Aggregate Measure of Support (AMS)**
> The AMS means annual level of support (subsidies) expressed in monetary terms, provided for an agricultural product. The AMS represents trade distorting domestic support and is referred as the "amber box".
> **Article 7** is related to Domestic Support. Any domestic measure which is not covered in the Green Box should be included to calculate the Aggregate Measure of Support (AMS). Art 7.2(b) states that when there is no Total AMS commitment, subsidies should not exceed de minimis level.
> **Article 3 and 8** put restrictions on export subsidies subject to certain exceptions.
> **Article 18.2** of the Agreement requires WTO Members to notify the WTO Committee on Agriculture the extent of their domestic support measures for review by the Committee.
> **de minimis level**
> Minimal amounts of **domestic support that are allowed even though they distort trade**: up to 5% of the total value of production for developed countries, 10% for developing countries.

What was India's argument in the WTO panel? – **(1)** India said that the complainants have failed to prove that India's market price support for sugarcane, and its various schemes violate the Agreement on Agriculture; **(2)** India also argued that the requirements of Article 3 of the SCM Agreement are **not yet applicable** to India and that India has a phase-out period of 8 years to eliminate export subsidies.
India also argued that its **mandatory minimum prices are not paid by the central or state governments** but by sugar mills, and hence do not constitute market price support.

What will be the Impact of the rulings? – India had been providing export subsidy to the sugar industry for some time. In December 2020, the Government had approved a subsidy of Rs 3,500 crore (2020-21) to sugar mills for the export of 60 lakh tonnes of sugar to help them clear outstanding dues to sugarcane farmers. In the previous marketing year 2019-20 (October-September), the government had provided a lump sum export subsidy of Rs 10,448 per tonne. However the circumstances have changed now; **(1)** Global sugar prices have gone up and Indian sugar mills have already secured export orders for about 3.8 million tonnes **without any government support**; **(2) Financial status of domestic sugar industry has improved** after the Government allowed sugar mills to produce ethanol directly from sugarcane for blending with petrol which has improved revenues; **(3)** The conditions are expected to be favourable to the producers in the coming period. In this context, the removal of subsidies will not have much effect.
(4) India has already filed an appeal with the Appellate Body. The appellate body of the WTO is not functioning because of differences among member countries to appoint the members. Over 20 disputes are already pending with the appellate body. So it will take some time till the matter is adjudicated and India need not comply with the ruling immediately.

What is the way forward?

Implementation of recommendations of Rangarajan Committee: The C Rangarajan Committee on Sugar Sector Reforms had suggested that the mills should share 70% of their revenue from sugar with cane growers. This is in line with the pricing mechanism followed in many other sugar-producing countries. The sugar industry had accepted the Rangarajan formula, but it has been implemented rarely.

#4 Central Bank Digital Currency (CBDC): Digital Currency in India

News: The RBI has proposed to the Government to amend the RBI Act to enhance the scope of the definition of 'bank note' to include currency in digital form.

What is the Central Bank Digital Currency (CBDC)? – (1) The Central Bank of England (the central bank of United Kingdom) defines Central Bank Digital Currency (CBDC) as **an electronic form of central bank money that could be used by households and businesses to make payments and store value**; **(2)** A Deputy Governor of the RBI has defined CBDC as "**legal tender issued by a central bank in a digital form, which is the same as fiat currency and is exchangeable one-to-one with the fiat currency**". **(3)** Under the present system of money management, there are **two kinds of Central Bank money**; **(a) Physical cash** in the form of Bank notes and coins; **(b) Reserves maintained by banks with the Central Bank** which are used by banks for interbank transactions. The latter is already in the digital form. So CBDCs will not be new in this sense. Retail CBDCs will essentially be digital currency issued by the Central Bank which will exist alongside physical cash; **(4)** CBDCs will have an entirely **new payment ecosystem**, with the **Central Bank managing the centralized payment system**. This centralised payment system would be "linked to electronic 'wallets' that reside on prepaid cards, smartphones, or other electronic devices". The money in these digital wallets can be spent in the same way as physical cash.

A survey carried out by the Bank for International Settlements found that **60% of the world's Central Banks are experimenting with CBDC technology** and 14% had started pilot projects.
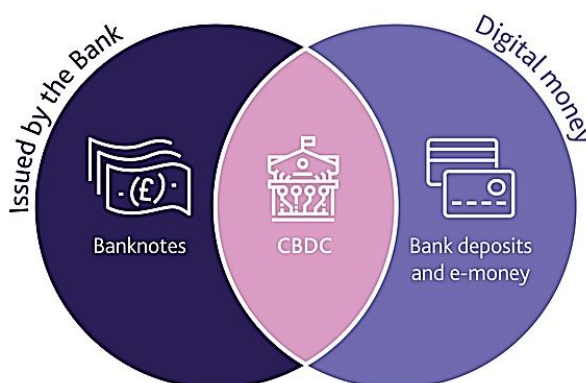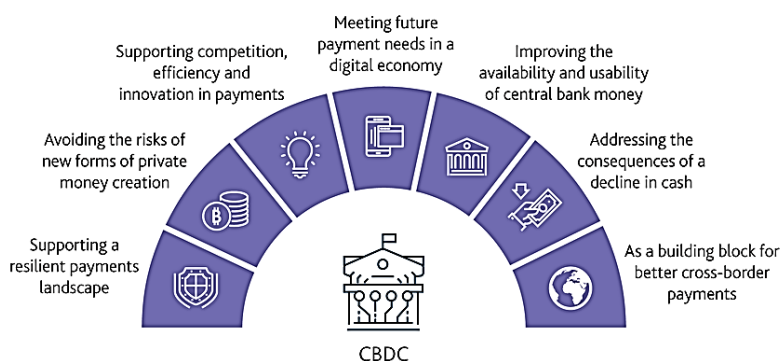

What is the difference between CBDC and current digital payment? - The difference between the current digital spending based on payment apps and CBDC would be; **(1)** The **payment infrastructure will be created and managed by the Central Bank**; **(2)** Payments will made using Central Bank money and not the money created by the banking system.

What is the need to have Central Bank Digital Currency? – (1) Globally, the **digital payment ecosystems are controlled by private fintech companies**. This poses considerable risks like **monopolies, high entry barriers, potential misuse of data, safety and security of technology**. Thus Central Banks must create new digital payment infrastructure through CBDCs. In India, the digital payment ecosystem is based on Government controlled NPCI but RBI controlled CBDC makes sense; **(2)** It would enable and facilitate cross border payments in other currencies like US Dollars; **(3)** China wants the Digital Yuan to gain acceptability as a global currency, like the US Dollar. If it happens Digital Yuan will also flow into Indian economy. India must have its own digital currency to counter China and shape the discussion on global protocols regarding the cross-border usage of CBDCs.

The spread of cryptocurrencies has created new challenges; **(4) Security of cryptocurrencies and investor protection: Non-Central Bank issued cryptocurrencies have security concerns, e.g., a theft at Mt. Gox cryptocurrency exchange led to loss of thousands of bitcoins (worth USD 450 millions at that time) leading to eventual closure of the exchange and loss to the investors; (5) Conflict of interest:** Crypto-currency exchanges act as both custodian and a regulator. So, their own interest and consumer protection get into

conflict; **(6) Non-regulation:** Non-regulation of cryptocurrencies leads to misuse through money laundering and terrorism financing. Cryptocurrencies are immune to the Central Bank regulation; **(7) Volatility of cryptocurrencies** is also a concern and large movements in the prices of cryptocurrencies pose considerable risk to investors.

What are the advantages of CBDCs? – (1) Improve efficiency in the financial system: CBDCs will provide an efficient way for financial transactions including cross-border payments in other currencies. CBDCs will also eliminate the challenges of printing and distributing cash and coins like storage risks; **(2) Reduce systemic risk posed by cryptocurrencies** which have no sovereign backing and can interfere with the functioning of the monetary policy; **(3)** CBDCs will not be volatile like private cryptocurrencies and act as stable store of value; **(4)** Increased adoption of CBDCs will reduce risk of counterfeit currency; **(5)** CBDCs will enable Central Banks to maintain negative interest rates to promote spending by the people; **(6)** CBDCs will make the welfare schemes and transfer payments more efficient as Governments can directly transfer money to users' wallets.

What are the challenges associated with CBDCs? – (1) Low digital literacy in India means that the digital currency might have low adoption rate. People need to be educated about the risks posed by digital transactions and possible frauds, phishing attacks etc.; **(2)** With the adoption of CBDC in Government finances and schemes, there might be increased overlap between fiscal and monetary policies and the independence of Central Bank may be compromised; **(3)** CBDC wallets might require capture of private information of users which poses threat to privacy of individuals; **(4)** CBDCs might increase possibilities of Bank-runs as investors might readily withdraw money from accounts to their wallets if they fear that the bank might fail.

What factors might impact the demand for CBDCs? – (1) The demand for CBDCs will be based on the design and the interest rates on CBDC holdings. Zero interest rates on CBDC holdings will mean that they are essentially cash and people might hold CBDCs only for payments; **(2)** The **ease of using the CBDC,** through existing digital wallets or the United Payments Interface, will be an important determinant of household behaviour, esp. switching between the CBDC, cash and bank deposits; **(3) Macroeconomic factors**: Estimates show that demand for a CBDC will be sensitive to macroeconomic factors such as household income, income distribution, the share of household funding of the banking system etc.

What steps should the RBI and the Government take? – (1) Enhance digital literacy: The government has to create enough awareness campaigns and inform people about identifying fraudulent methods. This will reduce India's digital divide; **(2) Adequate cybersecurity measures:** Before the introduction of National Digital currency, the Government can; **(a)** undertake training of law enforcement agencies on handling any threats; **(b)** Create a **policy of basic information** assessed while issuing, verifying someone's digital currency; **(3) Preventing Bank runs & extent of disintermediation**: Limits on individual holdings of CBDC could help ensure that CBDC is used primarily for payments and not for large savings. It will also reduce the extent of disintermediation of the banking system; **(4)** According to a prominent financial expert the RBI can adopt a **two-tiered approach** wherein, under **Tier 1**: RBI creates the digital version of its currency, and under **Tier 2**: distribution of currency and the maintenance of CBDC wallets is left to existing financial intermediaries. The CBDC can be issued via a distributed ledger, synchronised between the banks and the RBI and not a centralised ledger, held solely by the RBI.

#5 Algorithmic Trading

News: The SEBI has released a consultation paper proposing regulation of Algorithmic Trading.

What is algorithmic trading (Algos)? – (1) Algos are programmes that **monitor price and volume of stock market transactions** and **automatically make trades without human intervention**; **(2)** Algos make the **decision of buying and selling based on pre-set instructions** related to price movement and volume to be traded. Trades are executed as soon as the price condition is met (trigger); **(3)** According to the National Stock Exchange, about 14% of the trading volume (and around 45% of the trading value) is algo-driven.

What are the risks associated with Algos? - Algos can place the user at **greater risk**. This is partly due to the lack of human intervention, and partly because they can be programmed to make simultaneous trades of different markets. It could spiral into a **huge market-wide risk** owing to lack of circuit filters.
The famous "Black Monday" crash of Wall Street on October 19, 1987, occurred because algos sold heavily without human intervention.

Why does SEBI want to regulate retail or third-party algorithmic trading? – (1) SEBI believes that these modes of trading are risky and there is little understanding of how they function; **(2)** Algos can be misused for **systematic market manipulation** as well as to lure the retail investors by guaranteeing them higher returns; **(3)** The potential loss from a failed algo strategy may be huge.

What are the proposed regulatory changes? – (1) SEBI has proposed to treat **all orders based on the Application Programming Interface (API) as algo-driven**. Further, such orders should be **tagged with an ID unique** to the brokerage; **(2)** Brokers should perform a **sequence of stringent checks on any API-based trades** to ascertain if these are algos; **(3)** It has also stated **3rd-party algo providers could be treated as investment advisors** and that two-factor authentication *(which implies human intervention)* be put in place.

PT BOX
Application Programming Interface (API)
API is a program that establishes an online connection between a data provider and end-user.
APIs have become increasingly popular with the rise of automated trading systems. In the past, retail traders were forced to screen for opportunities in one application and separately place trades with their broker.
Many retail brokers now provide APIs that enable traders to directly connect their screening software with the brokerage account to share real-time prices and place orders quickly.

What are the issues in the proposed regulatory changes? – (1) It would **impact retail traders and brokerages** in terms of the cost of compliance; **(2)** It would **retard the use of API-based technology,** which smoothens trading processes for all investors; **(3)** SEBI already has many robust checks in place to ensure adequate margins are collected. It has **circuit filters** to halt trading if there is an extreme price move

#6 Interlinking of Rivers in India: National River Linking Project

News: The Government has approved the INR 44,605 Crore funding of the Ken-Betwa River interlinking project. This is part of National River Linking Project (NRLP)

What is the Ken-Betwa River Interlinking Project? – (1) The project involves transferring of water from the Ken river to the Betwa river through the construction of Daudhan dam and a 221-km canal linking the two rivers. Both these rivers are **tributaries of river Yamuna; (2)** It is the first project under the National Perspective Plan for the interlinking of rivers; **(3)** The project will be undertaken in two phases. **Under Phase-I,** Daudhan dam complex and Ken-Betwa link canal and Powerhouses — will be completed. **Under Phase-II,** 3 components — Lower Orr dam, Bina complex project, and Kotha barrage — will be constructed; **(4)** A
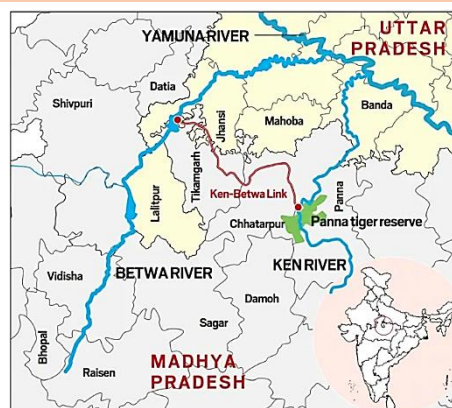
Special Purpose Vehicle (SPV) called **Ken-Betwa Link Project Authority (KBLPA)** will be set up to implement the project. The project has a completion deadline of eight years.
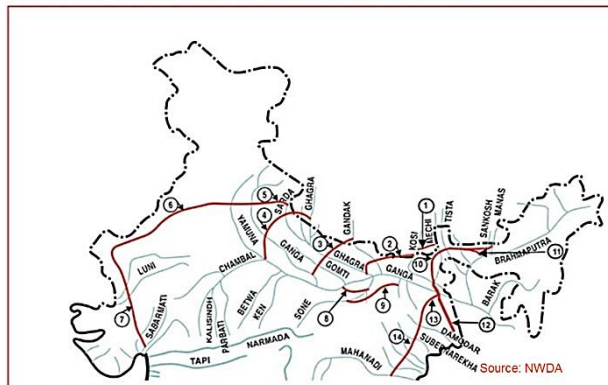
What is the National River Linking Project? – (1) The National River Linking Project proposes to connect **14 Himalayan** and **16 peninsular rivers** with 30 canals and 3,000 reservoirs to form a gigantic **South Asian Water Grid**; **(2)** The NRLP includes two components: **(a) Himalayan component**: This component aims to construct storage reservoirs on the Ganga and Brahmaputra rivers, as well as their tributaries in India and Nepal. It will connect; **(i)** the Ganga and Brahmaputra basins to the Mahanadi basin, and **(ii)** the Eastern tributaries of the Ganga with the

HIMALAYAN COMPONENT

Source: NWDA

1. Kosi – Mechi
2. Kosi – Ghagra
3. Gandak – Ganga
4. Ghagra – Yamuna *
5. Sarda – Yamuna *
6. Yamuna – Rajasthan
7. Rajasthan – Sabarmati
8. Chunar- Sone Barrage
9. Sone Dam – Southern Tributaries of Ganga
10. Manas –Sankosh - Tista - Ganga
11. Jogighopa – Tista – Farakka (Alternate)
12. Farakka – Sunderbans
13. Ganga (Farakka) – Damodar – Subernarekha
14. Subernarekha – Mahanadi
* FR Completed

Sabarmati and Chambal river systems; **(b) Peninsular component**: It includes 16 links that propose to connect the rivers of South India. It envisages linking; **(i)** the Mahanadi and Godavari to feed the Krishna, Pennar, Cauvery, and Vaigai rivers; **(ii)** the Ken river to the Betwa, Parbati, Kalisindh, and Chambal rivers; **(iii)** West-flowing rivers to the south of Tapi to the north of Bombay; **(iv)** Linking some west-flowing rivers to east-flowing rivers; **(3)** The NRLP is managed by **National Water Development Agency (NWDA)** under the Ministry of Jal Shakti. NWDA was set up in 1982, to conduct surveys and study the feasibility of the river interlinking projects; **(4)** The Union Government is contemplating the creation of **National River Interlinking Authority (NIRA)**. It will have powers to set up SPV for individual link projects.

**What is the rationale of interlinking of rivers? -** The core idea of NRLP is the transfer of water from water 'surplus' basins (perennial Himalayan rivers) where there is flooding to water 'deficit' basins (rain-fed peninsular rivers) where there is drought/scarcity through inter-basin water transfer projects.

What are the advantages of Interlinking of Rivers? – (1) Addressing the **Hydrological Imbalance:** India has a large-scale hydrological imbalance with an effective rainfall period of 28 to 29 days. Some regions receive very high rainfall while some face droughts. Interlinking would transfer the water from flood-prone regions to draught-prone regions; **(2) The benefit of irrigation:** The interlinking of rivers has the potential to irrigate 35 million hectares of land in the water-scarce western peninsula. This will help improve agricultural productivity, boost crop outputs and farm incomes, and create employment opportunities. The interlinking of rivers will make India a step closer to **achieving food security; (3) Generation of power:** The interlinked rivers have the potential to generate a total power of 34 GW. This will help

PROPOSED INTER BASIN WATER TRANSFER LINKS
PENINSULAR COMPONENT

Source: NWDA
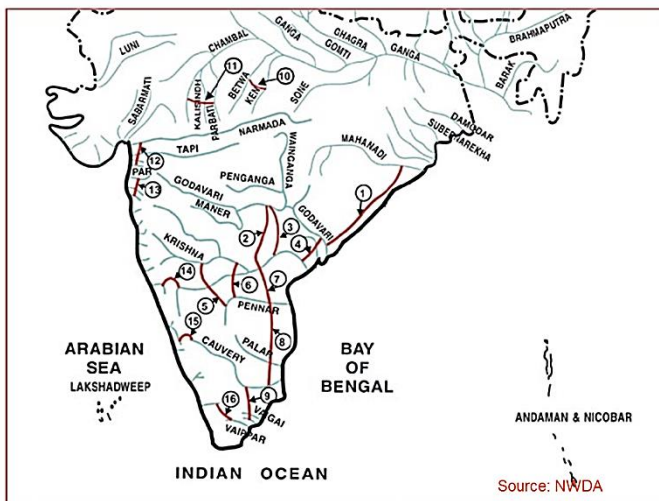
1. Mahanadi (Manibhadra) – Godavari (Dowlaiswaram) *
2. Godavari (Inchampalli) – Krishna (Nagarjunasagar) *
3. Godavari (Inchampalli) – Krishna (Pulichintala) *
4. Godavari (Polavaram) – Krishna (Vijayawada) *
5. Krishna (Almatti) – Pennar *
6. Krishna (Srisailam) – Pennar *
7. Krishna (Nagarjunasagar) – Pennar (Somasila) *
8. Pennar (Somasila)–Palar- Cauvery (Grand Anicut) *
9. Cauvery (Kattalai) – Vaigai – Gundar *
10. Ken – Betwa *
11. Parbati – Kalisindh – Chambal *
12. Par – Tapi – Narmada *
13. Damanganga – Pinjal *
14. Bedti – Varda
15. Netravati – Hemavati
16. Pamba – Achankovil – Vaippar *
* FR Completed

reduce coal-based power plant usage and achieve the targets under Glasgow Climate Pact and the Paris Agreement; **(4) Improve the inland navigation:** Interlinking of rivers will create a network of navigation channels. Water transport is cheaper, less-polluting compare to the road and railways and it will ease the pressure on railways and roads; **(5) Water supply:** The project envisages a supply of clean drinking water amounting to 90 billion cubic meter (Cubic Meter). It can resolve the issue of drinking water scarcity in India. Similarly, interlinking of rivers has the potential to provide **64.8 billion cubic meter of water for industrial use**; **(6)** Interlinking can help the survival of **fisheries**, **protect wildlife in the summer months** due to water scarcity. It can also reduce forest fires occurring in India due to climatic conditions.

What are the challenges in interlinking the rivers? – **(1) Impact of the Climate change:** Climate studies observe that Climate change might cause **melting of 1/3rd of the Himalayan glaciers by 2100.** The Himalayan rivers might not have 'surplus water' for a long time. Investing billions of dollars under such uncertainty may not be a good approach; **(2) Human cost:** This includes the challenge of loss of livelihood and displacement of people especially, the poor and tribal people located near the forests. Moreover the costs of rehabilitation have not been captured in the project finance; **(3) Huge financial cost:** NRLP is a highly capital-intensive project. In 2002, the total cost for linking the Himalayan and peninsular rivers was estimated at Rs 5,60,000 crore, excluding the costs of relief and rehabilitation, and other expenses. This cost is likely to be substantially higher now, and the cost-benefit ratio might no longer be favourable. Maintenance of dams and canals (preventing sedimentation, clearing logging of waters) entail huge costs which means **operational costs of the project will also be very high**; **(4) Impact on ecology and biodiversity:** The ecology of every river being unique, letting the waters of rivers mix may affect biodiversity. The challenge is further exacerbated by the varying level of pollution in various rivers; **(5) International Challenges:** Countries like Bhutan, Nepal, and Bangladesh will be impacted due to the NRLP. Bangladesh fears that water diversion from the Ganga and Brahmaputra rivers to India's southern states will threaten the livelihoods as well as its environment; **(6) Domestic Political Challenges:** Water is a state subject in India. So the implementation of the NRLP will depend on inter-State co-operation.

The **lingering inter-state river disputes** like the Cauvery, Satluj-Yamuna Link dispute provide little confidence. Several states including Kerala, Andhra Pradesh, Assam, and Sikkim have already opposed the NRLP; **(7)** Some analysts argue that there is **no surplus of water in the Himalayan river system**. The Southern rivers have low flow during the months of January-June (pre Monsoon). In these months the Himalayan rives also have low discharge and there is no surplus to be transferred.

What should be the approach going forward? – **(1) Efficient utilisation of existing resources: Integrated water resource management** is the key for India. Mitigating excess demand by efficient utilisation of existing water resources should be prioritised before making big-ticket investments in river interlinking under NRLP; **(2) Efficient Groundwater management** It would include identifying and protecting groundwater recharge mechanisms, enhancing recharge where feasible, installing artificial recharge and also regulating groundwater use at aquifer level;

(3) India's policy measures like free electricity and MSP on paddy has resulted in overexploitation of groundwater. India is expected to export 20 million tonnes of rice in 2021-22, thus indirectly exporting water. The policies need to be rationalized in order to save water. India is **net exporter of virtual water**; **(4) National Waterways Project (NWP)**: As per some experts, the Government should consider the National Waterways Project (NWP) instead of the NRLP. Under NWP, water from a flooded river will flow to the other. It acts like a water grid,

Virtual water balance by country and flows

The map shows the virtual water balance by country and the direction of gross "flows" of virtual water connected with the trade in agricultural and industrial products in the period 1996-2005. Only the biggest gross flows are shown (> 15 billion cubic meters a year); the thicker the arrow, the greater the "flow" of virtual water.
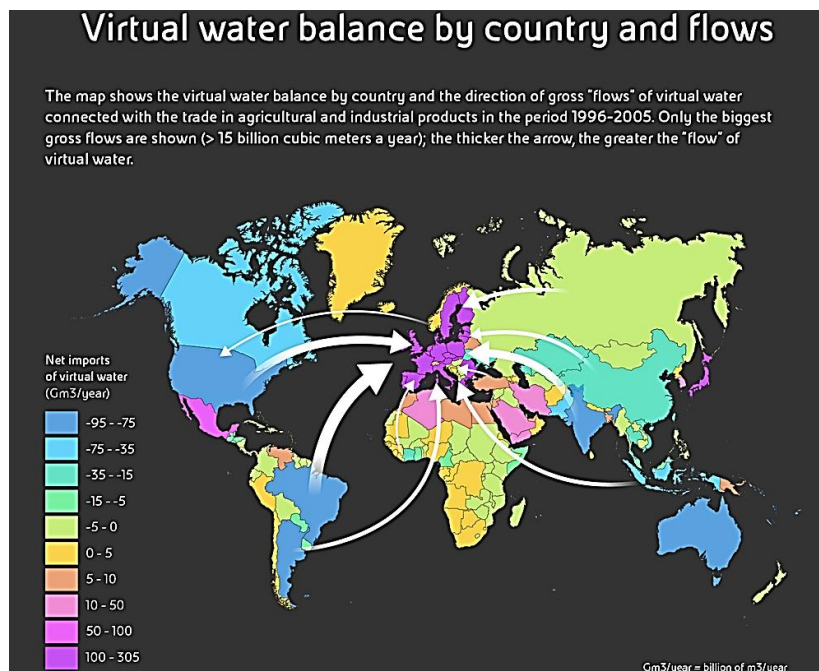
similar to a power grid. It **just needs 1/3rd the land** required for interlinking of rivers, is **open to navigation throughout the year** and involves **zero pumping**. It **can irrigate almost double the land** and has a **76% more power generation capacity (60 GW)** compared to the interlinking of rivers project.

#7 Inland Waterways in India

News: Despite the environmental friendliness and cost effectiveness, the share of Inland Waterways in the Modal Mix in India is very small.

What are inland waterways? – (1) Inland waterways include **navigable water bodies** like rivers, creeks lakes, backwaters, canals and channels etc.; **(2)** According to the Government of India Inland waterways is defined as a stretch of water, not part of the sea, over which **craft of a carrying capacity not less than 50 tonnes can navigate** when normally loaded; **(3)** This term covers both navigable rivers and lakes (natural water-courses, whether or not they have been improved for navigation purposes) and canals (waterways constructed primarily for the purpose of navigation).

PT BOX
Principles for Declaration of National Waterways
The **National Transport Policy Committee (1980)** recommended the following principles for declaration of a national waterway **(1)** Possess capability of navigation by mechanically propelled vessels of a reasonable size; **(2)** Have about 45 m wide channel and minimum 1.5m depth; **(3)** Have a continuous stretch of 50 kms. The only exception to be made to waterway length is for urban conglomerations and intra-port traffic; **(4)** Pass through and serve the interest of more than one State **(or); (5)** Connect a vast and prosperous hinterland and Major Ports **(or); (6)** Pass through a strategic region where development of navigation is considered necessary to provide logistic support for national security **(or); (7)** Connect places not served by any other modes of transport.

What is the current status of waterways in India? – (1) According to the Ministry of Shipping Report 2017-18, the total length of rivers/canals/lakes in India is more than 32,700 km of which 15,412 km of stretch is navigable; **(2)** 96.88% of the West Bengal's reported waterways are navigable, while it is less than 7% for Tamil Nadu and Uttar Pradesh. It shows large underutilization; **(3)** The National Waterways Act 2016 identifies **111 National Waterways in India**; **(4)** The proposed waterways will pass through nearly 138 river systems, creeks, estuaries and related canal systems of India; **(5)** According to the Ministry of Ports Shipping and Waterways, **13 National Waterways were operational in January 2019**; **(6)** The cargo handled by Inland waterways stood at ~830 lakh tonnes in 2020-21. According to the Inland Waterways Authority of India, **Inland water transport in India has only 0.5% modal share**; compared to China 8.7%; USA 8.3% and Europe 7%.

What are the advantages of inland waterways? – (1) Operational Cost Efficiency: Waterways transportation is fuel-efficient compared to the other modes of transport. The Integrated National Waterways Transportation Grid Study states that 1 litre of fuel will move 24 ton-km on road, 85 ton-km on rail and 105 ton-km on inland water transport; **(2)** The capital costs in developing waterways infrastructure is also much lower than rails and roads; **(3)** The **carbon footprint of waterways is lowest**. Carbon dioxide emission are almost 50% lower than that of roads; **(4)** Waterways can reduce the load and congestion on road and rail freight. As the cargo freight in rails is used to cross-subsidize the passenger travel, an increased share of waterways will further reduce the cost of transportation; **(5)** Waterways can help **create seamless interconnectivity connecting hinterlands** along navigable river coasts and coastal routes.

India's logistics cost as a share of gross domestic product (GDP) is estimated to be at around 14%, and the Government aims to bring it below 10%. The role of IWT is crucial in this regard.

What are the disadvantages and limitations of Inland Waterway Transportation (IWT)? – (1) Waterways have **slow transport speed** compared to rail and road freight which will increase the transport time; **(2)** Waterways have **limited area of operation**. Waterways can serve areas only proximal to waterbodies like rivers or lakes. Moreover navigability of many waterbodies is limited due to small depth, width or presence of waterfalls and other obstacles. This severely constrains **door-to-door transport of cargo**; **(3)** Inland waterways are **more susceptible to weather related disruptions** compared to rails; **(4)** Many waterways are constrained by **inadequate air draft** due to low height of bridges above the water level; **(5)** There is **shortage of IWT vessels** as vessel building is highly capital intensive and faces difficulties in obtaining project finance from banks and financial institutions; **(6) Shortage of MRO facilities**: There is severe shortage of MRO (Maintenance, Repair and Overhaul) facilities for IWT vessels; **(7) Inadequate industries**: Inadequate number of Industrial units on the riverside, especially along the Brahmaputra is a major hindering factor in the development of inland waterways; **(8) Environmental Impacts**: Dredging of river channels alters marine habitats. Pollution of water bodies due to leakage of fuel from vessels is also a challenge.

What are the various legal provisions related to Inland Waterway Transportation? – (1) Item 24 of the **Union List** deals with National Waterways declared so by the Parliament. **Item 32 of the Concurrent List** deals with other waterways; **(2) The Inland Waterways Authority of India Act, 1985**: The Act provides for the constitution of an Authority for the regulation and development of inland waterways for purposes of shipping and navigation. The Inland Waterways Authority of India was formed in 1986. It

> **PT BOX**
> **Dredging**
> Dredging is the **removal of sediments and debris from the bottom of lakes, rivers, harbours, and other water bodies**. Dredging is necessary to remove the sand accumulated in the channels due to sedimentation. Sedimentation is the natural process of sand and silt washing downstream with the flow of water.
> Dredging is focused on maintaining or increasing the depth of navigation channels, to ensure the safe passage of boats and ships.

undertakes projects for development and maintenance of IWT infrastructure on national waterways through grant received from Ministry of Shipping; **(3) Indian Vessels Act of 1917 (amended in 2007)**: It deals with the survey and registration of inland vessels, removal of obstructions in navigation, carriage of goods and passengers, prevention and control of pollution etc; **(4) Inland Water Transport Policy 2001**: Policy talks about IWT being economic, fuel-efficient and environment friendly mode of transport. It advocates large-scale private sector participation both for creation of infrastructure and for fleet operations; **(5) National Waterways Act 2016**: The Act declared 111 rivers or river stretches, creeks, estuaries as National (inland) Waterways. It enables the Central Government to regulate these waterways for development with regard to shipping, navigation and transport through mechanically propelled vessels.

What are the various initiatives undertaken by the Government? – (1) Jal Marg Vikas Project: Jal Marg Vikas Project (JMVP) aims at capacity augmentation of navigation on National Waterway-1 (NW-1). The project is being implemented by GOI with technical assistance and investment support of the World Bank; **(2) Sagarmala Project:** Along with development of coast shipping routes, the project seeks to inland waterways to drive industrial development. It aims to reduce the logistics costs by doubling the share of domestic waterways in the modal mix from current 6%; **(3) Interlinking of Rivers Programme:** The project is expected

to offer potential benefits to the transport sector through navigation; **(4)** Ministry of Shipping waived user charges for a period of three years from 2020. In addition, steps have been taken to cooperate with the neighbouring countries; **(5)** 7 new ports of call have been added on each side of India and Bangladesh to increase the accessibility of inland water transport modes for trade; **(6)** Inland waterway mode has been agreed for inclusion in the trade treaty between India and Nepal; **(7)** Stone exporters from Bhutan have identified inland waterways as an alternative mode of transportation. The IWAI supervised and executed the first such movement in July 2019.

What are the NITI Aayog's recommendations to develop IWT? – (1) Streamline the governance of inland waterways: NITI Aayog recommends streamlining the regulatory structure and bringing an overarching body to oversee Inland Water Transport such as the IWAI to more consistency in the rules and strategy of the sector; **(2) Develop measures for year-round navigation:** Efforts should be made to develop deeper stretches of the river, i.e., at least 2.5 m to 3 m to achieve year-around navigation. Adequate maintenance of rivers, including continuous dredging to maintain adequate water depth for servicing shipping lines should be ensured; **(3) Ease restrictions on river-sea movement:** Utilizing a single vessel for both inland and coastal waters, lowers transport costs and minimizes handling. State authorities should draw up coordinates for inland vessel limits under the Inland Vessel Act for their coastal waters; **(4)** Develop inland waterways transport to facilitate movement of goods to neighbouring countries and the Northeast. The protocol for Inland Waterways between Bangladesh and India should be extended for at least 10 years to reduce uncertainty.

#8 Electric Mobility in India

News: Decarbonization of the Economy is top priority for the Government in the context of Glasgow Climate Pact. Improving Electric Mobility offers huge opportunity to achieve decarbonization

What is the need of transition towards electric mobility? – (1) Vehicular emissions: Transportation sector is a major contributor to CO_2 emissions. Vehicular emissions have other major environmental and health impacts. According to a study by the Centre for Science and Environment; vehicular emissions contributed 40-50% to Delhi's pollution in the month of November 2021; **(2) Expensive fuel**: Transportation vehicles run on petrol and diesel. India imports almost 80% of its oil requirements from abroad amount to spending of USD 100 billion annually; **(3) Huge car market**: India is the 5th largest car market in the world and has the potential to be in top three in near future; **(4) Opportunities in battery manufacturing**: With rising levels of per capita income, there has been a tremendous demand for consumer electronics in the areas of mobile phones, UPS, laptops, power banks etc. requiring advanced chemistry batteries. This makes manufacturing of advanced batteries one of the largest economic opportunities of the 21st century; **(5)** The development of EVs is also expected to strengthen the grid, bolster grid support services and help accommodate higher renewable energy penetration while maintaining secure and stable grid operation.

What are the challenges in transitioning to electric mobility? – (1) The **absence of a manufacturing base for batteries** in India has led to reliance on imports to meet rising demand. It is estimated that by 2030, India's cumulative demand for batteries would be approximately 900-1100 GWh; **(2) High Import expenses**: India imported more than $1 billion worth of lithium-ion cells in 2021; **(3) India lacks lithium reserves** which also increases dependence on imports; **(4)** There is a **lack of charging infrastructure for EVs**. The electric power supply is also erratic with regular outages. This hampers adoption of EVs. According to the e-Amrit Portal 1,800 public EV charging stations have been installed all over India. **Alternative Fuel Infrastructure Directive (AFID)**, the key policy regulating the deployment of public electric vehicle supply equipment in the European Union, mandates that member states should aim for 1 public charger per 10 EVs. India is much below the threshold. In FY 2021-22, only 1.32% of the total vehicles sold in the country were electric; **(5)** The EVs also come at a premium compared to petrol/diesel based vehicles. High cost of battery is the major cost contributor.

What are the benefits of transitioning to EVs? – (1) Reduce carbon emissions and meet the climate commitments under the Paris and Glasgow pacts; **(2)** Reduce dependence on oil and enhance energy security; **(3)** Reduce dependence on imports and save foreign exchange; **(4)** Help develop domestic manufacturing base, attract FDI and foreign technology; **(5)** Establishment of Manufacturing ecosystem will create livelihood opportunities

What steps have been taken by the Government? – India aims to achieve EV sales accounting for 30% of private cars, 70% of commercial vehicles and 80% of 2-3 wheelers by 2030. To achieve this, Government has undertaken several steps; **(1)** Government remodelled **Faster Adoption and Manufacturing of Electric Vehicles (FAME II) scheme** to support the demand side. The FAME Scheme provides incentives at the purchase of vehicles and incentives for installing **Electric Vehicle Charging Infrastructure (EVCI)**; **(2)** The Government has introduced production-linked incentive (PLI) scheme for Advanced Chemistry Cell (ACC) for the supplier side; **(3)** The Government launched **PLI scheme for Auto and Automotive Components** for manufacturers of EVs; **(4)** The Ministry of Power has clarified that setting up public EV charging stations would not require a license under the Electricity Act, 2003 to transmit, distribute or trade in electricity; **(5)** Ministry of Power has also issued guidelines to facilitate setting up of EVCI.

#9 Draft Extended Producer Responsibility Policy

News: Ministry of Environment, Forest and Climate Change (MoEFCC) has released a draft Extended Producer Responsibility (EPR) Policy for the management of plastic waste.

What is the status regarding plastic waste generation and management? – **(1)** According to UNDP, between 1950-2015, only 9% of the plastic waste generated globally was recycled, while 12% was incinerated and the rest 79% ended up in landfills; **(2)** UNDP observes that India generates **15 million tonnes of plastic waste every year but only one fourth of this is recycled** due to lack of a functioning

solid waste management system; **(3)** There are two primary ways to manage plastic waste; **(a)** Recycling or re-processing different categories of plastic waste into secondary material; **(b)** Incineration of plastic waste. However, incineration is expensive and causes pollution if not done using the right equipment.
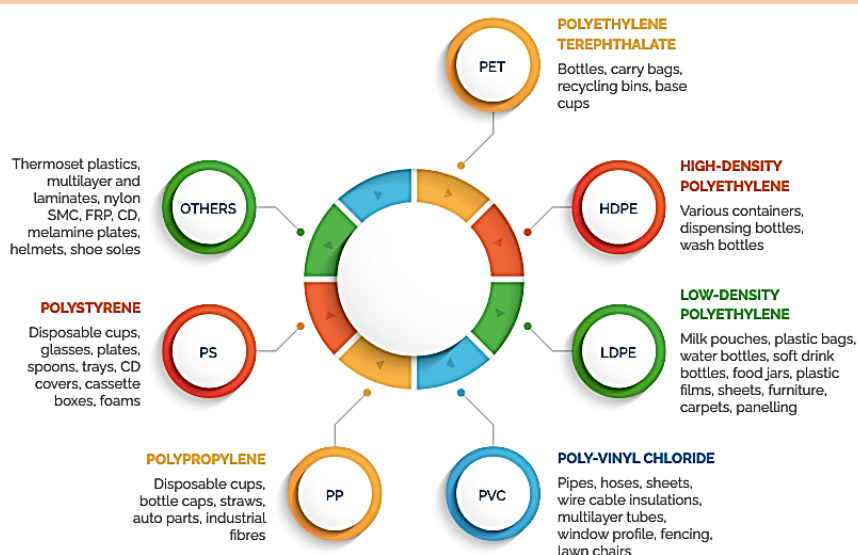
What is the current framework for plastic waste management in India? – (1) The first initiative towards waste management was in the form of the **Municipal Solid Wastes (Management and Handling) Rules** issued by the Ministry of Environment in 2000; **(2)** The **Plastic Waste Management Rules of 2016 and 2018** focused on single-use plastics. The rules detailed various categories of plastics and recommend recycling methods based on the type of plastic polymer used;

(3) Plastic Waste Management Rules, 2016 applied to the manufacture, import, stocking, distribution, sale and use of carry bags, plastic sheets or multi-layered packaging, etc.; **(4)** The rules prescribed **the responsibilities of the generators for the first time**. Individual and bulk generators like offices, commercial establishments, industries are required to segregate the plastic waste at source, handover segregated waste, pay user fee to the local bodies; **(5) Extended Producers Responsibility** puts

the **onus on the manufacturers for the treatment, recycling, reuse or disposal of products after a consumer has used and disposed them**.
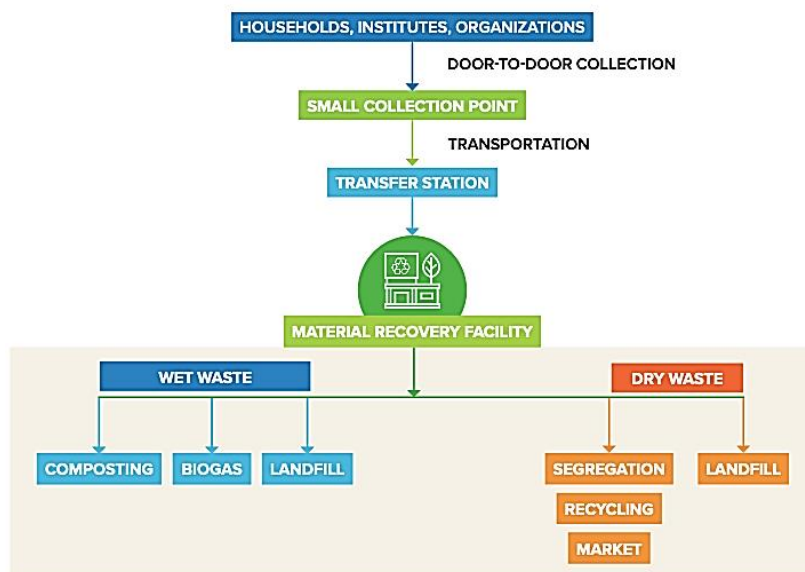
What is the Extended Producer Responsibility? – (1) According to OECD, Extended Producer Responsibility (EPR) is a policy approach under which producers are given **a significant responsibility – financial and/or physical – for the treatment or disposal of post-consumer products**; **(2)** Assigning such responsibility, in principle, provides incentives to prevent wastes at the source, promote product design for the environment and support the

achievement of public recycling and materials management goals; **(3)** Extended producer responsibility (EPR) is a **policy mechanism that helps advance the circular economy**, decreases the environmental impact from a product and its packaging, and promotes the "**Polluter Pays**" principle by holding the producer accountable for the entire lifecycle of the product; **(4)** The objectives of EPR include: **(a)** Integration of environmental costs into product costs; **(b)** Improved waste management; **(c)** Reduction of disposal; **(d)** Reduction of burden on municipalities; **(e)** Design of environmentally sound products; **(5)** The EPR is at a nascent stage in India. The last 5 years have failed to translate policy into action, due to the **lack of accountability from the producers and lack of enforcement from the authorities**.

What are the salient features of draft EPR Policy? – (1) Brand owners and **e-commerce players** have been brought under the ambit of EPR; **(2)** EPR is now applicable to **both pre-consumer and post-consumer plastic packaging waste**; **(3)** Producers and Brand Owners (PIBO) have finally been assigned targets for collection of plastic waste that they put out in the market; **(4)** Provisions and targets for collection, re-

> **PT BOX**
> **Circular Economy**
> According to the NITI Aayog, the circular economy is defined as an alternative to the linear 'take-make-waste'. It seeks to **design out waste, regenerate natural ecosystems and keep materials and products in use for as long as possible**. To this end, resources are not consumed and discarded, destroying their value. Rather, their value is **retained by reusing, repairing, remanufacturing or recycling**.

use (by brand owners), recycling (by PIBOs) and use of recycled plastic (by PIBOs) have been laid out; **(5)** Bi-annual plastic characterisation studies.

What are the gaps in the EPR draft policy? – **(1) Plastic waste reduction/minimisation is neglected** in rules and the 'polluter pays' principle is ignored. The 2016 Rules mandated the generators to minimise generation of plastic waste. However, it is not applicable to the PIBOs (Producers and brand owners); **(2) Compostable** or **biodegradable plastic** is **not under the ambit of EPR.** There should be an EPR mandate of collection and processing of the same; **(3)** The centralised **portal** developed by CPCB can only be accessed by the PIBO's, recyclers, Pollution Control Boards. The absence of public access would prevent public scrutiny and allow PIBOs to 'green' their image; **(4) Informal sector's** waste recycling operations are unlicensed and unregulated, though their waste management operations generate a net profit. The draft

> **PT BOX**
> **Biodegradable Plastics**
> Globally, 1% of the entire plastics produced are from non-fossil sources and are bio-degradable. India generates more than 250 tonnes of compostable and biodegradable plastic every day. This plastic needs to be sent to industrial composting facilities and not be composted at home or littered in the environment

rules ignore the informal sector even though most of the plastics in India are channelised by the informal sector; **(5)** PIBOs have to submit a plan of action. There is no standard format which will result in non-comparable action plans

What is the way forward? – According to experts of Centre for Science and Environment; **(1)** EPR policy should encourage the brand owners to **diversify packaging** material with alternatives such as paper, glass, metals, among other things; **(2)** Offering **EPR certificates** to the brand owners, who diversify their packaging, will also help the brands to develop a green image; **(3)** Promote compostable plastics and its bio-degradation, **testing, certification and proper labelling** become important; **(4)** India does have standards for compostable plastic

Plastic waste management brings a unique cross-cutting opportunity to contribute towards 14 of the 17 SDGs; bring more integration of various stakeholders to mutually invest for the cost to environment and natural capital.

Income of the waste pickers increased
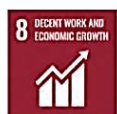
Empowering women waste pickers through inclusion and improved livelihoods

Circular economy of waste, innovation in technology, energy recovery, and promoting extended producer's responsibility

Reducing landfill, reduction in greenhouse gases, marine litter, and safe handling of waste

Collaboration, engagement, partnership at every level

(Schedule I of the Plastic Waste Management Rules, 2021). But the **certification and labelling mechanism is very weak** and needs to be addressed through policy; **(5)** CPCB can develop a standardized template for action plans after consulting with all stakeholders. The standardised data, thus obtained, will be comparable across all the PIBOs.

#10 AFSPA and the Insurgency in the North East

News: An operation by the Security Forces in Nagaland led to death of 14 civilians which sparked outrage and rekindled debate about the AFSPA. The Nagaland Cabinet has recommended that the AFSPA Act be repealed.

What is the Armed Forces Special Powers Act (AFSPA)? – **(1)** AFSPA was **first promulgated in 1942, by Linlithgow, in response to the Quit India movement in 1942.** Its aim was "to confer special powers upon certain

officers of the armed forces."; **(2)** After Independence, the Act was retained first by Ordinance and then by an Act in 1958, to control **increasing violence in the North-eastern States**; **(3)** AFSPA gives armed forces the power to maintain public order in "disturbed areas".

What is a "disturbed area" under AFSPA? – (1) According to Section 3 of the AFSPA, an area can be declared disturbed due to differences or disputes between members of different religious, racial, language, or regional groups or castes or communities; **(2)** The Central Government or the Governor of the State or administrator of the Union Territory can declare the whole or part of the State or Union Territory as a disturbed area.

What are the special powers given to armed forces under AFSPA? – (1) Authority to prohibit a gathering of five or more persons in an area; **(2)** Use of force or open fire after giving due warning if armed forces feel a person is in contravention of the law; **(3)** Arrest a person without a warrant, enter or search premises without a warrant, and ban the possession of firearms; **(4)** No action committed in exercising this Act can be prosecuted except with the sanction of the Government. Thus AFSPA provides a sort of legal immunity to members of armed forces.

What is the present status of the Armed Forces Special Powers Act (AFSPA)? – In the last four years, the Government has been gradually withdrawing AFSPA from different areas; **(1)** The Act was withdrawn from Tripura in 2015 and Meghalaya in 2018; **(2)** In Arunachal Pradesh it is now restricted to the three districts of Tirap, Changlang and Longding and areas falling within the jurisdiction of the eight police stations in the districts of Arunachal Pradesh, bordering the State of Assam; **(3)** Whole of Assam, Nagaland and Manipur (except the Imphal municipal area) continue to be under AFSPA; **(4)** In Jammu and Kashmir, the Armed Forces (Jammu and Kashmir) Special Powers Act, 1990 has been in force since 1990.

What is the need for AFSPA? – (1) Provide legal powers to Army: The Armed forces have no constitutional authority or legal powers to use force or firearms against anyone except in **(a)** War; **(b)** Guarding the international border; **(c)** In "aid to civil authority", but a magistrate must be present at the spot to authorise the use of force in writing on a particular form. This Act confers powers to armed forces to use arms against insurgents, terrorists and militants; **(2) Better counterinsurgency in border areas**: Insurgency has been going in several regions for a long period of time, which is detrimental to security and economic development of those regions. The Act gives powers to security forces to continue counterinsurgency operations without fear and keeps the morale high. The Army is of the opinion that the Act helps to control insurgency operations and protect the borders; **(3)** In the absence of legal immunity, soldiers and officers might be dragged to civilian courts and that frivolous cases might be filed against them. This will impact counter-insurgency measures.

What are the criticisms against AFSPA? – **(1)** Human Rights groups argue that **blanket protection to the personnel promotes indiscriminate use of force**. There have been several controversial killings involving civilians like in Imphal (1995 and 2000), Manipur (2004, which led to widespread protests). Only in 1 instance (fake encounter in Assam in 1994) were the members of the Army court martialled and sentenced to life imprisonment. Critics argue it leads to "**conventional war bias**", emphasizes killings and area domination rather than smarter tactical and political incorporation; **(2)** The use of **lethal force against civilians alienates local communities** and promotes further violence. It is feared that the biggest fall-out of the Nagaland incident (December 2021) will be the alienation of the local Konyak Tribe, which has been supporter of the Indian Government; **(3)** Even with more than 60 years of being in force, the Act has not helped in establishing peace in the North-east region or J&K; **(4) Justice Hegde Commission** appointed by the Supreme Court investigated 6 cases of extra-judicial killings and concluded abuse of AFSPA by **security forces** in Manipur; **(5)** Critics argue the Act violates Human Rights under **the Universal Declaration of Human Rights** and the **UN Declaration on the Rights of Indigenous Peoples**

What are the recommendations of various committees? – **(1) Justice BP Jeevan Reddy committee**: The committee recommended: **(a)** Repeal of AFSPA and inserting the appropriate provisions in the **Unlawful Activities (Prevention) Act (UAPA), 1967**; **(b)** UAPA should clearly specify the powers of the armed forces and paramilitary forces; **(c)** Grievance cells should be set up in each district where the armed forces are deployed;

(2) The 5th report of the **Second Administrative Reforms Commission** on public order has also recommended the repeal of the AFSPA; **(3)** The reports of the **Justice Verma Committee (2013)** and the **Justice Hegde Commission (2013)** supported the need to address the abuses committed under the AFSPA and end the effective impunity enjoyed by security forces.

So, the government should **take steps to ensure accountability** of the Armed forces and check misuse of the Act.

What are the reasons behind insurgencies in the North-East India? – (1) Ethnic Diversity: The region is home to more than 200 tribal groups. Each tribe has its own diverse cultural identity, and they tend to resist the cultural assimilation with other groups for the fear of losing their identity. Any effort towards 'integration' leads to conflict; **(2) Colonial Legacy**: The intent of exploiting the resources of the region prompted the British to follow an isolationist policy which prevented the integration of the region with the rest of the country. Under the **Bengal Eastern Frontier Regulation Act, 1873**, the British framed regulations **restricting the entry and regulating the stay of outsiders in designated areas**. This was to protect the Crown's own commercial interests by preventing "British subjects" (Indians) from trading within these regions; **(3) Lack of development**: The **diverse and difficult terrain** like dense forests, mountains has created development challenges and the **region has failed to attain its full potential**. The lack of development has resulted in **limited livelihood opportunities** which gives rise to resentment among locals and provides **fertile ground for insurgency movements**; **(4) Sense of Isolation**: The geographical distance from 'mainstream India' combined with **cultural differences gave rise to sense of isolation**. The region has **low political representation in Parliament**. Moreover, there are deep cultural differences including racial features (Mongoloid races); languages (Sino-Tibetan), culinary habits (primarily non-vegetarian) which have prevented integration. The **stereotyping of migrants of the North-East** in big urban cities has exacerbated the sense of isolation; **(5) Demographic Changes**: The region witnessed **large scale influx of refugees** from East Pakistan and now Bangladesh which led to discontent and insurgency. The issue was particularly critical in Assam where the mass anti-immigration movement morphed into ULFA-led insurgency movement in the late 1970s, **(6) External Support**: The insurgency groups have been constantly supported by Pakistan and China as a measure of **Proxy-war** and to increase internal instability in India. The external support has ensured that the movements continue to simmer; **(7)** The hardline tactics of counterinsurgency (e.g., the use of AFSPA and the associated human rights abuse) have provided continuous fuel to these movements.

What other reforms can be undertaken? – (1) Human Rights violations of the Army are the biggest threat to its credibility. The Army can put details of all court-martials held with respect to human rights violations under AFSPA in the public domain; **(2)** In the **Extra Judicial Execution Victim Families Association** case (2017), the Supreme Court had ordered the probe for 1,528 extra-judicial killings in Manipur. But there have been **no hearings in this case for three years**. There is a need to bring more accountability; **(3)** The Government should try to resolve the long-running insurgency in North-Eastern states through dialogue with insurgent groups; **(4)** Focus should be on addressing socio-political or governance-related issues that compelled the centre to impose AFSPA in the first place.

#11 Achieving NET ZERO

News: India has pledged to achieve the status of NET ZERO carbon emitter by 2070. A focused approach towards decarbonization is required to achieve the target.

What steps are required to achieve NET ZERO? – Achieving the NET ZERO target will require focusing on the three important areas; **(1)** Increasing renewable energy capacity; **(2)** Decarbonising emission-intensive sectors; **(3)** Creating more carbon sinks.

How can renewable energy capacity be increased? – (1) Resource mobilisation: NITI Aayog report estimates that the sector requires $4.5 trillion to meet the infrastructure gap and increase the share of renewable energy to 50% by 2030. This can be achieved by private sector participation with adequate Government support; **(2) Policy shift**: India should plan to shift from the grey to green economy by giving up fossil fuel and

making societies and people more resilient to climate shocks; **(3) Creation of green jobs:** It should be supplemented with a secure and just transition for workers currently engaged with fossil fuel-based industries.

What steps are required to decarbonise emission-intensive sectors? – (1) Efforts are required to reduce emissions in heavy industries like iron and steel, chemicals, and cement. This would require process and technology innovations e.g., a report published by McKinsey has suggested measures like switching to bio-mass, operational advances, such as energy-efficiency measures, clinker substitution with slag etc., for decarbonizing cement industry: **(2) Ecosystem-based approach** that aims at greening both 'supply' and 'demand' should be followed.

How can more carbon sinks be generated? – A **carbon sink** is any reservoir that accumulates and stores some carbon-containing chemical compound for an indefinite period and thereby lowers the concentration of carbon dioxide (CO_2) from the atmosphere. **Afforestation and Reforestation** are the most effective and economical ways to improve carbon sinks. **Regenerative Agriculture and Bio-sequestration** are other measures to reduce the carbon emissions from agriculture and improving soil as carbon sinks. **The Involvement of local communities is vital** owing to their commitment towards safeguarding local environments and ensuring sustainability.

In addition, **there is a need for a coordinated mechanism to fast-track action climate by engaging all stakeholders:** The private sector that brings investments, innovation, and the ability to transform challenges into opportunities should be made part of the process.

What steps have been taken in this regard? – (1) Promoting Solar and Wind Energy: The share of renewable energy in India's energy mix has more than doubled from 11.8% in March 2015 to 25.2% in July 2021; **(2) The Climate Finance Leadership Initiative** has been launched by India and the United Kingdom recently to generate more resources for climate and green energy projects; **(3) India has made efforts in addressing the energy needs of neighboring countries** e.g., Indian Energy Exchange, a domestic power trading platform, started cross-border electricity trade aims to create an integrated regional power market in South Asia; **(4) One Sun, One World, One Grid (OSOWOG) was** launched by India at CoP26. It plans to create a South Asian network for the energy exchange; **(5) International Solar Alliance (ISA) has** been established to enhance production of solar energy at global level. India was a founder-member; **(6)** India has successfully reduced its emission intensity of a gross domestic product by 24%; **(7) Adoption of Ecosystem-based' approach in policy making e.g,** Faster Adoption and Manufacturing of Hybrid & Electric Vehicles scheme offers incentives to both the automotive sector and consumers to boost electric vehicle sales.

> **PT BOX**
> **NET ZERO**
> Net zero refers to a state in which the greenhouse gases (GHGs) going into the atmosphere are balanced by removal out of the atmosphere. Thus there are no net GHG emissions into the atmosphere. Net emission means the GHGs emitted minus GHGs removed from the atmosphere. GHGs can be removed from natural measures like afforestation or artificial measures related to Carbon Capture and Storage (CCS). NET ZERO can be achieved only by removing more and more GHGs from the atmosphere as some GHGs will always be emitted from agriculture, industry, transportation etc.

#12 CAG Report on Kerala Floods of 2018

News: A report by the CAG has pointed to the lapses in Kerala Government's planning, capacity building, flood forecasting and dam management during floods in 2018.

What are the key findings of the report? – (1) The **flood plains** of Kerala had **not been identified and restricted**, and no **large-scale flood hazard map** was available in Kerala; **(2)** The **susceptibility map** developed by the Kerala Disaster Management Authority did not conform to **Central Water Commission (CWC)** criteria for flood-prone areas; **(3)** The continuing **encroachments** on river beds obstructed water flow during floods; **(4) Kerala State Water Policy 2008** was not as per the National Water Policy. It **lacked provisions** for effective flood control and flood management; **(5)** The Government had also not submitted the list of reservoirs or

areas where the CWC had to establish inflow forecasting stations; **(6)** Disaster Management Plan of 2016 has provisions for a "**State Emergency Operations Centre**". This centre is to predict and issue early warnings on hazards. However, the system failed to do so. This was because it was dependent on the receipt of externally sourced real-time data, which is yet to be made available; **(7)** The airport authorities failed to construct a diversion canal to carry the 'Chengalthodu waters' into the Periyar river to avoid riverine flooding the resident population; **(8) Issues with Dams:** No dam in Kerala had an EAP (Emergency Action Plan) despite the direction from the NDMA to have it by 2009**. Siltation** in major dams was another matter of concern; **(10)** The dam managers should not have solely relied on the India Meteorological Department (IMD) prediction for dam management; **(11)** A full-time residential training institute for civil defence was established at Thrissur 5 years ago, but it had not served the intended purpose; **(12) Ineffectiveness of Aapda Mitra** was seen due to the procedural delays that resulted in emergency   responder kits being handed out by December 2019.

What other reports says about Kerala floods?
IISc Bengaluru released a study that finds faults in managing the water levels in the Kerala dams, as the main reason that aggravated 2018 floods. Also, there were no warnings about the amount of water reaching the dams.

Factly

Polity

#1 Statutory Bail Provisions

> **News:** The National Investigation Agency (NIA) has approached the Supreme Court against a Bombay High Court order granting statutory bail to advocate and activist Sudha Bharadwaj.

Default of Statutory Bail
Under the provisions of the Code of Criminal Procedure the investigative agencies have to complete investigation withing stipulated time during which accused can be kept in custody. If the agency fails to meet these deadlines, then the accused becomes entitled to **default or regular bail**.
Under section 167 CrPC, the maximum period of detention is 90 days. However, under UAPA, courts can extend the custody up to 180 days.

Principles of Statutory Bail – (1) Default or statutory bail is an indefeasible right', regardless of the nature of the crime; **(2)** The stipulated period within which the charge sheet has to be filed begins from the day the accused is remanded for the first time. It includes days undergone in both police and judicial custody, but not days spent in house arrest; **(3)** The right should be claimed by the person in custody. If the charge sheet is not filed within the stipulated period, but there is no application for bail under Section 167(2), then there is no automatic bail.

Time Period for Bail
For most offences, the **police have 60 days to complete the investigation** and file a final report before the court. However, where the **offence attracts a death sentence or life imprisonment**, or a jail term of not less than 10 years, **the period available is 90 days**.
A magistrate cannot authorise a person's judicial remand beyond the 60-or 90-day limit. At the end of this period, if the investigation is not complete, the **court shall release the person "if he is prepared to furnish bail"**.
Statutory Bail Provision for Special laws: The 60 or 90-day limit is only for ordinary penal law. Special enactments allow greater latitude to the police for completing the probe.
In the **Narcotic Drugs and Psychotropic Substances Act 1985, the period is 180 days**. However, in cases involving **substances in commercial quantity, the period may be extended up to one year**.

In the **Unlawful Activities (Prevention) Act 1967, the default limit is 90 days** only, which can be **extended to another 90 days**.

#2 Delimitation of Constituencies in J&K

News: The J&K Delimitation Commission has proposed to increase six seats for the Jammu division and one for the Kashmir division. Members of opposition in J&K have objected to this proposal.

Delimitation is the act of redrawing boundaries of Lok Sabha or State Legislative Assembly constituencies to represent changes in population over time.
It is done by Delimitation Commission, whose orders have the force of law and cannot be questioned before any court.
The objective is to redraw boundaries *(based on the data of the last Census)* in a way so that the population of all seats, as far as practicable, be the same throughout the State. Aside from changing the limits of a constituency, the process may result in change in the number of seats in a state.

Delimitation in J&K
Basis of delimitation in J&K: Delimitation of **Lok Sabha seats** in J&K, before its special status was scrapped, was governed by the **Constitution of India**. The delimitation of the **state's Assembly seats** was governed by the **Jammu and Kashmir Constitution and Jammu and Kashmir Representation of the People Act, 1957.**

Previous delimitations of assembly seats: Assembly seats in J&K were delimited in 1963, 1973 and 1995.
The last exercise was conducted by the Justice (retired) **K K Gupta Commission** when the state was under President's Rule and was based on the 1981 census, which formed the basis of the state elections in 1996.

No delimitation after 2001 census: There was no census in the state in 1991. Also, no Delimitation Commission was set up by the state government after the 2001 census because the J&K Assembly passed a law putting a freeze on the fresh delimitation of seats until 2026. This freeze was upheld by the Supreme Court.
The J&K Assembly, at that time, had 87 seats — 46 in Kashmir, 37 in Jammu and 4 in Ladakh. Twenty-four more seats are reserved for Pakistan-occupied Kashmir.

After the abrogation of J&K's special status in 2019, delimitation of Lok Sabha and Assembly seats in the newly-created Union Territory would be **as per the provisions of the Indian Constitution**.
In March 2020, the Government set up the Delimitation Commission, headed by retired Supreme Court judge Ranjana Prakash Desai, which was tasked with completing delimitation in J&K in a year.
The commission has been granted an year's extension in light of the pandemic.

Members of opposition in J&K have objected to this proposal saying it is not based on 2011 census. However, the Commission has remarked that they are following the rules. The provision says that factors other than population like **physical features, boundaries of administrative units, public convenience can be taken into account for delimiting constituencies**.

Policy

#1 Assisted Reproductive Technology (Regulation) Bill

News: The Assisted Reproductive Technology Bill was passed by the Lok Sabha in the Winter Session 2021.

About the Assisted Reproductive Technology (Regulation) Bill
Aim: The Bill aims to regulate and supervise assisted reproductive technology clinics and banks, prevent misuse of the technology and promote the ethical practices.
Assisted Reproductive Technology (ART) includes medical technologies and procedures used to address infertility. Examples of ART services include gamete (sperm or oocyte) donation, in-vitro-fertilisation

(fertilising an egg in the lab) and gestational surrogacy (the child is not biologically related to the surrogate mother).

Key provisions of the Assisted Reproductive Technology (Regulation) Bill, 2021 – (1) Regulation of ART Clinics: The Bill provides for the establishment of the **National Registry of Clinics and Banks**, which will act as a central database for details of all the clinics and banks in the country. The Registry will grant registration to ART clinics which will be valid for 5 years and can be renewed thereafter. Registration may be cancelled or suspended if the entity contravenes the provisions of the Bill; **(2) National and State Boards:** The Bill also provides for the establishment of National and State Boards for Surrogacy for the regulation of ART services. The National Board shall advise the Central Government on policy matters relating to assisted reproductive technology; **(3) Rules for ART service providers:** ART procedures can only be carried out with the written informed consent of both the person seeking ART services as well as the gamete donor; **(4) Rights of a Child Born through ART:** The Bill provides that the child born through assisted reproductive technology shall be **deemed to be a biological child of the commissioning couple** and the child shall be **entitled to all the rights and privileges available to a natural child**; **(5) Offences:** Offences under the bill include clinics **offering sex selection, abandoning or exploiting children born through ART, the selling, buying, or importing of human embryos and exploiting the couple or donors** in any form. Proposed jail terms for violations range from five to 12 years, and fines from Rs 5 lakh to Rs 25 lakh.

#2 Female Education and Human Development Indicators

News: NITI Aayog released the first state-wise National **Multidimensional Poverty Index (MPI)**, in line with the global index released by the United Nations each year.

Access to various services and female education
Female college education plays a significant role in ensuring access to services. Comparative study was undertaken to establish the correlation between access to services and the education level of female (2.2% of the women were college educated – graduate or above).

Nutrition: In districts where college-educated females were higher than 2.2% of the population, around 30% of the households were deprived of adequate nutrition. In districts where college-educated females were less than 2.2%, **42.3%** of the people lacked adequate nutrition.

Years of schooling: In districts where college-educated females were lower than 2.2%, 18% of households were deprived (i.e., not a single member of the household aged 10 years or older has completed six years of schooling). The corresponding ratio is 8.4% for districts that had more than 2.2% college-educated females.

Access to electricity: In districts with college-educated females less than 2.2%, 15.9% of households had no access to electric supply. Only 5.2% of the households in higher female-educated districts lacked electricity.

Availability of **'bank accounts'** and '**drinking water**' were the only two indicators where college **education played no role** in determining access to resources.

Economy

#1 Annual Report on State Finances by the RBI

News: Reserve Bank of India (RBI) has released its annual study of state finances.

Findings of the Report – (1) States' **Gross Fiscal Deficit** breached the 3% of gross domestic product (GDP) mark; **(2)** Combined **revenue deficit** of the state governments rose from 0.1% of GDP in 2018-19 to 2% of GDP in 2020-21 because of the pandemic. This was in spite of a sharp squeeze in expenditure during the pandemic, especially on services, development, and welfare; **(3)** The Report discusses the concerns raised by the State

Governments about their fiscal position and **disagreements about GST compensation** in the light of this severe fiscal stress on States; **(4)** The report demands a special focus is on **local body finances,** and particularly urban local bodies and municipal corporations.

Observations about Local Bodies

The reports surveyed 141 municipal corporations and analyzed the budgets of the 20 largest ones. It was found that for almost 25% of the municipalities the revenue shrank by more than 50%. The RBI estimates that about a **third of municipal corporations** are "**severely fiscally stressed**".

This all will have a major impact on the development and welfare activities performed by the local bodies. The report demonstrates that the **more fiscally stressed an urban area is, the worse it is performing in terms of the vaccination rollout**.

#2 Fintech in India

News: The Prime Minister inaugurated the InFinity Forum, a thought leadership Forum on FinTech.

About Fintech

Fintech is derived from Financial Services and Technology. Fintech refers to any business that uses technology to enhance or automate financial services and processes. Fintech uses technology to make the financial services more accessible to the general public. Fintech technologies cover a range of services including digital delivery of banking, investment, insurance, trading and risk management services.

India's Financial Inclusion Initiatives with the help of Fintech

Unified Payments Interface (UPI): It is a real time payment transfer system developed by the **National Payments Corporation of India** that was launched in 2016. It allows to transfer money from one bank account to another by a mobile platform. The transfers are enabled by UPI Client Apps.

BHIM: Bharat Interface for Money (BHIM) is a UPI Client App developed by NPCI.

Bharat Bill Pay System (BBPS): National Payments Corporation of India (NPCI) launched the Bharat Bill Pay System, a single platform for all utility biller.

e-RUPI: It is a cashless and contactless instrument for digital payment based on Unified Payment Interface (UPI) platform. It has also been developed by the National Payments Corporation of India (NPCI). No internet is required to undertake transactions through e-RUPI.

The Government has universalised bank accounts with 430 million Jan Dhan accounts in the last seven years from less than 50% of Indians having bank accounts in 2014.

PM Svanidhi enabled access to credit for small vendors across the country

Outcomes

Mobile payments in India exceeded ATM cash withdrawals for the first time in 2020.
UPI is processing around 4.2 billion transactions in just last month

#3 PLFS – Quarterly Bulletin

News: The National Statistical Office (NSO) has released the quarterly bulletin of Periodic Labour Force Survey (PLFS) for January-March 2021.

About the Periodic Labour Force Survey (PLFS)

The Periodic Labour Force Survey (PLFS) was launched in April 2017 by the National Statistical Office (NSO)

The objectives of PLFS are twofold. (a) One is to estimate the key employment and unemployment indicators (viz. Worker Population Ratio (WPR), Labour Force Participation Rate (LFPR), Unemployment Rate (UER)) in the short time interval of three months for the urban areas only in the 'Current Weekly Status' (CWS); (b) The other purpose is to estimate employment and unemployment indicators in both 'Usual Status' and CWS in both rural and urban areas annually.

Key findings of the survey

Unemployment Rate

The unemployment rate in urban areas of the country for people of all ages has fallen **to 9.4% in January-March, 2021**. This was the lowest since the nationwide lockdown was imposed in March 2020 but was **higher than the pre-pandemic levels of 9.1%**.

Among males, the unemployment rate in urban areas was 8.7% in January-March 2021. It was 9.5% in October-December 2020.

Among females, the unemployment rate was 11.8% in January-March 2021. It was 13.1% in October-December 2020.

Labour force participation rate (LFPR)

LFPR in urban areas for persons of 15 years of age and above was 47.5% in the January-March quarter of 2021, down from 48.1% in the same period a year ago. It was 47.3% in October-December 2020.
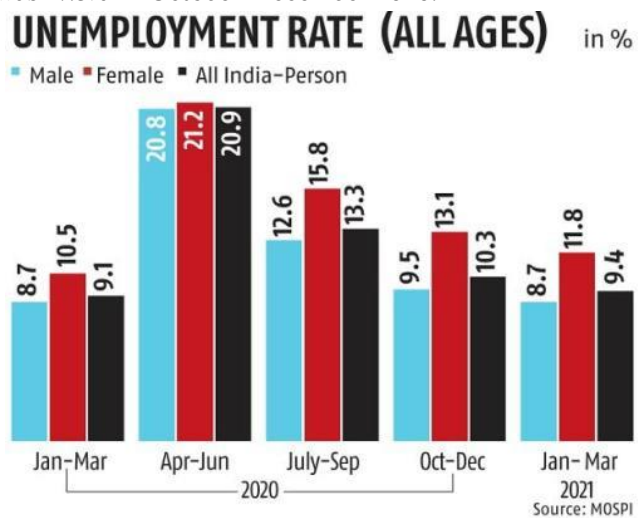
Working Population Ratio (WPR)

WPR in urban areas for persons of age 15 years and above stood at 43.1% in January-March 2021 down from 43.7% in the same period a year ago. It was 42.4% in October-December 2020.

Labour force participation rate (LFPR) is defined as the section of the working population in the age group of 16-64 in the economy currently employed or seeking employment.

The Worker-Population Ratio (WPR) is the proportion of the population that is working.

The **Unemployment Rate (UER)** is the percentage of people in the labour force who do not get employment.

UNEMPLOYMENT RATE (ALL AGES) in %
■ Male ■ Female ■ All India-Person

	Jan-Mar	Apr-Jun	July-Sep	Oct-Dec	Jan-Mar 2021
Male	8.7	20.8	12.6	9.5	8.7
Female	10.5	21.2	15.8	13.1	11.8
All India-Person	9.1	20.9	13.3	10.3	9.4

2020

Source: MOSPI

#4 Social Stock Exchange

News: Securities and Exchange Board of India (SEBI) has approved the creation of a social stock exchange.

Social Stock Exchange (SSE)

There is lack of information in the public domain about for-profit social enterprises or non-profit organisations (social enterprises). Investors interested in contributing to social enterprises are dissuaded by lack of knowledge about these enterprises.

The Social Stock Exchange will operate like any other stock exchange. Relevant securities of social enterprises (SEs) will be listed on a dedicated exchange and can be traded by public. It would provide a new investment avenue for socially conscious investors. The **listed SEs will have to make appropriate financial and social impact disclosures** so that investors are aware of their activities.

SEBI has announced the setting up of Social Stock Exchange, on the basis of proposals from the working group under **Ishaat Hussain**, and a technical advisory committee under **Harsh Kumar Bhanwala.**

Advantages of setting up a Social Stock Exchange (SSE)

SSEs will facilitate developing a set of procedures, that act as a filter to select only those entities that are creating measurable social impact and reporting such impact.

SSEs will bridge the funding gap for the social sector players. It will enable entities that are listed on the SSE to access donations to help them meet their objectives through predefined instruments.

Donators can be sure of how efficiently the entity is spending money. Moreover, Registered entities will have to disclose their governance structures and processes, financial parameters and publish their impact studies on a regular basis

International experience shows that only just three of the seven exchanges that were set up, still survive (Canada, Singapore, and Jamaica). SSEs are expected to take off in India because India's social sector is very deep and diverse. Over INR 246 billion were spent by companies on corporate social responsibility in FY20.

NGO Darpan, a database maintained by the Niti Aayog, has self-declared data for over 129,000 NGOs. SEBI can take things forward by collecting the data from NGO Darpan, validating it, and evaluating it with an evaluation framework across well-defined governance and financial parameters.

#5 New Warehousing Policy

News: The Government of India has proposed a New Warehousing Policy.

About Warehousing
Warehousing can be defined as the systematic **process of storing** and **preserving goods on a large scale** in a warehouse and making them available when they are demanded, i.e. for sale, distribution and consumption.
The **e-commerce sector** has been driving the demand for logistics and warehousing across global markets. It has emerged as the most prominent driver of Indian warehousing market volumes, along with the **third party logistics sector**.

About the Policy
The Policy aims to reduce logistic cost and ease transportation by developing exclusive warehousing zones in public-private partnership(PPP) model. The policy will be framed and implemented by the **National Highways Authority of India (NHAI)**.
The warehouses will be located outside city centres, especially around the land available with NHAI **along highways and expressways**.

These warehouses will house cold-storage chains and will be able to store all kinds of cargo—wet and dry.
As warehouses are expected to come up outside city centres, **large trucks carrying the cargo will not need to enter the city** to unload their goods. This will also help **boost bulk carrying capacity and save fuel**. These large vehicles can also transport more goods compared to the smaller trucks.

Cost efficiency

Warehousing zones will help cut India's logistics cost, which is 14%-16% of gross domestic product (GDP), compared to 8%-10% of GDP in China and 12%-13% in the US.

	GDP per capita (in $)	Warehousing stock (mn sq. m.)	Warehousing stock per capita (sq. m.)
US	55,753	1,446	4.4
UK	43,710	73	1.09
China	8,242	1,060	0.8
India	2,152	30.9	0.02

Source: World Bank, China Logistics Research Association, Knight Frank Research

Impact on logistics cost
Warehousing zones will help **cut India's logistics cost** which is 14%-16% of gross domestic product (GDP) compared to 8%-10% of GDP in China and 12%-13% in the US.
The Government of India is also developing 35 **Multi-Modal Logistics Parks (MMLPs)** to improve the country's freight logistics sector. This will help aid the proposed warehousing policy.

#6 Report on India's Coal Sector

News: NITI Aayog has released a report on India's Coal Sector.

Key findings of the NITI Aayog's report
Coal will remain India's mainstay energy source, and the country will shape global demand this decade. The demand for coal will be led by usage from the electricity sector.
Coal-based thermal power generation will grow in absolute terms for the next decade. However, its **share in the total power generation mix** of the country **will decline** to a 50-55% *(from current 72%)* in the next 10 years. This would be due to increasing share of renewable energy.

India is **unlikely to achieve its target** of 100 GW of solar and 60 GW of wind capacity by 2022. Due to current "surplus capacity" in the system, and their distressed financial situation, the distribution utilities are reluctant to sign fresh power purchase agreements.

Govt should also be **very cautious of adding new coal capacity beyond 2030** as it risks locking in resources. India must **enhance investments in the deployment of clean coal technologies** throughout the coal value chain. Government power utilities must show the way by investing in the deployment of advanced clean coal technologies.

Key findings of the IEA's coal report

The **iron and steel sector will continue to use coal**, as there are not many technologies to replace it immediately.

India's push to domestic coal mining through both Coal India and auction of coal blocks to private companies **will increase** as it plateaus in other parts of the world, including China.

India is set to overtake China as the world's largest metallurgical coal importer.

Metallurgical coal or coking coal is a grade of coal that can be used to produce good-quality coke. Coke is an essential fuel and reactant in the blast furnace process for primary steelmaking.

#7 Plant Variety Protection Certificate

News: The Protection of Plant Varieties and Farmers Rights (PPV&FR) Authority has revoked a PVP (Plant Variety Protection) certificate granted to PepsiCo India Holding (PIH) on a potato variety (FL-2027) on multiple grounds.

About the Issue

Pepsico had a patent for the potato plant variety FL-2027 (commercial name FC-5). For growing this variety, Pepsico had entered into a buyback agreement with farmers. But Pepsico later filed a lawsuit against the farmers for illegally growing, producing and selling the variety without permission of Pepsico.

However, farmers have cited **Section 39** of the **Protection of Plant Varieties and Farmers' Rights (PPVFR) Act, 2001** which specifically says that a farmer is allowed to grow and sell any variety of crop or even seed as long as they don't sell branded seed of registered varieties. Later, Pepsico decided to withdraw lawsuits against the farmers.

An application was filed by an activist at the PPV&FR Authority to revoke the Pepsico certificate on the potato variety The PPV&FR authority revoked the certificate on multiple grounds including the grant of the certificate of registration not being in the public interest.

About Plant Varieties and Farmers' Rights (PPV&FR) Authority

Protection of Plant Varieties and Farmers' Rights (PPV&FR) Authority has been established under PPV&FR (Protection of Plant Varieties and Farmers' Rights) Act, 2001 to grant Intellectual Property Rights to plant breeders, researchers and farmers who have developed plant varieties (new and existing).

Protection of Plant Varieties and Farmers' Rights Act was enacted in 2001 to comply with the World Trade Organization's requirements on laws to protect IPRs(Intellectual property rights) in agriculture.

To remove the apprehensions of the farming community in India regarding the Act, the authority included a chapter making the rights of farmers' paramount over those of breeders. This chapter also promised to protect the traditional practice of reusing and sharing seeds.

Developed countries follow the framework laid out by the International Union for Protection of New Plant Varieties (UPOV) called the UPOV convention.

This convention protects breeders' rights and bars farmers from reusing saved seeds or exchanging them with other cultivators. India has not joined UPOV till date.

International Relations

#1 Global Gateway Plan

News: The European Commission has announced an international infrastructure plan called the "Global Gateway Plan".

hat is the Global Gateway Plan?
The plan aims to invest €300 billion ($340 billion) globally in **infrastructure, digital and climate projects** by 2027. This will help **strengthen health, education and research systems** across the world.
The investment will be made in projects that can be delivered with high standards, good governance, transparency while ensuring financial sustainability at the same time.

Implementation of Gateway Plan
The Plan will be implemented in a Team Europe approach that brings together funding by the EU, its Member States and European financial institutions. The plan will also require buy-ins from international institutions and the private sector as well.

The Plan is considered as an offshoot of the **Build Back Better World (B3W) Initiative**.
The plan is being seen as a European effort to challenge China's Belt and Road Initiative which was launched in 2013 and funds infrastructure projects in the developing world.

#2 Minsk Agreements

News: The United States urged Russia and Ukraine to return to **Minsk agreements** designed to end a separatist war by Russian speakers in eastern Ukraine.

About the Minsk Agreements
Minsk agreements were signed to stop the ongoing conflict between pro-Russian separatists and the Ukraine administration in the **Donbas region of Ukraine**. 2 Minsk Agreements signed.

Minsk I
It was signed by Ukraine and the Russian-backed separatists. Its provisions included prisoner exchanges, deliveries of humanitarian aid and the withdrawal of heavy weapons. However, the agreement broke down with violations by both sides.

Minsk II
It was signed by Russia, Ukraine, the **Organization for Security and Cooperation in Europe (OSCE)** and the leaders of pro-Russian separatist regions. The agreement set out a series of military and political steps that remain unimplemented.

The Economist

About Organization for Security and Cooperation in Europe (OSCE)
Organization for Security and Co-operation in Europe(OSCE) is the world's largest regional security organization. Its mandate includes issues such as arms control, promotion of human rights, freedom of the press, and fair elections.

It consists of 57 participating States from North America, Europe and Asia. Its Secretariat is located in Vienna, Austria.

#3 SIPRI Report on Global Arms Companies

News: Swedish think tank Stockholm Institute Peace Research Institute (SIPRI) has released a report titled "The SIPRI Top 100 arms-producing and military services companies, 2020".

Key findings of the report
Findings Related to India

India's share of arms sales globally in 2020 was 1.2%. 3 Indian companies are among the world's top 100 for combined arms sales in 2020. These three companies are **Hindustan Aeronautics Limited (HAL), Indian Ordnance Factories, and Bharat Electronics Limited (BEL)**.

Of these, the **Ordnance Factory Board (OFB)**, which comprised the Indian Ordnance Factories, has been dissolved and 7 new Public Sector Undertakings were created in its place.

Domestic procurement had helped shield Indian companies against the negative economic consequences of the pandemic.

In 2020, the Indian Government announced a phased ban on imports of more than a hundred different types of military equipment to support domestic companies and enhance self-reliance in arms production.

Other Key Findings
International arms sales have increased even as the global economy contracted by 3.1% during the first year of the COVID-19 pandemic. The USA has the highest number of companies in the top 100 worldwide and accounted for 54% of the Top 100's total arms sales in 2020.

Chinese firms accounted for 13% of the Global Arms sales in 2020 followed by the UK at 7.1 %. Russia and France were fourth and fifth with 5 % and 4.7 % respectively

#4 Mutual Legal Assistance Treaty

News: The Union Cabinet has approved the Treaty on Mutual Legal Assistance in Criminal Matters between the Government of the Republic of India and the Republic of Poland.

About Mutual Legal Assistance
Mutual Legal Assistance is a mechanism whereby countries cooperate with one another in order to provide and obtain **formal assistance in prevention, suppression, investigation and prosecution of crime**.

This ensures that the criminals do not escape or sabotage the due process of law for want of evidence available in different countries.

The Mutual Legal Assistance Treaties (MLATs) in criminal matters are the bilateral treaties entered between the countries for providing international cooperation and assistance.

The Treaty aims to enhance effectiveness of both the countries in investigation and prosecution of crime, through cooperation and mutual legal assistance in criminal matters.

The Ministry of Home Affairs is the Central Authority of India for dealing with requests of mutual legal assistance in criminal matters. The Central Authority transmits and receives all requests for assistance either directly or through diplomatic channels.

About Letters Rogatory

The term *'Letters Rogatory'* is derived from the Latin term *rogatorius.* Letters Rogatory are the letters of request sent by the Court of one country to the Court of another country for obtaining assistance in investigation or prosecution of a criminal matter.

Figure 1.3: Difference between MLA Request and Letters Rogatory		
	Mutual Legal Assistance Request (MLA) Request	**Letters Rogatory (LR)**
Nature	MLA request is made by the Central Authority of India to the Central Authority of another country on the request of the Investigating Officer or Investigating Agency.	LR is issued by the Indian Court on the request of the Investigating Officer or Investigating Agency under Section 166A and Chapter VII A of CrPC.
Scope	MLA Request can only be made to the countries with which India has Bilateral Treaty/Agreement, Multilateral Treaty/Agreement or International Convention.	LRs can be issued to the countries with whom India has Bilateral Treaty/Agreement, Multilateral Treaty/Agreement or International Convention under the same arrangements. Further, LR can also be issued to any other country (with whom India does not have any existing Bilateral Treaty/Agreement, Multilateral Treaty/Agreement or International Convention) on the basis of assurance of Reciprocity.

#5 Autonomous Weapons Systems

News: A report from a UN panel has said that the first autonomous drone attack may have already happened in Libya. Yet, a UN conference in Geneva failed to regulate the use of killer robots on the battlefield.

About Killer Robots

Killer Robots are fully autonomous weapons that would be **able to select and engage targets without meaningful human control**. These weapons fall under **Lethal Autonomous Weapons Systems (LAWS)** which can include weapons that can **use AI and other digital technologies to make decisions on the battlefield. It doesn't include drones, which are manned remotely by pilots**.

Need for a Law on LAWS

(1) Allowing robots to make life-or-death decisions is inhumane and should be banned; **(2)** Killer robots raise the **concern of algorithmic bias**. Data sets are typically flawed and tend to disfavour traditionally disadvantaged groups; **(3)** Killer robots also present challenges for compliance with international humanitarian law's **Proportionality Principle, which prohibits attacks in which expected civilian harm is excessive in comparison to anticipated military advantage**; **(4)** It could also reduce the threshold for war.

India, Russia, and the United States have said that the existing international humanitarian law is sufficient and opposed negotiation of a new legally binding instrument on killer robots.

Environment

#1 World Migration Report

News: The World Migration Report 2022 has been published by the UN.

About the report

World Migration Report is a biennial report published by the "International Organization for Migration" (IOM) **of the UN.** The report quoted the regular **data collation by** the Internal Displacement Monitoring Centre (**IDMC**).

The 2022 report on global migration focuses on **migration caused by climate change induced factors, like extreme disasters and weather events**.

Key findings of the report

More people are now being displaced by disasters due to the changing climate compared to conflicts. It has reversed a historical trend. The data is provided just for displacements due to sudden onset disasters and **displacement due to slow onset disasters and inter-country displacement are not included in it.**

In 2020, 30.7 million new displacements were triggered by disasters in 145 countries and territories. The figure in 2020 has increased despite covid induced containment measures.

-Around 76% of the new displacement in the world was caused by disasters in 2020.

-The Philippines experienced the highest absolute number of new disaster displacements in 2020.

-Most of the new displacement is due to climate-related events: **storms (most displacements), floods, extreme temperatures, and drought**.

Projected displacements

According to the United Nations Convention to Combat Desertification, droughts could lead to the migration of 22 million more in Africa, 12 million in South America, and 10 million in Asia by 2059 (in comparison to the 2000-2015 period).

#2 Springshed Management

News: NITI Aayog has released a Resource Book on Springshed Management in the Indian Himalayan Region (IHR). This Resource Book is a summarised guiding document on best practices in Springshed management in the IHR.

About Springs

Springs are groundwater discharge points in the mountains where the water-bearing layers (aquifer) intersect with the ground surface and water seeps out of rock pores, fissures, fractures, or depressions.

Importance of Springs: Springs are the primary water source for millions of people in the mid-hills of the Hindu Kush Himalayas (HKH) and supply over 90% of water needs for domestic uses.

Concerns

Over the past decade or so, there has been **increasing concern that springs are drying up or becoming seasonal**, and their discharge is reducing over the years.

The seasonal and overall decline in springs has **affected both domestic water availability in remote villages as well as agricultural productivity**.

However, in recent decades, **spring revival efforts using the principles of hydrogeology** have become a widely accepted model of Springshed Management (SM) by several civil society organisations (CSOs) and governmental agencies in the Himalayas.

Recommendations by the Report

Formation of National Springs Mission (NSM): A National Mission will facilitate improved coordination, efficient execution and scaling up of springshed management initiatives in India

Create a national digital database on spring-related data collected by various agencies. This will improve ease of access and academic research.

Create support for existing, state and national-level science-policy-practice consortiums. This will facilitate experience sharing, complementary knowledge generation, transfer, and capacity building of all stakeholders.

#3 Project RE-HAB

News: Khadi and Village Industries Commission (KVIC) has launched Project RE-HAB (Reducing Elephant-Human Attacks using Bees) in Assam.

About Project RE-HAB

Project RE-HAB is a sub-mission of KVIC's **National Honey Mission.**

Under this Project, "Bee-fences" are created by setting up bee boxes in the passageways of elephants to block their entrance to human territories.

The boxes are connected with a string so that when elephants attempt to pass through, a tug or pull causes the bees to swarm the elephant herds and dissuade them from progressing further.

Project Launch

Project RE-HAB was earlier launched in Kodagu district of Karnataka in March 2021. In just 6 months, this project has reduced elephant attacks by over 70%.

Significance of the Project

The project is a cost-effective way of reducing human-wild conflicts without causing any harm to the animals.

It is scientifically recorded that elephants are annoyed by the honey bees. Elephants also fear that the bee swarms can bite their sensitive inner side of the trunk and eyes. Hence, this project will force elephants to return and prevent Elephant – Human Conflicts.

#4 Radioactive Pollution in Water

News: Water pollution has been a concern since many decades. Radioactive pollution of water is newly emerging threat

Radioactivity and Radioactive Pollution

Radioactivity is the phenomenon of spontaneous emission of radiation from the unstable nuclei of some elements.

Causes of radioactive pollution

Natural causes: Percolation of **naturally occurring radioactive materials** (NORM) from the soil to the aquifer causes groundwater contamination.

Anthropogenic sources: These can be divided into two types: **(a) Major sources** - Nuclear reactors and nuclear warhead experiments, Nuclear submarines, nuclear power houses (which also use water as a coolant) and dumping of radioactive waste; **(b) Minor sources:** Application of radioisotopes in industries and scientific laboratories,

Dumping of these radioactive wastes in surface waterbodies causes water pollution. However, radioactive contamination is more prevalent in groundwater as compared to surface water since it is much exposed to radioactive elements found in the rocks.

Impact on human health

Small amount of radiation is found in all types of water but the extended amount of radiation is harmful to human health; **(a) Immediate consequences**: Distressing skin, lungs, genitals, and causing hair fall; **(b) Long term effects**: Exposure to radiation causes various disorders in human physiology, including cancer, leukaemia, genetic mutations and chromosomal disruption etc.; **(c) Hereditary disorders:** Ionizing radiation induces mutations in germ cells resulting in structural alteration in germ cell DNA that are passed on to offspring.

Treatment methods like **aeration, reverse osmosis, ion exchange and granule carbon adsorption** are **effective remedial measures** for treating the radioactive contaminated water.

#5 Carbon Footprint of Plastic

News: A study conducted by ETH Zurich (a public research university in Switzerland) has shown that the impact of plastic on climate and health is greater than previously thought due to the increased use of coal.

Key findings of report

(1) Plastic production accounted for the 96% of the Particulate matter health footprint. Health Footprint is the amount of health resources that are consumed by a particular process or substance; **(2)** Global carbon footprint of plastic has doubled since 1995, accounting for 4.5% of global greenhouse gas emissions; **(3)** Developing countries like China, Indonesia and South Africa, were among the major producers of plastic and thus suffered from 75 percent of particulate matter-related health impacts; **(4)** Study also showed that about

half of this emission comes from coal used during the production of plastic; **(5)** Fine particulate air pollution from plastic production caused approximately 2.2 million disability-adjusted life years (DALY). **DALY is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death.**

Impact of plastic production on health
Coal burned during plastic production produces particulate matter that accumulates in the air. Particulate pollution is a mixture of soot, smoke, and tiny particles formed in the atmosphere from sulfur dioxide (SO2), nitrogen oxides (NOx) and ammonia (NH3). It is highly harmful and can cause asthma, bronchitis and cardiovascular disease.

#6 Household Bio-mass as Polluter

News: Biomass burning despite being a major polluter does not receive the attention it needs. An analysis by think tank Centre for Policy Research also shows that even in parliamentary debates on pollution, household biomass burning is discussed much less than stubble burning.

Biomass burning as a major polluter
Biomass burning by households for cooking and heating needs in winters is responsible for up to 40% air pollution in the NCR. Problem of indoor pollution is not limited to the NCR and winter alone. Various databases show that indoor pollution has a 27 to 49% share in India's total annual PM2.5 emissions.
Analysis by think tanks like TERI shows that the household emissions are the largest contributor to PM 2.5.

Impact on health
According to Global Burden of Disease Study 2019, **biomass burning kills around 6 Lakh Indians prematurely every year**, by far the most for a country. Household air pollution causes 36% of all deaths due to air pollution.

Energy Poverty
Energy poverty is **lower penetration and usage of clean cooking fuel**. According to National Family Health Survey (2019-21) nearly 41% households in India, mainly in rural areas and poorer eastern states, still don't use clean fuel for cooking. This is despite close to universal coverage of the Ujjwala scheme.
Another analysis by Council on Energy, Environment and Water (CEEW) showed that nearly 88% of households surveyed in energy-poor states reported having an LPG connection, but only 55% exclusively used it for cooking. States which have poor coverage of clean cooking fuel also see greater contribution of domestic biomass towards PM2.5 emissions, said the HEI report.
Solid fuel is easily available and is also used for space heating purposes by poorer households. This may also prompt them to use it for other purposes like cooking.
There is a need to create more awareness about the health implications and behavioural change towards sustainable heating methods such as LPG or electricity.

Science and Technology

#1 Developments in Nuclear Fusion Technology

News: Physicists at the National Ignition Facility, Lawrence Livermore National Laboratory, in Livermore California, claim to have generated nearly as much energy as they put into an inertial confinement system. This is breakthrough development in nuclear fusion process.

Nuclear Fusion
In a fusion reaction, two light nuclei merge to form a single heavier nucleus. The process releases energy because the total mass of the resulting single nucleus is less than the mass of the two original nuclei. The leftover mass becomes energy. Fusion is not the same as **fission. In fission, the nucleus of an atom splits into**

two or more smaller nuclei, releasing the vast amounts of energy holding them together, thus powering nuclear reactors and thermonuclear bombs.

Advantages of Nuclear Fusion

Nuclear fusion is a potentially inexhaustible source, and it has no dangerous side effects.

Fusion causes no poisonous radiation. There are no emissions of carbon compounds, or any other pollutants.

Challenges associated with Nuclear Fusion process

Triggering fusion reactions requires temperatures of 100 million degrees Celsius, and pressures of 100 billion Earth atmospheres.

Currently nuclear fusion process is triggered by nuclear fission process. However, this process is very destructive, as the fission explosion also releases lethal radiation that may last for millennia. A more usable form of fusion would require a less destructive trigger, and it would release fusion energy in a controlled, usable format.

Options available to make nuclear fusion sustainable

Magnetic confinement designs/Tokamak's magnetic fields: It creates a very powerful magnetic field, which confines the fusion material.

Inertial confinement: In this process, fusion material is stored inside a physical capsule, which is squeezed.

However, creating a **Tokamak**'s magnetic fields and sustaining it, or bombarding an inertial containment capsule, takes **large amount of energies**. In this context, the recent breakthrough that claims to have generated nearly as much energy as they put into an inertial confinement system holds significance.

#2 Phage Therapy

News: Antibiotics have long been preferred method of treatment. But, the indiscriminate use of antibiotics has resulted in the emergence of antibiotic resistance, a worldwide health concern. There is a need for better alternative and Phage Therapy offers an opportunity to design customised treatment for every individual and every disease.

About Phage Therapy

A bacteriophage is a type of virus that infects bacteria. "Bacteriophage" literally means "bacteria eater," because bacteriophages destroy their host cells (bacteria).

Phage Therapy is a treatment protocol that involves administration of **specific bacteriophage viruses** to persons suffering from identified bacterial diseases. It has been proved successful against a range of diseases, from bubonic plague to cholera and dysentery. However, owing to the advantages of Antibiotics over Phage therapy, the research in to latter has been restricted to a few countries.

Advantages of Antibiotics over Phage therapy

Unlike bacteriophages that are specific, antibiotics are effective across a broad spectrum of infections, making them easy to administer even if the exact pathogen has not been identified.

Antibiotics are used for a wide range of purposes, from curing disease to speeding up the growth of livestock.

Issues/concerns associated with the antibiotics

Over-reliance on Antibiotics has given rise to the phenomenon of **antibiotic resistance**. The World Health Organization had established a global action plan on antimicrobial resistance (AMR). FAO has also launched an Action Plan on AMR (2021-2025).

A report by the US Center for Disease Control suggests that in the US alone, more than 2.8 million antibiotic-resistant infections occur each year, resulting in more than 35,000 deaths.

In India, antibiotic resistance has led to the **rise of superbugs,** diseases seemingly resistant to multiple drugs.

Renewal of Phage Therapy

Bacteriophages have targeted effectiveness and these treatments have relatively fewer side effects and almost always result in a cure.

With advances in genetic sequencing, it is now easier than ever before to identify infection-causing pathogens.

Advances in genetic sequencing have also made it possible for us to harvest phages from cured patients, giving a relatively unlimited supply of therapeutic material.

Issues with shifting to phage therapy

Massive centralized facilities should be replaced by **decentralized repositories of bacteriophages.**

A virus that is effective against one strain of disease in Europe could well be ineffective against another strain of the same illness in India. So, **phage therapy needs to be developed locally**.

This will also require **re-training of medical professionals** to focus on accurately diagnosing specific pathogens.

#3 Laser Communication Relay Demonstration (LCRD)

News: NASA has launched its new Laser Communications Relay Demonstration (LCRD).

About Laser Communications Relay Demonstration (LCRD)

LCRD is NASA's first-ever laser communications system. It has been launched to help demonstrate the benefits of space-to-ground laser communications also called optical communications. The LCRD payload is hosted onboard the US Department of Defense's Space Test Program Satellite 6 (STPSat-6). It will be in a **geosynchronous orbit** over 35,000 km above Earth.

Location of the Laser Systems: Unlike radio frequency communications, optical signals cannot penetrate cloud coverage. LCRD will transmit data to two ground stations, located in California and Hawaii. These locations were chosen for their minimal cloud coverage.

Significance: Currently, most NASA spacecraft use radio frequency communications to send data. But with the LASER communications capability further proven, NASA can start to implement laser communications on more missions, making it a standardized way to send and receive data.

Difference between Laser vs Radio Communications

Laser communications and radio waves use different wavelengths. The laser uses infrared light and has a shorter wavelength than radio waves. This will help the transmission of more data in a short time.

It would take roughly nine weeks to transmit a completed map of Mars back to Earth with current radio frequency systems. With lasers, it can accelerate that to about nine days. Using lasers, LCRD can send data to Earth at 1.2 gigabits-per-second (Gbps).

Optical or Laser communication systems are smaller in size, weight, and require less power compared with radio instruments. A smaller size means more room for science instruments. Less weight means a less expensive launch. Less power means less drain on the spacecraft's batteries. Hence, LCRD enabled missions will have unparalleled communications capabilities.

#4 Green Hydrogen Micro-grid

News: NTPC has awarded a project of "Standalone Fuel-Cell based Micro-grid with hydrogen production using an electrolyser in NTPC Guest House at its Simhadri plant in Andhra Pradesh.

About Green Hydrogen Microgrid Project

It is India's first Green Hydrogen based Energy Storage Project.

Under this project, hydrogen would be produced using the advanced 240 kW Solid Oxide Electrolyser by taking input power from the nearby Floating Solar project. The hydrogen produced during sunshine hours would be stored at high pressure and would be electrified using a 50 kW Solid Oxide Fuel Cell.

The system would work in standalone mode from 5 pm to 7 am.

Significance of the project

The project would open doors for decarbonising the far-off regions of the country like Ladakh, J&K etc, which as of now are dependent on diesel generators.

The project is in-line with the vision of the Government for becoming carbon-neutral by 2070 and making Ladakh a carbon-neutral territory.

#5 Diabetes Atlas

News: The 10th edition of the International Diabetes Federation Diabetes Atlas has been released.

About International Diabetes Federation (IDF) Diabetes Atlas

IDF Diabetes Atlas is the authoritative resource on the global impact of diabetes. The atlas was first published in 2000. The Atlas is produced by the International Diabetes Federation (IDF) in collaboration with a committee of scientific experts.

Key findings of IDF Diabetes Atlas

Diabetes is one of the **fastest-growing global health emergencies** of the 21st century.

In 2021, **one in 10 adults worldwide,** which means around 537 million people **are now living with diabetes.** This is higher than the 463 million adults who lived with the condition in 2019.

Undiagnosed Diabetes: Globally, 88% of adults living with undiagnosed diabetes are in low- and middle-income countries. But even in high-income countries, almost a third of (29%) people with diabetes have not been diagnosed.

Deaths due to Diabetes: Diabetes now ranks among the top 10 causes of global mortality, responsible for an estimated 6.7 million deaths in 2021.

Future Projections on Diabetes: The Atlas projects that 783 million adults will be living with diabetes by 2045. That's an estimated 46% increase compared to the expected population growth of 20% over the same period.

About Diabetes

Diabetes is a serious chronic condition that occurs when the body cannot produce enough insulin or cannot effectively use the insulin it does produce.

Type 1 diabetes is the major type of diabetes in childhood but can occur at any age. It cannot be prevented. People with type 1 diabetes require insulin to survive.

Type 2 Diabetes accounts for the vast majority (over 90%) of diabetes worldwide. Evidence exists that **type 2 diabetes can be prevented or delayed** and there is accumulating evidence that remission of type 2 diabetes may sometimes be possible.

#6 James Webb Telescope

News: NASA launched the James Webb Telescope on 24th December 2021.

About the James Webb Telescope

James Webb Telescope is an international collaboration between NASA, European Space Agency(ESA), and the Canadian Space Agency. The telescope is considered the **successor of the Hubble Space Telescope**. The telescope will be launched on an **Ariane 5 ECA rocket.**

The telescope will be situated near the **second Lagrange point of the Earth-Sun** system, which is around 1,500,000 km from Earth and directly opposite the Sun.

Purpose of the James Webb Telescope

The telescope will be able to look back over 13.5 billion years to see the first stars and galaxies of the early universe. The telescope will allow: **(1)** Look deeper into our solar system than ever before; **(2)** Give a clearer view of exoplanets in the solar system; **(3)** Help understand how the universe was formed; **(4)** Help to get a detailed atmospheric characterisation of potentially habitable exoplanets.

Working of the Telescope

The telescope works in the **infrared spectrum**, collecting infrared light from the object it is focused on. Infrared light is electromagnetic radiation with longer wavelengths than visible light. This trait would help it look farther back in time more effectively than other telescopes. It will also help scientists look into the atmosphere of stars, which is usually shrouded with dust and gas during formation. Infrared light can easily penetrate through such cosmic dust and gas.

Challenges associated with the James Webb Telescope

One of the biggest challenges is that once the telescope is deployed, it will be almost impossible to make any physical repairs on it.

In contrast, the **Hubble Space Telescope** could be repaired as it orbits Earth at an altitude of 570 km above it. On the other hand, the Webb will be roughly 1.5 million kilometres away.

History, Art and Culture

#1 NIF Book Prize: *Naoroji: Pioneer of Indian Nationalism*

News: Dinyars Patel's biography '*Naoroji: Pioneer of Indian Nationalism*' won the Kamaladevi Chattopadhyay NIF Book Prize 2021.

Facts about Dadabhai Naoroji

He was an Indian nationalist, educationist, first Indian MP in British Parliament, an Economist, a mentor and belonged to the Parsi community.

As an educationist: He began his career as a professor and work towards equality and state-supported universal education.

As a British MP: He used the British institution to fulfil Indian interests. He passed a resolution in British Parliament to bring reforms in the Indian Civil Service.

As an Economist: Dadabhai Naoroji put forward the '**drain of wealth**' theory in which he stated that the Britain were draining Indian Economy. He calculated that the British drain one-fourth of India's revenue every year. His theory facilitated alliance with other anti-imperialists and socialists. Karl Marx briefly dabbled with the idea of the drain of wealth. Socialists like Henry Hyndman applied it in their critiques of capitalists.

As a mentor: He mentored Gopal Krishna Gokhale, Pheozesha Mehta, Romesh Chunder Dutt and other leaders.

For his contribution, he is described as the "**Grand Old Man of India**".

Naoroji stuck only to constitutionalist politics, while things changed after World War I.

Before the 1920s, advocating self-government for India was a radical idea while this is not the same case after the 1920s. In the 1920s, nationalism changed fundamentally, after the arrival of Mahatma Gandhi.

NIF Book Prize

The New India Foundation has been awarding the annual Kamaladevi Chattopadhyay NIF Book Prize for the best non-fiction book on modern/contemporary India published in the previous year. This prize is named to honour the legacy of Kamaladevi Chattopadhyay.

Kamaladevi Chattopadhyay (1903-1988)

She was a freedom fighter who contributed significantly to the Indian freedom struggle, the women's movement, theatre resurgence, refugee rehabilitation and the renewal of handicrafts.

Several cultural institutions in India today exist because of her vision, including the **National School of Drama, Sangeet Natak Akademi, Central Cottage Industries Emporium, and the Crafts Council of India**.

#2 Raigad Fort

News: The President of India recently paid visit to the Raigad Fort in Maharashtra. The Maharashtra Government is seeking the World Heritage Site tag for Raigad Fort along with 13 other forts from the era of 17th century Maratha king Chhatrapati Shivaji Maharaj on the theme of **Maratha Military Architecture** in Maharashtra.

About Raigad Fort

Raigad is a hill fort situated in the Raigad district in Maharashtra. The British Gazette states the fort was known to early Europeans as the **Gibraltar of the East**.

Its decisive feature is a mile and a half flat top, which has adequate room for buildings. In its prime, the fort had 300 stone houses and a garrison of 2,000 men.

Importance of Raigad Fort

The fort, which was earlier called Rairi, was the seat of the Maratha clan Shirke in the 12th century.

The fort changed hands a number of times from the dynasty of Bahaminis to the Nizam Shahis and then the Adil Shahis.

In 1656, Chhatrapati Shivaji captured it. The fort not only helped Shivaji challenge the supremacy of the Adil Shahi dynasty but also opened up the routes towards Konkan for the extension of his power.

Raigad fort had emerged as the seat of Shivaji's government.

Shivaji was coronated at Raigad by Gagabhatt where he took on the title of Chhatrapati.

#3 'Intangible Cultural Heritage of Humanity' Status to Durga Puja

News: The **Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage** has inscribed 'Durga Puja in Kolkata' on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity.

With the inscription of Durga Puja, India now has 14 intangible cultural heritage elements on the prestigious UNESCO Representative List of ICH of Humanity.

About Durga Puja Festival

Durga Puja is an annual festival celebrated in September or October, most notably in Kolkata, West Bengal.

The festival marks the **ten-day worship** of the Hindu mother-goddess Durga.

In the months preceding the festival, **small artisanal workshops sculpt images of Durga** using unfired clay pulled from the Ganga River.

The worship of the goddess then begins on the **inaugural day of Mahalaya** when eyes are painted onto the clay images to bring the goddess to life.

It **ends on the tenth day**, when the images are immersed in the river from where the clay came. Thus, the festival has also come to signify 'home-coming' or a seasonal return to one's roots.

The festival is also characterized by **large-scale installations of Goddess Durga** in 'pandals' and pavilions where people get together. Folk music, culinary, craft and performing arts traditions are also part of the celebration.

Durga Puja is seen as the **best instance of the public performance** of religion and art, and as a thriving ground for collaborative artists and designers.

During the festival, the **divisions of class, religion and ethnicities also collapse** as crowds of spectators walk around to admire the installations.

Miscellaneous

#1 Global Health Security Index

News: The Global Health Security Index 2021 has been released.

About Global Health Security Index (GHSI)

GHS is the first comprehensive assessment and benchmarking of health security and related capabilities across 195 countries. **It is published by** Nuclear Threat Initiative (NTI) and the Johns Hopkins Center for Health Security. The report was developed with Economist Impact.

Its aim is to spur measurable changes in national health security and improve the international capability to address one of the world's most omnipresent risks: infectious disease outbreaks that can lead to international epidemics and pandemics.

Indicators: The Index assesses countries across 6 categories, 37 indicators, and 171 questions. The six categories are:

Prevention: Prevention of the emergence or release of pathogens.

Detection and Reporting: Early detection and reporting of epidemics of potential international concern.

Rapid Response: Rapid response to and mitigation of the spread of an epidemic.

Health System: Sufficient and robust health system to treat the sick and protect health workers.

Compliance with International Norms: Commitments to improving national capacity, financing plans to address gaps, and adhering to global norms.

Risk Environment: Overall risk environment and country vulnerability to biological threats

Scoring: The overall score (0–100) for each country is a weighted sum of the six categories, in which 100 represents the most favorable health security conditions and 0 represents the least favorable conditions.

Key findings of the index

Global findings: The world's overall performance on the Index score slipped to 38.9 (out of 100) in 2021 from a score of 40.2 in 2019.

In 2021, no country scored in the top tier of rankings and no country scored above 75.9.

Around 73% of countries did not have the ability to provide expedited approval for medical countermeasures, such as vaccines and antiviral drugs, during a public health emergency.

Close to 79% of the countries assessed had not allocated national funds within the past three years to improve their capacity to address epidemic threats.

Around 65% of assessed countries had not published and implemented an overarching **national public health emergency response plan** for diseases with epidemic or pandemic potential.

Findings related to South Asia: In South Asia, India with a score of 42.8 (out of 100) has slipped by 0.8 points since 2019. But three neighbouring countries — Bangladesh, Sri Lanka and the Maldives — have improved their score.

Thus, based on these findings, the report concluded that the **world remains completely unprepared for future epidemic and pandemic threats**.

Pointly

1. **G20 Troika**: India has joined the **G20 'Troika'**. Troika refers to the top grouping within the G20 that consists of the current, previous and incoming presidencies. At present, Troika consists of Indonesia (2022), Italy (2021), and India (2023). Indonesia has assumed the G20 Presidency from Italy and will convene the G20 Leaders' Summit in October 2022 under the overall theme of "Recover Together Recover Stronger".
   India will assume the G20 Presidency on December 1, 2022, from Indonesia and will convene the G20 Leaders' Summit for the first time in India in 2023.

2. **Barbados as the Newest Republic:** Barbados has become a republic and has removed Queen Elizabeth II as the head of the State. Barbados first became an English colony in 1625. Barbados gained independence on November 30, 1966 with Elizabeth II as Queen of Barbados. **It will continue to be one of the 54 Commonwealth nations**. The terms "royal" and "crown" would now be dropped from all official references.

3. **Nairobi Declaration**: The **Nairobi Declaration** was adopted by African nations in November 2021. It underlined the need to deliver commitments on the **Programme of Action (PoA) for implementing the Sendai Framework in Africa**. The declaration was adopted at the **Eighth Africa Regional Platform for Disaster Risk Reduction** that took place in Nairobi, Kenya, on November. Nairobi declaration will contribute to the Global Platform for DRR scheduled to be held in May 2022, in Indonesia.

4. **Global Methane Initiative:** It is an international public-private initiative launched in 2004. Its aim is to achieve a **global reduction in anthropogenic methane emission** through a partnership among developed and developing countries. It is a voluntary Government and an informal international partnership having members from 45 countries including the United States and Canada. **India has been one of the members since its inception**. India has taken up Vice-Chairmanship for the first time in the Steering Leadership along with the USA.

5. **The Lesser Florican** (*Sypheotides indicus*): It is also known as the *likh* or *kharmore* and is the smallest in the bustard family. The bird is **endemic to the Indian Subcontinent** (found in tall grasslands). In India, the bird is observed in Rajasthan, Madhya Pradesh, Gujarat and some other regions during the monsoon season when it breeds and later disappears with its chicks to unknown places. Its **IUCN Status** is Endangered. It falls in Schedule I of the **Wildlife Protection Act,1972** and Appendix II of the **CITES.** The bird is threatened both by hunting and habitat degradation.

6. **Indian Desert Cat**: An **Indian desert cat** has been spotted for the first time in Madhya Pradesh's Panna Tiger Reserve (PTR). Indian Desert Cat is also known as the **Asian steppe wildcat and Asiatic Wildcat. The cat is considered as a subspecies of African Wildcat**. It is mostly found in Kazakhstan, Western India (Thar Desert), China and Mongolia. The cat has also been found in Nauradehi Wildlife Sanctuary in Madhya Pradesh and Mirzapur forests. It has been classified as Least Concern under the **IUCN Red List.**

7. **'Chocolate-bordered Flitter' Butterfly:** A team of researchers have discovered a new **butterfly species in Dzongu, North Sikkim** and have named it **'Chocolate-bordered Flitter'** (*Zographetus Dzonguensis*). It is a golden yellow butterfly. It has been named so as it has a **chocolate coloured border around both wings**. The **closest relatives of this butterfly** are found in Guangdong and Hainan, in **south-eastern China**.

8. *Issi saaneq* **Species of Dinosaurs**: Researchers have unearthed two well-preserved dinosaur skulls during an excavation in East Greenland. They have named the species as *Issi saaneq*. It lived about 214 million years ago in what is now Greenland. It was a medium-sized, long-necked herbivore and a **predecessor of the sauropods**. The name means means "coldbone" in **Greenland's Inuit language**. This is the first evidence of a distinct Greenlandic dinosaur species.

9. **Cause of Elephant Deaths**: According to report shared by the MoEFCC; around 1,160 elephants were killed in the country for reasons other than natural causes between 2011-20. **Electrocution claimed the most of the lives of Elephants.** This was followed by **Train Hits, Poaching and Poisoning**. Odisha stood first in the highest number of Elephant deaths due to poaching.

10. **Physella acuta:** It is a snail species. Although native to North America, it is now found in all continents except Antarctica. It is also known as **acute bladder snail**. It has been found in Edappally canal in Kochi, Kerala. This snail species is a **Highly Invasive Species**. It is believed to have reached Kerala through the **aquarium trade, a major vector for invasive species**.

11. **Indian flapshell turtle** (*Lissemys punctata*): It is a **freshwater species of turtle** found in South Asia. They are found in Pakistan, India, Sri Lanka, Nepal, Bangladesh **(Indus and Ganges drainages),** and Myanmar **(Irrawaddy and Salween Rivers)**. They live in rivers, streams, marshes, ponds, lakes and irrigation canals, and tanks. They are also **well adapted to drought conditions.** They are known to be **omnivorous.** Their **IUCN Status** is Vulnerable.

12. **Ambergris:** It is a solid, waxy, flammable substance produced in the **digestive system of sperm whales**. It is very valuable and is called **floating gold**. Ambergris is produced only by an estimated 1% of sperm whales. Ambergris is **used to produce perfumes**. There are also records of it being used to flavor food, in alcoholic beverages and tobacco in some cultures in the past. Ancient Egyptians used it as **incense**. It is also believed to be used in some **traditional medicines**. **There is a ban on possession and trade of ambergris** in countries like the USA, Australia and India. The sperm whales are a protected species under **Schedule 2 of the Wildlife Protection Act.**

13. **Wildlife Crime Control Bureau (WCCB):** Between 2018 and 2020, about 2,054 cases were registered for **killing or illegal trafficking of wild animals** in India. The cases have been registered by the Wildlife Crime Control Bureau (WCCB). It is a **statutory body** established by the Government of India under MoEFCC to combat organized wildlife crime in the country. It assists the Customs authorities in inspection of the consignments of flora & fauna as per the provisions of the **Wild Life Protection Act,** CITES and EXIM Policy governing such an item. It has been created under the **Wild Life (Protection) Amendment Act, 2006**.

14. **Special Operations launched by the WCCB**:
Operation Save Kurma: It focuses on the poaching, transportation and illegal trade of live turtles and tortoises. Kurma means turtle in Sanskrit.
Operation Turtshield: It was taken up to tackle the illegal trade of live turtles.
Operation Softgold: To tackle illegal trade in Shahtoosh shawls. Soft Gold refers to soft underfur of the Tibetan antelope, also known as the *Chiru*. Shahtoosh shawls are made from Chiru wool.
Operation LESKNOW: To bring the attention of the enforcement agencies within the country towards the illegal wildlife trade in lesser-known species such as Deer, Wild Boar, Jackal, Mongoose, Monitor Lizard, Sea cucumber and Pangolin.
Operation Clean Art: To drag the attention of enforcement agencies towards illegal wildlife trade in Mongoose hairbrushes**.** Paint Brushes made of mongoose hair are preferred because they are **superior and hold colour better,** hence the name Clean Art.
Operation THUNDERBIRD: It concentrated mainly on illegal trade in species such as Tigers and other Asian big cats, Bears, Pangolins, Reptiles, Red Sanders, Sea-cucumber and seahorses.
Operation Birbil: To curb illegal trade in wild cat and wild bird species.
Operation Wildnet: It was aimed to draw the attention of the enforcement agencies within the country to focus their attention on the ever-increasing illegal wildlife trade over the internet using social media platforms.
Operation Freefly: It was conducted to check the illegal trade of live birds.
Operation Wetmark: It was taken up to ensure the prohibition of the sale of meat of wild animals in **wet markets** across the country.

15. **Earth's Black Box**: A steel structure known as 'Earth's Black Box' will soon record rising temperature trends as well as other information related to climate change. It **will be constructed in Tasmania**, Australia and completed in early 2022. This location was chosen for its geopolitical and geological stability. The box will be filled with a **mass of storage drives having internet connectivity**, all powered by solar panels. It will collect daily metrics including average oceanic and land temperatures, atmospheric carbon dioxide concentration and biodiversity loss.

16. **Verkhoyansk, Russia - Highest recorded temperature in the Arctic: The World Meteorological Organization** (WMO) has confirmed that **Verkhoyansk** in Siberia experienced the highest ever recorded temperature of 38ºC, **in the Arctic region.** This place falls in eastern Siberia, which has an extremely harsh dry continental climate (very cold winter and hot summer). In February 2020, **Esperanza in Argentina** (considered part of Antarctic region) recorded 18.3°C. These events indicate that the region in and around both Arctic and Antarctic is being warmed gradually.

17. **Arctic Amplification**: Arctic region is **warming at twice the rate than the rest of the world**, mainly because of human-made greenhouse gas emissions. The increased rate of warming is because of Arctic amplification. Arctic amplification is the process in which the **melting ice hastens the process of warming by exposing areas that are not good at reflecting back heat into the atmosphere**. This creates a cycle between melting ice and rising temperatures, amplifying the impact of warming.

18. **Neurocysticercosis** (NCC): It is a **zoonotic disease**. It is a neurologic infection caused when a human consumes meat from or comes in contact with a pig infected with tapeworm. The eggs of the tapeworm invade the muscles of the human body to make cysts. Sometimes these cysts get into people's brains, **triggering epileptic seizures, headaches, difficulty with balance and excess fluid around the brain**. Those with NCC cannot spread the disease to other people.

19. **Canine Parvovirus:** It is a highly contagious **viral disease** that can be life-threatening in puppies and dogs. The virus impacts dogs gastrointestinal tracts and has a 90% mortality rate. The virus spreads through direct contact with an infected dog or by indirect contact with a contaminated object, including the hands and clothing of people who handle infected dogs. Parvovirus has no cure, and vaccinating a puppy or a dog gives them a fighting chance against the infection.

20. **Exercise EKUVERIN:** The 11th Edition of Exercise EKUVERIN between **India & Maldives** will be conducted at Kadhdhoo Island, Maldives. Exercise Ekuverin (meaning 'Friends' in the Maldivian language) has been conducted since 2009. The exercise is held **alternatively in India and Maldives. Exercise Dosti** is a Biennial Trilateral Coast Guard Exercise between India, Maldives, and Sri Lanka.

21. **PANEX-21**: The **Indian Army** is organizing an exercise named PANEX-21 for the **member nations of Bay of Bengal Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) countries** (Bangladesh, Bhutan, Nepal, Sri Lanka, Myanmar, Thailand and India). It is a multi-nation **Humanitarian Assistance and Disaster Relief (HADR)** exercise. Its aim is to foster joint planning and build regional cooperation for responding to natural disasters.

22. **VL-SRSAM**: India has successfully test-fired the **Vertically Launched Short Range Surface to Air Missile (VL-SRSAM)** from Integrated Test Range (ITR) in Chandipur, Odisha. It has been indigenously designed and developed by DRDO for the **Indian Navy**. It is meant for neutralizing various aerial threats at close ranges including sea-skimming targets. **Sea skimming is a technique of flying as close as possible to the sea surface to avoid being detected by the radars onboard warship**s. The missile has an operational range of 50 to 60 km. It also features **mid-course inertial guidance** through fiber optic gyroscope and active radar homing in the terminal phase.

23. **Agni P Missile**: DRDO has successfully tested the '*Agni P* Missile from Dr APJ Abdul Kalam island. *Agni P* is a new generation **nuclear capable Surface To Surface ballistic missile**. It has a range capability between 1,000 and 2,000 km. The missile is a two-stage canisterised solid propellant ballistic missile with navigation and guidance system. **Canisterisation** of missiles reduces the time required to launch the missile while improving the storage and ease of handling.

24. **Stand-off Anti-Tank (SANT) Missile**: DRDO and the Indian Air Force (IAF) flight have successfully tested helicopter-launched **Stand-off Anti-Tank (SANT) missile.** It is an **indigenously designed and developed air-to-surface missile**. The missile is equipped with millimetre wave (MMW) seeker, which provides **high precision strike capability** from a safe distance of 10km.

25. **Supersonic Missile Assisted Torpedo (SMART)**: India has successfully test-fired a long-range **Supersonic Missile Assisted Torpedo (SMART)** from Wheeler Island in Odisha. **Torpedoes are self-propelled weapons that travel underwater** to hit a target. Torpedoes have a short range. To overcome that, the DRDO has developed the SMART system.

In a SMART system torpedo is **launched from a supersonic missile system** with some modifications that **enhance its range to excess of 1000 km**. It is a **canister-based missile system** which reduces the time required to launch the missile while improving its storage and mobility. It consists of advanced technologies *viz.* two-stage solid propulsion, electro-mechanical actuators and precision inertial navigation.

26. **Pinaka-ER:** It is a **multiple rocket launcher**. It is used for attacking the adversary targets prior to the close-quarter battles. **Pinaka-ER** is the **upgraded version** of the Pinaka. The system has been jointly designed by laboratories of DRDO and **High Energy Materials Research Laboratory (HEMRL), Pune**. The extended range of the new Pinaka is over 70 km, compared to 45 km earlier. It has accuracy of 10m allowing the army to destroy a terrorist camp, or an enemy post, logistics dump or headquarters without needing to send soldiers across the border.

27. **ASIGMA**: The Indian Army has launched a contemporary messaging application named **ASIGMA (Army Secure IndiGenous Messaging Application)**. It is **web-based communication platform** developed by Corps of Signals of the Army to meet **real-time data transfer and messaging requirements** of the Army. ASIGMA will replace the Army Wide Area Network (AWAN) messaging application. The app has a variety of features including multi-level security, message prioritisation and tracking and a dynamic global address.

28. **Mi-17V5:** It is a **Russian-made helicopter** produced by Kazan Helicopters and was inducted into the IAF in 2012. It has **maximum speed of 250 km per hour and a maximum takeoff weight of 13,000 kg**. It can transport either 36 armed soldiers or 4,500 kg of load. The helicopter has the capability to land on unprepared sites at night and in adverse weather conditions. This helicopter is also used by the air forces of nearly 60 countries.

29. **Pralay:** It is a **surface-to-surface conventional quasi-ballistic missile**. The main aim of the missile is to **defeat interceptor missiles. Quasi missile trajectory is also ballistic but after a certain range it changes the projectile path to defeat interceptors**. The missile has a **range of 150-500 kilometres**. It has a payload capacity of 500-1,000 kg. The missile is powered by a solid-propellant rocket motor. The missile guidance system includes state-of-the-art navigation and integrated avionics. The missile is based on the Prithvi missile.

30. **CADS-500 (Controlled Air Delivery System):** It has been **developed by Aerial Delivery Research and Development Establishment (ADRDE)**, Agra (under DRDO). It is used for **precise delivery of payloads up to 500 kgs at a predetermined location** by making use of manoeuvrable capabilities of the **Ram Air Parachute (RAP)**. It uses GPS for the coordinates, altitude and heading sensors for the heading information during its flight. It also has an onboard electronics unit that autonomously steers its flight path.

31. **Gaganyaan:** It is **India's first Human Space Flight Programme** to be launched by ISRO. Its aim is to **demonstrate the capability to send humans to low earth orbit (LEO)** onboard an Indian Launch Vehicle and bring them back to earth safely. It will be launched by GSLV MkIII. **The crewed Gaganyaan Mission will be launched in 2023 after several tests through un-crewed mission. Russia will train the astronauts** and provide equipment like a spacesuit, crew seat and Viewport. **France will train medical support personnel** for the mission and supply fireproof carry bags to shield equipment from shocks and radiation. With the launch, India will become the **fourth nation in the world to launch a Human Spaceflight Mission after the USA, Russia and China**.

32. **Parker Solar Probe:** NASA's Parker Solar Probe has **flown through the Sun's upper atmosphere** – the corona – and sampled particles and magnetic fields there. Parker Solar Probe **was launched in 2018**. Its purpose was to explore the Sun. It is believed that the probe has crossed the **Alfvén critical surface** and finally entered the solar atmosphere.

33. **Alfvén critical surface**: Unlike Earth, the Sun doesn't have a solid surface. But it does have a **superheated atmosphere**, made of solar material bound to the Sun by gravity and magnetic forces. However, as rising heat and pressure push that material away from the Sun, it reaches a point where **gravity and magnetic fields are too weak to contain it**. This point is known as the **Alfvén critical surface**. This point **marks the end of the solar atmosphere** and beginning of the solar wind.

34. **Magnetars**: When massive stars with a **total mass between 10 and 25 solar masses** collapse, they might form **neutron stars**. *Neutron stars are the remnants of giant stars that died in a fiery explosion known as a supernova.* **Magnetars are neutron stars** that have most intense magnetic field. Magnetars experience violent **eruptions** or **intense bursts** in the form of transient X-ray pulses which are several orders higher than that of the Sun. So far, only 30 magnetars located within the Milky Way have been discovered. A massive giant eruption occurred in 2020 from a magnetar named **GRB2001415** releasing energy equivalent to that released by the Sun in 1 lakh years.

35. **VIHAMGAM**: It is an Internet-based system integrated with a **Remotely Piloted Aircraft System (RPAS)**. The system consists of a Ground Control Station (GCS), an RPAS, internet lease line of 40 Mbps and VIHANGAM portal. The system enables **real-time transmission of aerial video of mining activities** from mines to internet platforms, which can be accessed through VIHANGAM portal.

36. **Observer Status to the ISA**: The **United Nations General Assembly (UNGA)** has granted Observer Status to the International Solar Alliance (ISA). This will help provide for regular and well-defined cooperation between the Alliance and the United Nations. At present, **ISA has 101 members** after being joined by the US. ISA is the **nodal agency for implementing One Sun One World One Grid (OSOWOG)**, which seeks to **connect 140 countries through a common grid** that will be used to transfer solar power generated in one region to feed the electricity demands of others. **ISA is headquartered at Gurugram**.

37. **Ramanujan Prize for Young Mathematicians:** Professor Neena Gupta, a mathematician at the Indian Statistical Institute in Kolkata has been awarded the **2021 DST-ICTP-IMU Ramanujan Prize for Young Mathematicians from developing countries** for solving the Zariski cancellation problem. The Prize has been awarded annually since 2005. The prize is given to an eminent Mathematician younger than 45 years having conducted outstanding research in developing countries. The Prize is administered by the **Abdus Salam International Centre for Theoretical Physics (ICTP) jointly with the Department of Science and Technology (DST) Government of India and the International Mathematical Union (IMU).**

38. **India-ITU Joint Cyber Drill 2021:** The Department of Telecommunications (DoT) and the International Telecommunication Union (ITU) has launched **the India-ITU Joint Cyberdrill 2021**. The ITU aims to improve the cybersecurity readiness, protection and incident response capabilities of Member States by conducting cyber drills at the national and regional levels.

39. **Global Cybersecurity Index (GCI)**: It is **released by the ITU**. It measures the commitment of countries to cybersecurity at a global level. India has secured the 10th rank in this index.

40. **Log4Shell**: The **Log4Shell** vulnerability is a flaw in one of the most widely used **server software**. It is a remote code execution (RCE) vulnerability, which means **attackers can use it to remotely execute arbitrary code** on a server and steal data. It is a **vulnerability in a logging library** that is used by almost every big company in the world, including Apple Inc., Microsoft Corp., Amazon.com Inc., Google LLC, and more. **Logging libraries allow developers to monitor their applications and catch bugs**. The vulnerability has been given a 10/10, the highest severity rating for such vulnerabilities and is being touted as one of the **worst cybersecurity flaws to have been discovered**.

41. **Global Unicorn Index 2021:** It has been released by the **Hurun Research Institute**. The index is a **ranking of the world's start-ups founded in the 2000s, which are worth at least a billion dollars and are not listed**

on a public exchange. A unicorn is a term used in the venture capital industry to describe **a start-up company with a value of over $1 billion**. India has a total of 54 Unicorns. It is ranked third in the world, after the United States (487) and China (301).

42. **Good Governance Index 2021:** It is prepared by the **Department of Administrative Reforms and Public Grievances (DARPG).** Its aim is to create a tool that can be used uniformly across the States to assess the impact of various interventions taken up by the Central and State Governments, including UTs. The index covers ten sectors and 58 indicators. The sectors are 1) Agriculture and Allied Sectors, 2) Commerce & Industries, 3) Human Resource Development, 4) Public Health, 5.) Public Infrastructure & Utilities, 6) Economic Governance, 7) Social Welfare & Development, 8) Judicial & Public Security, 9) Environment, and 10) Citizen-Centric Governance. **Gujarat has topped the composite ranking** in the Index followed by Maharashtra and Goa. **Delhi has topped the Union territories** composite ranking category.

43. **'She is a Changemaker' Programme:** National Commission for Women (NCW) has launched a pan-India **capacity building programme named 'She is a Changemaker'.** Its aim is to **undertake capacity building of women political leaders** and improve their decision-making and communication skills including, oration, writing etc. The programme is for women representatives at all levels, gram panchayats to parliament members and political workers including office bearers of National/State political parties.

44. **'We Think Digital' Programme:** National Commission for Women (NCW) has launched an online resource center under the **'We Think Digital' programme**. The programme is run collaboratively by the **NCW, Facebook, and Cyber Peace Foundation**. It aims to help women in distress on issues related to **online safety** like cyberbullying, cyberstalking, financial fraud, etc. The center will provide information on cyber security in the form of posters, awareness videos, quizzes, and self-learning modules. It will help women in the safe usage of technology and will also help them to be safe from online threats.

45. **National Helpline Against Atrocities (NHAA):** The **Ministry of Social Justice and Empowerment** has launched a National Helpline Against Atrocities (NHAA) - 14566. The helpline has been launched to generate **informed awareness about the various provisions of the Prevention of Atrocities (PoA) Act, 1989 and the Protection of Civil Right (PCR) Act, 1955**. The Helpline **is available on toll-free number '14566'** across the country in Hindi, English and regional language of the State/UTs. The helpline will **ensure that every complaint is registered as FIRs, relief is provided, all registered complaints are investigated**, and all charge-sheets filed are prosecuted in the Courts for decision – all within the given timelines in the Act.

46. **Seed Village Programme:** It was launched by the **Ministry of Agriculture and Farmers Welfare** in 2014-15. The programme is a **key component of the Sub-Mission on Seeds & Planting Materials**. Its aim is to **upgrade the quality of farmer's saved seeds**. Under the scheme financial assistance is provided for **distribution of Foundation and Certified Seeds**. Sub-Mission on Seeds & Planting Materials aims to **promote production and multiplication of quality seeds of agricultural crops** so that the required quantities of seeds could be made available to farmers in the country.

47. **The SAMPANN Initiative:** It was launched in 2018 by the Controller General of Communication Accounts (CGCA), Department of Telecommunications. It is a **seamless online pension processing and payment system** for Department of Telecommunications pensioners. It provides direct credit of pension into the bank accounts of pensioners. The system has helped the Department in the faster settlement of pension cases, improved reconciliation, auditing and ease of accounting.

48. **Skilling Street Vendors under PMKVY:** The Ministry of Skill Development and Entrepreneurship (MSDE) has launched a programme to **upskill street vendors**. The programme will be implemented under the **Recognition of Prior Learning (RPL) component of Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 3.0**. The objective is to **provide relevant skills to the Street Food Vendors** leading towards **better services to**

consumers, more **opportunities to vendors for revenue generation**, **awareness on regulations** and stipulated rules in return providing better services to the local bodies. India has 55 Lakh Street Food Vendors contributing 14% to the informal economy.

49. *Samajik Adhikarita Shivir*: It is a camp organized for distribution of aids and assistive devices to '*Divyangjan*' under the **Assistance to Disabled Persons (ADIP) Scheme** and to Senior Citizens under the *Rashtriya Vayoshri Yojana*. It has been organized by Department of Empowerment of Persons with Disabilities (DEPwD) in association with Artificial Limbs Manufacturing Corporation of India (ALIMCO). **ALIMCO is a** *Miniratna* Central Public Sector Enterprises under the **Ministry of Social Justice and Empowerment** and its main thrust is on providing better quality of Aids & Appliances to larger numbers of disabled persons at reasonable price.

50. **National Export Insurance Account Trust:** It was set up in 2006 by the Ministry of Commerce and Industry. Its aims is to ensure the **availability of credit risk cover for projects and other high-value exports**, which Export Credit Guarantee Corporation of India (ECGC) is unable to underwrite due to capacity constraints.

51. **Index on Foundational Literacy and Numeracy** : The Report on the State of Foundational Literacy and Numeracy (FLN) in India is prepared by Institute for Competitiveness. Its purpose is to highlight the **importance of early education years in the overall development of a child**. The report has also released an **Index on Foundational Literacy and Numeracy**. The Index includes five pillars comprising 41 indicators. The **five pillars are Educational Infrastructure, Access to Education, Basic Health, Learning Outcomes and Governance**. FLN refers to **basic reading, writing, and mathematics skills**. Falling behind in the Foundational Learning years which encompass pre-school and elementary education makes children more vulnerable as it negatively impacts their learning outcomes. Institute for Competitiveness is the Indian division of **Institute for Strategy and Competitiveness at the Harvard Business School**.

52. **Child Protection Services Scheme:** It is a centrally sponsored scheme under the Ministry of Women and Child Development. Under the scheme, support is provided to States and UT Governments for **delivering services for children in need and difficult circumstances**. The **Child Care Institutions (CCIs) established under the scheme, support age-appropriate education, access to vocational training, recreation, health care, counselling** etc. and equally covers rural and urban children. As per census 2011, there are 472 million children below the age of 18 years and comprise 39% of the total population in India.

53. **Pragati Scholarship Scheme:** It was launched by All India Council for Technical Education (AICTE) in 2014-15. The Nodal Ministry is Ministry of Education. Its aims is to provide **assistance for the advancement of Girls pursuing Technical Education**. Under the scheme, a sum of Rs. 50,000/- per annum is disbursed to selected girl students based on certain criteria.

54. **Poshan Tracker:** It has been launched by the Ministry of Women and Child Development. It helps the Government to **monitor services delivered at anganwadi centres and record nutritional indicators of beneficiaries** including children between 6 months to 6 years of age as well as pregnant women and lactating mothers. This tracking indices include total attendance on a given day, vaccinations, take-home ration and hot cooked meals delivered.

55. **Baby-friendly Hospital Initiative (BFHI):** It was launched by **WHO and UNICEF** in 1991, following the **Innocenti Declaration of 1990**. The initiative is a global effort to implement practices that **protect, promote and support breastfeeding**. **India adopted this initiative in 1993**. But it fizzled out by 1998 and is now being revived after more than two decades. It has been launched by **Breastfeeding Promotion Network of India** (BPNI) in collaboration with the **Association of Healthcare Providers of India (AHPI)**. It is an **accreditation programme that will enable hospitals to get a breastfeeding-friendly tag**. The initiative

is only for private hospitals and is based on **the Ministry of Health and Family Welfare's MAA programme** for government hospitals launched in 2016.

56. **Innocenti Declaration:** It was **signed in August 1990** during the **WHO and UNICEF policymakers' meeting on 'Breastfeeding in the 1990s: A Global Initiative'** in Italy. The Innocenti Declaration says that all women should be enabled to practise exclusive breastfeeding and all infants should be fed exclusively on breastmilk up to 4-6 months of age '**as a global goal for optimal maternal and child health and nutrition**'.

57. **Scheme for Protection and Preservation of Endangered Languages** (SPPEL): It was initiated by the Government of India in 2013. Its objective is to **document and archive the country's endangered languages**. The scheme is monitored by the **Central Institute of Indian Languages (CIIL) Mysuru**, Karnataka. The CIIL works on the **protection, preservation and documentation of all the mother tongues/languages of India spoken by less than 10,000 speakers** (endangered languages). The University Grants Commission (UGC) has also launched two schemes for the protection of endangered languages namely '**Funding Support to the State Universities for Study and Research in Indigenous and Endangered Languages in India**' and '**Establishment of Centres for Endangered Languages in Central Universities'.**

58. *Atmanirbhar Hastshilpkar* **Scheme:** North Eastern Development Finance Corporation Ltd. (NEDFi) has launched it **for the grass root artisans in the North East Region**. Its aim is to develop the artisans of the North Eastern Region by providing them **financial assistance in the form of term loans** for income-generating activities like setting up, expansion, modernization and other activities related to the sector.

59. *Puneet Sagar*: It is a nationwide campaign to **free seashores/beaches from plastic & other waste materials** and increase awareness about the importance of keeping these clean. It is being undertaken by the **National Cadet Corps (NCC).**

60. **Vernacular Innovation Program (VIP)**: Atal Innovation Mission (AIM) and the NITI Aayog has launched the Vernacular Innovation Program (VIP) to enable innovators and entrepreneurs in India to have access to the innovation ecosystem in 22 scheduled languages by the Government of India. AIM will be training a **Vernacular Task Force (VTF)** in each of the 22 scheduled languages with each task force consisting of vernacular language teachers, subject experts and technical writers. According to the 2011 census, **only 10.4% of Indians speak English, most as their second, third, or fourth language**. Only 0.02% of Indians spoke English as their first language.