MONTHLY

# EPIC!

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

AN EXCLUSIVE CURRENT AFFAIRS MAGAZINE FOR

## PRELIMS + MAINS

PREPARATION

# OCTOBER 2021

## The 18<sup>th</sup> edition

Dear Forumites,

The 18ᵗʰ Edition of the EPIC Magazine comes when the Mains Exam is less than 2 months away. Hence it is advised to revise all the EPIC Magazines thoroughly before the Mains Exam. This edition of EPIC showcases the analysis of the Privatization of Air India and the associated issue of Disinvestment, COVID-19 Vaccination coverage, India's performance on Global Hunger Index, Sustainable Agricultural Practices, Pandora Papers and Illegal Offshore Investments etc. among other issues in the news. 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 students who diligently write to us and provide feedback. Your opinion is important to us. Also, topics are regularly included in the subsequent editions of EPIC based on our student's 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 question, 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.**

# TABLE OF CONTENT

## #1 Sale of Air India and Disinvestment

**News**: The Government of India disinvested 100% of its stake in Air India and Air India Express Ltd.

**What is the Air India sale deal? – (1)** The Government has **divested 100% of its stake in Air India a**nd **Air India Express Limited** and 50% stake in Air India SATS Airport Services Private Ltd. to Tata Sons SPV, (2) Tata Sons will **own INR 15,300 Crore of Air India's debt (24.8% of the total INR 61,562 Crore debt of Air India)** and pay an additional INR 2700 Crore to the Government, (3) Tata Sons will have to **retain at least 51% stake and 12,000 employees for a year**, any retrenchment of employees post 1 year has to be under voluntary retirement scheme, (4) Tata Sons will have to stick to business continuity clause for 3 years and **retain the brand for 5 years**, (5) The rest of the debt will be owed by the Government through the Air India Asset Holding Limited (AIAHL) and will be paid to the creditors, **(6)** The deal **does not involve non-core assets of Air India like land, buildings** etc.; these assets valued at INR 14,700 Crore remain with the Government and might be used to repay some of the outstanding debt.

**What was the need to sell the Airline? – (A) Fiscal Cost: (1)** Air India had been making a loss since its merger with Indian Airlines in 2007 and had **accumulated losses exceeding INR 70,000 Crore** by the end of 2020. (2) The **total debt had exceeded INR 60,000 Crore**, and the equity value had fallen to negative INR 32,000 Crore. (3) The Government was incurring per day expenditure of INR 20 Crore just to keep Air India afloat. (B) Economic Cost: because of the concerns regarding usage of scarce resources in supporting a loss making entity. **(C) Opportunity Cost**: Government was spending taxpayer's money on loss making business.

**What has been the background of Air India? –** The Airline was **founded in 1932 by JRD Tata** as Tata Airlines and was rechristened as Air India in 1946. The Airline was **nationalized in 1953** by the Government of India. The Airline had been profitable for a long time and was globally renowned for its service standards, but the downfall started from late 1980s.



**How the Air-India deal happened**

- **July 2017**: In principle approval
- **Mar 2018**: First round preliminary information memorandum(PIM) did not elicit any interest
- **27 Jan 2020**: Present round started with issue of PIM
- **14 Dec 2020**: Seven expressions of interest received
- **Mar 2021**: Five bidders disqualified; did not meet PIM requirements
- **15 Sep 2021**: Financial bids received from two qualified bidders

**What has been the reason for downfall of Air India?** - Several reasons can be attributed to the fall – (1) **Interference by the Government in appointments**, (2) **Red Tapism**, (3) The **opening up of aviation industry to private sector** in the late 1990s leading to **increased competition, and reduced margins**, (4) The **merger of Indian Airlines with Air India** escalated the downfall as **losses soared by 10 times** in 2009, (5) Being a **legacy carrier** it lost ground to home grown **no frills carrier** like Indigo, GoAir etc., (6) unintended consequences of the open sky agreement leading **liberal bilateral agreements** which led to more **traffic flowing to the foreign carriers** causing loss to Air India, this was noted by CAG report in 2016, (7) Large **number of aircraft were acquired, far more than the requirement** adding to the mounting debt.

**What are the post-privatization challenges? – (1) Profitability**: turnaround the airlines' operations and **making it a profitable entity**, **(2) Competition**: the persisting COVID pandemic, along with sustained competition from no frills airlines will create challenge to attract passenger, **(3) Organisational Culture**: Integrating the workforce of Air India into new work environment (government to corporate) under the private entity.

**What are the** potential implications/impacts of the privatisation of Air India? – (1) The success of the deal and relative lack of opposition (from employees, public or the political parties) can pave the way for further privatization of other Government owned entities and PSUs, (2) The Government has kept a huge part of Air India's debt with itself which indicates flexibility, pragmatism and taking private sector's concerns into consideration. This will attract private sector in future disinvestment process, (3) Government need not spend further on keeping Air India afloat and utilize the funds on social welfare, more than INR 100,000 Crore had been spent on the Airline since 2009.

## #2 Disinvestment

**What are the reasons to pursue disinvestments? -** Public Sector in India was made **key to India's industrial development** with the **Industrial Policy Resolution in 1956** and the Second Five Year Plan. Several key industries were nationalized in 1950s and the trend continued in 1960s and 1970s. However the opinion began to change in the 1980s with the **persistently slow industrial growth** of the last couple of decades and the poor performance of the Public Sector. The **Balance of Payment Crisis of 1991** and the ensuing economic reforms paved the way for cutting down the role of Government in business and privatization of Government owned entities followed. The primary reasons for poor performance of the Public Sector included – **(1)** Low efficiency and capacity utilization, **(2)** Lack of innovation, **(3)** Large number of loss making PSUs, **(4)** Long decision making processes, **(5)** Bureaucratic interference, **(6)** Time and cost overruns in PSU driven projects.

Apart from the shortcomings of the Public Sector, certain other factors also provide the rationale for undertaking disinvestment – **(1)** Reducing the financial burden on Government finances, **(2)** Finance the long terms goals of growth and development, **(3)** Opening up of Capital markets and efficient allocation of resources, **(4)** Increasing the liquidity in the Capital Markets.

**What are the various strategies of disinvestment? – (1) Minority Disinvestment**: The Government sells only a minor stake and retains majority stake as well as control of the entity. The sale of stake can be to other Government owned entity or a private listed corporate, **(2) Majority Disinvestment**: The Government sells majority stake (>51%), retains only minority stake and gives up the control of the entity. **(3) Strategic Disinvestment**: According to DIPAM, Strategic disinvestment would imply the sale of a substantial portion of the Government shareholding of a **central public sector enterprises (CPSE) of up to 50%**, or such higher percentage as the competent authority may determine, along with **transfer of management control.** **(4) Complete Privatization**: The Government sells 100% stake in the entity.

**What are the various methods of disinvestment adopted by Government? –** The Government uses various methods for disinvestment. These include **(1) Initial Public Offer (IPO)**: Disinvestment through IPO entails listing the shares on the Stock Exchange for the first time, the Government sold 10% stake in Coal India Limited in 2010, **(2) Share Buyback**: The Government sells the stake to the company itself and dilutes its shareholding, **(3) Offer-for-Sale (OFS):** In the OFS method, Government sells part of its stake in an already listed company e.g., the Government had sold almost 10% stake in Indian Oil in 2015 for INR 9,400 Crore, a majority of this stake was bought by LIC, **(4) Exchange Traded Funds (ETFs)**: The Government sells its stake in the two primary ETFs, CPSE ETF and Bharat 22 ETF, **(5) Strategic Sale**: Under Strategic Sale, the Government sells major stake and gives up control of the entity. Strategic sale includes relinquishment of management control.

**What has been the trend of disinvestments since 1991? –** The process of disinvestment started in 1991-92 with disinvestment in 31 PSUs for INR 3,000 Crore. **Disinvestment Commission was set up in 1996** which recommended privatization of 57 PSUs. **Department of Disinvestment was set up in December 1999** and was converted to full-fledged Ministry in 2001. However it was merged with Ministry of Finance in 2004. The Department of Disinvestment was renamed as Department of Investment and Public Asset Management (DIPAM) in 2016.

From **1991-92 to 2000-01** the Government had targeted proceeds of INR 54,000 Crore but could manage only INR 20,000 Crore. The reasons for **poor disinvestment** during this period included – **(1)** Government offer unattractive to the private sector, **(2)** Unfavorable market conditions, **(3)** Lack of clear policy and road-map on disinvestment, **(4)** Strong opposition from the trade and employee unions, **(5)** Lack of political will. The disinvestment during this period happened primarily through sale of minority stake in the PSUs.

The disinvestment process picked up from 2000 onward. The Government undertook strategic sale of some prominent PSUs like Maruti Suzuki, BALCO, Hindustan Zinc, Indian Tourism Development Corporation, Indian Petrochemicals etc. between 2001-03. The disinvestment process progressed very slowly between 2004 to 2013 before picking up pace again from 2014 onward. Between 2004-05 to 2013-14, disinvestment raised Rs. 1.07 lakh crore, on an average yearly collection of Rs. 10,700 crores. Between 2014-19 the Government received INR 3,72,000 Crore or average of INR 62,000 Crore every year.

**What is the Government's New Disinvestment Policy? –** The Union Government announced a new policy for **strategic disinvestment** of Public Sector Enterprises in February 2021, - **(1)** The disinvestment policy will cover existing Central Public Sector Enterprises (CPSEs), Public Sector Banks, and Public Sector Insurance Companies, **(2)** The Government has classified the public sector under 2 categories: **(a) Strategic Sector** and **(b)** N**on- strategic**



Disinvestment: Budget vs Actual

sector, **(3)** In **Non-strategic sectors, the Government will exit from all businesses**, **(4)** The Government will keep **only a 'bare minimum' presence in four broad strategic sectors** viz. **(a)** Atomic energy, Space and Defence, **(b)** Transport and Telecommunications, **(c)** Power, Petroleum, Coal, and other minerals, **(d)** Banking, Insurance, and financial services, **(5)** The Government will incentivize States for disinvestment of their Public Sector Companies. An **incentive package** of **Central Funds** for states will encourage them to do so, **(6)** The new disinvestment policy straight away allows the sale or closure of nearly 151 PSUs (83 holding companies and 68 subsidiaries) in non-strategic sectors.
The Government has set a target to raise INR 175,000 Crore from disinvestment in 2021-22.
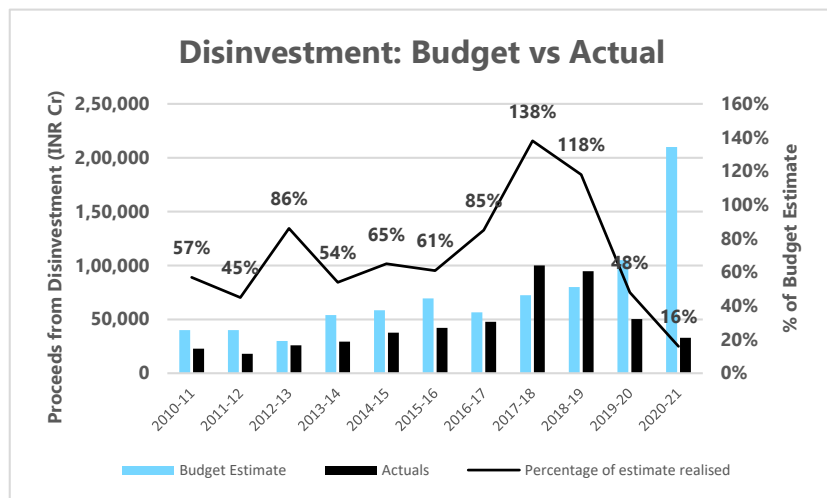
**What are the challenges to the Disinvestment Policy? – (1) Slow process** of disinvestment due to bureaucratic controls leading to stretched timelines, **(2) Strategic disinvestment in Oil PSUs** is seen as **threat to energy and national security** by some experts, Oil is a strategic sector and private/foreign control is not desirable, **(3) Loss making PSUs do not attract investments** and may **require higher concessions from the Government** to attract investors, e.g., the Government had to own almost 75% debt in case of Air India, **(4) Complete privatization** may result in **monopolies** which may lead to **market failures**, **higher prices and consumer exploitation**, **(5)** Privatization as a short term measure to plug fiscal deficits is an unhealthy practice. Moreover privatization of profit-making and dividend-paying PSUs would result in the **loss of regular income to the Government, (6)** Government's minority stake in the disinvested PSUs may mean Government still has some indirect control which might impact efficient functioning of the sold entities.

**What are the NITI Aayog's recommendations on Disinvestment? – (1)** The Aayog's disinvestment proposals should go to directly to the Cabinet Committee on Economic Affairs (CCEA) instead of the respective Ministry. This would shorten the process, **(2)** Appointment of Advisors and Asset valuers to speed up the

process of disinvestment, **(3)** Appointment of independent professional agency to speed up the Asset Monetization programme.

<div style="background:red;color:white;text-align:center">General Studies Paper I</div>

## #1 'Motherhood Penalty' – Gender Inequality in India

> **NEWS:** India **slipped 28 ranks in the Global Gender Gap 2021** report published by the World Economic Forum.

India has **slipped 28 places** in the **Global Gender Gap ranking, 2021**, and is **ranked at 140 out of 156 nations**.

**What is the status of women in India?** - Women in India **face discrimination due to patriarchal set-up** of the society which impacts their personal, social, and professional life. Low gender parity is seen in various spheres: **(1) Wage Discrimination**: Women get less remuneration for same job with equivalent qualifications. There is **34% gap in gender pay**, **(2) Denial of opportunities**: India has **lowest female labor force participation rate among South Asian countries**, **(3) Disparity in household care responsibilities**: Women are primarily considered as

**PT BOX**
**Gender Gap Index**
The Global Gender Gap Index was first **released by the WEF in 2006**. The Gender Gap index utilizes 14 indicators across 4 components to rank the countries. The 4 components are (1) **Educational Attainment**, (2) **Health and Survival**, (3) **Economic Participation and Opportunity**, (4) **Political Empowerment**. The index score varies from 0 to 1, higher the score, greater the closure of gender gap and better the rank. India's score in 2021 was 0.625 which meant India had closed 62.5% of the gender gap. **Iceland is at the top** with a score of 0.892

**care givers for the family** and pandemic has put even greater onus of them due to closure of schools. According to **National Sample Survey Organisation**, women spent nearly 4.5 hours on childcare and other responsibilities, compared to 0.88 hours by men.

**What is the motherhood penalty? –** It is the situation where **working mothers face discrimination** compared to other employees. (1) There is perception that working mothers are less professional and committed due to household responsibilities, (2) Working mothers face discrimination like **lesser pay, rare promotions and less hiring opportunities**.

**What steps have been taken by the Government? –** The Government has amended the **Maternity Benefit Act** in 2017. It **increased the maternity paid leave from 12 to 26 weeks**. However, this amendment further **strengthens the notion that caregiving is the primary onus of women**. It further raises the risk of women being subjected to the **motherhood penalty as employers will hesitate in hiring female staff** due to the associated cost of paid leaves. There is no similar law for paternity benefits for male employees.

**What are the global best practices? – (1) Iceland:** There is a mandatory provision that firms with more than 25 employees have to provide equal pay irrespective of the gender. There are **penal provisions for non-adherence, (2) Ireland:** It asks companies with more than 250 employees to publish data on disparities between average and median hourly wages and bonuses for both genders.
Such policies promote transparency in wages and help eliminate the disparities.

## #2 Low Representation of Women in legal set-up

> **News**: The Chief Justice of India N V Ramana remarked that women should have 50% representation at all levels of Judiciary.

**What is the Gender Gap in Judiciary? – (1)** Only **11 female judges** have been appointed to the **Supreme Court till date**, **(2)** Women make **less than 12% of judges in all the High Courts** combined, **(3)** Women constitute **28% of the district court judges**, **(4)** Of the **1.7 million advocates, only 15% are women**, **(5)** Only **2% of the elected**

representatives in the **State Bar Councils are women**. Women have low representation in commercial law firms as well

**What are the reasons for the Gender Gap?** – **(1) Lower pay/remuneration for women lawyers** which makes the profession unsustainable for them, **(2) Courts lack basic infrastructure** for women support like usable washrooms, childcare facilities like creches, **(3)** Women lawyers are often **restricted to family law or women's rights law**, **(4)** Women lawyers often **do not get highlighted in the media** unlike some high-profile male counterparts.

**What is the need to eliminate Gender Gap in Judiciary?** – **(1)** More women will bring **diversified perspectives** that would improve **fairness in decision-making**, **(2)** Women constitute 50% of the population and must have **equitable representation at all levels**, **(3)** Greater representation to women would bring **greater credibility to judgments** of the Judiciary (*walk the talk*), **(4)** Eliminate **gender insensitive judgments**.

**What are the challenges in bridging the Gender Gap?** – **(1)** Appointments to higher judiciary are generally made on the basis of Seniority Principle, which negatively impacts women due to lower representation in lower judiciary, **(2)** Persons from **Academia,** where women have slightly better representation**, are generally not appointed to higher judiciary**, **(3)** Reservation for women in judicial services may set a wrong precedent.

**How can the Gender Gap be addressed?** – **(1) Hiring distinguished women jurists from the academia**, **(2)** Relaxing seniority principle, **(3) Better infrastructure** and provisions for women at courts, **(4) Sensitization workshops and gender-sensitive training** and suitable provisions for women like maternity leaves, **(5) Encouraging more women to take up the profession**, **(6)** Creating a **road map towards bridging the gender gap** based on the plea filed by Supreme Court Women Lawyers Association (SCWLA) for fair representation.

## #3 Increased frequency of floods in Kerala

**News**: Recent floods in Kerala took lives of more than 25 people. 483 people had died in floods in August 2018. Devastating floods have become a more common phenomena in Kerala.

**What are the changing weather pattern trends in Kerala?** – **(1)** In the last four years, Kerala has witnessed scanty rainfall in June and July but has faced extreme, unexpected rain for short durations in August, September and October, (2) Indian Institute of Tropical Meteorology (IITM) has established a 52% increase in the frequency of cyclones over the Arabian Sea between 2001 and 2019 owing to increased sea surface temperature of Arabian sea.

**What are the reasons attributed the rising frequency of floods? – (1) Natural and Geographical reason:** State's coastal terrain, with the windward slopes of its Western Ghats forcing monsoon clouds upwards to squeeze out rainwater causing heavy rainfall, (2) **Climate change** and the associated erratic **disturbance in air circulation patterns and rain cycles**, **(3)** Warmer temperatures which allows

**PT BOX**
**Gadgil Commission Report**
**Western Ghats Ecology Expert Panel** (WGEEP), (**Gadgil Commission**) was an environmental research commission appointed by the Ministry of Environment and Forests of India. The commission submitted the report to the Government of India on 31 August 2011.
The panel recommended a National-level authority, **Western Ghats Ecology Authority** (WGEA).
WGEEP classified the **entire Western Ghats as Ecologically Sensitive Area** and classified them into 3 zones and strict limited development activities in the region. The recommendations were not accepted, for being too stringent. Subsequently a **High Level Working Group (Kasturirangan Commission)** was set up. Kasturirangan Commission classified only 37% of the area of the Western Ghats as ecologically sensitive.

atmosphere to hold more water causing heavier rainfall, **(4) Environmental degradation**, loss of forest cover has turned hillsides unstable, **(5)** The **use of concrete has disrupted natural rainwater absorption and drainage system**, **(6)** Quarrying, mining and other anthropological activities have led **to silting of check dams leading to overflow** of gushes of water.

**What must be done to address the issue? – (1) Region-specific solutions** that involve actions within the ambit of local administrative control, **(2) Adoption of climate-resilient construction and agricultural practices**, **(3) Fair and transparent environmental impact assessments** before any large infrastructure projects that alters land-use patterns, **(4)** Improving forecasting of extreme rainfall events with the better use of technology, **(5)** Implementing recommendations of the "**Madhav Gadgil" committee**, (6) Initiate large-scale **climate change literacy**.

## #4 Double-dip La-Nina

> **News**: The **National Oceanic and Atmospheric Administration** (NOAA) has declared that La Nina has re-developed again in the 2nd half of 2021 and is expected to last till February 2022.

What is Double Dip La Nina?

La Nina is one part of the **El Nino Southern Oscillation** (ENSO) cycle. Historically, La-Nina events occur every 2-7 years but two back to back La-Nina events in consecutive years are not uncommon and are called 'double-dip'. In 2020, La Nina developed during the month of August and then dissipated in April 2021 as ENSO-neutral conditions returned.

What is La Nina?

La Niña is a **weather pattern** that can occur in the Pacific Ocean every few years.

In a normal year, **winds along the equator push warm water westward**. Warm water at the surface of the ocean blows from South America to Indonesia. As the warm water moves west, cold water from the deep rises up to the surface. This cold water ends up on the coast of South America.

In the **winter of a La Niña year, these winds are much stronger than usual**. This makes the water in the Pacific Ocean near the equator a few



degrees colder than it usually is. Even this small change in the ocean's temperature can affect weather all over the world.
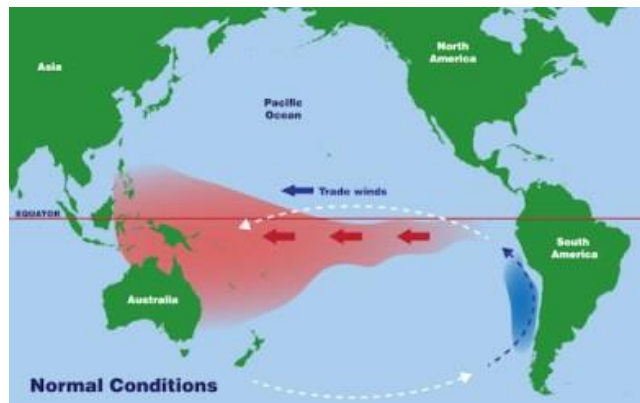
**What are the Impact of La Nina?**

La Niña results in heavy or better monsoon rains in India, droughts in Peru and Ecuador, heavy floods in Australia, and high temperatures in the Indian Ocean and Western Pacific.

What's the difference between El Niño and La Niña?

Both events start in the Pacific Ocean, but they are opposites in almost every other way. La Niña causes the water in the eastern Pacific to be



colder than usual. In the same region, El Niño can cause the water to be warmer than usual. So, areas that are hit with drought during La Niña years can get lots of rain in El Niño years!
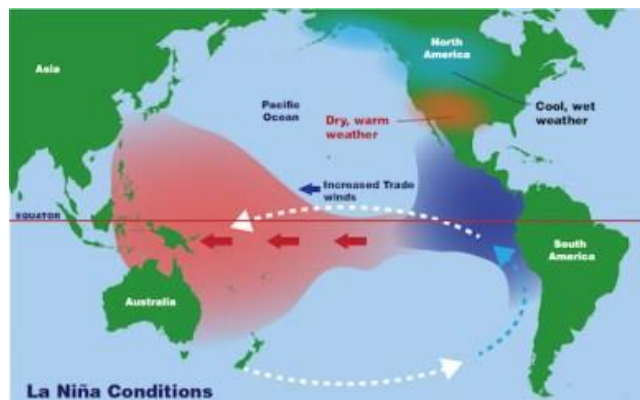
## #5 Loss in Terrestrial Water Storage

**News:** World Meteorological Organization recently released the 2021 State of Climate Services Report which noted drastic fall in Terrestrial Water Storage

What are the key findings of the 2021 State of Climate Services Report? - Terrestrial Water Storage (TWS) has dropped at a rate of 1 cm per year in 20 years (2002-2021). Terrestrial Water Storage is the sum of all water on the land surface and in the subsurface, i.e. surface water, soil moisture, snow and ice and groundwater, (2) The biggest losses have occurred in Antarctica and Greenland. But many highly populated, lower latitude locations have also experienced TWS losses, (3) The rate of loss of Terrestrial Water in India is at least 3 cm per year. In some regions, the loss has been over 4 cm per year. India's loss has been highest outside Antarctica and Greenland, (4) Northern India has experienced the maximum loss within the country.

> **PT BOX**
> **Falkenmark Water Stress Indicator**
> The Falkenmark indicator relates the total freshwater resources with the total population in a country and **indicates the pressure that population puts on water resources**, including the need for natural ecosystems.
> **Water Stress**: Water availability is below 1700 $m^3$/person/year.
> **Water Scarce**: Water availability is below 1000 $m^3$/person/year
> **Absolute Water Scarce**: Water availability is below 500 $m^3$/person/year

What is the status of per Capita Water Availability in India? – (1) In India, per capita, water availability is reducing due to an increase in population. The average annual per capita water availab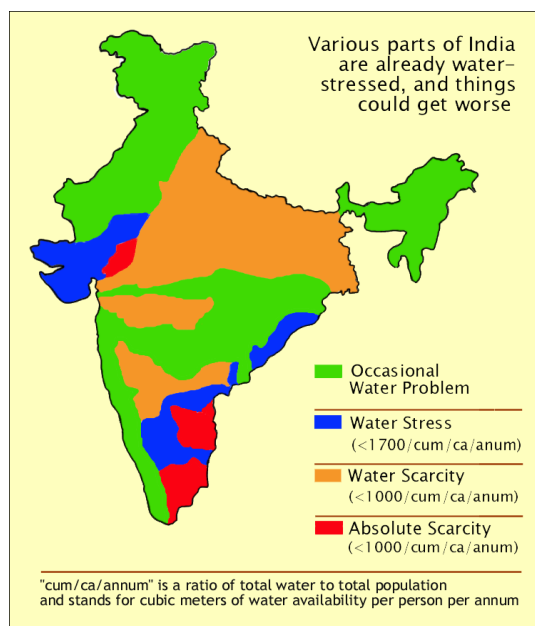ility has reduced to 1,545 cubic metres in 2011, from 1,816 cubic metres in 2001, (2) The availability is projected to further decrease to 1,367 cubic metres in 2031, (3) 5 river basins in India are 'absolute water scarce' and another 5 are 'water scarce', while 3 are 'water stressed', (4) The situation is expected to get worse by 2050, 6 basins will become water-scarce, 6 will be water scarce, and 3 will be water stressed.

Water stress is related to overuse of groundwater, higher withdrawal of water compared to available supply.

India's Water Resources – (1) The Surface Water resources include rivers, lakes, ponds and tanks. The mean annual flow in all river basins in India is estimated to be 1,869 cubic km. Due to topographical and hydrological constraints only 32% or 690 cubic km of the available surface water can be utilized, (2) Groundwater Resources: India's total replenishable groundwater resources are 432 cubic km. Groundwater is replenished through seepage from rainfall and other sources like seepages from irrigation sources like canals and other water bodies etc. The ground water is utilized for agriculture, domestic and industrial uses. Groundwater Development means the ratio of groundwater draft (groundwater removed for consumption) to the groundwater replenishment (groundwater added). Groundwater Development in very high in Northwest India (almost 150-170%)



Various parts of India are already water-stressed, and things could get worse

- **Occasional Water Problem**
- **Water Stress** (<1700/cum/ca/anum)
- **Water Scarcity** (<1000/cum/ca/anum)
- **Absolute Scarcity** (<1000/cum/ca/anum)

"cum/ca/annum" is a ratio of total water to total population and stands for cubic meters of water availability per person per annum



**54%** of India Faces **High** to **Extremely High** Water Stress

Baseline Water Stress (withdrawals/available supply)
- Low (<10%)
- Low to Medium (10-20%)
- Medium to High (20-40%)
- High (40-80%)
- Extremely High (>80%)
- Arid & Low Water Use

www.indiawatertool.in    WORLD RESOURCES INSTITUTE

## General Studies Paper II

### #1 Linking Aadhar with Voter ID Cards

**News:** Recently, ECI proposed de-duplication of Voter ID database by linking it with Aadhar.

**What is the ECI proposal?** – Election Commission has sought permission from the Ministry of Law to use Aadhaar numbers to de-duplicate the voter database. The law ministry has approached the UIDAI seeking Aadhaar authentication for voter verification.

**What are the issues with the proposal? – (1)** The proposal is in **violation of the Proportionality test** laid down the Supreme Court in Puttaswamy Case (Aadhar Judgment) on privacy. The test states that any State action infringing exercise of a Right must be backed by a law and this law must be a suitable means in pursuance of a legitimate aim, **(2)** Linking voter ID and Aadhaar offer evidence that this may disenfranchise people, and **deprive them of their voting rights**, **(3)** An SC order had already halted the **National Election Roll Purification and Authentication Programme, which sought to link Aadhaar with voter IDs, (4)** An

> **PT BOX**
> **Doctrine of Proportionality**
> Doctrine of Proportionality postulates that the nature and extent of the State's interference with the exercise of a right must be proportionate to the goal it seeks to achieve. In the **Puttaswamy Judgment** the SC laid down the **3 Fold Test** for ascertaining proportionality; **(a) Legality:** The action must be sanctioned by law; **(b) Legitimate Aim**: The proposed action must be necessary in a democratic society for a legitimate aim; **(c) Proportionality**: The extent of such interference must be proportionate to the need for such interference.

exercise by Government of Telangana and Andhra Pradesh to link the two led to arbitrary deletion of 55 lakh voters from the database. This had a disproportionate impact on **suffrage** right of the disenfranchised people. In the absence of any legal provision, the ECI should make the existing mechanisms of verification more robust.

### #2 Role of PRIs in tackling COVID-19 Crisis

**News**: Local Governments played a central role in tackling the COVID-19 Pandemic. Building their capacity further can enable them to face such crises in a better manner.

What are Panchayati Raj Institutions? – Panchayati Raj Institutions are the 3-tier local administration set up with the 73rd Constitutional Amendment. The PRIs enabled democratic decentralization in India by devolving functions and resources to the local levels. PRIs intended to promote participative governance by providing a platform to build consensus and make resolutions in the community's interest.

There are now 2,60,512 Panchayati Raj Institutions (PRIs) represented by about 31 lakh elected members across India. **The People's Plan Campaign and Vibrant Gram Sabha Dashboard,** rolled out this year, aspire to strengthen the Panchayati Raj system by making gram sabhas more vibrant.

> **PT BOX**
> **Word Conference on Disaster Risk Reduction**
> The **World Conference on Disaster Risk Reduction** is a conference on **disaster and climate risk management** in the context of **sustainable development.** It is held under the **aegis of the United Nations**. The World Conference has been convened three times, with each edition to date having been hosted by Japan: **in Yokohama in 1994, in Hyogo in 2005 and in Sendai in 2015**. The **first Conference adopted Yokohama Strategy for a Safer World**: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action. Yokohama Strategy was endorsed by the UN General Assembly in 1994. It listed 10 principles for a Safer World.

How PRIs played a key role in tackling COVID-19 crisis? - Unlike other disasters like earthquakes, COVID-19 is an unusual crisis as it is long-drawn. When the traditional top-down disaster response system was compromised during the bad months of the pandemic, it was PRIs that played a remarkable role, (1) Helped reduce risks: Responded swiftly and thus helped people recover quickly. They provided essential leadership at the local level, (2) Performed both regulatory and welfare functions: PRIs set up containment zones, arranged

transport, identified buildings for quarantining people and provisioned food for the incoming migrants, (3) Effective implementation of welfare schemes like MGNREGA and the National Rural Livelihood Mission. This quickened the pace of recovery while ensuring support to the vulnerable population., (4) Bridged the trust gap between the community and the officials: Regular engagement with frontline workers like ASHA workers and Anganwadi workers through committee, (5) Organised community-based surveillance systems: It involved village elders, the youth and self-help groups (SHGs). The purpose was to keep a strict vigil in quarantine centres and monitor symptoms in households, (6) Mobilised citizens for COVID-19 vaccination.

How we can further build the capacity of PRIs? - The Yokohama strategy pointed out that it is important to focus on disaster prevention, mitigation and preparedness rather than disaster response alone, to reduce vulnerability. In this cotext, certain initiatives have been suggested by Mr. Ravi Mittal who is the Chief Executive Officer of Zila Panchayat in Raigarh, Chhattisgarh, (1) Include disaster management chapters in Panchayat Raj Acts and make disaster planning and spending part of Panchayati Raj

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**PT BOX**
**Definition of Health by WHO**
The WHO defines health as a **state of complete physical, mental and social well-being and not merely the absence of disease or infirmity**. The WHO terms the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being irrespective of race, religion, political belief, economic or social condition.

**Classification of Healthcare Functions**
The WHO classifies the healthcare in the following functions, **(1) Curative**: Relieve symptoms of illness or injury, reduce the severity of an illness or injury, **(2) Rehabilitative**: Improve or restore impaired body functions and structures, compensate for the absence or loss of body functions and structures, prevent impairments, **(3) Long Term Care**: Alleviating pain and suffering and reducing or managing the deterioration in health status in patients with a degree of long-term dependency, **(4) Ancillary Services**: Health care services, which the patient consumes directly, in particular during an independent contact with the health system e.g., laboratory services, imaging diagnosis, patient transportation, **(5) Medical Goods**: Pharmaceutical products medical goods used in the diagnosis, cure, mitigation or treatment of disease, **(6) Preventive**: Aims to avoid or reduce the number or the severity of injuries and diseases and complications, **(7) Governance, and health system and financing administration**, **(8) Other health care services** like Traditional, Complementary and Alternative Medicines

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development plans and local-level committees. This will ensure citizen-centric mapping and planning of resources. Various insurance products customised to local needs will build financial resilience of the community, (2) Conducting regular location specific training programmes for the community and organising platforms for sharing best practices. This will strengthen individual and institutional capacities, (3) Community-based disaster management plans are needed as the community is usually the first responder in case of a disaster.

There is a need to blend the traditional wisdom of local communities with modern practices. Moreover, financial contributions from the community should be encouraged through the establishment of community disaster funds in all gram panchayats.

## #3 Inclusive and Resilient Healthcare Systems

**News**: The COVID pandemic has exposed the vulnerabilities of the healthcare systems and brough out the need to build resilient healthcare systems.

**What is the challenges before the healthcare systems?** - Many developing regions in the world especially the South and South East Asian Region are facing healthcare challenges on multiple fronts. In addition to the pandemic, there are **threats of emerging and re-emerging diseases, natural disasters like earthquakes and climate-related weather events**. There is a need to **strengthen capacities to prevent, prepare for, respond and recover from covid and other health emergencies**, and to accelerate progress in all areas of health.

**What is the importance of resilient healthcare systems?** - **(1)** Resilient health systems are the bedrock of emergency preparedness and response, and ensure **continuity of healthcare services in case of extreme shock events**, **(2)** Strong health systems that are primary health care (PHC)-oriented, are **inclusive and help ensure a healthier, productive and financially secure population**.

What are the action plans for resilient healthcare systems? – Countries have agreed to build resilient healthcare systems in the 74th Session of the WHO Regional Committee. These include, **(1)** Full recognition of the need for **a health-in-all-policies approach** that addresses social, economic and environmental determinants of health, (2) **Strengthening the governance in healthcare** sector through **greater oversight and engagement with the private sector and civil-society organizations**, (3) Increased **public investments** in healthcare especially towards **strengthening PHC services, enhanced human resources for health, and increased access to essential medical products** to accelerate progress towards SDG targets like zero poverty, decent employment and gender equality, **(4) Better integration of health emergency and disaster risk management strategies**, public health emergency preparedness and response capacities with PHC services to reduce response times, (5) Taking advantage of the potential of **traditional systems of medicine,** as well as key innovations in digital and disruptive health technology, **(6) Strengthening partnerships:** Covid has shown that robust and reliable bilateral, multilateral and public–private partnerships are critical to emergency responses and to maintain essential health services. Such partnerships will also aid in supporting India's overall vision that is cohesive, and which is aligned with our long-term targets and goals.

> **PT BOX**
> **Types of COVID Vaccines**
> mRNA vaccines contains material from COVID-19 virus that gives instructions to the cells (human immune system) to make harmless protein unique to the virus. The cells make copies of the protein and destroy genetic material from the vaccine. Immune system recognizes that the protein shouldn't be there and built the T-lymphocytes and B-lymphocytes (Immune System Cells) that will fight the COVID-19 if the body is infected in future. Moderna's mRNA-1273 vaccine is an mRNA vaccine.
> **Vector vaccine** contain a modified version of a different virus which contains material from the COVID-19 virus (Viral Vector). Once this virus reaches the immune system cells, this genetic material gives instruction to the cells to make the protein that is unique to the COVID-19 virus and the cells make copies of the protein. This prompts the immune system to build T-lymphocytes and B-lymphocytes that will fight the COVID-19 if the body is infected in future. Covaxin and Covishield are Vector vaccines.
> **Protein subunit vaccines** include harmless pieces (proteins) of the virus that causes COVID-19 instead of the entire germ. Once vaccinated, our bodies recognize that the protein should not be there and build T-lymphocytes and antibodies that will remember how to fight the virus that causes COVID-19 if we are infected in the future.
> *Source: The Center for Disease Control and Prevention, USA*

## #4 Achieving the Milestone: One Billion Vaccinations

> **News**: India administered 1 billionth COVID vaccine dose in October 2021 since the vaccination programme began in January 2021

**What has been the progress trend of COVID Vaccination in India? –** India became the second nation after China to administer 1 billion vaccine doses. This is a significant achievement after a slow start, various challenges in delivery, vaccination hesitancy. As of October 2021, **estimates suggest that more than 75% of India's adult population has received the first dose and over 31% has received a second dose**; more than 48% of whom are women. The first 100 million doses were administered in 85 days, while the 100 million doses from 900 million to 1 billion took just 24 days. It took around 41 lakh man-days or approximately eleven thousand man-years of effort to reach this landmark.

**What were the factors behind the success of the Vaccination Programme? –** **(1) Strong political will from the top**: High-powered committees charted road maps for vaccine R&D and manufacturing, and the phased delivery of vaccines across India's adult population, **(2) Learnings from the past vaccination campaigns**: India's **Universal Immunisation Programme** vaccinates over 27 million new-borns (essential primary doses) and over 100 million children (1-5 years, with booster doses) every year, **(3)** India has built **close to 27,000 cold chain facilities** to deliver health services in the remotest locations, **(4) Over 2.3 million ASHA and Anganwadi women** frontline workers were trained along with millions of doctors, nurses and auxiliary nurse midwives to ensure that Covid vaccines are delivered equitably, everywhere in the country, **(5) Expertise in**

**Vaccine Manufacturing**: India's private pharmaceutical sector has helped provide affordable medicines to the poor across India and to low- and middle-income countries (LMICs). India provided vaccines to the whole world through **Gavi's COVAX facility** and the **Vaccine Maitri initiatives**, **(6) Expertise in the IT Sector** was utilized to digitally monitor the whole campaign and keep track to take corrective action pro-actively (CoWIN Platform), **(7) Awareness campaigns were launched to mobilize the general populace, influencers were engaged to overcome vaccine hesitancy, mass-media campaigns to address misinformation and vaccine festivals or 'mahotsavs' were launched, (8) Adverse Events following Immunization (AEFI) were tracked to address vaccine hesitancy.**

**What are the salient achievements of the Vaccination campaign? – (1) Made in India vaccines**:  India has been one of the **few countries to develop an indigenous vaccine**. India is also manufacturing vaccines developed by other countries and supporting global vaccination, **(2) Participatory governance**: Active cooperation between the Government and the citizens towards a common goal in the spirit of **Jan Bhagidari** (people's active participation), **(3) Development of Science and Technology**: Large investments in high-risk projects and active collaboration of Industry and Academia for vaccine development. Indian firm Zydus Cadila developed the **first-ever DNA-based Covid-19 vaccine** in partnership with the Department of Biotechnology, under the '**Mission COVID *Suraksha*', (4) Equitable distribution**: Relatively poor states also achieved high vaccination rate indicating low rural-urban divide. There was no preferential treatment given to any citizen. The CoWIN platform ensured that the vaccine drive was equitable, scalable, trackable, and transparent.

**What are the challenges in further vaccination? – (1) Overcoming Vaccine hesitancy:** An online survey of 12,810 respondent (conducted by an online community platform LocalCircles) pegged vaccine hesitant proportion (those unwilling to get inoculated by the vaccine) among adults at 7%. This is huge when seen in context of vast population size, **(2) Reach**: It is difficult to **ensure last mile delivery of vaccines in tough terrains** (communities dwelling in deep forests, high mountains and sparsely populated areas) where there is health infrastructure deficit, **(3) Shortage of vaccines**: There is a need of **further 170 crore doses** to fully vaccinate all Indians above 2 years of age and 100% vaccination seems difficult by the end of 2021,
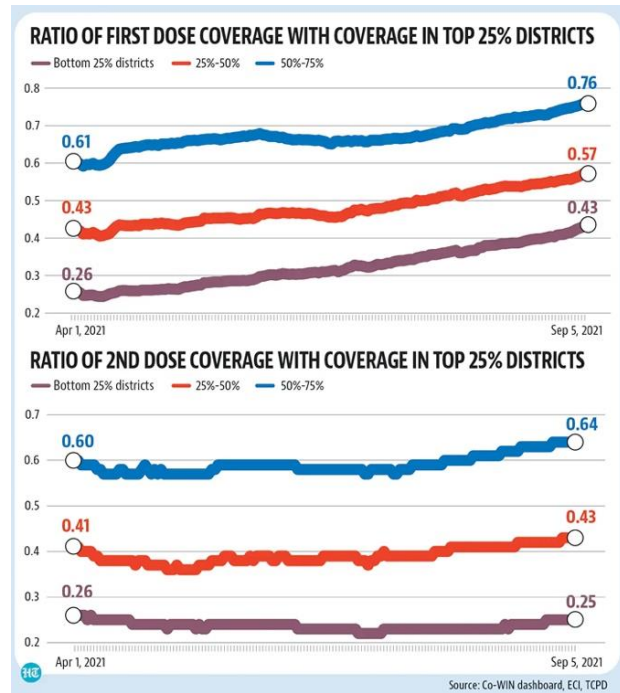
**(4) Virus Mutation and vaccine efficacy**: The COVID virus has been mutating rapidly (Beta, Delta, Kappa, Mu variants), a **new strain can render the vaccines ineffective** and may **cause future surges with rapid transmission**, **(5) Vaccine induced immunity may wane** over time thus requiring administration of **booster doses**, **(6)** The WHO has warned that COVID-19 may **become endemic in India**,

**Case Study**

**Overcoming Vaccine Hesitance**

WHO defines Vaccine Hesitancy as the **delay in acceptance or refusal of vaccines despite availability of vaccine services**. It is influenced by factors such as **complacency, convenience and confidence**. The doctors in Rural PHCs played a crucial role in overcoming vaccination hesitancy. In Chinndwara district of MP, doctors **ran door-to-door campaign for vaccination** with the help of ASHA workers instead of waiting for people to arrive at the center. In Virat Nagar in Jaipur, the local doctors led **campaigns to educate the people about vaccines. Local leaders, Sarpanches and teachers were also involved**. In Amroha, UP, the doctors **involved the local religious leaders** to convince people to take vaccination.

**Why has the Government of India questioned the Index Rankings? –** The Government has questioned the report of FAO for assessment of undernourishment, (1) **The methodology of FAO is unscientific** that uses a four question opinion poll. However Welthungerhilfe has refuted the argument. WHH replied that **FAO's Food Balance Sheet data are used to calculate the GHI** and is not based on FAO's opinion poll (Food Insecurity Experience Scale) **(2)** The neighbouring countries like Pakistan have been shown unaffected by the COVID pandemic and their score has improved, (3) Government's effort like **Pradhan Mantri Garib Kalyan Anna Yojna** (PMGKAY) and **Atmanirbhar Bharat Scheme** (ANBS), India's largest food security programme have been ignored in the report.



**What are the issues with the Global Hunger Index? – (1)** The index largely **focuses only on child undernutrition** rather than on hunger and its hidden forms including micronutrient deficiencies, **(2) Low calorie intake may not mean deficiency** and is dependent upon lifestyle e.g. sedentary work, better social infrastructure (road, transport and healthcare) and access to energy-saving appliances at home reduce physical effort and reduce calorie intake, **(3)** The index does not take into account **regional disparities** and using a uniform calorie norm to arrive at deficiency prevalence means failing to recognise the huge regional imbalances (Kerala and Tamil Nadu may get counted as calorie deficient despite having better nutritional outcome indicators).

**What are the steps required for improving the situation? – (1)** Focus on regions vulnerable to socioeconomic and environmental crises to improve child wasting and stunting, **(2) Diversification of diet**: According to a global data repository, Indians consume 40% and 30% fewer vegetables and fruits respectively compared to global average. The consumption of **millets, pulses, meats and dairy products** is also low. The diet needs to be diversified to **improve nutritional intake through awareness and availability**, (3) The Government must **complete the NFHS-5** for the rest of the States like UP, MP, Jharkhand, and Chhattisgarh where malnutrition rates are very high and take remedial measures to address malnutrition in these states, (4) **Resources and budget allocation to schemes like ICDS and Mid-day Meal scheme must be increased** to rectify the disruption that happened due to COVID pandemic.

> **PT BOX**
> According to the WHO, there are 4 broad forms of **undernutrition:**
> **Wasting: Low weight for height** (*Weight for Height Nutritional Index, or Mid-Upper Arm Circumference (MUAC)*); loss of weight due to lack of food or due to a disease like diarrhoea. Wasted children are at higher risk of death.
> **Stunting: Low height for age** (*Height for Age Nutritional Index*); occurs due to *chronic undernutrition* attributable to poor socioeconomic conditions, poor maternal health and nutrition, frequent illness, lack of adequate child care after birth. Stunting is associated with cognitive impairments like delayed motor developments, impaired brain functions and poor learning outcomes in schools.
> **Underweight: Low weight for age**, can be due to either stunting, wasting or both.
> **Deficiencies in Vitamins/Minerals** like Iodine, Iron, Zinc, Folate, Vitamin A, B12 etc. These minerals and vitamins are essential for production of enzymes, hormones which are essential for proper growth and development.

> **PT BOX**
> **Global Food Security Index**
> The Global Food Security Index is published by the **Economist (Economist Intelligence Unit).** It considers the issues of food affordability, availability, quality and safety, and natural resources and resilience for the purpose of ranking. India has fared better than South Asian neighbours in Food Security Index (India 71, Pakistan 75, Sri Lanka 77, Nepal 79, Bangladesh 84).

## #6 Online Child Sex Abuse

> **News**: The Global Threat Assessment Report was released by **WeProtect Global Alliance** highlighting the rapid rise in the sex abuse of children online.

What is the purpose of the report?
The Global Threat Assessment report details the scale and scope of the threat of child sexual exploitation online and aims to encourage action on the issue to reduce the risk to children and prevent abuse before it happens.

> **PT Box**
> **WeProtect Global Alliance**
> WeProtect Global Alliance is a global movement of more than 200 Governments, private sector companies and civil society organizations working together to transform the global response to child sexual exploitation and abuse online.

What are the Key Findings of the Global Threat Assessment report? – (1) Child sexual exploitation and online abuse has reached its highest level. COVID-19 pandemic is one of the contributory factors, (2) There is a 77% increase in child 'self-generated' sexual material from 2019 to 2020, (3) According to one study quoted in the report, about 54% of the respondents had experienced at least one online sexual harm incident during

> **PT BOX**
> **POCSO Act 2012**
> Protection of Children from Sexual Offences Act is a comprehensive law to protect the children under 18 years of age **from sexual assault, harassment, and pornography**. The act prescribes **child friendly mechanisms** of reporting, investigation, and a **speedy trial through designated Special Courts**. Punishment is according to the gravity of crime, with highest punishment being **death penalty** for aggravated penetrative sexual assault.

childhood and more than one in three respondents (34%) had been asked to do something sexually explicit online they were uncomfortable with during their childhood, (4) Respondents who identified as transgender/non-binary, LGBQ+ and/or disabled were more likely to experience online sexual harms during childhood, (5) A survey of technology companies that showed most were using tools to detect child sexual abuse material, but only 37% currently use tools to detect online grooming.

What are the recommendations of the Global Threat Assessment report? – (1) Government must criminalise all offences relating to child sexual exploitation and abuse, (2) Prioritise prevention activities against abuse, (3) Create safe online environments for children, (4) Developers of online safety technologies should continue innovating to enhance the detection of child sexual abuse online, (5) All stakeholders involved in the response must educate communities on the risk and impact of child sexual abuse.

## #7 Need for Indian International Development Cooperation Agency

**News**: Development assistance to other countries is an important component of India's Soft Power. But there is an urgent need to structure and institutionalize it.

**How has India emerged as a leader of oppressed and marginalized nations? – (1)** India was among the first nation in **1952** to launch **India Aid Mission (IAM)** in **Nepal**. The IAM was soon converted into **India Cooperation Mission** (ICM), **(2)** From 2008 to January 2021, India has disbursed funds totalling INR 63,558 Crores to foreign nations **(3)** Grant assistance projects are concentrated primarily in India's neighbourhood (SAARC Members, Myanmar, Mauritius and some other African countries) and expansion is going on to include South East Asia, East and Central Asia, the Caribbean, Latin America, Pacific Island Countries, etc., **(4)** The main instruments of India's development assistance include **Lines of Credit (LOC), Grant assistance, Small Development Projects (SDP), Technical Consultancy, Disaster Relief and Humanitarian aid**, and **capacity-building programmes under Indian Technical and Economic Cooperation Programme (ITEC).** Unlike OECD countries that give aid, India partners other countries for developmental cooperation.

However, there are often many challenges on the project delivery front. This calls for the need for a specialized agency for the efficient delivery of projects and outcomes.

How has India's institutional framework for developmental assistance evolved? – (1) **First effort towards institutionalization was made with the launch of** India Development Initiative (IDI) in 2003**,** (2) The Indian Development and Economic Assistance Scheme (IDEAS) was launched in **2005** for managing credit lines, (3) Development Partnership Division was created within the Ministry of External Affairs.

Setting up of India International Development Cooperation Agency (IIDCA) was announced in 2007 but it never took off.

How is India's developmental assistance structured? – India's developmental assistance is composed of 5 main pillars – (a) Capacity building, (b) Concessional finance, (c) Technology sharing, (d) Grants and (e) Trade wherein duty-free and quota-free access to the Indian market is provided.
India's assistance is composed of a mix of these components. There have been instances, like

**PT BOX**
**Soft Power**
The term was coined by **Joseph Nye**, an American Political Scientist. He described it as the "**ability to get others to do what they otherwise would not**" without "**force and coercion**". Nye described three ways to achieve desired outcomes, **(a)** Coerce with threats, **(b)** Induce with payments, **(c)** Attract and co-opt. **Soft power is based on attractiveness of one's culture, political values and foreign policy**. This is in contrast to hard power which is based on military and economic coercive measures. The Soft Power 30 Index published by USC Center of Public Diplomacy measures soft power on 6 parameters, **(a) Culture** (Global reach and appeal), **(b) Education** (Human capital and attractiveness to international students, **(c) Engagement** (Strength of country's diplomatic network), **(d) Government** (Commitment to freedom, human rights and democracy), **(e) Digital Diplomacy**, **(f) Enterprise** (Attractiveness of country's economic model). India's soft power is primarily dependent upon Cultural aspects like **Yoga, Buddhism, Bollywood**.

**PT BOX**
**Development Assistance**
OECD defines Official Development Assistance as **government aid designed to promote the economic development and welfare of developing countries**. Loans and credits for military purposes are excluded. Aid may be provided bilaterally, from donor to recipient, or channelled through a multilateral development agency such as the United Nations or the World Bank. Aid includes **grants, "soft" loans and the provision of technical assistance.**

in Mozambique (solar panel production) or Ethiopia (reviving sugar units), where all 5 components have merged.

What should the IIDCA provide? – (1) **Explore and expand all the available means of financing e.g. many countries have both sovereign and non-sovereign sources for promoting infrastructure financing abroad e.g.,** the Japan International Cooperation Agency (sovereign) and Japan Bank for International Cooperation (non-sovereign) (2) IIDCA can **provide handholding to select performing Indian social enterprises** to operate in other countries as well. These enterprises would further facilitate development partnerships between India and other countries, (3) Focus on quick execution and remove bottlenecks so that projects are not held-up or delayed, (4) Involve the Indian private sector for both financing and execution of development projects under the PPP Model.

In the post-pandemic era where the countries are exploring means and ways to secure development and finance, India can make the best use of opportunities to enhance its soft power. But all this requires India to institutionalize IIDCA for developmental and financial assistance.

## #8 India's Quest for access to Central Asia

**News**: The Prime Minister of India raised concern over connectivity with Central Asia at the SCO Summit.

What are the challenges India is facing related to connectivity? – (1) **India's trade** with Central Asian countries was **below $2bn in 2018**. Most of the trade was routed through **Iran, Russia and UAE**. In contrast, according to the estimates, China's trade was $50-$60bn during this period. China has a huge advantage in its geographical location, (2) Route through Pakistan is not possible due to hostile relations between the two, (3) Iran: India efforts have not been fruitful due to **sanctions by the USA on Iran** over its suspected nuclear weapon programme, (4) Capture of Afghanistan by Taliban has further hampered India's effort for connectivity.



What is the importance of Central Asian nations to India? – (1) Energy and Mineral Security: **Central Asia countries are** rich in fuel **and minerals which has the potential to fulfil energy and other industrial needs of India,** (2) **Connectivity to Eurasia,** (3) **Central Asian countries offer market opportunities for Indian goods,** (4) There is huge scope for collaboration in other sectors like building (power) transmission lines, contract farming, dairy sector, IT and enabled services, pharmaceuticals etc., (5) India and Central Asian states can collaborate on security issues as many states are vulnerable to terrorism and radicalization, (6) There is opportunity to collaborate in the education sector as well, India's private sector Universities Sharda and Amity Universities have already set up their universities in Central Asian countries.

**PT BOX**
**Central Asia**
The Central Asian Region consists of Kazakhstan, **Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan**. Some classifications also include Afghanistan, Mongolia and Chinese province of Xinjiang in Central Asia. The region is inhabited primarily by the **Kazakhs, Uzbeks, Tatars, Turkmen, Kyrgyz, and Uyghurs**.
The region has varied geographical features like **mountains** (Tian Shan), **deserts** (Kyzyl Kum, Taklamakan) and **Steppes**. Parts of Mongolia also have **permafrost. Eurasian Pole of Inaccessibility** lies in Central Asia. The region's climate has **high degree of continentality**; hot summers, cold winters with low precipitation. Region's climate classification falls in **Dry (B) and Continental (D) types**. The ancient and medieval regions of Bactria, Khorasan, Khwarazm, Parthia, Transoxiana, Turkestan etc. fall in this region.

How has India been trying to connect with Central Asia? – (1) In the 1990s, India tried to explore the route through **Iran's Bandar Abbas Port and Mashad** near the border with **Turkmenistan** to Central Asia but was unsuccessful, (2) In 2000, India along with Iran and Russia agreed on a new route which was later known as International North south Transit Cooridor (INSTC). The pact was ratified in 2002. **INSTC offers a safe and cost-effective route to EU (European Union).** In June 2021, the **first pilot project** of paper products was successfully delivered from **Finland** via the territory of Azerbaijan **to Nhava Sheva port of India**, (3) In 2003, India announced the development of **Chabahar port in Iran** to find an alternate route to Central Asia.

The sanctions imposed by the US on Iran over suspected Nuclear power programmes slowed down the progress of INSTC and its impact was also visible on Chahbahar port.
But, the INSTC will be the best option for India to strengthen relations with Central Asian countries, so India should diplomatically push other partners for the faster implementation of INSTC.

## #9 New QUAD Forum in the West Asia

**News**: India, Israel, the UAE and the US have announced to launch a new quadrilateral economic forum.

**What is the new Quadrilateral economic forum? –** The quadrilateral builds on ongoing cooperation between the U.S., Israel and the UAE (the **Abraham Accords**). With the formation of QUAD group, India also becomes part of this cooperation.

**What is the aim of this grouping? -** The aim of the new quadrilateral grouping is to establish an **international forum for economic cooperation**. The grouping will specifically look for the "**possibilities for joint infrastructure projects**" in transportation and technology.

> **PT BOX**
> **Abraham Accords**
> **Abraham Accords** are a joint statement made between **Israel, the United States and the United Arab Emirates in August 2020**. It also refers to the agreement reached between Israel, Bahrain and the UAE to normalise relations between them. Under the Accords, the UAE and Bahrain will establish embassies, exchange ambassadors, cooperate and work together with Israel across a range of sectors including tourism, trade, healthcare and security.

**What are the focus areas for the group? - The** new quadrilateral grouping will "expand the economic and political cooperation in the Middle East and Asia" through **(1)** Trade, **(2)** Combating climate change, **(3)** Technology cooperation including Big Data, **(4)** Energy cooperation, and **(5)** Increasing maritime security, **(6)** Global Public Health and ways to counter the COVID-19 Pandemic.

What will be the benefits of the new Quad? – (1) According to **the** International Federation of Indo-Israeli Chambers of Commerce**,** India's manufacturing scale with Israeli innovation and Emirati capital could produce immense benefits to all three countries, (2) Beyond trade, there is potential for India, UAE and Israel to collaborate on many areas — from semiconductor design and fabrication to space technology, (3) India can use its technical prowess to harness various opportunities like Big data, AI, Quantum computing, and export its products in the Middle-East markets etc., (4) The group will also focus on issues like environment and on promoting public goods, (5) The platform will help India to pursue wide-ranging mini-lateral partnerships in the region. With major powers like France, Russia, China is drawn to this region, the alliance will help India to shape its position in changing the geopolitics of this region.

What are the other developments in India, Israel and the UAE cooperation? – (1) India, the UAE and Israel have also been in talks for trilateral cooperation since diplomatic ties were established through Abraham Accords last year, (2) Business groups in India, the UAE and Israel have also been in talks for trilateral cooperation since diplomatic ties were established, (3) The International Federation of Indo-Israel Chambers of Commerce (IFIIC) has predicted that the potential for agreements backed by **Israeli innovation**, **UAE funding and Indian manufacturing** could cross $100 billion by 2030. In the first such venture, a UAE project

for robotic solar panel cleaning technology was signed by Israeli company Ecoppia that has a manufacturing base in India.

What policy India has adopted in the Middle East?
India's foreign policy in the Middle-East has been of **non-ideological engagement**. India has tried to balance the relations between all regional powers Israel, Iran, Saudi Arabia and the UAE.
India's close engagement with the USA over the last few years has also allowed alignment with the USA in the Middle East. The new mini-lateral consultation involving India-Israel-UAE-USA further cements India's position in the Middle East.

How can the recent regime changes help India in the Middle East?
The new government in Israel is working towards resolving the conflict with Palestine. There is also an increase in economic and technological cooperation between Israel and the UAE. There is also a regime change in the USA. This all can help India to deepen its ties in the Middle East, as India can simultaneously build relations with the Middle Eastern countries.

What is the way forward?
India should also maintain its strong relations with Iran to keep a check on the Afghan Taliban. India will need a careful balancing act in the Middle East to secure its long-term strategic interests.

## #10 Cornwall Consensus

**News**: A report released by the **G7 Economic Resilience Panel** demanded a radically different relationship between the public and private sectors to create a sustainable, equitable and resilient economy.

**What is Washington Consensus? – (1)** The Washington Consensus refers to a **set of broadly free market economic ideas**, supported by prominent economists and international organizations, such as the IMF, the World Bank, the EU and the US. It was drawn from the advice of John Williamson, **(2)** It **minimized the state's role** in the economy and pushed an **aggressive free-market agenda** of deregulation, privatization, and trade liberalization, **(3)** It paved the way for the **domination of the Western-style capitalism**. It was aggressively promoted by the International Monetary Fund and the World Bank, **(4)** It advocated free trade, floating exchange rates, free markets and macroeconomic stability.

What is the Cornwall Consensus and how's it different from the Washington consensus? – **Cornwall Consensus derives its name from the commitments voiced by G7 countries in Cornwall Summit in June 2021.** The Cornwall Consensus would invert the Washington consensus – (1) It revitalizes the State's economic role, and would allow to pursue societal goals, build international solidarity, and reform global governance in the interest of the common good, (2) Grants and Investments from State and Multilateral organisations would require recipients to pursue rapid decarbonisation rather than rapid market liberalisation, as was the case with IMF lending for structural adjustment programmes, (3) It entails moving from reactively fixing market failures to proactively shaping the markets to nurture a green economy, (4) It will replace redistribution with pre-distribution. The State would coordinate mission-oriented public-private partnerships aimed at creating a resilient, sustainable, and equitable economy.

Why is a new consensus needed? – (1) **Old Model (Washington Consensus) is not having expected distribution benefits. The system didn't responded effectively to** massive economic, ecological, and epidemiological shocks, (2) The model has not allowed consensus on various challenges like Climate change and achieving the United Nations Sustainable Development Goals seems difficult under the prevailing global governance arrangements, (3) There is an urgent need to strengthen the global economy's resilience against future risks and shocks. This cannot be done without overhauling the current economic system, (4) Most economic institutions are still governed by outdated rules that render them unable to bring in the responses needed to

end the pandemic or achieve the Paris climate agreement's goal of limiting global warming to 1.5° Celsius, relative to pre-industrial levels.

What needs to be done? – (1) There is a need to move away from measuring growth in terms of GDP, GVA, or financial returns, the focus should be more on the outcomes based on equity, inclusion and sustainability, and achievement of common goals, (2) There is need to invest substantially in pandemic preparedness and mission-oriented health financing, (3) There is a need for a new approach to governing intellectual-property rights. IP governance should be reformed to recognise that knowledge is the result of a collective value-creation process as recommended by WHO, (4) Need for increased State investment in the post-pandemic economic recovery, (5) Public investment must be channelled through new contractual and institutional mechanisms that measure and incentivise the creation of long-term public value rather than short-term private profit, (6) Institutionalize the efforts focused on decarbonizing the economy just like CERN was set up to drive research in Nuclear Physics, which would pool public and private investment into ambitious projects.

## #11 Geopolitics of Moon

> **News**: Lunar Exploration has regained attention of Governments due to the potential opportunities in Space Exploration and resource exploitation. **Artemis Accords and IRLS** are the latest developments in

**What are the latest international developments regarding lunar exploration? – (1) NASA's Artemis Mission** is the most ambitious lunar exploration mission since the Apollo Missions of 1960s-70s. **It plans to land the first woman and the next man on the Moon in the coming years.** It will also include a massive technological effort to build new launchers, spacecraft and ground-based facilities as well as putting a gateway module in orbit around the Moon, to act as a stepping stone for further space exploration. **(2) Russia and China have announced to jointly build International Lunar Research Station** (ILRS) as a lunar base (built on lunar surface or orbit). IRLS will help carry out **multi-disciplinary and multi-objective scientific research activities** including exploration and utilization, lunar-based observation, basic scientific experiment and technical verification, and long-term autonomous operation. IRLS is expected to be operational by 2035, **(3)** Russia and China will also **closely cooperate in their lunar exploration programmes** (Luna and Chang'e Programmes respectively), **(4)** India had also launched **Chandrayaan-2 in 2019** and is planning for another landing mission **Chandrayaan-3 by 2023** and **Lunar Polar Exploration Mission by 2024, (5)** Recently, at the QUAD summit, the leaders of Australia, Japan, India and the US agreed to work together on outer space exploration.

**What are reasons behind growing interest in Lunar Exploration? – (1)** Moon's proximity to Earth and its low gravity makes it a **potential launching pad for future missions into interplanetary space**, **(2) Enable exploration** of the inner and the outer solar system beyond the Asteroid Belt, **(3) Natural resources of Moon can help fuel the future expeditions** e.g., the water discovered on the lunar surface by India's previous Moon mission, Chandrayaan-1, could provide both hydrogen for fuel, and oxygen for breathing.

**What are the Artemis Accords? – (1)** Artemis Accords were signed in 2020 by 8 countries, **(2)** The accords are an agreement to abide by a **broad set of principles** to **guide the cooperation in civil exploration and the use of** the **Moon, Mars, comets and asteroids for**

**PT BOX**
**Outer Space Treaty**
Outer Space Treaty was signed under the aegis of the UN (**UN Office for Outer Space Affairs**) and came into force in 1967. It is also called as the **Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies**. It forms the basis of **international space law**. The Treaty was largely based on the *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space*, which had been adopted by the General Assembly in its in a resolution in 1963. The key provisions include prohibition of nuclear weapons in space; use of all celestial bodies for peaceful purposes only; and precluding any country from claiming sovereignty over outer space or any celestial body. As of October 2021, there are 89 signatory states.

**peaceful purposes** – ranging from mining resources to setting up lunar colonies, (3) The salient principles listed in the Artemis Accords include **Peaceful Purpose, Transparency** (public disclosure of policies and plans)**, Interoperability, Emergency Assistance, Release of Scientific Data, Deconfliction of Activities** etc., (4) Australia, Canada, Italy, Japan, Luxembourg, United Arab Emirates, United Kingdom, and the United States. Brazil, South Korea, New Zealand, and Ukraine joined later.

What is India's dilemma regarding Artemis Programme? – India must sign the Artemis Accords before joining the Artemis programme. One problematic principle of Artemis Accords is the extraction and use of resources in space which is in deviation from the 1967 Outer Space Treaty to which India is a party. Outer Space Treaty prohibits claims of sovereignty in space but is silent about utilization of resources and private ownership
The US might benefit from the Artemis Accords because of its dominance in the commercial space activities. The US Congress passed an Act in 2015 enabling private entities to use the mineral resources of other celestial bodies. The US President signed an executive order in 2020 directing US diplomats to develop bilateral agreements that would make the use of space resources an international norm.
Russia and China might come up with their own version of Artemis Accords. Their ILRS programme also provides opportunities for the India's Lunar Programme.
India has three options, (a) Join Artemis Programme, (b) Join ILRS, (c) Go solo.

What are the consequences of these three options and what should India do? – (1) India may lose out on major opportunities if it seeks to explore space by itself. Even NASA and other major space agencies are partnering together for future space exploration programmes, (2) ILRS may not be suitable option for India due to Chinese presence, (3) The least bad option for India would be to join the Artemis programme.
However, instead of agreeing to all US demand, India must **(a)** insist on **mechanisms for sharing technology and space infrastructure**, **(b)** use informal fora, like the newly set up Quad working group on space to push for more detailed norms governing activities on celestial bodies, **(c)** India must continue to pursue bilateral space cooperation with Russia, which may allow it to benefit from some of the capabilities developed for the ILRS project.

The time for active space diplomacy is now. India must develop strategies to pursue them through a stronger national lunar mission and deeper partnerships with like-minded countries. India must also legislate a **strong regulatory framework** to promote India's space activity and protect its international interests.

## General Studies Paper III

### #1 Rationalization of GST Rates

**News**: A GoM (Group of Ministers) has been formed by the GST Council for correcting the Inverted Duty Structure and rationalizing the GST Slab Rates

**What is the task before the GoM? –** (1) To raise the average incidence of duties from current level of 11.8% to 14%. 14% is the Revenue Neutral Rate as suggested by the Finance Commission, (2) Ensure that the rationalization process is non-inflationary, (3) Boost labour intensive manufacturing.

PT BOX
**Inverted Duty Structure**
Inverted Duty Structure represents a situation when taxes on final product are lower than the taxes charged on inputs. An inverse input tax credit gets accumulated which the Government has to refund.

**What can be done? – (1)** Standard GST rate can be brought down from 18% to 16% to keep the **rationalization process non-inflationary**, this will benefit the services sector which is significant driver of employment, **(2)** Phase out a lot of exceptions as recommended by the **Committee on Dual Control**, **Threshold and Exemptions, (3) Rationalize the import duties** as the import regime has become too protective, average import tariffs have gone up from 10% to 18%. This is hurting exports as well (which are dependent upon imported raw materials/intermediates), **(4)** The peak rate of 28% + cess can be moved to 30%

> **PT BOX**
> **GST Slabs**
> At present there are **4 GST Rate slabs**, 5%, 12%, 18% and 28%. Certain luxury goods (automobiles) and demerit goods (like tobacco and aerated drinks) attract an additional cess. Precious Stones and Metals have special rate of 0.25% and 3% respectively.
> **Composite Supply of Goods**: In cases where two goods are supplied together in the ordinary course of business, (e.g., an eatable in a plastic box, eatable is the principal product), the tax on the principal product is applicable (i.e., the eatable).
> **Mixed Supply of Goods**: In cases where the goods are bundled together (e.g., Indian sweet (mithai, 5%) with Chocolates (18%), the higher rate (18% here) will be charged. In case of Mixed Supply of Goods, where the

+ cess. Certain items like two-wheelers can be shifted to 16% slab in order to cushion the impact, **(5)** The **GST rate on gold can be increased** from 3% at present to 5% as 80% of the gold is purchased by top 10% households by income, **(6) GST on unprocessed Tobacco can be increased** from 5% (Reverse Charge Mechanism) to 28% like for Processed Tobacco, this will arrest lot of mis-declarations of processed tobacco as unprocessed tobacco. Unprocessed tobacco is also used in exempted tobacco products, so increasing the rate will boost Government revenues, **(7)** Petrol and diesel can continue to be outside the ambit of GST till international prices soften, ATF and Natural Gas can be brought into GST ambit for now, **(8) Electricity and Real Estate** can also be considered for bringing under the GST regime after due consultations and concurrence with the States.

## #2 Project Gati Shakti

> **News**: The Government has recently launched Gati Shakti – National Master Plan for Multi-modal Connectivity. The Gati Shakti Scheme will subsume INR 110 Lakh Crore National Infrastructure Pipeline.

**What are the upcoming infrastructure plans of the Government? – (1)** The Government aims to add over 200 airports, helipads, and water aerodromes over the next 4-5 years, **(2)** Doubling the existing operational natural gas pipeline network, which is about 17,000 km (According to PNGRB as of June 30 2021), **(3)** Increase in cargo handling at Indian ports and national waterways. The National Master Plan has set targets for all infrastructure ministries to achieve the targets.

What is PM Gati Shakti? –  PM GatiShakti is a digital platform that connects 16 ministries, including Roads and Highways, Railways, Shipping, Petroleum and Gas, Power, Telecom, Shipping, and Aviation; with a view to ensure holistic planning and execution of infrastructure projects.

What is the aim of Gati Shakti? - PM Gati Shakti aims to institutionalize holistic planning for major infrastructure projects. The projects will be designed and executed with a common vision and will incorporate the infrastructure schemes of various Ministries and State Governments such as the Bharatmala Road Project, Sagarmala Waterways Plan, Ports and the UDAN scheme.

What projects will be covered under the Gati Shakti? – The project will include Economic Zones like textile clusters, pharmaceutical clusters, defence corridors, electronic parks, industrial corridors, Agri zones will be covered to improve connectivity & make Indian businesses more competitive.
It will also **leverage technology extensively**, including spatial planning tools with ISRO's satellite imagery. This will be used for real-time monitoring of projects.
**What are the issues with current state of Infrastructure? – (1) Logistics**: The cost of Indian logistics is around 13-14% of GDP compared to 8-10% in developed nations, (2) **Freight transport**: India's **modal mix is heavily skewed towards roads**, with 60-65% of transport happening via road compared to 25-30% in developed

countries, **prompting higher costs**, **(3) Rail freight** business depends excessively on coal, **(4) Domestic waterways** face numerous challenges due to high first- and last-mile costs, unavailability of return load in most cases, high voyage costs for specialised vessels and high repositioning costs of domestic containers, among others.

What services will be provided by the PM Gati Shakti? – (1) Planning and obtaining clearances: The portal will offer 200 layers of geospatial data on existing infrastructure such as roads, highways, railways, toll plazas, and geographic information about forests, rivers and district boundaries to aid in planning and obtaining clearances, (2) Centralised tracking of projects: The portal will also allow various government departments to track, in real-time and at one centralised place, the progress of various projects, (3) Different departments will be able to prioritise their projects through cross-sectoral interactions, (4) The portal will display all the required clearances for a project based on the location and allow all stakeholders to apply for clearances from the relatively authority directly on the portal. This will shorten the period for obtaining clearances.

How would the implementation mechanism work? – (1) Empowered Group of Secretaries (EGoS) will be headed by Cabinet Secretary and will consists of members of different Ministries and the Head of Logistics Division as Member Convenor. EGoS will review and monitor the implementation of the scheme. EGoS will also synchronize various activities and ensure these activities to be part of the common integrated digital platform, (2) Integrated Multi-modal Network Planning Group (NPG) will consist of heads of the Network Planning wing of respective infrastructure ministries and will assist the EGoS, (3) Technical Support Unit will consist of domain experts from various infrastructure sectors as Aviation, Maritime, Public Transport, etc. TSU will also have Subject Matter Experts (SMEs) as Urban & Transport Planning, Structures (Roads, Bridges & Buildings), Data Analytics, etc.



**How PM Gati Shakti will help India's development? – (1) Bring the economy out of impact of pandemic by boosting infrastructure, creating more jobs, increase demand for commodities and attract investments, (2)** The logistics cost in India is about 13%-14% of GDP as against about 7-8% of GDP in developed economies. The plan will help India to **cut down logistics cost**, **(3)** The plan is aimed at **increasing cargo handling capacity** and reducing the turnaround time at ports to boost trade, **(4)** PM Gati Shakti Master plan will **increase India's highway network to 2 lakh km** and **provision utility corridors** for laying adjoining power and **optical fibre cables, which will be a life-saver in times of natural disasters**, **(5) Boost last mile connectivity**, **improve the fragmented multi-modal connectivity** and allow SEZs and Industrial Parks to achieve their full potential by improving efficiency, **(6) Improve implementation process** by increased coordination between various departments and ministries e.g., for a new upcoming railway line, the Ministry of Road will grant permission for all level crossings and Ministry of Power will ensure power supply at the beginning of project, **(7) Optimum utilizations of resources** due to close coordination between Ministries and faster clearances, the project timelines will be condensed; budget overshoots and time overruns can be avoided, **(8) Automate the processes** and reduce human discretions in the process

What are the challenges associated with the functioning of PM Gati Shakti? – (1) According to Economic Survey 2020-21 an annual investment of INR 8.5 Lakh Crore is required in the National Infrastructure Pipeline

sectors like energy, roads, urban infrastructure and railways, the State Governments lack the capacity to invest due to poor condition of finances amid the COVID-19 pandemic, (2) The credit off-take has declined to 5.8% in 2020 (14.2% in 2013) which will reduce private sector investment in infrastructure projects, the decline in credit offtake is linked to an extent with the NPA crisis in the banking sector, (3) The plan does not address challenges like delays in land acquisition, litigations etc. which increase costs and cause time overruns.

How can the implementation of PM Gati Shakti be improved? – (1) Address the delays in the land acquisition process, (2) Use the GIS and remote sensing technologies to reclaim lands subjected to degradation and pollution and use them for infrastructure, rather than acquire new parcels, (3) Improve credit offtake to boost private investments, (4) There is a need for digital solutions for aggregation of demand and supply, which can be done by bringing the open network and open protocols under the Gati Shakti initiative e.g., Tata Projects has already been using such technological solutions for its various projects like the Dravyavati River Rejuvenation Project, (5) **The** performance of the roads need to be improved for smooth supply of goods. Roads should be made smart with automatic monitoring of traffic, drone-based support, including drone-based monitoring of maintenance of assets, (6) Address structural and macroeconomic stability concerns, emanating from high public expenditure.

In conclusion, the Gati Shakti will boost economic growth, attract foreign investments and enhance the country's global competitiveness thereby enabling smooth transportation of goods, people and services and creating employment opportunities. Thus, the PM Gati Shakti will help India to realise its dream of becoming the "business capital" of the world. But all the challenges must be addressed on priority in order for the project to be a success.

## #3 Liberalizing Capital Account of India

**News**: RBI Deputy Governor recently discussed the conditions necessary for liberalizing the Capital Account.

**What are the recent steps taken towards the liberalization of the Capital Account?** – (1) Introduction of **Fully Accessible Route (FAR) for Government securities**. The limit on non-resident investment in specified Government securities was removed. It would enable the inclusion of Government bonds in global bond indices and allow the Government to tap foreign savings to finance the fiscal deficit, **(2) Portfolio investment** in the equity market is **largely unrestricted** aside from sectoral caps. FDI is restricted now only in very limited sector.

> **PT BOX**
> **Current and Capital Account**
> The **Balance of Payments** records **all the transactions in goods, services and assets between a country and the rest of the world**. It has two components, Current Account and Capital Account.
> **Current Account** consist of trade (exports and imports of goods (visible trade) and services (invisible trade), transfer payments and investment income (income from factors like land or shares). **A positive current account balance means the country is net lender to the world**.
> **Capital Account** consists of exchange (inflow and outflow) of capital. It includes foreign investments. Loans and Forex Reserves. **A surplus in Capital Account means there is net inflow of money in the country while a deficit indicates outflow of money**.

**What reforms are required before further liberalization?** – Greater integration with global markets can **risk financial stability**. So some further reforms are required to lessen the risks, **(1)** Implementation of **Tarapore Committee recommendations** for further development of financial markets, **(2) Reduction of Fiscal deficit**, **(3)** Reforms in the banking sector and **strengthening the balance sheets** of the Banks, **(4) Liberalization of the Trade** policy and trade sector, **(5) Currency Management** and further enhancement of India's Forex Reserves.

## #4 Informal Economy in India

**News**: The recent PLFS data indicated decrease in the share of regular salaried workers reflecting problems with the formalization of economy.

**What is informal economy?** – Informal economy refers to those economic activities which are **not monitored, regulated or taxed by the Government**. Informal sector in India includes farmers, agriculture laborers, owners of small unregistered enterprises and their employees and also the self-employed. The workers in the informal sector have no rights to work, at work or to social security. The workers are not entitled to paid leaves, insurance or health benefits or provident fund coverage. India's informal sector is one of the largest in the world supporting possibly more than 400 million workers across all sectors and regions. According to the ILO, more than 2 billion people (61% of World's employed population) were dependent on informal economy, with the proportion as high as 80% in some countries. According to the PLFS 2017-18, there are **92.4% informal workers** (with no written contract, paid leave and other benefits) in the Indian economy. Limited employment creation in the formal economy has led to increasing informalisation of the economy. Informality is growing in the formal sector as well.

**What are the kinds of jobs in the informal sector?** – **(1)** Most of the jobs are **low-skilled** e.g. porter work, basic construction or street vending which don't need a lot of training, **(2) Intermediate skilled** jobs like informal manufacturing, workshops doing welding, making furniture, etc. — these need workers to operate machines which requires months of training, **(3) High skilled** jobs like high-end weaving or delicate metal work which require years of training.

**What is the status of Informal economy in India?** – In OECD countries, about 15% of GDP is generated by informal activity. But the quantum is much higher in India, **(1)** More than **85% jobs are informal**, **(2)** Informal economy **employs 94% of country's female workforce**, **(3)** Of the 384 million employed in the informal sector, half work in **agriculture**, living mostly in **rural India**, and the other half are in non-agricultural sectors. Of those, about half live in rural India and the remaining in urban areas, **(4)** Women account for greater employment than men in India in the informal sector, women mostly work as support workers.

**What are the challenges associated with the informal economy?** – **(1) Low wage levels** for the workers, below the minimum wage levels, **(2)** Small enterprises lack assets, capabilities and the earnings are volatile which limit transition opportunities towards formalization, **(3) Poor access to social protection** which increases vulnerability, inability to work due to health issues or old age make the workers fall into poverty trap **(4) High incidence of poverty and indebtedness** among workers, informal workers are not able to meet basic necessities, **(5) Wage gap** between workers in the informal and formal sector for same skill levels, (6) **Gender bias** in the informal sector exposes women to more laborious and hazardous tasks, wage gap between male and female workers, women have lower wages than men.

**What steps have been taken by the Government?** –
**(1) Legal initiatives** like the Employee State Insurance Act (1948), the Minimum Wages Act (1948), the Coal Mines Provident Funds Act (1948), The Employees Provident Fund Act (1952), the Maternity Benefit Act (1961) and the Contract Labour Act (1970) etc. for labour welfare, **(2) Poverty alleviation related schemes** like Nehru Rozgar Yojana, MGNREGA and the Swarna Jayanti Shahri Rozgar Yojana were

> **PT BOX**
> **Labor Codes**
> Labor is a **Concurrent Subject**. Both Union and State Governments can make laws on labor. **Second National Commission on Labor (2002)** called the labor laws as complex, with archaic provisions and inconsistent definitions. The Commission recommended consolidation of Central labor laws into 4 categories, **(a) Industrial Relations, (b) Wages, (c) Social Security, (d) Occupational Safety and Working Conditions**.

launched to provide support to the poor who constitute bulk of the informal sector, **(3) Social Security measures** like Unorgnaised Workers' Social Security Act, 2008, Atal Pension Yojana, Pradhan Mantri Suraksha Bima Yojana, Pradhan Mantri Jeevan Jyoti Bima Yojana, Rashtriya Swasthya Bima Yojana etc., **(4) Skill Development measures** for the informal workers like Skill India Mission, Pradhan Mantri Kaushal Vikas Yojana, Deen Dayal Upadhyay Grameen Kaushal Yojana, recognition of prior learning etc.

**What more can be done?** – **(1) Upskilling of the workers** especially in sectors which can be globally competitive like Varanasi's weaving, Surat's textiles, Moradabad brassware, **(2) Skill Mapping exercises**: Skills are often measured through formal educational qualifications and the skills of informal economy workers often aren't

visible, they appear unskilled and unproductive. An **intensive skill mapping exercise** is needed to identify the unique skills and mainstream them through formal certification system, **(3)** Informal economy workers should be called as 'self-employed' instead of informal, and help them **grow into employment generators through policy support**.

## #5 Global Agricultural Productivity Report

**News**: Global Agricultural Productivity Report was released recently by the Virginia Tech College of Agriculture and Life Sciences, USA. The report highlighted the slow growth of Agricultural Productivity.

What are the key findings of the GAP report? - Total Factor Productivity (TFP) is growing at an annual rate of 1.36% (2020-2019). The required productivity growth to sustainably meet the demand of food by 2050 is 1.73%

What are the reasons for low TFP Growth? – The TFP has been impacted by (1) Climate Change, (2) Adverse Weather Events, (3) Changes in Fiscal Policies and Government support, (4) Volatile Agricultural and Commodities Markets, (5) Low investments in infrastructure and agricultural research and development.

What are the regional variations at the global level? – Most robust growth in TFP has been in the middle-income countries including India, China, Brazil and former USSR republics. Low-income countries have a negative TFP growth of -0.31% annually. Low-income countries have mostly small-scale farmers.

**What is the impact of climate change on TFP? –** Human induced Climate Change has slowed the global agricultural productivity growth by 21 percent since 1961. In drier regions of Africa and Latin America, climate change has slowed productivity growth by as much as 34 percent.

What are the suggestions given by the GAP report? – (1) Investments in agricultural research and development, (2) Use of science and IT based technologies in agriculture, (3) Improving infrastructure for transportation, information and finance, (4) Cultivating partnerships for sustainable agriculture, economic growth and improved nutrition, (5) Expanding and improving local, regional and global trade, (6) Reducing post-harvest loss and food waste.

What does the GAP Report say about India? – (1) India has seen strong TFP and output growth this century. The most recent data shows an average annual TFP growth rate of 2.81% and output

PT Box

**Agricultural Productivity**: Ratio of agricultural outputs to inputs. Agriculture productivity increases when more agricultural products are produced with the same amount or fewer resources.

**Yield**: Output per unit of a single input. Yields can increase through productivity growth, or by applying more inputs, called input intensification. An increase in yield may or may not represent improvements in sustainability.

**Total Factor Productivity**: IFPRI describes TFP as an indicator of **how efficiently agricultural land, labor, capital, and materials (agricultural inputs) are used** to produce a country's crops and livestock (agricultural output)—it is calculated as the **ratio of total agricultural output to total production inputs**. When more output is produced from a constant amount of resources, meaning that resources are being used more efficiently, TFP increases.

growth of 3.17% (2010–2019.), (2) Climate change will have profound impact on India's agricultural growth. By the end of the century, the mean summer temperature in India could increase by 5°C. This rapidly rising temperature, combined with changes in rainfall patterns could cut yields for India's major food crops by 10% by 2035, (3) In addition to the challenges for environmental sustainability, India's small-scale farmers face significant obstacles to economic and social sustainability.

## #6 Reforms in the Pharma Sector

**News**: The Government has recently agreed to review the Pharma sector laws and has constituted a committee to review the existing laws.

What is the current scenario of India's pharma-sector? – (1) **India has been one of the largest manufactures and exporters of affordable generic medicines in the world and is called as** Pharma Capital of the World. **India's drugs and pharma exports stood at USD 24.4 billion in FY2021, India also supplied almost 6 Crore COVID-19 vaccines to the world (till May 2021),** (2) **The sector has attracted FDI flows consistently,** (3) **The sector is expected to become $ 130 billion industry by 2030,** (4) **India is poised to enter the list of top 10 countries in terms of medicine spending.**

How pharma-sector is governed in India? – (1) **The sector is primarily governed by the** Drugs and Cosmetics Act (DCA) of 1940 and the Drugs and Cosmetics Rules of 1945. These legislations regulate the import, manufacture, distribution and sale of drugs and cosmetics in India, (2) There are other industry-specific rules and regulations around medical devices, prices of essential notified drugs, narcotic and psychotropic drugs and substances, development of new drugs and undertaking clinical trials.

What are some of the key aspects the committee should consider? – **According to a report by a private corporate firm, the committee can take into consideration the following aspects;** (1) Digital health: Clear and predictable regulatory framework for new-age technologies and internet-based business models such as e-pharmacies that are major drivers of growth, (2) Medical devices: The Medical Devices Rules of 2017 govern medical devices but there is still dependence on the Drug Control

> **PT BOX**
> **Regulation of the Pharma Sector in India**
> **Drugs and Cosmetics Act, 1940:** Regulates the import, manufacture, distribution and sale of drugs in India.
> **Central Drugs Standard Control Organization (CDSCO)** provides general information about drug regulatory requirements in India. It comes under Ministry of Health & Family Welfare,
> **National Pharmaceutical Pricing Authority (NPPA)** enforces the Drug Price Control Order and regulates prices of medicines. It comes under Ministry of Chemicals and Fertilizers
> **The Pharmacy Act, 1948** regulates the profession of Pharmacy in India.
> **The Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954** provides to control the advertisements regarding drugs; it prohibits the advertising of remedies alleged to possess magic qualities.
> **Schedule Y of The Drugs and Cosmetics Act** guides the requirements of clinical trials

Authority (DCA) and the Central Drugs Standard Control Organization (CDSCO). The committee should consider separate legislation, (3) Ambiguity in licensing issues: There is a requirement of renewal of licenses under the DCA if there is a change in the constitution of firm, but this term is ambiguous, and open to contradictory interpretations by regulators in different states. This impacts mergers and acquisitions and hampers efficiencies, such ambiguities can be rectified, (4) **The regulatory framework can be amended to encourage start-up ecosystem in the sector,** (5) FDI Norms: Current norms limit FDI in brownfield pharmaceutical ventures to 74% under the automatic route. There are other sector-specific conditions such as no 'non-compete' restrictions. Such restrictions must be removed to boost investment.

India's pharma sector is pivotal to the requirements of the medicines and vaccines world over as was evident during the COVID-19 pandemic. With these reforms, India's pharma sector can further strengthen its position at the global level.

## #7 Global Trade and Threat to Multilateralism

> **News**: Trade Protectionism is increasing world over. WTO is facing multiple challenges. This has increased threats to multilateralism in Global Trade.

What is WTO? - **(1)** The World Trade Organization (WTO) is the only global international organization **dealing with the rules of trade between nations, (2)** The overall objective of the WTO is to help its members **use trade as a means to raise living standards, create jobs and improve people's lives, (3)** The WTO operates the global system of trade rules and helps developing countries build their trade capacity, **(4)** It also provides a forum for its members **to negotiate trade agreements and to resolve the trade disputes, (5) WTO promotes open and free trade** and supports the integration of developing countries into the international trading system, **(6)**

WTO became operational from January 1, 1995 and **replaced the earlier General Agreement on Trade and Tariffs (GATT) through the Marrakesh Agreement of 1994**.

**What are the challenges facing the WTO? – (1)** WTO has failed to reach a **permanent consensus on public stockholding of food grains**. The **Peace Clause** was supposed to be an interim measure but the permanent solution to stockholding has proven to be elusive, **(2)** There has been **disagreement on the issue of waiving TRIPS conditions for COVID-19 related medical products**, the waiver would increase access to of COVID-19 medical products especially medicines, **(3)** The **Doha Development Agenda on 20 trade areas has been stalled since 2008**, primarily because of disagreement between developing and developed countries on multiple issues related to **agriculture subsidies, special and differential treatment, access to patented medicines under TRIPS** etc. (4) The deadlock on Doha negotiations has resulted in **plurilateral agreements** like the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP) agreement. This is a **threat to multilateralism**, while **further endangering the interests of developing countries as they lack power in such agreements compared to WTO**, **(5)** WTO's **Dispute Settlement Mechanism is facing existential crisis**. The **Appellate Body has been non-functional since December 2019** due to rising vacancies, and the last sitting member also retired in November 2020. It has led to an increase in number of pending appeals. **The Appellate Body (AB)** is the highest adjudicating body of the WTO dispute settlement. The members now have an opportunity to not comply with WTO's decisions on disputes. Pending disputes will remain unresolved further pushing nations towards plurilateralism and protectionism.

**Is the World facing de-globalization? – (1) Global MNCs are reconsidering their supply chain networks** and dependence on international supplies due to the disruption caused by the pandemic, **(2)** National Governments are focused on **augmenting domestic capacity** to reduce import dependence, **(3) Trade Openness Index** which had steadily risen in the post-World War period, **has been decreasing since 2008** financial crisis, **(4)** The growth of global value chains has stopped and the reforms are stalled world over according to one US based think tank, **(5) China's exports**, World's export powerhouse, **have fallen from 30% of its GDP in 2008 to less than 20% now**, **(6) Trade tension between the US and China** and imposition of restrictions and tariffs has worsened the situation.

**Is India also getting protectionist? – (1) India's average tariffs increased** to 11.1% in 2020-21 from 8.9% in 2010-11. The Union Finance Minister had admitted in 2018 that India is making a **"calibrated departure"** from the policy of cutting tariff rates, **(2)** India is the **highest initiator of anti-dumping** measures, higher compared to US, EU and China. These measures are aimed at shielding domestic industry from import competition, **(3)** Recent amendment to the **Section 11(2)(f) of the Customs Act of 1962** empowers the government to ban the import or export of any good if it is necessary to prevent injury to the economy. Earlier, this provision **was applicable for just gold and silver**, (4) India recently amended the **rules of origin requirement** under the Customs Act. The **burden of compliance** is imposed on importers, which discourages imports, **(5)** The on-going campaigns like 'vocal for local' and '*atmanirbhar*' are aimed at reducing dependence on imports.

> **PT BOX**
> **Rules of Origin**
> The Rules of Origin determine whether a product originated in an FTA or a non-FTA country. The products from FTA countries attract preferential tariff rates, while non-FTA attract the Most Favored Nation rate.

**What can be done? – (1)** There is a need to **break the deadlock in the WTO negotiations** and the onus lies with the Developed countries to address the valid concerns of the Developing countries. The TRIPS waiver can be a good start. Similarly the plurilateral agreements should be based on the principles of WTO. WTO is necessary to ensure rules based global order. **Institutional multilateralism** is the **remedy to unilateralism and economic nationalism**. WTO is the only forum where developing countries like India can push for evolving an inclusive global trading order, (2) At the domestic front, India must **review the current trade policy** and **rationalize the tariff structure**. India must reconsider the exit from RCEP which can affect long-term trade prospects.

### #8 Coal Crisis: Shortage of Coal for electricity generation

**News**: Recently there was critical shortage of coal in most Thermal Power Plants at the pan-India level which could have precipitated into a major energy crisis.

**What is the significance of Coal for India? –** (1) India's installed electrical power capacity (August 2021) is approximately 380GW out of which **coal based thermal power contributes 209GW (~55%)**, (2) According to the IEA, **Coal contributes 44% to India's Primary Energy Mix** and the share has increased from 33% in 2000 and 40% in 2010.

**What was the issue of coal shortage? – (1)** Many power plants faced issue of coal shortage in the month of October 2021, **(2)** The stock was limited to only 3-4 days' supply against recommended stock of 2 weeks, **(3)** The problem was more acute in non-pithead thermal power plants which are situated far away from coal mines (98 out of 108)

**What is India's position in context of coal reserves? – (1)** India is the **2nd largest producer and consumer** of coal in the world after China, **(2)** There has been a growth of 5.37% in the total estimated coal reserves during the year 2020 over the last year, **(3)** The top three states with the highest coal reserves in India are **Jharkhand, Odisha, Chhattisgarh,** which account for approximately **70%** of the total coal reserves in the country. Majority of the produced coal is consumed for **electricity generation.**
India's coal fired thermal power plants account for 54% of India's 388 GW installed generation capacity, Renewable energy (101 GW), Gas (25GW), hydropower (46GW) and nuclear energy account for the rest.

**What are the reasons behind the coal shortage? –** (1) Rise in demand of electricity **due to recovery post COVID pandemic,** (2) Fall in coal production due to delayed and scattered monsoons, **heavy rainfall in September flooded the mines,** (3) Spike in imported coal prices **(more than 40%) due to** shortage of production in China, **China had reduced coal production to focus more on green energy,** (4) Delay in replenishment of coal stock **by the power plants,** (5) Non-payment of dues by indebted Power distribution companies **to the power producers impacting their cash cycle and payments,** (6) Rise in household demand, (7) Stagnation in coal production **at 600MT, allocation of coal mines to non-CIL entities hasn't resulted in augmentation of production,** Non-CIL coal production fell from 128 MT in 2019-20 to 120 MT in 2020-21, (8) Fall in investments in coal mining and exploration due to increased focus on green energy sources.

**What is the likely impact of coal shortage? –** (1) Delay in economic recovery **if the industrial sector faces power shortage and downscale production,** (2) **Importing coal at higher prices will** increase energy cost **and will have** inflationary implications, (3) **Increase in coal prices will** increase cost of steel **which will have** cascading impact on other industries **including automobiles,** (4) Persistence of the coal shortage **can force the countries to reconsider their** green energy transition plans.

**What can be done to improve the situation? –** (1) **Ramp up production from existing mines, the supply demand gap will reduce in winter due to fall in demand,** (2) Sourcing coal from captive mines, **the** Centre has amended rules to allow 50% sale of coal from captive mines, the government has paved the way for releasing of additional coal in the market by greater utilisation of mining capacities of captive coal and lignite blocks, (3) Penalty mechanism: **The Ministry of Power is devising a penalty mechanism for power generation companies that delay payments to the CIL to avoid any supply crisis due to non-**

> **PT BOX**
> **Captive Mines**
> Captive mines are those mines where the produced coal or minerals can be consumed solely by the company that owns the mines. Under normal conditions the producer is not allowed to sell the production to other businesses.

payment of dues, (4) **Government is considering** diverting of supplies **from non-critical industries like aluminium,** (5) **Coal based Power Plants under the corporate insolvency resolution process** can be allowed to commence operations immediately, regardless of the stage of the proceedings at NCLT, (6) CIL is cash strapped due to delay in payments by Generating Companies which owe CIL more than INR 20,000 Cr. Funds

must be provided on an immediate basis to CIL for expansion of mines, recovery from GENCOs can be done in parallel, (7) Expand the coal production capacity of both CIL and non-CIL mines, (8) Resolve the financial crisis in the sector: Power Distribution Companies (DISCOMs) owe roughly INR 200,000 Cr to the Power Generation Companies (GENCOs), (9) There is a need to increase the production capacity of Gas fired plants and reduce dependence on Coal.

The current coal crisis is a wake-up call for India and the time has come to reduce its over-dependence on coal and more aggressively pursue a renewable energy strategy. The focus should be on energy security.

## #9 Clean Energy Transition Plan

**News:** As India's energy demand grows, there is a need to adopt a comprehensive policy to meet the present and future energy requirements.

**What is the generation source split of electricity sector? -** The electricity generation sector is largely dependent upon Thermal Power Plants (TPPs). As of March 2021, the installed capacity includes **209 GW Coal (54%), Gas 25 GW (6.4%), Hydro 46 GW (11.8%), Wind and Solar 102 GW (26.2%) and Nuclear 7 GW (1.8%)**. The large share of thermal power developed after the passage of Electricity Act in 2003 which led to doubling of the coal fired Thermal Power Plant capacity from 92GW in 2011 to 192 GW in 2017. This has enabled the government to **increase per capita electricity consumption by 37%** while reducing the **peak demand deficit from 9.8% (2010-11) to 1.6% (2016-17)**. At the same time the share of renewable energy has grown rapidly since 2014 growing to 100 GW by 2021.

**What is the challenge facing the energy sector? -** India faces **twin challenge in the energy sector**, **affordable energy access** to all and **meet the climate obligations**.

**Why is thermal power so important? – (1)** Coal is **abundantly available** in India, **(2) Complex Geopolitics** limits access to piped Gas (TAPI pipeline has been held up), **(3)** TPPs (Coal, Gas, Diesel) contribute almost 70% of India's electricity generation though account for less than 60% of installed capacity.

**What are the issues associated with renewable energy in India? -** Variable renewable energy (VRE) sources (primarily, wind and solar) account for **26% of the total installed generation capacity**. They also contributed **10.7% of the electricity generated** by utilities during FY 2020-21.
The current level of VRE in the national power grid is **increasing the cost of power procurement** for DISCOMs. This has led to **tariff increases** for electricity consumers.
Though VRE generation capacity has increased, growth in electricity demand has not increased commensurately. This has resulted in **lower utilization of TPPs whose fixed costs must be paid by the distribution companies** (DISCOMs) which are in turn passed through to the final consumer further increase cost of electricity.
So the government must implement a **plan to increase energy efficiency** and reduce the emissions of carbon dioxide ($CO_2$) and airborne pollutants from TPPs without making power unaffordable to industries.

**What should be the India's future plan? – (1)** India should begin a progressive retirement of 36 GW of installed generation capacity in 211 TPPs of capacity 210 MW and below. The shortfall can be met by following steps, **(2) Increase the utilization of existing High-Efficiency-Low-Emission (HELE) TPPs that are currently under-utilized** to accommodate VRE, **(3) Commission the 47 government-owned TPPs** (total capacity of 31.6 GW) that are at an advanced stage of construction, **(4) Accelerate the construction and commissioning of 11 nuclear power plants** (being built by NPCIL) with a total generation capacity of 8,700 MW that will supply 24×7 power without any $CO_2$ emissions.

**What are the positive trends in the context of cost of Renewable Energy in India? – (1)** India has seen the price of **solar power** fall from over Rs 16 a unit to less than Rs 3 in around 10 years, **(2)** The price of **battery**

storage has **fallen by an eighth in 10 years**, (3) Within this decade, **grid storage is expected to become cost-effective** vis-a-vis fossil fuels for electricity needs during the day when renewable generation is inadequate, **(4) Electric vehicles have become commercially competitive** earlier than expected. Volkswagen has announced that by 2035 they would stop making internal combustion engine cars.

**What the expected benefits of the plan? – (1)** HELE TPPs minimize emissions of particulate matter (PM), SO2, and NO2, which offer operational, economic, and environmental benefits, **(2)** This plan prioritizes the installation of high-efficiency electrostatic precipitators that can remove 99.97% of the PM pollution without long-term shutdowns or hiking tariffs unlike expensive, imported FGDs (flue gas desulphurization plants), **(3)** This plan will **enable India to safeguard its energy security and ensure efficient grid operations** with lower water consumption, PM pollution, and CO2 emissions. This will pave the path of sustainable development for India

## #10 Nuclear Energy as an option for Clean Fuel

**News**: India need to ensure energy security to the growing population while meeting the Climate Action obligations. Nuclear Energy offers a viable option.

What does the analysis of green energy paradigm reveal? – (1) Instability: **Renewable energy resources are** intermittent in nature **and dependent upon external condition** (shining of the sun or blowing of the wind), (2) Renewable energy sources can't handle peak loads and changes in the grid load, hence require fossil-fuel back-up, (3) Many European nations increasingly shifting to renewable resources faced energy shocks in recent times due to lower sunshine and 'windless summers' in 2021.

Why developing nuclear power is a better option? – (1) Nuclear Energy is very economical, **evident from the contrast in per unit cost of Germany ($0.37/KWh) and France ($0.19/KWh). France's almost 75% electricity comes from Nuclear Power, while in Germany the mix is 50% Renewables and 36% Thermal, (2)** Nuclear Energy is cleaner **and has much lower emissions than Thermal power. Germany emitted 350 gms of carbon dioxide for every KWh while France emitted only 56 gms,** (3) **Nuclear Energy has less requirement of land and hence requires** lesser diversion of land use. According to US government data, a typical 1,000-megawatt wind farm requires 360 times more land than a similar-capacity nuclear facility, while a solar plant requires 75 times more area, (4) Nuclear energy has lesser waste generation. Nuclear waste although very dangerous due to radioactivity, can be safely stored with modern technologies and proper processes in a very compact volume. All the waste produced by the US nuclear industry over 60 years can fit into a space that is required to hold waste generated from a coal plant in 1 hour, (5) California State in the US shut down nuclear plants to rely on thermal energy, but has witnessed rising emissions and rising cost of electricity.

What is the status of Nuclear Energy in India? – (1) Nuclear Power contributes only 3% of the total power generated annually in India. In 2021, the government announced that India would triple its nuclear power capacity in the next 10 years, (2) India had signed a civil nuclear cooperation deal with the US in 2008 but not much development has happened since then, (3) India is developing Fast Breeder Reactors that will eventually allow utilization of Thorium as fuel in our nuclear plants. At present, there is import dependence for Uranium fuel in our nuclear power plants. Uranium is scarce in India. India has vast reserves of Thorium.

**What is the way forward? – (1) Promote the Nuclear Energy in India by increasing installed capacity, (2) Accelerate the development of FBRs so that India can quickly transition to Thorium based Nuclear Power,** there is a need to invest ambitiously in projects that convert thorium to fissile uranium and produce power **(3) Operationalize the Indo-US Civil Nuclear deal, (4) D**evelop very-large-scale cost-effective technology to store the power produced by renewable resources, **(5)** Make the right choices between various low-carbon technologies, all of which have some social and environmental impact.

## #11 Sustainable Agriculture Practices

**News**: As the climate change is becoming increasingly evident through the extreme weather events, there is an urgent need to adopt Sustainable Agriculture Practices.

**What are the vulnerabilities faced by Indian farmers due to Climate Change?** – **(1)** Temperature change will alter crop growth lowering yield, **(2)** Erratic rains leading to crop damage, **(3)** Frequent droughts and cyclones, **(4)** Change in atmospheric and soil moisture which will impact productivity negatively.

**What are the issues with Green Revolution Model? – (1)** Limited to North-west India and Parts of Southern India where irrigation facilities are better, marginal impact in rain-fed areas, **(2)** Overuse of fertilizers and pesticides have environmental side-affects like eutrophication, contamination of ground water, (3) Monocropping and high cropping intensity has led to loss of soil nutrients, **(4)** Loss of groundwater table especially in Punjab and Haryana, **(5)** More emphasis on food grains like wheat and rice, while millets have been ignored, so problem of hunger persists, Indian population is '**calorie-secure**' not '**nutrient-secure**', 22% adults underweight, 38% children stunted, **(6)** The **Situation Assessment Survey of Agri households, 2020** shows **large regional variation in farm income** apart from the **low income levels**, average farmer household income was Rs 10,218 per month in 2018-19 (July-June), States with **high farm incomes** include **Meghalaya** (Rs 29,348) **Punjab** (Rs 26,701), **Haryana** (Rs 22,841), Arunachal Pradesh (19,225) and Jammu and Kashmir (Rs 18,918), States with **low farm incomes** include **West Bengal** (Rs 6,762), **Odisha** (Rs 5,112) and **Jharkhand** (Rs 4,895). Punjab and Haryana rank high because of large landholdings, if normalized for landholding size, Punjab and Haryana slip to 11ᵗʰ and 15ᵗʰ ranks respectively. This shows **low value addition in agriculture in Punjab and Haryana**. Farmers belonging to Jammu and Kashmir, Kerala, Meghalaya and Arunachal Pradesh **earn better income from cultivating fruits and vegetables, spices, and livestock** which are high value in nature.

**What are Sustainable Agriculture Practices? –** Council on Energy, Environment and Water (CEEW) has identified 16 '**Sustainable Agriculture Practices**' (SAP's), such as **organic farming, natural farming, integrated farming systems, agro-forestry and precision farming**. These practices could be economically remunerative, socially inclusive and environmentally benign. Only 4% Indian farmers have adopted SAP's although some states have shown significant progress, Sikkim is a 100% organic state, and Andhra Pradesh aims at 100% natural farming by 2027.

**What are the challenges to Sustainable Agriculture Practices?** – **(1) Reluctance of farmers** to change the status-quo**, (2) Limited support from the Central Government**, India's National Mission on Sustainable Agriculture receives only **0.8%** of the agricultural budget, (3) Lack of support from State Governments.

**What are the impacts of Sustainable Agriculture Practices? – (1) Improve farmers' income** by reducing costs of inputs, **(2)** Crop diversification leads to **improved nutrition security**, (3) Increased annual **farm output** by unlocking additional cropping seasons in rain-fed areas, **(4) Improve farm resilience** against climate change and natural disasters.

**What can be done to incentivize Sustainable Agriculture Practices? – (1) Capacity building-**Farmers need hand-holding initially to adopt the new practices. Civil Society Organizations can be engaged to promote farmer-to-farmer capacity building for sustainable agriculture, **(2) Adoption of Technology** to mechanize labour-intensive activities associated with SAPs. Innovators and entrepreneurs can be incentivized through channels like the **Atal Innovation Mission** to encourage the development of farm implements for SAPs, **(3) Support local micro-businesses** through state livelihood missions to produce and sell ready-made inputs such as vermicompost and organic fertilizers, **(4) National policy focus** should be shifted from food to nutrition security, looking beyond yields. Government can support transition and bear short-term losses and wean the farmers away from Wheat-Paddy cycle in Northwest India. Instead of input-based subsidies for fertilizer and power, the focus should be to **incentivize outcomes** like nutrition output, water conserved or desertification reversed, **(5)** Promote **adoption of crop-cycles according to local agro-climatic conditions**

which will reduce negative externalities on environment, e.g. shifting from paddy to maize in Punjab will rejuvenate the depleting water table, **(6) Research and development-**SAP's impact studies comparing these with conventional farming across agro-climatic zones could inform further scale-ups of SAPs, even in irrigated areas.

India should promote sustainable agriculture, particularly in rain-fed areas—home to 60% of Indian farmers. Rain-fed farmers practise low-resource agriculture, have low productivity, and stand to be the chief gainers from this transition.

**Other Sustainable Farm Practices**

**Zero Budget Natural Framing – (1)** Zero Budget Natural Farming refers to **environment friendly agricultural practices** developed by Subhash Palekar, **(2)** Zero Budget means **no spending on agricultural inputs** (like fertilizers) and Natural Farming means **farming with Nature without chemicals** (like pesticides), **(3)** The ZBNF movement has been driven by Mr. Palekar in association the Karnataka State farmers association Karnataka Rajya Raitha Sangha (KRRS), **(4)** ZNBF is based on 4 pillars: **(a) Jivamrita/jeevamrutha** is a fermented microbial culture with mixture of soil with cow dung and

> **PT BOX**
> **La Vía Campesina**
> **La Vía Campesina** ('the peasants' way') is an international farmers organization that advocates for **family-farm-based sustainable agriculture**. It consists of farmer organizations from 81 countries. The group coined the term **food sovereignty**.
> **Food sovereignty** is a food system in which the people who produce, distribute, and consume food also **control the mechanisms and policies of food production and distribution**. This stands in contrast to the present corporate food regime, in which corporations and market institutions control the global food system.

urine, jaggery and pulse floor. It provides nutrients, and acts as a catalytic agent that promotes the activity of microorganisms and earthworms in the soil, **(b) Bijamrita/beejamrutha** is a treatment used for seeds. It protects young roots from fungus and other soil and seed-borne diseases. It is composed of similar ingredients as jeevamrutha, **(c) Acchadana (Mulching)**: Three types of Mulching is practiced, Soil Mulch, Straw Mulch and Live Mulch. This protects topsoil during cultivation and does not destroy it by tilling. It promotes aeration and water retention in the soil, **(d) Whapasa (moisture)**: Whapasa is the condition where there are both air molecules and water molecules present in the soil. Over-reliance on irrigation is avoided, irrigation is done only during around noon, **(5)** Other practices under ZBNF include **intercropping, use of contours and bunds** to preserve rainwater and **use of local species of earthworms, (6) Intercropping is necessary to ensure Zero Budget**. Zero Budget doesn't mean that the farmer is going to have no costs at all, but rather that any costs will be compensated for by income from intercrops, making farming a close to zero budget activity, **(7)** A **survey carried out by LVC on ZNBF points to social and economic benefits in addition to agronomic benefits**. ZBNF has resulted in improvements in yield, soil conservation, seed diversity, quality of produce, household food autonomy, income, and health. Farmers practicing ZBNF have **reduced farm expenses and consequently need for credit**.

**Organic Farming – (1)** Organic farming is an agricultural system that uses **fertilizers of organic origin** (such as compost) and emphasizes **biological methods of pest control, (2)** It also focuses on practices like **crop rotation and companion planting, (3)** Organic agriculture intends to r**educe the impact of use of chemicals on environment**, **(4)** FAO defines Organic Agriculture as, "*Organic agriculture is a **holistic production management system** which promotes and enhances **agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity**. It emphasises the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfil any specific function within the system.*", **(5) Benefits**: Organic Farming is **environment friendly, and the organic products are said to be more nutritious. (6) Shortcomings**: There is **a fall in output during initial years of adoption of Organic farming**. Organic products have **higher price** and hence this tends to lower the demand for organic products. Organic products generally have lower shelf life.

**Food crisis in Sri Lanka – (1)** The Government in Sri Lanka declared emergency on August 30, 2021. While there are multiple reasons behind the declaration like depreciation of currency and depleting forex reserves, '**food crisis**' is also one of the major factor, **(2)** The food crisis in Sri Lanka happened due to **ban on imports of chemical fertilizers in April 2021** and the decision to go 'Organic' overnight. However, the farmers had no knowledge of organic practices to transition to organic farming, **(3)** There are anticipated **crop failures** due to lack of fertilizers which has caused **food shortage and increased the prices**, **(3) Switching to organic farming is not an overnight process**, but takes at least two years to complete in order to rebuild the soil and reach a point where it can produce comparable crop yields, **(4)** The crisis in Sri Lanka shows that the transition to Organic farming should be a long-term carefully planned process.

**Climate Smart Agriculture – (1)** Agriculture is facing multiple challenges **(a)** Rising demand due to increasing population while yields are levelling off, **(b)** Negative impacts on environment due to intensive use of inputs like groundwater, overuse of chemicals, **(c)** Susceptibility of farm yields to climate change (impact on yields, nutritional qualities, livestock productivity), **(d)** Agriculture's contribution to climate change (29% Green House Gas emission from Agriculture sector), **(2)** According to the World Bank Climate-smart agriculture (CSA) is an **integrated approach to managing landscapes—cropland, livestock, forests and fisheries—that addresses the interlinked challenges of food security and accelerating climate change**, **(3)** CSA aims to achieve 3 outcomes – **(a) Increase Productivity** to improve **nutritional security** and boost farm incomes, **(b) Enhanced resilience** by **reducing vulnerability** to drought, pests, diseases and other climate-related risks; and **improve capacity to adaptation**, **(c) Reduced emissions:** Pursue lower emissions for each calorie or kilo of food produced, **avoid deforestation** from agriculture and identify ways to absorb carbon out of the atmosphere, **(4)** Climate Smart Agriculture uses sustainable Crop Management, Soil Management, Pest and Disease Management and Water Conservation measures.

## #12 Pandora Papers and Illegal Offshore Investments

> **News**: The Pandora Papers exposé has brought the illegal offshore investments into the light once again.

**What are the Pandora Papers? –** Pandora Papers are the leaked files of 12 million documents from 14 global corporate services firms which set up about 29,000 **off-the-shelf companies** and **private trusts** in **obscure tax jurisdictions** and in countries such as Samoa, Belize, Panama, and the British Virgin Islands, Singapore, New Zealand, and the United States, for clients across the world. The papers reveal **complex web of offshore dealings** by wealthy individuals around the world, creating Illegal offshore investments. There are names of at least **380 persons of Indian nationality** in the Pandora Papers. This shows how the wealthy in India safeguard their investments (cash, shareholdings, real estate, valuable assets) from creditors and law enforcement agencies. These documents have been sourced by **International Consortium of Investigative Journalists (ICIJ).**

What are the previous such leaks exposing illegal offshore investments from India? – There have been several such leaks in the recent times, (1) Mauritius Leaks, 2019: **One-fourth of those disclosed** in the Mauritius leaks **had India as their only country or one of the countries** of business activity, (2) Paradise Papers leaks, 2017: **13 million leaked files**, India ranked 19th in terms of the number of names that feature in the papers, (3) Panama Papers, 2016: 11.5 million files from the database of the world's fourth-biggest offshore law firm, **Mossack Fonseca**. Over 500 Indians exposed. India recovered Rs 20,352 crore from the investigations following the leaks of Panama Papers, (4) Swiss leaks or HSBC Leaks, 2015: Secret documents from HSBC's Swiss private banking arm, exposed 1,195 Indian HSBC clients, Indian investigative agencies found undisclosed income of Rs 8,465 crore in Swiss leaks and levied taxes and a penalty worth Rs 1,294 crore.
According to GoI, the leaks have been used to check for possible tax evasion and the last two leaks have resulted in the detection of undisclosed income of Rs 20,352 crore.

**What do Pandora Papers reveal? -** The wealthy people **set up complex multi-layered trust structures** for estate planning, in jurisdictions which are loosely regulated for tax purposes, but have stringent secrecy laws.

The purpose for which trusts are set up are many is two-fold, (1) **To safeguard investments** (cash, shareholdings, real estate, assets) from creditors and law enforcers and **evade taxes, (2) To hide their real identities** to evade identification and possible future arrests.

The Government has ordered a **multi-agency probe** into the offshore secrets of wealthy elites unravelled in the Pandora Papers. The complex ownership structures and ringfencing of wealth in the records will be **scrutinised by a group headed by the chairman of the Central Board of Direct Taxes** (CBDT).

What steps has the Government taken to curb illegal offshore investments and tax evasions? – (1) International Collaborations: Proactive engagement with foreign governments to facilitate and enhance the exchange of information under the Double Taxation Avoidance Agreements (DTAAs)/**Tax Information Exchange Agreements (TIEAs)**. DTAAs **more than 80 countries**, (2) Membership of **various** international conventions like the Multilateral Convention on Mutual Administrative Assistance in Tax Matters, United Nations Convention against Corruption, Financial Action Task Force, OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting (BEPS) etc., (3) G20 Countries led common reporting standards for an automatic exchange of information between countries and information sharing on request, 110 jurisdictions are signatories to the standard, India is also a signatory, (4) India has joined the G20-OECD inclusive framework deal that seeks to reform international tax rules and ensure that multinational enterprises pay their fair share wherever they operate. With this framework countries can impose a global minimum corporate tax on large multinational corporations, and reduce the advantages of tax havens. India may no longer need the Equalization levy that was imposed on online advertising services and digital transactions by foreign entities in India, (5) National Legislative actions like Foreign Exchange Management Act, the Prevention of Money Laundering Act, the Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, the **Prevention of Corruption Act** and the **Income-Tax Act** to deal with offshore illegal investments and tax evasions from India. Investigative and enforcements agencies such as the CBDT, CBI, ED look into tax evasions and Illegal offshore investments from India under the provisions and framework of these laws, (7) The Government introduced an Income declaration scheme to encourage voluntary disclosure of black money and offshore investments, prosecution can be avoided after paying a fine of 50% on the undisclosed income, (8) The income tax department is implementing 'Project Insight' which will monitor high-value transactions within India and from India to abroad to curb black money, (9) The government also formed a Special Investigation Team under Justice M B Shah to curb black money and illegal offshore investments, (10) Implementation of General Anti-Avoidance Rule (GAAR) to curb tax evasion and avoid tax leaks,

What are the challenges in curbing illegal offshore investments? – (1) Difficulty in tracking the investments: Offshore trusts offer enhanced secrecy to businesspersons, due to their complex structures, (2) Challenges in prosecuting illegal investments: Financial secrecy laws **of tax havens allow creation of anonymous accounts and** prohibit disclosure of financial information **which hampers prosecution,** (3) **Tax laws and** treaties are long and complex **and evaders exploit the loopholes,** (4) **Unrestrained capital flow w**ith globalisation and the liberalisation of the global economy, (5) Lack of comprehensive enforcement agencies:

Separate wings of law enforcement agencies deal with tax evasion and illegal offshore investments from India. They lack coordination, lack of skills to handle the issue holistically.

**How to curb illegal offshore investments better? – (1) Faster implementation of Global Minimum Corporate Tax**, **(2)** India can demand offshore illegal investments as **proceeds of crime and corruption,** mentioned under the **UN Convention against corruption** making it obligatory for the foreign countries to share financial details, **(3) Implementing the recommendations of SIT** and amending the **Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015**. The report recommended incorporating the provision that "**undisclosed foreign income and assets would vest in the Union of India**", **(4) Amendments to Indian Laws and regulations** such as FEMA, FERA to curb tax evasions and illegal offshore investments, **(5) Imposing deterrent punishments** in a time-bound manner without judicial delay, **(6)** Use of technology and an **Integrated Taxpayer Data Management System (ITDMS)** for 360- degree profiling to recognise the defaulters in time, **(7) Provide domestic and international training to the personnel of the Law enforcement agencies.**

## #13 Drug Abuse and NDPS Act

> **News**: The pandemic period has witnessed a big increase in the drugs related arrests and seizures.

**What has been the impact of pandemic on drugs usage? -** (1) According to **National Crime Records Bureau**, there was a **decrease of more than 27% in crimes related to personal consumption of drugs** from 2019 to 2020, **(2)** The crimes related to drug trafficking had seen a drop of 2% in the same period, (3) The pandemic period saw a rise in drug-related issues and seizures.
However, there is no empirical evidence to suggest that the number of drug users has increased in the last two years.

What is Narcotics and Psychotropic Substances (NDPS) Act? – The act was passed in 1985 to tackle the problem of illegal drugs. The Act **established Narcotics Control Bureau** as the apex drug law enforcement agency related to narcotics drug control. NCB has been empowered to oversee the implementation of the NDPS Act and also the other International conventions related to it.
The Act prohibits the production, sale, purchase, transport and consumption of narcotic drugs and psychotropic substances. The act extends to the whole of India and also in aircraft and ships that are registered in India.

What are the provisions related to drug users and dealers? – (1) The original Act provided no immunity to drug addicts and were treated at par with the dealers. The Act was amended in 2001 to make it more tolerant towards drug users (who possess low quantity of drugs) and focus more on punishing the drug dealers (smugglers, transporters, suppliers), (2) The Act prescribes quantity-based punishment. The Act differentiates between **small and commercial quantities** of various drugs; sentence is harder for smugglers, including death penalty for repeat offenders, (3) Act provides immunity from prosecution to drug addicts who volunteer for de-addiction treatment (Section 64) and provides for setting up of rehab facilities (Section 71)

PT BOX
**Narcotic**s are drugs that produce analgesia (pain relief), narcosis (state of stupor or sleep), and addiction (physical dependence on the drug).

**Drug Use**: Psychotropic medications are **used to treat mental health disorder**s. There are five main types of psychotropic medications viz., **antidepressants, anti-anxiety medications, stimulants, antipsychotics, and mood stabilizers.**

**Substance (Drug) Abuse:** Drug abuse or substance abuse refers to the use of narcotic or psychotropic substances for the purpose of **creating pleasurable effects on the brain**. Drug abuse can have serious side effects including addiction, mental disorders, cardiovascular and respiratory diseases and death in extreme cases.

What steps have been taken by the Indian government to control drugs? – (1) Seizure Information Management System (SIMS): Narcotics Control Bureau has developed the SIMS platform. It contains a complete online database of drug offences and offenders, (2) Narco Coordination Centre (NCORD): NCORD was constituted by the Ministry of Home Affairs in 2016 and is a mechanism for coordination between the Central and State Agencies, (3) Joint Coordination Committee (JCC): Set up in 2019 to monitor the investigation of cases with large seizures of drugs, DG of the NCB works as its Chairperson.

What are International collaborations to control the drug usage? – (1) India is a signatory to the UN Single Convention on Narcotics Drugs 1961, the Convention on Psychotropic Substances, 1971 and the Convention on Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988, (2) India has signed 26 Bilateral Agreements and 15 MoUs, and two agreements on security cooperation with different countries for combating illicit trafficking of NDPS and Chemical Precursors, (3) The NCB also coordinates with various international organizations, such as SAARC Drug Offences Monitoring Desk (SDOMD), United Nations Office on Drugs and Crime (UNODC), International Narcotics Control Board (INCB), etc for sharing information and intelligence to combat transnational drug trafficking.

What are the challenges in curbing drug usage? – (1) India's geographic location: India lies in close proximity to the major opium-producing regions of South West and South East Asia, known as the 'Golden Crescent' and the 'Golden Triangle', respectively. India lies in the transit route, (2) Legal availability of gateway drugs: Drugs such as tobacco, bhang are legally available in India which act as the first step towards consumption of hard drugs like Heroin, Cocaine, Opium and other drugs, (3) High youth population: Large population of youth with rising disposable income and willingness to take risks combined with availability of



drugs increases vulnerability to addiction, (4) Misuse of the provisions of the NDPS Act: Officials typically focus only on small quantity cases rather than going behind cases involving commercial quantity, e.g., arrests for personal consumption accounts for 93.3% in 2020 and 95.6% in 2019 of all arrests made in Mumbai under the NDPS Act. This has several side-effects, (a) Continuous prevalence of small quantity drugs in society, thereby making occasional drug use a regular habit, (b) Wastage of huge manpower and state exchequer for investigating, interrogating, arresting and prosecuting the small amounts of drug usage, (c) overcrowding in prisons.

What can be done to reduce drug usage? – (1) Consider legalising Marijuana: Indian Hemp Drugs Commission (1894) had recommended against a ban on marijuana. In 1961, India opposed the inclusion of marijuana in the UN Convention on Narcotic Drugs, citing its role in social and religious customs. A WHO study concluded Marijuana is less unhealthy compared to alcohol and tobacco products and official response should be regulated use through progressive health policy rather than complete ban, the official machinery can then focus on hard drugs. So, India can consider legalising Marijuana. This will reduce the workload and free up precious police time and go after the big drug mafias, (2) Prevent misuse of the NDPS Act with training and awareness programs for the law enforcement agencies to focus on commercial quantity of drugs, (3) Learn from the best performers: Experience from Europe and Latin American countries shows that non-punitive measures improved the health and well-being of drug addicts, hence consumption of small quantities should be de-criminalized, (4) Community led approach in Iceland resulted in reduction in drug consumption by 70-80% in young population, all stakeholders including parents, teachers should be involved to reduce addiction, (5) Increase the number of counselling and rehab centers, (6) Education curriculum should include chapters on drug addiction, its impact and on de-addiction.

In conclusion, to prevent drug usage there is a need for strict legislation and proper implementation along with the societal change to curb the abuse.

## #14 Expanding the Powers of the BSF

**News**: The Ministry of Home Affairs recently issued a notification expanding the jurisdiction of the Border Security Force in certain States from 15 km to 50 km.

**What is the new notification regarding the powers of the BSF?** – The Union Home Ministry has increased the powers of the Border Security Force (BSF) to **arrest, search and seize** within 50 km from the international boundary in Assam, West Bengal and Punjab. Earlier, this range was 15 km. The limit has been reduced to 50 km from earlier 80 km in Gujarat. Entire area of the UTs of J&K and Ladakh have also been included. According to the an earlier notification (2014), the BSF can operate in the entire states of Nagaland, Manipur, Mizoram, Tripura and Meghalaya without any restrictions.

What are the violations for which BSF can carry out a search? – (1) The BSF can carry our search and seizures for smuggling of narcotics, other prohibited items, illegal entry of foreigners and offences punishable under any other Central Acts, (2) The BSF can only conduct preliminary questioning and has to hand over the suspect to the local police within 24 hours. The BSF has no power to prosecute crime suspects.

Under the new notification the powers of the BSF

**PT BOX**
**Border Security Force**
The BSF was created in 1965 after the Indo-Pak War with the objective of securing the borders of India. The force comes under the Ministry of Home Affairs and is headed by a Director General who is generally a member of the Indian Police Service. At present the force has 186 battalions with sanctioned strength of 250,000 personnel. There are separate Air Wing, Marine Wing and Artillery Regiment.

have been extended only for Criminal Procedure Code (CrPC), Passport (Entry into India) Act, 1920 and the Passport Act, 1967. The powers have not been extended for NDPS Act, Arms Act, Customs Act and certain other laws i.e., for these laws the earlier jurisdiction of 15 km or 80 km continues.

**What was the need to change the limit of jurisdiction? – (1)** The recent developments in Af-Pak region has implications for Western border states especially Punjab with renewed efforts of radical groups to destabilize Punjab. Already there have been increased in illegal activities including surveillance and dropping of weapons by drones, seizure of 3000 kg of heroin etc., **(2)** On the Eastern front the problems of illegal

**PT BOX**
**India's Border Guarding Agencies**
**(1) Border Security Forces (BSF)**: Indo-Pakistan and Indo-Bangladesh borders,
**(2) Indo-Tibetan Border Police (ITBP)**: Indo-China (Tibet) border (J&K to Arunachal Pradesh),
**(3) Sashastra Seema Bal (SSV)**: Indo-Nepal and Indo-Bhutan borders,
**(4) Assam Rifles:** Indo Myanmar border.

migration, demographic change, illegal trade of drugs and cattle, counterfeit currency have continued unabated.

**What are arguments of the Union Government in extending the jurisdiction? – (1)** The Central Armed Police Forces will assist the State Police machinery for maintaining law and order in border areas specifically in **addressing trans-border threats, (2)** The notification **does not curtail the State Police's jurisdiction** as the BSF will be exercising powers of search, seizure and arrest in respect of only the Passport Act 1967, Passport (Entry into India) Act 1920 and specified sections of the Criminal Procedure code, **(3)** The revised notification will **bring in uniformity** across all states and **greater efficiency** in the operations of the BSF

**Can BSF's extended jurisdiction help counter security threats? – (1)** Different border states have different challenges and there is no uniformity between coastal smuggling in Gujarat, cross-border infiltration in Jammu and Kashmir, smuggling and drone drops in Punjab, or illegal migration to Assam. Tackling each would require different capabilities, **(2) BSF might get overstretched** with the expansion of area under jurisdiction,

(3) BSF is not trained to operate in residential/commercial areas like State Police forces, hence might lead to civilian resentment.

What should be done? – (1) **Undertaking police reforms and boosting the capacity of the State Police forces,** (2) **Use of modern technologies in border management,** (3) **Enhancing the intelligence capabilities, including** surveillance using drones, (4) **Better coordination between Central and State law enforcement agencies,** (5) **Isolating the law enforcement agencies from political interference.**

## #15 Proposed Amendments to the Forest Conservation Act

**News**: The Ministry of Environment, Climate and Forest Change has proposed certain amendments to the Forest Conservation Act that would exempt certain projects from the requirement of environment

**What is the significance of the Forest Conservation Act, 1980? –** The Act has been instrumental in reducing deforestation as it requires approval from the Central Government for diversion of forest land for non-forestry purposes. The regulatory mechanism of forest clearances allows the Ministry to deliberate on whether deforestation should be permitted or not and what the conditions should be if such a permit is granted.

**What are the proposed amendments to the Act? – (1) Change in definition of forests**: The amendment implicitly defines what will not constitute a forest and creates certain exemptions, **(2)** All **land acquired** by the Railways and Roads Ministries **prior to 1980 will be exempted from the Act**. The Ministries will no longer need clearance for their projects, nor pay compensatory levies to build any project in these lands, (3) Allows "construction of structures for bona fide purposes" in private lands that had been classified as forests by the SC in the **T N Godavarman** case, (4) Defence projects near international borders will be exempted, (5) **Allows for oil and natural gas extraction** in forested land provided certain technologies like **Extended Reach Drilling** are used, (6) No levy for non-forestry purposes during the renewal of a lease, (7) Strip plantations alongside roads that would fall under the Act will be exempted.

**What are the positive aspects of the proposed amendments? – (1)** The proposed amendments **decriminalize minor offenses** to reduce the load on public litigation, and **propose relatively high penalties for major infringements** and also more stringent norms for forest conservation, (2) They seeks to introduce a novel concept of "**pristine forests**" where no non-forestry activity will be allowed under any circumstances, **(3)** The new draft seeks to introduce some significant and need-based reforms in the forest sector, which can potentially **pave the way for forestry activities on private lands**. Most of the concerns related to curbs on harvesting, transit, and trade of the forest produce grown on private plots are proposed to be removed.

**What are the contentious issues? – (1)** The amendments make it **easier to divert forest land** for non-forest purposes and **might reduce India's forest cover**, **(2)** Promote corporate ownership of forest land, **(3)** Threat to tribal communities living in the forest land, (4) **Fragmentation of forests** like that happened in Aravalli Hills due to residential projects, will impact the wildlife negatively, (5) **Extended Reach Drilling** technology has not been tested properly.

**What should be done? – (1) Promoting tree plantations on private lands and agricultural farms**, (2) **Promoting private participation** to meet the targets of covering 33% land with forests as stipulated under the Paris agreement on climate change, (3) Public opinion especially of forest-dwelling communities must be considered before making any changes in the law,

## #16 Indian Space Association

**News**: Indian Space Association was launched recently. It will act as independent "single window" agency for enabling the opening of the Space Sector to Start-ups and the private sector.

**What is the Indian Space Association (ISpA)?** – It is industry association of the Space and Satellite companies. **It will undertake policy advocacy** and engage with all stakeholders in the Indian Space domain, including the Government and its agencies. ISpA will help in making India **self-reliant, technologically advanced** and **a leading player** in the space arena in line with the vision of Atmanirbhar Bharat. ISpA includes leading domestic and global corporations with advanced capabilities in space and satellite technologies. Its founding members include Larson & Toubro, Nelco (Tata Group), OneWeb, Bharti Airtel, Mapmyindia, etc.

**What is the aim of the ISpA?** – **(1) Supplement the government's efforts towards making India a global leader in commercial space-based missions.** With ISpA, private players will also start sending payload and satellites to space supplementing ISRO's efforts, **(2)** Building global linkages **to bring in critical technology and investments, (3)** Capacity building and creation of space hubs/incubators **to support private space start-ups, it will work in close association with Newspace India Limited (NSIL, the commercial arm for ISRO), (4)** ISpA will also work with **IN-SPACe**, which acts as a regulator facilitating the use of government facilities by private companies.

**What is the rationale behind establishing ISpA?** – (1) Space Exploration: **Leveraging the capabilities of the private sector in Space exploration which had been the domain of the Government so far on the lines of SpaceX Virgin Galactic etc., (2)** Innovation in materials and other futuristic technologies **like in creation of lightweight, heat-resistant materials, developing mining capabilities in space, possible future colonization of nearby bodies Moon or Mars, advanced biosciences and medical care, recycling technologies etc.,** (3) **Capture a greater share in global satellite launch market, (4) Supplement ISRO's efforts in providing** Communications and Satellite Internet, (5) Weather Forecasting, (6) **Mapping of India's resources, (7) Developing capabilities in Space Tourism.**

**Private sector participation in space exploration can** lead to a **rapid build-up of capacities currently lacking in India's industrial base**. ISpA can serve as a platform to bring public space agencies and private players together towards the development of India's space sector,
The current size of the global space economy stands at about **$360 billion**. However, India accounts for **only about 2%** of the space economy, with a potential to capture 9% of the global market share by 2030.

**Why is there a need for ISpA? – (1)** ISRO's capabilities are limited to 2-3 major launches per year, with private sector participation this can be increased to 15. Pillai Committee had recommended private sector participation, **(2)** Public-private partnerships would accelerate the grasp of the necessary technical know-how for building and launching larger satellites commercially, **(3)** NASA has benefitted a great deal with private sector collaboration e.g., NASA undertakes engineering design, science experiments, and research, while contracts out the equipment. NASA freely releases or licenses the arising patents leading to vast range of new technologies, Public-private partnership can lead to many positive outcomes.

**What are some pending issues/challenges/concerns?** – (1) Clarity on the roles: **The roles and responsibilities of the public and private sector should be clearly defined and**

demarcated to avoid any disputes, (2) Lack of a robust Dispute Settlement Mechanism which discourages private sector participation as was evident from the Antrix-Devas dispute, (3) Lack of space legislation: There is a need for a comprehensive space legislation enabling coherence across technical, legal, commercial, diplomatic and defence goals, (4) There is a need to nurture the scientific talent, retain them and reverse the brain drain; this can be done by creating a proper research ecosystem in both public and private sector domains.

What must be done? – (1) Capacity development **of youth** by setting up incubators and attract them towards space sector, creating future generation of space scientists, (2) More Space Parks like that in Kerala need to be created to develop capacities for start-ups, foreign investments and leveraging industry-academia synergy, (3) Providing a stable policy and regulatory environment to attract and assure private sector participation, (4) Government must develop a clear and decisive vision of the future for the space sector of India, (5) Brahmos model can be followed in the Space sector as well as recommended by the Pillai Report. In Brahmos, the DRDO is an investor in a private capacity. Similarly, the ISRO could invest in any major public-private space partnerships to further complement objectives of ISpA.

# Factly

## Polity

### #1 Increasing the age of retirement of the High Court Judges

**News:** There is a debate going on between experts to increase the retirement age of High Court (HC) judge's equivalent to Supreme Court (SC) i.e from 62 to 65yrs.

What are the historical reasons for having different retirements ages?
**Joint Committee on Indian Constitutional Reform** set up before the 1935 act said that different retirement age was necessary to secure the services of the judges from HCs.
So, the **Government of India Act 1935** laid down the retirement age for judges of the Federal Court at 65 years and 60 years for judges of HCs.

Why was the difference in retirement age justified earlier?
In the opinion of **Abhinav Chandrachud, an HC judge,** during the age of 60 senior judges of HCs would be already in an established position. So, they would not be ready to renounce the rest of their tenure for the junior position in the newly established Federal Court.

How the government tried to increase the retirement age of HC Judges?
**14th Law Commission** in 1958 said that rules could be established to make it a duty for judges of HCs to accept the offer to serve at SC.
Later**, the Constitutional amendment in 1963** increased the retirement age of HC judges to 62.
In 2010, another constitutional amendment bill was introduced in Parliament to increase the retirement age of HC judges from 62 to 65 but got lapsed.

What should be done?
Presently, on average, HC judges are being appointed at the age of 51. This provides them with a little over a decade before retiring.
The standing committee on the 2010 bill, pointed out that increasing the retirement age would **impact both the vacancies and the high pendency of cases**.
The increased retirement age will allow them to adjust according to the new position and discharge their duties for a longer duration.

### #2 Over 2 Lakh RTI Applications pending

**News**: Satark Nagrik Sangathan (SNS) has released a Report Card on the Performance of Information Commissions in India, 2021.

What are the key findings of the report?

**Vacancies in Information Commissions:** Under the RTI Act, Information Commissions consist of a Chief Information Commissioner and up to 10 Information Commissioners, appointed by the President of India at the Central level and by the Governor in the States. However, the CIC has three vacancies left and has not functioned at its full strength of 10 Commissioners.

**Delay in Disposal of Cases:** The report has highlighted the delays in disposing of cases due to both shortage of personnel and inefficient operations.

**Unanswered pleas**

The table shows the 10 panels with the highest pendencies for which data were available

| Information Commission | Till Dec. 31, 2020 | Till June 30, 2021 |
|---|---|---|
| Maharashtra* | 62,534 | 74,240 |
| Uttar Pradesh | 48,444 | 48,514 |
| Central Information Commission | 38,590 | 36,788 |
| Rajasthan | 16,771 | 17,922 |
| Odisha | 17,658 | 17,464 |
| Telangana | 10,814 | 11,207 |
| West Bengal | 8,694 | 9,097 |
| Kerala** | 6,835 | 7,486 |
| Madhya Pradesh | 6,893 | 6,577 |
| Andhra Pradesh | 4,153 | 5,123 |

*Latest data as on May 31, 2021; **Latest data as on Aug. 8, 2021

At the current rate of disposal, an application filed in 2021 under the Right to Information Act (RTI) in Odisha's Information Commission would be disposed off in 2028.

Moreover, twelve State Information Commissions plus the Central Information Commission (CIC) would need at least a year to dispose off their appeals.

**Functioning of Information Commissions:** An assessment of the functioning of the Information Commissions has revealed that **21 out of 29 commissions in the country did not hold a single hearing** during the first three stages of the national lockdown imposed in 2020.

## Policy

### #1 Swachh Bharat Mission Urban 2.0 and AMRUT 2.0

**News:** Prime Minister launched Swachh Bharat Mission-Urban 2.0 and Atal Mission for Rejuvenation and Urban Transformation 2.0. Both of them will be implemented by the Ministry of Housing and Urban Affairs (MoHUA).

About the Swachh Bharat Mission-Urban 2.0

The mission would be implemented from 2021 to 2026. The focus will be on sustaining the sanitation and solid waste management outcomes achieved and accelerate the momentum generated, thus taking Urban India to the next level of 'Swachhata'.

The **aim** of 'Swachh Bharat Mission-Urban 2.0' is to "**make the cities completely free of garbage**".

Key components of SBM 2.0 – (1) Ensuring complete access to sanitation facilities, (2) Complete liquid waste management in cities with less than 1 lakh population, all wastewater to be safely contained, collected, transported and treated, (3) Greater emphasis on source segregation under Sustainable Solid Waste Management, (4) Focus on the **well-being of sanitation and informal waste workers**, (5) Set up **Material Recovery Facilities**, and **waste processing facilities** to phase out single-use plastic, (6) Set up **construction & demolition waste processing facilities**, (7) Deployment of mechanical sweepers in National Clean Air Programme cities and in cities with more than 5 lakh population.

Expected outcomes of SBM 2.0 – (1) Under Swachh Bharat Mission-Urban 2.0, all **statutory towns** will become **ODF+**; and all cities with <1 lakh population ODF++, (2) Safe treatment of **all waste water**, no untreated wastewater in water bodies, (3) All cities will achieve at least **3-star Garbage Free certification**.

About AMRUT 2.0
AMRUT2.0 aims to make around 4,700 towns/cities '**water secure**'. It will build upon the progress of AMRUT to address water needs, rejuvenate water bodies, better manage aquifers, reuse treated wastewater, thereby promoting circular economy of water.
The Objective of AMRUT 2.0 is to provide **100% coverage of water supply to all** households in around 4,700 ULBs.

Key components of AMRUT 2.0 – (1) Provide 100% coverage of sewerage and septage in 500 AMRUT cities, (2) Rejuvenation of water bodies and urban aquifer management, (3) Coverage of all 4,372 cities in India (500 at present) **covering 100% urban India**, (4) Promote a circular economy of water through the formulation of the City Water Balance Plan for each city, focus on recycle/reuse of treated sewage, rejuvenation of water bodies and water conservation, (5) Conduct *Pey Jal Survekshan* in cities to ascertain the equitable distribution of water, reuse of wastewater and mapping of water bodies, (6) **Technology Sub-Mission for water** to leverage the latest global technologies in the field of water.
The AMRUT-2.0 Mission will promote **Public-Private partnerships** (PPP). It will also **promote the GIG economy** and on-boarding of youth & women. A **target based capacity building program** will be conducted for all stakeholders including contractors, plumbers, plant operators, students, women and other stakeholders.

## #2 Right to Health for All

**News**: Investment in health care has failed to translate into a sense of security for many Indians. Ensuring Right to Health for All may be the way forward

The COVID-19 pandemic has revealed the shortcomings and the gaps in India's healthcare system. There is a need to provide citizens with a sense of security for their health. This can be done by providing the **fundamental Right to Health** to the people.

Why there is a need for a constitutional "Right to Health for all"?
There are various sections in our society which face the brunt of these cracks.
**Farmers: Majority of small farmers fall into poverty and debt-trap due to out-of-pocket healthcare expenses.** Various employment schemes fail to pull them out of poverty. Implementation of the **Right to Health** will provide them quality health care which they deserve to be.
**Women:** Women are disadvantaged because of patriarchal expectations, socio-economic conditions and other societal norms. **Right to Health** will ensure a guarantee to provide services to women whenever required.
**Children: Many poor children have to drop out of schools due to financial conditions. They** have to work in hazardous industries like mines, factories etc. The constitutional guarantee of the Right to Health will help them to prevail medical services without adding any extra financial cost.

What are the benefits of providing the "Right to Health for all"?
It will provide health security and guarantee the well-being of the citizens.
The constitutional "Right to Health," will have an **impact on financial saving, investment, and lead to job creation**. This will also help in the realization of the vision of **Ayushman Bharat** and act as a **leap for the economic and development progress** of the nation.
Just like the Right to Education, a rights based approach and making the Right to Health a fundamental right is necessary to ensure affordable healthcare for all.

## #3 Medical Termination of Pregnancy Rules

**News**: The government of India has notified the Medical Termination of Pregnancy (Amendment) Rules, 2021. These rules have been notified under Section 6 of the Medical Termination of Pregnancy Act, 2021.

What are the key provisions of the rules?

The rules define Special Categories of Women for whom the upper limit of termination has been extended.

The act extended the upper limit for **medical termination of pregnancy to 24 weeks**, from the earlier stipulation of 20 weeks for certain special categories of women.

These special categories of women include, **(1)** Survivors of sexual assault or rape or incest, **(2)** minors, **(3)** Change of marital status during the ongoing pregnancy (widowhood and divorce), **(4)** Women with physical disabilities, **(5)** Mentally ill women, **(6)** Foetal malformation that has a substantial risk of being incompatible with life or if the child is born, he/she may suffer from serious physical or mental abnormalities, **(7)** Women with pregnancy in humanitarian settings or disaster or emergency situations.

**Opinion Needed for Termination of Pregnancy** - Opinion of **one Registered Medical Practitioner (RMP)** is requited for termination of pregnancy up to **20 weeks of gestation.** Opinion of **two RMPs** is required for termination of pregnancy of **20-24 weeks of gestation.**

**Earlier,** abortion required the opinion of one doctor if it is done within 12 weeks of conception and two doctors if it is done between 12 and 20 weeks.

**Formation of State level Medical Board Mandatory**

The rules make the formation of a **state-level Medical Board mandatory**, to decide if a pregnancy could be terminated after 24 weeks in cases of foetal malformation.

It would be mandatory for the board to provide its opinion on the termination of pregnancy within three days of receiving the request for medical termination of pregnancy.

The medical board will have the power to allow or deny termination of pregnancy beyond the 24 weeks of gestation period after due consideration and ensuring that the procedure would be safe for the woman.

## #4 Status of Education Report

**News**: United Nations Educational, Scientific and Cultural Organization (UNESCO) has recently released its 2021 State of the Education Report (SOER) for India: "No Teachers, No Class".

About the State of the Education Report (SOER) for India

It is an annual flagship report of UNESCO New Delhi.

The UNESCO analysed two data sets for the preparation of the report. These are the **Unified District Information System for Education (UDISE+)** 2018-19 round and the **Periodic Labour Force Survey 2018-19**.

What are the key findings of the State of the Education Report (SOER) 2021? – (1) Lack of teachers: The workforce has a **deficit of over 1 million teachers** (at current student strength). In 15 years 27% of the workforce will need to be replaced. 69% of teachers in India are working without job contracts in private schools. (2) Poor student-teacher ratio: The ratio is good overall but there is a segmental disparity. For instance, the pupil-teacher ratio (PTR) at senior secondary schools is 47:1 as against 26:1 of the overall school system, (3) Prevalence of single-teacher



Number of teachers by school type (grades and levels) and rural or urban location, 2018/19

*Source*: CETE research team's calculations based on UDISE+ data.

institutions: At the national level, 7% of schools are single-teacher schools, while the ratio is 15% in some states, (4) Prevalence of under-qualified teachers: 7.7% of teachers in pre-primary, 4.6% at the primary level
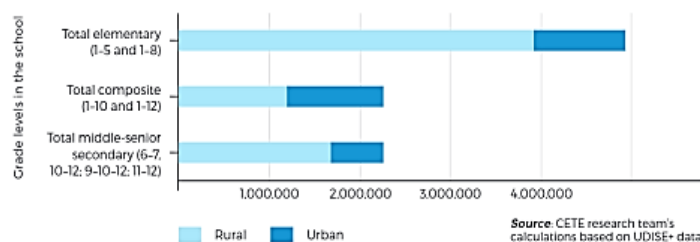
and 3.3% upper-primary are under-qualified, (5) Women make half of the teacher workforce: Half of India's 9.43 million school teachers are women. In Chandigarh (82%), Delhi (7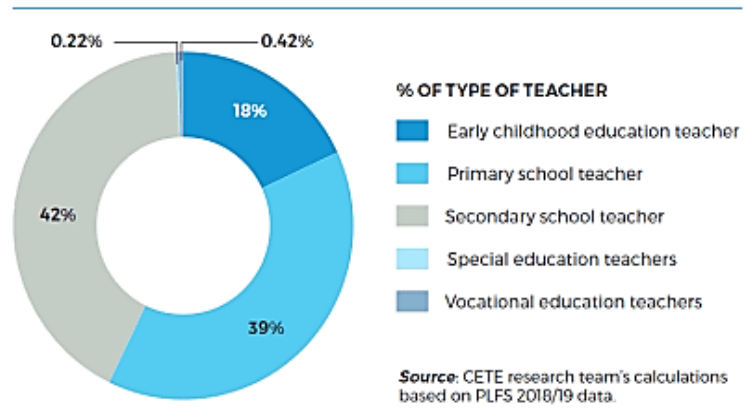4%), Kerala (78%), Punjab (75%) and Tamil Nadu (75%) proportion exceeds 70%, (6) Low retention rates: Overall retention is 74.6% for elementary education and 59.6% for secondary education in 2019-20, (7) Low access to the Internet: Access to the internet is 19% all over India; only 14% in rural areas compared to 42% in urban areas, (8) Technological challenges: There is lack of devices and Internet bandwidth for a significant proportion of students, lack of preparedness of teachers in the use of technology, and lack of resources in Indian languages.

What are the key recommendations of the SOER report? – (1) Improve the terms of employment of teachers in both public and private schools, (2) Increase the number of teachers and improve working conditions in North-Eastern states, rural areas and 'aspirational districts, (3) Increase the number of physical education, music, art, vocational education, early childhood and special education teachers, (4) Build teachers career pathways and provide meaningful ICT training to teachers.

**Proportion of teachers by level of education and type of programme, 2018/19**

0.22% — 0.42%

18%

42%

39%

**% OF TYPE OF TEACHER**
- Early childhood education teacher
- Primary school teacher
- Secondary school teacher
- Special education teachers
- Vocational education teachers

*Source*: CETE research team's calculations based on PLFS 2018/19 data.

## #5 60 Point Action Plan

**News**: The Government of India has prepared a comprehensive 60-Point Action Plan for better governance.

**What are the key features of the Action Plan?** – **(1) Leveraging IT and Technology for Governance** (a) Streamline disbursement of scholarships, (b) Bridge the digital divide for underprivileged students by developing indigenous tablets and laptops, (c) digitize all land records by 2023 under the central database called '**Matribhumi**.', **(2) Improve Business Climate** (a) Doing away completely with certain permissions and automatic notification of clearances, **(b)** Reducing the cost of starting a business in 10 sectors and bringing it on a par with **Vietnam** and **Indonesia, (c)** Incentives to states for timely land acquisition and forest clearances, **(d) One comprehensive Environment Management Act** that subsumes various laws in the sector, **(e)** Using **Geographic Information System** (GIS) mapping for decision making to increase the country's GDP (Gross Domestic Product), **(f)** Pushing for jobs while negotiating trade pacts, **(3) Upgrading the Civil Services**, **(a)** Training of officers on various aspects of infrastructure in both the Centre and States, **(b)** Performance-based working, clear and specific targets for ministries and departments just like that for public sector undertakings, **(c)** Institutional mechanisms for addressing issues of states given their limited capacities, **(d)** Departments and ministries can borrow from successes achieved by others. For instance, the Department of Sports has been asked to adopt the **Odisha model** for the promotion of sports at a national level, **(4) Niti Aayog** to target poverty eradication within five years, **(5) Ministry of Housing and Urban Affairs** to plan residential facilities for service staff engaged in construction to prevent the formation of slums, **(6)** To use Aadhaar for bringing together beneficiary oriented schemes of different ministries.

## Economy

### #1 Estimating the number of farmers

**News:** There has been wide variation in the number in agricultural households as counted by various surveys. This has serious policy implications.

**What are the various data related to number of agri households?**

The last **Agriculture Census for 2015-16** placed the total "operational holdings" in India at **146.45 million.**

The **Pradhan Mantri-Kisan Samman Nidhi** (PM-Kisan) scheme has **110.94 million** beneficiaries who got their Rs 2,000 income support installment for April-July 2021.

**National Statistical Office's Situation Assessment of Agricultural Households** (SAAH) **report** for 2018-19 pegs the country's "agricultural households" at **93.09 million.**

India officially has anywhere from 90 million-plus to almost 150 million farmers.

Why this wide variation in the number of farmers?

This wide variation has largely to do with methodology.

**The Agriculture Census** looks at any land used even partly for agricultural production and operated/managed by one person alone or with others. The land does not have to be owned by that person ("cultivator"), who needn't also belong to an "agricultural household".

**The SAAH report** considers only the operational holdings of agricultural households. Members of a household may farm different lands. **While the Census** treats each of them as separate holdings, the SAAH takes all these lands as a single production unit. It does not count multiple holdings if operated by individuals living together and sharing a common kitchen. The consideration of multiple operating holdings into a single unit brings down the official farmer numbers to **just over 93 million.**

**According to one estimate India's** "serious" farmer population adds up to 36.1 million, which is hardly 39% of the SAAH estimate. This number widely deviates from the official number, which has wide policy implications.

What are the policy implications of a lesser number of farmers?

*First*, farming must be recognized as a specialized profession. Agriculture policy" should target only those who genuinely depend on farming as a means of livelihood. Minimum support prices, government procurement, agricultural market reforms, Insurance schemes, etc will matter mainly to "full-time/regular" farmers.

*Second*, **land size matters**. The SAAH report reveals that the 50% farm income dependence threshold is crossed at an all-India level only when the holding size exceeds one hectare or 2.5 acres. This is clearly the minimum land required for farming to be viable, which about 70% of agricultural households in the country do not possess.

*Third*, What should be done for this 70%, who are effectively labourers and not farmers? Their problems cannot be addressed through "agriculture policy". A more sustainable solution lies in **reimagining agriculture beyond the farm.** Crops may be produced in fields, but not everyone needs to engage in cultivation.

The scope for value-addition and employment can be more outside than on the farm like **grading, packaging, transporting, processing, warehousing and retailing of produce or supply of inputs** and services to farmers. All these activities legitimately fall within the realm of agriculture, even if outside the farm. Agriculture policy should aim not only at increasing farm incomes but also adding value to produce outside and closer to the farms.

### #2 Corporatization of Ordnance Factories

**News**: Ordnance Factory Board (OFB) was recently disbanded and the 41 Ordnance Factories have been converted and grouped into 7 Defence Public Sector Undertakings (DPSUs).

How was the OFB corporatized?

The corporatization of OFB has been recommended by the various committees. It has been taken into action by **recommendations of EGoM** (Empowered Group of Ministers).

What is the OFB corporatization plan?

12 major Ordnance Factories (OFs) that produce ammunition and explosives will be grouped into a single DPSU called **Munitions India Limited**.

5 OFs that manufacture vehicles will be grouped into a DPSU called **Armoured Vehicles Nigam Limited**.

5 OFs that manufacture weapons and equipment will combine to form **Advanced Weapons and Equipment India Limited.**

8 OFs that manufacture metals and steels will combine to form **Yantra India Limited**.

The remaining 11 OFs will **form India Optel Limited, Gliders India Limited and Troop Comforts Limited.**

What are the issues with OFB?

**Pricing:** Pricing is currently done on a **cost-plus basis**. Under it, OFB adds up the cost of production (management, labour, materials, etc.) and bills the military after adding on a healthy profit margin, usually 15%. The **military does not have any option of sourcing the product, even if it's available cheaper**. There is no mechanism to tighten up procedures and production processes in order to lower the costs.

These inbuilt inefficiencies are unlikely to be tackled by merely changing over from the OFB's current functional model.

## #3 PM-MITRA (Mega Integrated Textile Region and Apparel) Parks

**News**: The government has approved the setting up of seven PM MITRA textiles parks, with a total outlay of Rs. 4,445 crores in a period of 5 years.

### About "PM-MITRA" Scheme

The scheme aims to realize the vision of building an *Aatmanirbhar Bharat* by positioning India strongly on the Global textiles map. It is inspired by the **5F vision** of Hon'ble Prime Minister –**Farm to Fibre to Factory to Fashion to Foreign.**

**Aim**: The scheme aims to create a **world-class industrial infrastructure** that would attract **cutting-edge technology** and **boost FDI** and local investment in the sector.

**Sites** for the scheme will be selected by a "**Challenge Method",** based on objective criteria for **Greenfield or Brownfield sites**. The Centre is receiving proposals from states for the ready availability of contiguous and encumbrance-free land parcels of 1,000+ acres along with other textiles related facilities & ecosystems.

What are the various supports provided by the Government under the scheme?

**Competitiveness Incentive Support (CIS)**– A fund of ₹ 300 Crore for 'investors' setting up production facilities to incentivize manufacturing units to get established.

**Greenfield Park 'developer':** Provision of 30% of Capital Support from the Project Cost, with a cap of ₹ 500 Cr.

**Brownfield sites 'developer':** Provision of 30% of Capital Support from the Project Cost, with a cap of ₹ 200 Cr.

The developer will get a 25-year lease of the park, and this could be extended by another 25 years.

What infrastructures do the PM MITRA parks contain?

PM MITRA park will be developed by a **Special Purpose Vehicle**. The SPV will be owned by the State Government and Government of India in a Public-Private Partnership (PPP) Mode. The Master Developer will develop and also maintain the park during the concession period.

**Core Infrastructure**: Incubation Centre & Plug & Play facility, Developed Factory Sites, Roads, Power, Water and Waste Water system, Common Processing House and other related facilities e.g., Design Centre, Testing Centres etc.

**Support Infrastructure**: Workers' hostels & housing, logistics park, warehousing, medical, training & skill development facilities.

What are the advantages of the PM-MITRA Scheme?

The scheme intended to generate approximately 1 lakh direct and 2 lakh indirect employment per park.

The Scheme will offer an opportunity to create an **integrated textiles value chain** right from spinning, weaving, processing/dyeing and printing to garment manufacturing at one location that would ease business and will reduce logistics costs of the Industry.

The scheme will also help businesses to scale up and to make value-added products leveraging the abundant raw material resources available in the country

It will help the textile sector grow and achieve global competitiveness.

Apart from that, the scheme will also help India in achieving the **UN Sustainable Development Goal 9** ("Build resilient infrastructure, promote sustainable industrialization and foster innovation").
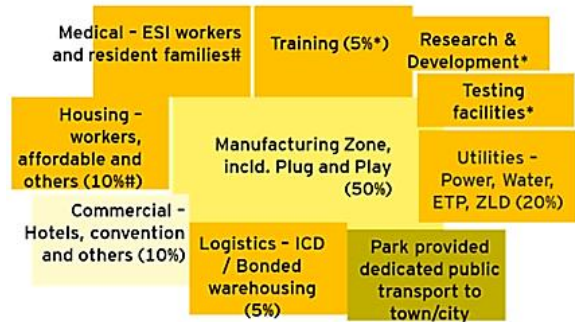
## #4 Multidimensional Poverty Index

**News**: The UN report Multidimensional Poverty Index 2021 highlights thatt5 out of 6 multidimensionally poor in India are from lower tribes or castes.

What is the key focus of the Multidimensional Poverty Index 2021?

The report provides estimates on multidimensional poverty for 109 developing countries.

Present multidimensional poverty estimates disaggregated by **ethnicity and caste** for 41 countries to identify internal disparities. The report also revealed how multidimensional poverty could amplify the impacts of COVID-19 shocks, hurting education, employment and livelihood.

What are the key findings of the Multidimensional Poverty Index 2021?

The report mentions that there are **1.3 billion multidimensionally poor people** globally.

The **top five countries** are **India** (381 million), **Nigeria** (93 million), **Pakistan** (83 million), **Ethiopia** (77 million) and the **Democratic Republic of the Congo** (56million).

Women and children are most affected. 66% of poor households (836 million people) have women with less than six years of schooling. **50% of global multidimensionally poor** people are **children.**

In India, 83% (5 out of 6) multidimensionally poor people are from lower tribes or castes.

The **Scheduled Tribe group** accounts for 9.4% of the population and is the poorest, with almost 50% ST population (65 million out of 129 million) living in multidimensional poverty. 33.3% population of the **Scheduled Caste group** (94 million out of 283 million) is living in multidimensional poverty. 27.2% population of the **Other Backward Class group** (160 million out of 588 million) is living in multidimensional poverty.

Overall, **five out of six multidimensionally poor** people in India live in households whose head is from a **Scheduled Tribe, a Scheduled Caste or Other Backward Class**.

In India, **close to 12 percent** of the Multidimensional poor population — 162 million people — live in female-headed households.

About the Multidimensional Poverty Index

The report is developed by **Oxford** Poverty and Human Development Initiative (OPHI) and **United Nations Development Programme** (UNDP) since 2010 for UNDP's Human Development Reports.

NITI Aayog is the nodal agency that has been assigned the responsibility of leveraging the monitoring mechanism of the Global MPI to drive reforms.

According to **Global MPI 2020**, India is 62nd among 107 countries with an MPI score of 0.123 and 27.91% headcount ratio, based on the NFHS 4 (2015/16) data.

## #5 National Digital Livestock Mission

**News**: Union Minister of State Fisheries, Animal Husbandry & Dairying unveiled the National Digital Livestock Mission Blueprint at National Dairy Development Board (NDDB).

What is the National Digital Livestock Mission (NDLM)?

NDLM is a digital platform developed jointly by the **Department of Animal Husbandry and Dairying** (DAHD) and **NDDB** on the foundation of the existing **Information Network for Animal Productivity and Health** (INAPH).

The aim is to create a **farmer-centric, technology-enabled ecosystem** where the farmers are able to **realize better income** through livestock activities with the right information.

The bedrock of NDLM will be the **unique identification of all livestock**, which will be the foundation for all the state and national level programmes, including domestic and international trade.

Through NDLM, the farmers will be able to **access the markets, irrespective of their location**.

This system will also include robust animal breeding systems, nutrition, disease surveillance, disease control programmes and a traceability mechanism for animals and animal products.

What is National Dairy Development Board (NDDB)?

The NDDB is a statutory body and an institute of national importance, established by an act of the Indian Parliament in 1965. It was founded by Dr Verghese Kurien, often called 'India's milkman'.

The NDDB was created to boost, finance and support producer-owned and controlled organisations in the dairy industry. The NDDB is **headquartered** in **Anand**, Gujarat.

NDDB's efforts transformed India's rural economy by making dairying a viable and profitable economic activity for millions of milk producers while addressing the country's need for self-sufficiency in milk production.

## #6 Global Minimum Corporate Tax

**News**: Over 136 countries, representing 90% of Global Output, agreed to introduce a new global tax regime for taxing multinational corporations (MNC's) operating globally.

How would the new global tax regime work? - (1) A minimum global tax of 15% on profi•ts would be introduced in all countries, (2) MNCs would no longer pay taxes in the country where they register their headquarters for tax purposes, but would pay in the country where they generate their sales, (3) Countries where MNCs operate would get the right to tax at least 20% of the profi•ts exceeding a 10% margin.

How were MNCs taxed till now and the associated issues with it? - For over a century now, the corporate tax system was based on the application of the twin principles of the 'source rule' and the 'residence rule'. The MNCs used to get their businesses registered in tax havens to avoid paying taxes. Globalisation allowed MNCs to replace fears of double taxation with the joys of double non-taxation by exploiting mismatches between the tax laws of various countries and by cutting taxable profits. A digitalised world made their task easier, with the rise of intangible assets, which could easily be shifted from one country to another.

The **losses due to "tax abuse"** have been estimated by the **Tax Justice Institute (The State of Tax Justice 2020 report)** at nearly **$427 billion annually**. Of this, nearly $245 billion is lost to "multinational corporations shifting profit into tax havens". The remaining "$182 billion is lost to wealthy individuals hiding undeclared assets and incomes in offshore locations". **Taxing big techs is essential to curb the profit-shifting of MNCs.**

What are the resultant impacts seen on countries?

Shifting of profits to low tax havens **deprived countries of revenue** by as much as 5% as compared to the other arrangement where the income was taxed on the location of sales or the site of revenue generation. OECD estimates that the proposal would **fetch additional $150 billion per year** and move taxing rights of over $100 billion in profits to different countries.

What are the challenges for India?

Countries like Belgium, Britain, **India** and Indonesia brought in '**Digital Services Taxes**' on the local sales of foreign firms with online platforms. India would have to reconsider the '**equalisation levy**' taxed upon digital firms. Through **equalisation levy** India has collected about Rs 1,600 crore in the current fiscal year so far.

Given the potential for digital services in the country, it is important to make sure that the government doesn't lose out on revenue, and that multinational firms pay their fair share in India.

**Minimum tax could harm India's ability to attract investment** with special incentives like research and development credits and special economic zones that offer tax breaks to investors.

## #7 Significance of GI Tags

**News**: As of October 2021, 421 products have been awarded GI tags in India. Tamil Nadu and Karnataka top the list with 43 tags each.

**Why is the significance of GI tags? – (1) Revenue generators:** The patents and copyright protection of products under GIs result in higher economic gains, fostering quality production and better distribution of profits, **(2) Global reach: With support from private e-commerce players like Amazon,** Indian products (such as Delta Leather Corporation's leather and SVA Organics's organic products) have reached 18 global markets in over 200 countries. In the two years ending March 2021, Amazon exported such Made in India goods worth $2 billion.

How Geographical Indications can benefit India? – (1) Entrepreneurship: **Individuals can monetize their skills and scale their businesses. It enables** freelance workers to earn a regular income from a source other than an employer, (2) Employment creation: The labour-intensive nature of GI offers the best solution to boosting the employment-to-population ratio in India, (3) Women empowerment: Monetising artisanal work done at home will increase India's low female labour force participation rate, which at 21% in 2019 was half the 47% global average, (4) Reverse urban migration: Rural artisans will need not go to urban areas for earning a livelihood, (5) Positive benefits for local communities: It will conserve India's ancient crafts, culture and food, and encourage the preservation of biodiversity, local know-how and natural resources, (6) Soft power: A strong GI ecosystem can be a wellspring of economic and soft power.

What are some existing challenges? – (1) GI businesses are micro: It is necessary to address the challenges of capacity-building, formal and easy access to credit, forming marketing linkages, research and development, product innovation and competitiveness in both domestic and international markets, (2) Issue of middlemen: With the shift to digital platforms, the distribution margins of middlemen will be competitive. Hence, government need to ensure that they do not act as countervailing agents by getting into similar businesses or product lines which will erode GI producer incomes.

The Indian GI economy can be a platform for India to showcase to the world a model for ethical capitalism, social entrepreneurship, de-urbanisation, and bringing women to the workforce, on the back of a robust digital system

## International Relations

### #1 Hidden Debt rising in China's BRI Plan

**News**: A new study has found under- reported debts to the tune of $385 billion in projects carried out in dozens of countries under China's Belt and Road Initiative (BRI).

**About the Study**

The study was conducted by AidData, a development research lab at the College of William & Mary in the U.S. The report studied 13,427 projects across 165 countries worth $843 billion, in the time period from 2000 to 2017, and examined how President Xi Jinping's BRI plan, launched in 2013, has changed China's overseas lending.

What are the findings of the study? – (1) **Chinese debt burdens are substantially larger** than previously understood, and 42 countries now have levels of public debt exposure to China in excess of 10% of GDP, (2) **The total debt was** systematically under-reported to the World Bank's Debtor Reporting System (DRS) because, in many cases, central government institutions in LMICs [low and middle income countries] are not the primary borrowers responsible for repayment, (3) **The** Chinese banks have used debt rather than aid to establish a dominant position in the international development finance market unlike other prominent sources of overseas financing, (4) While earlier most overseas lending involved central government institutions, now **nearly 70% of China's overseas lending is now directed to state-owned companies, state-owned banks, special purpose vehicles, joint ventures, and private sector institutions.** This has introduced major public financial management challenges for LMICs, (5) 35% of the BRI infrastructure project portfolio **has encountered** major implementation problems, such as corruption scandals or labour violations, with Pakistan topping the list of countries with the most number of projects hit by scandals and corruption, (6) Many countries have flocked to Chinese funding despite adverse loan conditions (4.2% interest rate, a grace period of less than two years, and a maturity length of less than 10 years) due to lack of **financing options** elsewhere for infrastructure projects.

Data related to Chinese Loans/Development Assistance from 2000 to 2017,
– **Biggest recipients of Official Dev Assistance:** Iraq ($8.5 billion), North Korea ($7.17 billion), Ethiopia ($6.57)
– **Biggest recipients of Chinese loans**: Russia ($151.8 billion) Venezuela ($81.96 billion) and Angola ($50.47 billion)
– **India ranked 23rd** in the list of top recipients of Chinese loans from 2000 to 2017, receiving $8.86 billion

### #2 Nord Stream 2 Pipeline in Europe

**News**: A 1224 km, underwater Nord Stream Pipeline 2 running from Germany to Russia across Baltic Sea has been completed. It provides the shortest, economical and environment friendly route to double Russia's gas export to Germany.

What is the utility of this pipeline? - The NS2 has the capacity to transport 55 billion cubic meters of gas each year. It can also cover the needs of about 26 million households, and restock storage inventories. With the **increase in European gas prices** because of various reasons like **severe winter, post covid economy surge**, many industries and food supply chains are under stress. The pipeline is intended to provide Europe with a sustainable gas supply while providing Russia with more direct access to the European gas market.

What are the fears raised by other countries? – (1) Ukraine believes that **Russia will use the pipeline as a geopolitical weapon** aimed at depriving Ukraine of political traction and crucial revenue. The pipeline provides alternative to the existing pipeline through Ukraine and deprive the country of transit fee, (3) **Poland and Ukraine have** accused Germany of weakening the EU's political unity and strategic coherence by giving Russia greater leverage through NS2.

## #3 G7 Principles for Cross-border Data Use and Digital Trade

**News**: The Group of Seven (G7) countries have agreed on a joint set of principles to govern cross-border data use and digital trade.

What is Digital Trade?
Digital trade is broadly defined as trade in goods and services that is either enabled or delivered digitally, encompassing activities from the distribution of films and TV to professional services.

What are the key provisions of the G7 Digital Trade Principles?
**Open Digital Markets:** Digital and telecommunications markets should be competitive, transparent, fair, and accessible to international trade and investment.
**Cross Border Data Flows:** To harness the opportunities of the digital economy, data should be able to flow freely across borders with trust, including the trust of individuals and businesses.
**Safeguards for Workers, Consumers and Businesses:** Labour protections must be in place for workers who are directly engaged in or support digital trade. They have to be provided decent conditions of work.
**Digital Trading Systems:** To cut red tape and enable more businesses to trade, governments and industries should drive forward the digitisation of trade-related documents.
**Fair and Inclusive Global Governance:** Common rules for digital trade should be agreed upon and upheld at the World Trade Organization (WTO).
**Data Encryption:** Businesses should not be required or coerced to transfer technology or provide access to source code or encryption keys as a condition of market access. At the same time, governments must retain sufficient flexibility to pursue legitimate regulatory goals, including health and safety.

What is the significance of the G7 Digital Trade Principles deal?
The deal is a first step in reducing trade barriers and could lead to a common rulebook of digital trade.
The deal also sets out a middle ground between highly regulated data protection regimes used in European countries and the more open approach of the United States.

## Environment

## #1 East Antarctica and Weddell Sea as Marine Protected Areas

**News**: India has co-sponsored the proposal of the European Union for designating East Antarctica and the Weddell Sea as Marine Protected Areas (MPAs).

About the proposal to designate East Antarctica and the Weddell Sea as MPAs
The proposal to designate East Antarctica and the Weddell Sea as MPAs was first put forth to the **Commission for the Conservation of Antarctic Marine Living Resources** (CCAMLR) in 2020. But the proposal could not reach a consensus at that time. Since then **Australia**, **Norway**, **Uruguay** and the **United Kingdom** have agreed to co-sponsor the proposal. Now **India** will also join these countries in co-sponsoring the MPA proposals. This is the **first time India is considering co-sponsoring** an MPA proposal at the CCAMLR.

What is the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)?
CCAMLR is an **international treaty** to manage Antarctic fisheries to **preserve species diversity** and **stability of the entire Antarctic marine ecosystem**. It came into force in April 1982. **India** has been a **permanent member** of the CCAMLR since 1986. Work pertaining to the CCAMLR is coordinated in India by the **Ministry of Earth Sciences** through its attached office, the **Centre for Marine Living Resources and Ecology** (CMLRE) in Kochi, Kerala.

What is a Marine Protected Area (MPA)?
MPAs areas of the ocean set aside for long-term conservation aims. MPAs and their network offer nature-based solution to **support global efforts towards climate change adaptation and mitigation**. Certain activities within an MPA are limited or prohibited to meet specific **conservation, habitat protection, ecosystem monitoring**, or **fisheries management** objectives.

Since 2009, CCAMLR members have developed proposals for MPAs for various regions of the Southern Ocean. CCAMLR's scientific committee examines these proposals. After CCAMLR members agree upon them, elaborate conservation measures will be set out by CCAMLR.

India's Antarctic expedition
India had embarked on an Antarctic expedition in 1981, through the Southern Indian Ocean sector. To date, India had completed 40 expeditions, with plans for the 41st expedition in 2021-22.

## #2 Loss of Coral Reefs due to Climate Change

**News**: A new report has pointed out that the world has lost 14% Coral Reefs over the last 10 years. The reasons for the loss are ocean-acidification, warmer sea temperatures and local stressors like overfishing, pollution, unsustainable tourism, and poor coastal management

**What are the key findings of the report? –** The report has been prepared by the Global Coral Reef Monitoring Network (GCRMN). The key findings are, (1) **Coral reefs across the world are under relentless stress** from warming caused by **persistent rise of land and sea temperatures due to climate change**, (2) **Coral bleaching events** caused by rise in elevated sea surface temperatures (SST) were responsible for coral loss, Large-scale coral bleaching events were responsible for **killing 8% of the world's corals in 1998**, (3) **Decrease in hard coral cover** in the last four decades since 1978. The worst-hit are the corals in South Asia, Australia, the Pacific, East Asia, the Western Indian Ocean and the Gulf of Oman, **(4) Increase in algae on coral reefs** since 2010 about 20%. Algal bloom on coral ridges are a **sign of stress** on the structures. Prior to this, on average, there was twice as much coral on the world's reefs as algae. This transition from live hard coral to algae-dominated reef communities impacts marine habitats, rendering them less biodiverse and also affects the ecosystem services provided by them.

What are some positive findings in the report? – (1) **Coral reefs in east Asia's Coral Triangle** accounts for more than 30 per cent of the world's reefs but has been less impacted by rising sea surface temperatures, (2) **Despite a decline in hard coral cover during the last decade, on average, these reefs have more coral today** than in 1983, when the first data from this region were collected, (3) In 2019, the world regained 2% of its coral cover in spite of a short interval between mass coral bleaching events in the last decade.
These instances mean that these **critical ecosystems have the capacity to recover** if pressure on them eases.
Why are corals significant?
Though corals occupy less than 1% of the ocean floor but over one billion people benefit directly from the reefs.
The **value of goods and services** provided by coral reefs is estimated to be **$2.7 trillion per year** including $36 billion from **coral reef tourism.**
As per some reports, the **net economic value of the world's coral reefs could be nearly tens of billions of dollars per year.**

## #3 Melting of Arctic Sea Ice

**News**: According to a study published in Journal Earth's Future, Arctic sea ice may disappear by 2100 if carbon emissions continue at current levels. This could cause extinction of Polar Bears and other ice-dependent species.

What is the importance of Arctic Ice?

In winter, most of the Arctic Ocean surface freezes. During this time, Arctic sea ice reflects sunlight away from Earth's surface, keeping temperatures cool.

But when it melts in the summer, Arctic oceans absorb the sunlight instead, causing oceans to warm and temperatures to rise. This results in a **rich marine ecosystem**.
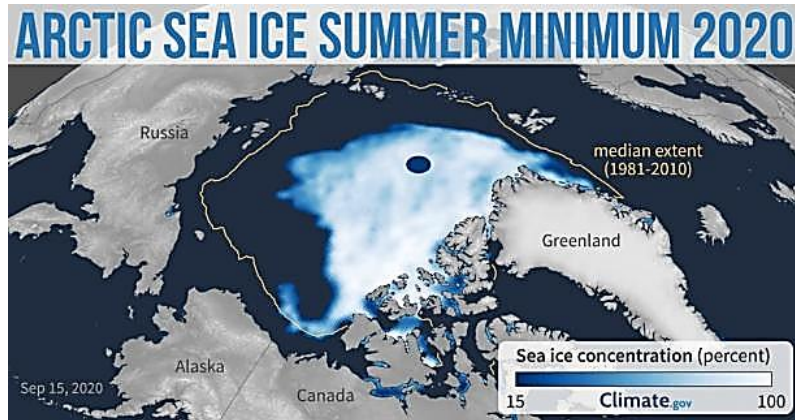
In some parts of the Arctic, such as the "**Last Ice Area**" — a vast area north of Canada and Greenland — sea ice has historically thrived year-round instead of melting during the summer, providing a **vital habitat for ice-dependent animals like seals and polar bears**.

But with a warming climate, **summer sea ice has been shrinking** fast and now consistently spans **less than half the area it did in the early 1980s**.

What are the findings of the study?

The study covered the **Last Ice Area** where sea ice has traditionally been the thickest round the year and is thus likely to be most resilient.

**Based on this area, the study has looked at two scenarios:**

**Optimistic Scenario:** During this, carbon emissions are immediately and drastically curbed to prevent the worst global warming. This could result in a limited portion of the ice surviving in the region. At least some seals, bears and other creatures may survive.

**Pessimistic Scenario:** During this scenario, emissions continue at their current rate of increase and the summer ice would disappear by the end of the century. This would result in polar bears and seals that live on it could become extinct by 2100.

## #4 Fourth Assembly of International Solar Alliance

**News**: The fourth general assembly of the International Solar Alliance (ISA) was held virtually.

About the fourth general assembly of ISA

The assembly was presided over by the Union Minister for Power, New and Renewable Energy, Government of India and the President of the ISA Assembly.

A total of 108 countries participated in the Assembly, including 74 Member Countries and 34 Observer & Prospective Countries, 23 Partner Organizations and 33 Special Invitee Organisations.

What are the key Highlights of the Fourth General Assembly of ISA? – (1) To mobilize $1 trillion global investments by 2030 for solar energy across ISA's member countries in partnership with Bloomberg Philanthropies, (2) Solar Hydrogen Programme: The initiative is aimed at enabling the use of solar electricity to produce hydrogen and bring down the cost to $5/KG TO $2/kg, (3) ISA will provide technical and financial support to The Least Developed Countries (LDCs) and Small Island Developing States (SIDs) member

countries of ISA to undertake Demonstration Solar projects, (4) Go ahead for OSOWOG: ISA Assembly has given a green light to the "One Sun" political declaration for the launch of Green Grids Initiative-One Sun One World One Grid (GGI-OSOWOG) at COP26.

About One Sun One World One Grid (OSOWOG) initiative
**Origin:** The concept of the OSOWOG Initiative was first outlined at the First Assembly of the ISA in late 2018.
**Aim:** It envisions building and scaling interregional energy grids to share solar energy across the globe, leveraging the differences of time zones, seasons, resources, and prices between countries and regions.
**Benefits:** The initiative will help decarbonise energy production, which is today the largest source of global greenhouse gas emissions.

### OSOWOG-GGI Initiative
OSOWOG has joined hands with UKs Green Grids Initiative (GGI) to form a unified GGI-OSOWOG initiative. This initiative aims to contribute to the collaborative, rapid development of resilient grids globally – building on continental, regional and national grid infrastructure programs.
The UK COP Presidency, the Government of India, and the Presidency of the ISA, are expected to announce this collaboration at the upcoming COP26 in Glasgow.

## #5 Vertical Farming

**News**: AeroFarms is going to be the first vertical-farming start-up to be listed on the Nasdaq.

What is Vertical farming?
In vertical farming, **crops are grown indoors**, under **artificial conditions of light and temperature**. It aims at higher productivity in smaller spaces. It uses soil-less methods such as **hydroponics, aquaponics and aeroponics**.
Vertical farming **uses significantly less water and pesticides** than traditional agricultural methods. Being indoors, the crops aren't subject to seasons and hence give high productivity year-round.

How vertical farming can be beneficial in future? – (1) **V**ertical farms can play a key role in producing local and perishable specialty crops: They can eliminate fuel-intensive long-distance trucking, along with food rot and waste.  When located in and near cities, they have the added advantage of being protected from supply chain disruptions, (2) Less water usage: Aeroponic farms use up to 95% less water than in-field vegetable production and grow food 30% to 40% faster. They use as little as 0.3% of the land of a field farmers, (3) Benefit drought prone areas due to low water usage, (4) High productivity due to more efficient usage of inputs and quick maturity of plants, (5) Organic produce: The plants are grown without herbicides, fungicides or insecticides, that benefit both the environment and human health, (6) High-flavour and high-nutrient produce and high-profit ingredients for nutraceuticals: Variables including light, moisture, nutrients, oxygen, CO2, and temperature can be monitored so precisely within a vertical farm that the flavours, nutrients and phenotypes of plants, in turn, can be manipulated.

What are some issues associated with vertical farming? – (1) **Requires more energy and technology**, (2) High cost of input: Cameras and sensors gather millions of data points tracking the needs of the plants as they grow, (3) Skilled human resource: This kind of hyper-controlled indoor agriculture requires an expensive labour force of engineers, plant scientists and computer programmers, (4) Luxury good: Vertical farming also relies on urban real estate more expensive than rural farmland, (5) High-tech agriculture is still high-risk: Because there is no soil or other barrier to protect the roots, even a small number of bacteria in the root chamber can harm the plants.

## Science and Technology

### #1 6G Technology

**News**: The Government of India has asked the Centre for Development of Telematics (C-DOT) to begin developing 6G and other futuristic technologies to catch up with the global market in time.

What is 6G Technology?
6G (sixth-generation wireless) is the successor to 5G cellular technology. 6G networks will be able to use higher frequencies than 5G networks and **provide substantially higher capacity and much lower latency**.
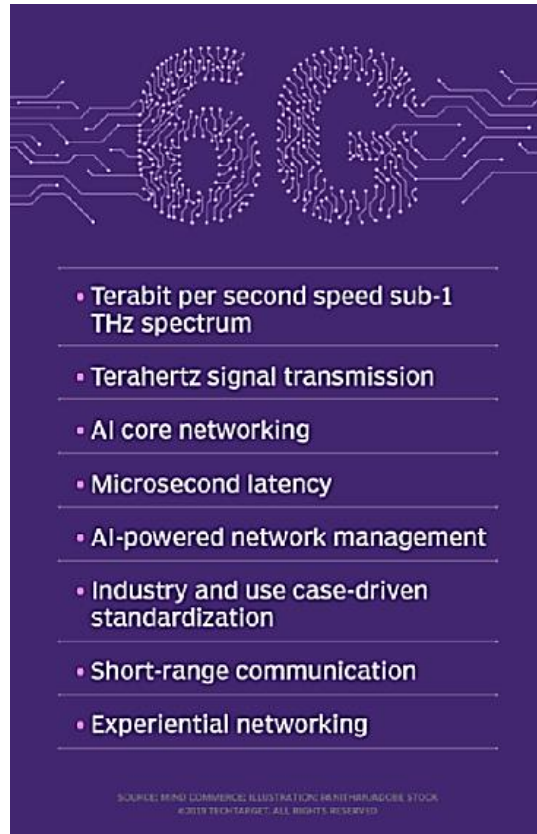
### What are the Advantages of 6G Technology?

**Higher Data Rate**: 6G is expected to support data rates of 1 terabyte per second. This level of capacity and latency will extend the performance of 5G applications and expand the scope of capabilities to support innovative applications in wireless connectivity, sensing and imaging.

**Much Lower Latency:** 5G is expected to reduce latency to 1 millisecond. The ultra-low latency will boost the performance of many real-time applications. But 6th generation wireless communication technology will reduce the user experienced latency to less than 0.1 milliseconds

**Network Reliability and Accuracy:** 6G will beat 5G in the categories of network coverage and network reliability. The 6G will provide enhanced connection density. This will make a large number of connected devices interact with each other in real-time.

**AI-Driven Wireless Communication Tools:** 6G will transform wireless communication by leveraging Artificial Intelligence(AI).

**Emphasis On Energy-Efficiency**: The 6G technology will contribute towards environmental sustainability by making the network perform optimally without consuming extra energy. 6G aims to enhance the energy efficiency of the telecom network by 2 times in comparison to 5G.



- Terabit per second speed sub-1 THz spectrum
- Terahertz signal transmission
- AI core networking
- Microsecond latency
- AI-powered network management
- Industry and use case-driven standardization
- Short-range communication
- Experiential networking

SOURCE: MIND COMMERCE ILLUSTRATION PANTHERMADUBE STOCK ©2019 TECHTARGET. ALL RIGHTS RESERVED

### #2 Xenotransplantation

**News**: The kidney of a pig was transplanted into a human being without triggering any immediate rejection by the recipient's immune system.

How was the transplantation done?
The Pig was genetically engineered so that its organ was less likely to be rejected.
The surgical team attached the pig kidney to blood vessels outside the body of a brain-dead woman and observed it for two days.
The kidney functioned normally—filtering waste and producing urine—and didn't show signs of rejection during the short observation period.  Hence, this could be seen as a turning point in organ transplantation.

A brief history of animal-to-human transplants
The dream of animal-to-human transplants — or **xenotransplantation** — goes back to the 17th century with stumbling attempts to use animal blood for transfusions.

By the 20th century, surgeons were attempting transplants of organs from baboons into humans. The most notable example was that of American infant Baby Fae, a dying infant in 1984 who lived 21 days with a baboon heart.

There has been no lasting success, but there has been much uproar due to ethical reasons.

Why was the pig chosen for the transplantation?

Pigs are produced for food, so using them for organs raises fewer ethical concerns. Pigs also have large litters, short gestation periods and organs comparable to humans.

Pig heart valves also have been used successfully for decades in humans. The blood thinner heparin is derived from pig intestines. Pigskin grafts are used on burns, and Chinese surgeons have used pig corneas to restore sight.

Hence, the pig was chosen for organ transplantation.

## #3 SDN Gene Editing Technology

**News**: The European Commission's Rapid Alert System for Food and Feed (RASFF) flagged 500 tonnes of rice imported from India for GM content. There has been a delay in the approval of the Guidelines for Safety Assessment of Genome/Gene-Edited Plants.

What is Gene Editing?

Genome editing, also called gene-editing, is a group of technologies that give scientists the ability to change an organism's DNA. These technologies allow genetic material to be added, removed, or altered at particular locations in the genome.

The proposal for Indian regulators to consider the SDN 1 and 2 technique **as equivalent to conventional breeding methods** has been pending with the **Genetic Engineering Appraisal Committee (GEAC)** for almost two years.

**Why are scientists calling SDN 1 and 2 techniques equivalent to conventional breeding methods?**

SDN 1 and 2 techniques are equivalent to conventional breeding methods since it **does not involve inserting any foreign DNA**. These techniques basically aim to bring precision and efficiency into the breeding process using gene-editing tools such as **CRISPR**.

Under this technique, scientists **just tweak a gene that is already there in the plant, without bringing in any gene from outside**. This is just like nature does a mutation.

Moreover, this technique is also much faster and far more precise than natural mutation or conventional breeding methods which involve trial and error and multiple breeding cycles.

The absence of guidelines creates an environment of uncertainty and ambiguity which hampers the research ecosystem. Clear guidelines will channel the research in proper direction and

## #4 Approval to COVID Vaccine for Kids

**News**: The Subject Expert Committee (SEC) of the Drugs Controller General of India (DCGI) has recommended granting an emergency use authorisation to Bharat Biotech's Covaxin for children aged between 2-18. If the DCGI goes ahead and grants approval, it will be the first vaccine to be administered to children in India.

What steps need to be followed before and after the DGCI approval?

Bharat Biotech will have to submit information related to prescription and other characteristics to the regulator. It also needs to provide a comprehensive risk management plan. The **National Technical Advisory Group on Immunisation** will evaluate data and provide the final approval.

After approval, Bharat Biotech will need to provide adverse event data at regular intervals.

COVAXIN may become 2nd vaccine for kids after **Zydus Cadila's ZyCoV-D has been cleared for kids above 12 years of age**.

What is Covaxin?

Covaxin is also known as BBV152. It has been indigenously developed by Hyderabad-based Bharat Biotech in collaboration with the Indian Council of Medical Research(ICMR).

Type of Vaccine

Covaxin is an inactivated whole virus vaccine, containing SARS-CoV-2 particles that have been chemically deactivated. That means they can no longer infect cells, but still stimulate a protective immune response.

Because the viral particles cannot cause disease, the vaccine is suitable for people with compromised immune systems.

**How will Covaxin be administered to Children's?**

Covaxin will be administered to children in the age group of 2-18 years. The gap between the two doses of Covaxin will be 28 days, as in the case of adults. The same would be followed for children's as well.

## #5 Securing supplies of Lithium

**News**: First traces of Lithium in India were discovered in Karnataka's Mandya district recently. The estimated deposits are about 1,600 tonnes.

What is the significance of Lithium? – (1) Energy Transition, Climate change mitigation and Electric Mobility: Lithium ion batteries would play a central role in transition to Electric Vehicles (EVs) from fossil fuel based mobility. This would help India achieve the Climate Action Goals.

Government schemes like Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India or FAME (India) has given impetus to adoption of e-mobility vehicles. By 2030, nearly three-fourth of Indian two-wheelers and all new cars are expected to be EVs and a bulk of them will be powered by lithium-based (battery packs) in the near term, **(2) Energy security**: According to the **Central Electricity Authority**, the country will need 27 GW of grid-scale battery energy storage systems by 2030. However, this will require massive amounts of lithium.

What are the issues and challenges faced by India w.r.t Lithium? – (1) **India's** Lithium reserves are negligible **compared to the top producers.** Chile, Australia, Argentina, Bolivia and China have the most reserves with Chile and Australia producing close to 75% of the global production in 2018, (2) India's high import

dependence with almost all EVs in the country run on imported batteries, mostly from China. The amount of forex spent on Lithium trebled between 2016-19, (3) China has one of the largest reserves and has also secured mines in other countries, thus achieving critical control over supply, this might compromise India's energy security.

What steps have been taken by govt to secure Lithium? – (1) A joint venture comprising National Aluminium Co. Ltd, Hindustan Copper Ltd and Mineral Exploration Co. Ltd Khanij Bidesh India Ltd (KABIL) **has been created to acquire** cobalt and lithium mines overseas. KABIL is also exploring the direct purchase of cobalt and lithium, (2) The Government is also trying to secure Government-to-Government (G2G) deals **like the bilateral Argentina for securing strategic minerals, (3)** The Geological Survey of India has taken up seven other lithium exploration projects in Arunachal Pradesh, Andhra Pradesh, Chhattisgarh, Jharkhand, Jammu and Kashmir and Rajasthan apart from Mandya in Karnatka.

What are the major projects which will use Lithium? – (1) India had recently unveiled its **strategy for** developing a battery storage ecosystem. It involves setting up at least 50-gigawatt hour manufacturing capacity for advanced chemical cell batteries, (2) ₹18,100-crore **Production-linked incentive** (PLI) scheme to manufacture lithium-ion cells within the country has been introduced, which will indirectly boost efforts for domestic exploration, (3) Several automobile majors are planning to jointly develop a **manufacturing facility in Gujarat,** which could eventually morph into a global export hub for lithium-ion cells.

Are there any alternatives to Lithium?
Research and experiments are already underway to discover alternatives to lithium, based on materials that are more abundantly available.
**Solid-state batteries** are a promising option due to their high energy density and wide operating temperature. They are expected to become commercially viable within the next 5-10 years.
Other alternatives in the race are **aluminium–air batteries** (Al–air batteries) and **sodium-ion batteries.**

What is the way forward for India? – (1) **India can focus on** other battery and storage technologies **to avoid dependence upon the Chinese.** Aluminium based technologies **offer suitable alternative as India has large bauxite reserves,** Hydrogen Fuel Cell and Solid State Battery technologies **are the other alternatives, (2)** Intensify exploration efforts **including securing supplies from countries other than China.**

## Art and Culture

### #1 Historical significance of Kushinagar

**News**: An international airport was recently inaugurated at Kushinagar by the Prime Minister.

What is the historical significance of Kushinagar? – **(1)** Kushinagar is an **International Buddhist Pilgrimage Centre** where Buddha delivered his last sermon and attained '*Mahaparinirvana*' or **salvation, (2)** It was the **capital of ancient Malla republic** (*Mahajanpada*), **(3)** It has been part of the kingdoms of the **Mauryas, Shungas, Kushanas, Guptas, Harshavardhana**, and the **Palas** and remained **inhabited till 12ᵗʰ century. (4) Alexander Cunningham** and **ACL Carlleyle** carried out first exacavations and unearthed the **main stupa** and the 6-**metre-long statue of the Reclining Buddha** in 1876. Kushinagar is also among the very few places in India where The Buddha is depicted in reclining form, **(5)** Kushinagar is also part of the **Buddhist circuit** which consists of pilgrimage sites at **Lumbini, Sarnath and Gaya**.

What are the benefits of the Airport? – The airport will provide **seamless connectivity to tourists** from Sri Lanka, Japan, Taiwan, South Korea, China, Thailand, Vietnam, Singapore, etc. This will boost tourism and help in the development of the region.

**What is the Buddhist Circuit?** - Buddhist Circuit is one of the fifteen thematic circuits identified for development under the **Swadesh Darshan** – Integrated Development of Theme-Based Tourism Circuits Scheme of the **Ministry of Tourism**. The Circuit includes the major locations associated with the life of Buddha like the places of birth, enlightenment, first sermon and Mahaparinirvana. These places include **Kapilvastu/Lumbini, Bodh Gaya, Sarnath, Shravasti, Vaishali, Rajgir, Nalanda and Kushinagar**.

## #2 Origins of Democracies in Ancient India

**News**: The Prime Minister of India remarked about the origins of democracy in Ancient India during his address to the UN General Assembly.

**What were the PM's remarks?** - The Indian Prime Minister remarked that "**India is not just the world's largest democracy, but also the 'mother of democracy'.**" This thought will challenge the Western notions about India and its past including the origins of democracy and republicanism in ancient India.

**What is the importance of reorientation of this thought?** - In recent years, there has been a move to recognize contributions in science made by the ancient non-Western societies, **(1)** the Pythagorean Theorem was well known in ancient India described in **Baudhayana's** *Sulbha-sutra*, **(2)** Fibonacci series was already mentioned by *Pingala* and *Hemchandra*, (3) **Charak** and **Sushruta** have been recognized as pioneers of medicine and surgery.
Based on the same idea, the non-western roots of ideas like democracy should be explored.

**What are the historical instances of Democracy from India's past?** – **(1)** In *Mahabharata's Shanti Parva,* republics (*ganas*) are mentioned as essential features of administration, **(2)** The **Vedas** describe at least **two forms of republican governance**; of **elected kings**, and **rule by Council or** *Sabha*. *Sabhas* consisted of distinguished individuals, **(3) Roots of modern bicameral system** of legislatures of *Sabha* and *Samiti* (common people) where **women could participate** too, **(4)** Democratic systems have been mentioned in *Ashtadhyayi* **of Panini** while various Buddhist and Jain writings describe the **16** *Mahajanpadas,* **(5)** Greek historians note absence of Kings in states like *Lichchavi* **of Vaishali, (6)** *Arthashastra* **of Kautilya** provides

**PT BOX**
**Kautilya's Saptang Theory of State (***Rajya***)**
According to this theory, the State has 7 organs or *Prakritis*, *Swami* (The Ruler), *Amatya* (The Minister), *Janapada* (The Population), *Durga* (The Fortified Capital), *Kosha* (The Treasury), *Danda* (The Army), *Mitra* (Ally and Friend).

theory of State (*Saptanga* or 7 elements) with decentralized power and relationship between key elements of *Swami* (King), *Amatya* (Ministers) and the *Janapadas* (People). This system made the King accountable to people.

**What are the counterarguments to recognize the democratic traditions in Ancient India? – (1)** The democratic systems were **too primitive and simple**. However, the democratic systems are ever evolving and remain work in progress, (2) There is no **continuity between the ancient** *ganas* **and modern Indian Republic**. However, this argument can be extended to the ancient Greek city-states as well.
Thus, what survives is the way of thinking. With its rich history of democracy, India cannot just lead, but also define the future of democratic principles and global governance.

## Pointly

**Abhidhamma Day:** The Abhidhamma Day marks the end of a three-month rainy retreat – *Varshavaas* or Vassa – for the Buddhist monks and nuns, during which time they stay at one place and pray. Buddhists believe this is the day when **Lord Buddha came back to earth from heaven**. He is believed to have gone to heaven to teach Abhidhamma Pitaka (a basket of ultimate things) to his mother. Hence, his followers too mark the three-month time by staying at one place and praying.

**Karuppur Kalamkari Paintings**: Karuppur Kalamkari paintings are done in Karuppur and its surrounding villages in **Tamil Nadu**. The paintings are done on pure cotton cloth and are predominantly used in temples for umbrella covers, cylindrical hangings, chariot covers and *asmanagiri* (false ceiling cloth pieces). Kalamkari paintings evolved under the patronage of Nayaka rulers in the early 17th century.

**Kallakurichi wood carvings**: Kallakurichi wood carvings are mainly practised in the Kallakurichi district in Tamil Nadu. They are a unique form of wood carving wherein the craftsmen are specialised in carving temple-related items and also furniture using traditional designs. The woodcarving skill evolved as an indigenous art when Madurai was an important town under different monarchical regimes in ancient times.
**Karuppur kalamkari paintings and the Kallakurichi wood carvings have received geographical indication (GI) tags**.

*Rakthamichthys mumba*: A new species of **swamp eel** belonging to the **genus Rakthamicthys** (endemic to India) was discovered in a well in Mumbai. It was named **Rakthamichthys Mumba** – the Mumbai blind eel. This is the fifth species from the genus to be described from India. This is the first completely blind subterranean freshwater fish species to be described from Maharashtra and the Northern western Ghats. Unlike other species of its genus, the mumba lacks eyes, fins and scales.
Rakthamichthys mumba differs from its congener from Western Ghats of India by the possession of jaws, absence of eyes and having more vertebrae.
The present known habitat of the species is only the Mumbai well.

*Hoplosebastes Armatus*: Researchers have discovered a unique, lesser-known fish species named *Hoplosebastes Armatus* in the Indian Ocean (off the coasts of West Bengal and Odisha). This fish species was till now **thought to be found only in the Pacific Ocean**. The fish is also known as the flower scorpionfish. It belongs to the order of ray-finned fish that is also known as Scorpaeniforme. The fish species differs from that found in the Pacific Ocean in the presence of tentacles on the head, extensive spots on the fins, scale-less maxilla, and a number of spines on sub-orbital stray.
The **rise in the temperature of sea water due to global warming might have induced the migration** of this species from different regions.

**Migratory Bird Flyways**: A flyway is a **geographical region within which a single or a group of migratory species completes its annual cycle – breeding, moulting, staging and non-breeding**.
According to India's "National Action Plan (NAP) for Conservation of Migratory birds", at least **370 species of migratory bird from 3 flyways** (CAF, East Asian Australasian Flyway and Asian East African Flyway) are reported to **visit the Indian sub-continent** during their annual cycle.
There are **9 major flyways** in the world that include Pacific Americas, Mississippi Americas, Atlantic Americas, East Atlantic, Black Sea-Mediterranean, East Africa-West Asia, Central Asia, East Asia-Australasia.
**Approximately 20% of the world's 11,000 bird species migrate**, some covering enormous distances. Conserving migratory birds requires cooperation and coordination along the entire flyway between countries and across national boundaries.

**Convention on Migratory Species (CMS) or the Bonn Convention:** It is an intergovernmental treaty, concluded under the **aegis of UNEP**. It was signed in 1979 in **Bonn, Germany**, and entered into force in **1983**. It is the **only global convention** specializing in the **conservation of migratory species**, their habitats and migration routes.

**Bengal Floricans**: Bengal floricans (*Houbaropsis bengalensis*) are also called **Bengal bustards**. They inhabit lowland dry, or seasonally inundated, natural and semi-natural grasslands. These are found in very small numbers in **India**, **Nepal** and **Cambodia**. In India, the species habitat lies in the **floodplains of Ganga** (UP, Pilibhit and Dudhwa Reserves) and **Brahmaputra** (Jaldapara, Kaziranga, Manas and D'Ering Sanctuary). It is a **Critically Endangered Species** and falls in **Schedule I of Indian Wildlife Protection Act,1972 and Appendix I of**

**Convention on Migratory Species (CMS).** The threats arise due habitat loss through drainage, conversion to agricultural land and plantations, the invasion of alien species, and dam construction.

The "**Kunming Declaration**" was adopted by over 100 countries in the ongoing virtual **15th** meeting of the Conference of the Parties (**COP**) to the **United Nations Convention on Biological Diversity (UNCBD)**.
The **theme** of the COP-15 is "**Ecological Civilization**: Building a Shared Future for All Life on Earth". COP15 is being held to review the achievement and delivery of the **CBD's Strategic Plan for Biodiversity 2011-2020.**
The declaration calls upon the parties to **"mainstream"** biodiversity protection in decision-making and recognise the importance of conservation in protecting human health. *Conference of Parties (CoP) is the governing body of the Convention, and advances implementation of the Convention through the decisions it takes at its periodic meetings.*

**Earthshot Prize – EcoOscar**: **Earthshot Prize** is an award set up by Prince William and the Royal Foundation to honour five finalists between 2021 and 2030 for developing solutions to fight the climate crisis. The prize is inspired by US President John F Kennedy's **"Moonshot" programme**, which resulted in the **US Apollo lunar launches** and the first man setting foot on the Moon in 1969. In 2021 the prizes were awarded to 5 finalists for their contributions towards the five UN SDGs — **restoration and protection of nature, air cleanliness, ocean revival, waste-free living and climate action.**
Delhi-based company Takachar is one among five winners this year. They won the prize for their technology to create fuel, fertiliser and other speciality chemicals from agricultural waste.

**Catastrophe bonds or Cat bonds** provide options for insurers, reinsurers, global corporations and Governments as a **way to protect themselves against natural disasters**. Under these bonds, the investors are compensated by a rate of return that is higher than that of normal Government or Corporate bonds. This helps them get extra returns on investment, which in turn helps them to meet liabilities. It offers **assurance to the insurer** of cash payout to lower premiums and simultaneously offers coverage of extreme events. **Governments can get extra cash to spend on relief and rehabilitation** purposes.

**Mitra Shakti:** 8th edition of India-Sri Lanka bilateral joint military exercise Mitra Shakti was conducted in **Ampara** in **Sri Lanka**. The two-week-long exercise was conducted from 04 to 15 October 2021. The troops trained, share and rehearsed tactical drills to undertake joint counter-terrorism operations in a semi-urban/rural environment under **United Nations** mandate.

**JIMEX Exercises**: 5th edition of India – Japan Maritime Bilateral Exercise, JIMEX, between the Indian Navy (*IN*) and the Japan Maritime Self-Defence Force (JMSDF), was held in the **Arabian Sea** from 06 to 08 October 2021. **Dharma Guardian** is Joint Military Exercise between India and Japan that started off in 2018. The latest one was conducted in 2019 in Mizoram. **SHINYUU Maitri**– It is a joint exercise between Indian Air Force and the Japanese Air Self Defence Force (JASDF).

**Ajeya Warrior and other Indo-British Joint Exercises**: The 6th Edition of **India – UK** Joint Military Training **Exercise Ajeya Warrior** was conducted at **Chaubatia** in **Uttarakhand**. The execution of joint military operations is done in a semi-urban environment. The exercise is part of an initiative to develop interoperability and sharing expertise with friendly foreign nations.
**Passage Exercise (PASSEX):** It was conducted between the Indian Navy and Royal Navy Carrier Strike Group to ensure that the navies are able to communicate and cooperate in times of war or humanitarian relief.
**Exercise Konkan**: It is also a bilateral maritime exercise between the Indian Navy and the Royal Navy of the UK. The Exercise aims to consolidate interoperability and help cement the strong bonds of friendship between the two navies.
**Exercise Indradhanush:** It is a joint bilateral air exercise between India and the UK started in 2006.

**India Australia Joint Exercises**: **Exercise AUSINDEX:** It is a bilateral **maritime exercise** between India and Australian Navies.

**Exercise Pitch Black:** It is a biennial multilateral air combat exercise hosted by the Royal Australian Air Force(RAAF) since 1981.

**Indo-US Joint Exercises: Yudh Abhyas-** It is a joint military exercise between India and the US. The 17th edition of the exercises was conducted recently at the Joint Base Elmendorf Richardson in Alaska, USA. It is the **largest running joint military training and defence cooperation endeavor between India and the USA**. The exercise was started in 2004 under the US Army Pacific Partnership Program.
**Tiger Triumph-** It is a tri-service military exercise between India and the US.
**Vajra Prahar**- It is a Special Forces joint military training exercise conducted alternately in India and the US since 2010.
**Exercise Cope India:** It is a series of bilateral Air Force exercises between India and the United States.

**Abhyas: Defence Research and Development Organisation** (DRDO) has successfully flight-tested **Abhyas High-speed Expendable Aerial Target** (HEAT) from the Integrated Test Range in Chandipur, Odisha.
Abhyas is an indigenously developed **Unmanned Aerial Vehicle** (UAV) that will be used as a target for the evaluation of various missile systems. It is powered by a small gas turbine engine to sustain a long endurance flight at **subsonic speed**.
It is equipped with an **Inertial Navigation System** (INS) for navigation, along with the **Flight Control Computer** (FCC) for guidance and control. The Abhyas vehicle is programmed for fully autonomous flight. The check-out of air vehicle is done using a laptop-based **Ground Control Station** (GCS)

**Hypersonic Missile**: Hypersonic speeds **exceed five times the speed of sound** i.e., **Mach 5 or above** (above 1.6 km per second). There are two types of hypersonic missiles, **Cruise Missiles and Glide Vehicle Missiles**. Glide missiles are difficult to track because, unlike ballistic missiles, they "do not follow the fixed parabolic trajectory".
Countries like the **US, Russia and China are developing hypersonic glide vehicles**. China recently tested first ever 'nuclear capable' Hypersonic missile.
India too is working on hypersonic technologies. In September 2020, DRDO has successfully flight-tested the **Hypersonic Technology Demonstrator Vehicle (HSTDV)** with a capability to travel at 6 times the speed of sound.

**CAATSA: Countering America's Adversaries through Sanctions Act** was passed in 2016 by the USA to discourage trade in the defence and intelligence sectors of Russia. The US might impose sanctions on India due to import of **S400 Triumf Air Defence system** from Russia, though US Administration is debating granting waiver to India. Indian imports of arms from Russia decreased by 33% between 2011-15 and 2016-20. The USA designated India as a major defence partner in 2016. It also gave India Strategic Trade Authorization-1, which allows access to critical technologies.

**Mission Lucy**: Lucy is NASA's mission to **explore the Jupiter Trojan Asteroids**. It was launched on October 16 2021. It is a part of **NASA's Discovery Programme** focused on better **understanding of Planetary systems of the Solar System**. The mission is named after 'Lucy', a 3.2 million-year-old ancestor who belonged to a species of hominins (which include humans and their ancestors). The mission is estimated to be over 12 years long, during the course of which the **spacecraft will visit eight asteroids** covering a distance of about 6.3 billion km to deepen the **understanding of the "young solar system"**.

**Trojan Asteroids**: Asteroids are divided into **three categories: (a)** The first group are those that are found in the **main asteroid belt**, **between Mars and Jupiter**. This region is estimated to contain somewhere between 1.1-1.9 million asteroids, **(b)** The second group is that of **trojans** (the name comes from Greek mythology), which are asteroids that share an orbit with a larger planet. NASA reports the presence of Jupiter, Neptune and Mars trojans. In 2011, they reported an Earth trojan as well. **The Jupiter asteroids** can be found in what are referred to as "swarms" that lead and follow the planet Jupiter along its orbit around the Sun, **(c)** The third classification of asteroids is under **Near-Earth Asteroids** (NEA), which has orbits that pass close to the Earth.

Those that cross the Earth's orbit are called Earth-crossers. More than 10,000 such asteroids are known, of which over 1,400 are classified as potentially hazardous asteroids (PHAs).

**Dawn mission (NASA)** orbited Ceres and Vesta the two largest worlds in the belt between Mars and Jupiter.

**Hayabusa mission (JAXA-Japan)** probed asteroid "Ryugu"

**OSIRIS-REX(NASA)** spacecraft probed asteroid "Bennu" and collected samples from there.

**Quantum Key Distribution**: Quantum Key Distribution (QKD) is a **secure communication technique** that uses **quantum properties of photons to encrypt secret keys** that can be shared by two parties to protect their communications. Because of the unique properties of photons, any attempt to read or interfere with the message will **change the state of photons** which will alert the receiver that the message has been tampered with and communication is aborted. A new key is then transmitted. The new keys generated are random, they are **protected from future hacking attempts** thus providing safe communication.

**India's First IVF Buffalo Calf**: India's first In Vitro Fertilization (IVF) calf of **Banni breed** of buffaloes was born at a farmer's house in Gir Somnath district, Gujarat. It is a breed of buffalo found primarily in the Kutch district of Gujarat. Banni Buffaloes has **higher milk production potentials** and is also more **disease resilient**. They are also **well-adapted to survive extreme weather conditions** such as water scarcity, frequent droughts, low humidity and high temperatures.

This is the reason they were chosen to multiply the population of genetically superior buffaloes, resulting in higher milk yield.

**Phycoremediation**: It is a type of **bioremediation**, which involves **use of macroalgae or microalgae** for the removal or biotransformation of pollutants. It improves the **PH** of the water.

**Lukha river in Meghalaya was rejuvenated** using this technique. Meghalaya's Pollution Control Board had attributed the river's pollution to '**acid mines**' drainage and 'rat-hole **coal mines**'.

The rejuvenation was funded through the **District Mineral Fund**. Lukha river drains the East Jaintia Hills in Meghalaya before flowing to the Assam's Barak Valley into the floodplains of Bangladesh.

**Mosquirix**: A new vaccine **"RTS,S/ASO1 (RTS.S)"** with trade name "**Mosquirix**" was endorsed by the WHO. This is the **first vaccine to have shown the capability of significantly reducing malaria**. Mosquirix has been developed by British pharmaceutical company GlaxoSmithKline in partnership with the PATH Malaria Vaccine Initiative.

Malaria is caused by the bite of the **female Anopheles mosquito** (vector) if the mosquito itself is infected with a malarial parasite. It is **preventable and curable**. There are **five kinds of malarial parasites** — Plasmodium falciparum, Plasmodium vivax (the commonest ones), Plasmodium malariae, Plasmodium ovale, and Plasmodium knowlesi. Mosquirix acts against **P. falciparum**, the most deadly malaria parasite globally.

As per WHO, a country can be declared malaria-free when it reports zero indigenous cases of malaria for 3 or more years. In 2019, **India** had an estimated **5.6 million cases** of malaria compared to about 20 million cases in 2000.

**Molnupiravir**: It is being termed as the **first antiviral drug to treat the COVID-19 disease**. The experimental drug reduced the risk of hospitalization or death by 50% in an interim trial. Molnupiravir has been approved for medical use in the United Kingdom. It nhibits the replication of certain RNA viruses. Molnupiravir was originally developed to treat influenza at Emory University in the US.

**IRIS Initiative**: India along with Australia, the UK and small island developing states (SIDS) launched the **IRIS (Infrastructure for Resilient Island States)** initiative. The IRIS initiative is aimed at creating a coalition for putting in place **infrastructure that can withstand disasters and lessen economic losses in island nations**. Australia, India and the UK have committed an initial funding of $10 million. According to a **World Bank** report titled '**Climate and Disaster Resilient Transport in Small Island Developing States**', SIDS countries are highly susceptible to economic losses due to disasters, with average annual losses ranging from 1% to 10% of the gross domestic product (GDP). **UN Global Assessment Report** (2017) observes that SIDS countries account for

two-thirds of the countries in the world that suffer the highest relative losses due to disasters. IRIS Initiative has been launched to support the capacity building to meet the needs of SIDS countries.

**Small island developing states (SIDS)**: SIDS are a distinct group of 38 UN Member States and 20 Non-UN Members/Associate Members of UN regional commissions that face unique social, economic, and environmental vulnerabilities. Factors like small population size, remoteness from international markets, high transportation costs, vulnerability to exogenous economic shocks and fragile land and marine ecosystems make SIDS particularly vulnerable to biodiversity loss and climate change because they lack economic alternatives. Most SIDS are situated in the Caribbean Sea, Pacific Ocean (Micronesia, Melanesia, Polynesia) and there are a few in Indian Ocean (Bahrain, Maldives, Mauritius, Seychelles, Singapore) and Atlantic Ocean (Cape Verde, Comoros, Guinea-Bissau, Sao Tome)

**World Meteorological Congress** has endorsed the '**Water Declaration**', wherein early warnings about floods and droughts will be available for people everywhere on the planet by 2030. The Congress also endorsed **the Water and Climate Coalition** for promoting sharing and access to integrated hydrological, cryosphere, meteorological and climate information. Only 40% of the countries have operational early flood and drought warning systems.
**More than half of the world's population will be living under water-stressed conditions by 2030.** Water and Climate Coalition is aimed at **accelerating the progress of water-related United Nations Sustainable Development Goals**, especially SDG-6 (water and sanitation for all).
The **World Meteorological Organization (WMO)** is a specialized agency of the United Nations responsible for promoting international cooperation on atmospheric science, climatology, hydrology and geophysics. **The World Meteorological Congress** is the supreme body of the Organization which determines policy. Each member state and territory is represented by a Permanent Representative with WMO when Congress meets every four years.

**DigiSaksham Programme**: The **Ministry of Labour and Employment** has launched a **digital skills programme (DigiSaksham)** to **enhance the employability of youth** by **imparting digital skills. Active job seekers** will be able to access **training in digital skills** including basic skills as well as advanced computing free of cost. There will be t**hree types of training** viz. **Digital Skills** – Self paced learning, **VILT mode training** (Virtual Instructor-led) and **ILT mode training** (Instructor led). The Jobseekers can access the training through **National Career Service** (NCS) Portal. The programme is a joint initiative of **Microsoft India** and the **Ministry of Labour & Employment.** The programme will help in **bridging India's digital divide**.

**SAKSHAM Centres**: SAKSHAM Centres are also known as Centre for Financial Literacy & Service Delivery**.** They are a one-stop solution/single window system for the basic financial needs of Self-Help Group (SHG) households in rural areas. Their objective is **to provide financial literacy & facilitate delivery of financial services** (savings, credit, insurance, pensions etc) to SHG members and rural poor through trained Community Resource Persons (CRPs). CRPs will be trained by the Lead Bank of the district. SAKSHAM Apps will be used by the CRP to know the penetration of various financial services for each SHG & village, identify major gaps. The Scheme is driven by **Ministry of Rural Development**.

The National Career Service (NCS) Project is a Mission Mode Project for the transformation of the National Employment Service to provide a variety of employment-related services like job matching, career counselling, vocational guidance, apprenticeship, internships etc. The **services** under NCS are **available online** through a dedicated NCS Portal. The NCS portals can be accessed directly or from Career Centres (Employment Exchanges), Common Service Centres, post offices, mobile devices, cyber cafes etc. The NCS Portal is **now being integrated with other Ministries/ departments** like MSDE, MHRD, AICTE, etc. The NCS Project is implemented by the Ministry of Labour and Employment.

**Going Online as Leaders** (GOAL) Program was launched by the **Ministry of Tribal Affairs** (MoTA) and **Facebook** in 2020. The initiative is aimed at skilling the tribal youth with a focus on enabling digital presence in addition to strengthening core skills to drive their professional-economic upliftment. The program intends to upskill and empower **5,000 tribal youths** over the course of the **next five years.** They will be trained to harness the full potential of digital platforms and tools to learn new ways of doing business. It is designed to provide mentorship to tribal youth through digital mode. Expert sessions are also organized wherein distinguished leaders and experts from various fields are invited to interact with the mentees.

**NIPUN Bharat Mission**: National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN) Bharat mission has been launched by the Department of School Education and Literacy, Ministry of Education. It aims to achieve the goal of **universal proficiency in foundational** literacy and **numeracy** for every child by grade 3, as envisaged by **National Education Policy 2020.** The Government of India has set up a National Steering Committee (NSC) for the implementation of NIPUN Bharat Mission under the chairmanship of the Union Education Minister. The responsibilities of the NSC include to develop methodology of assessment to analyse the progress, provide feedback to the states and achieve the targets by 2026-27.

**AYUSH Van**: Ayush Van is a dedicated forest for Ayurvedic plants. It is located at the Deendayal Port Trust (DPT) in Kutch, Gujarat. The Ayush Van was set up in 30 acres of land allotted by DPT in a green-belt area The tree plantation is done to improve greenery in urban areas and increase the density of tree cover in the Kutch region. The Ayush Van will help to realise the huge potential and benefits of the medicinal plants in India.

**One Health Consortium** has been launched by Department of Biotechnology to carry out surveillance of important viral, bacterial, & parasitic infections of zoonotic and transboundary pathogens in India. The consortium will also look into the use of existing diagnostic tests and the development of additional methodologies to conduct surveillance and understand the spread of emerging diseases. One Health Consortium comprises 27 organisations and is led by the DBT-National Institute of Animal Biotechnology, **Hyderabad**.

**One Health** is an approach that recognises that the health of human beings is connected to the health of animals and the environment. Hence, it aims to design and implement programmes, policies, legislation and research in a way in which multiple sectors communicate and work together to achieve better public health outcomes.
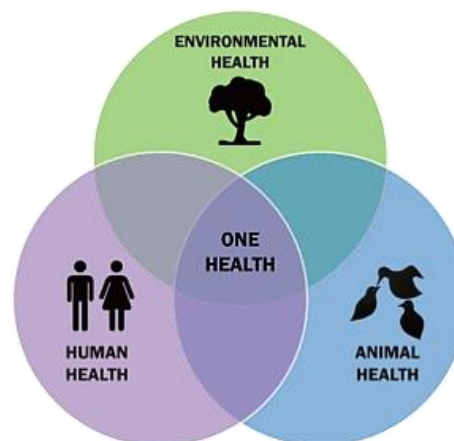
**River Ranching Programme**: It is a form of **aquaculture** in which a population of a fish species is held in captivity for the first stage of their lives, then released, and later harvested as adults. "**River ranching programme**" is introduced as special activity under **PMMSY (Pradhan Mantri Matsya Sampada Yojana)** scheme for augmenting and enhancing the fish production and productivity. Department of Fisheries has designated **National Fisheries Development Board (NFDB)**, **Hyderabad** as the Nodal Agency.

As a **Phase–I programme** NFDB during 2020-21has targeted **three major river systems namely Ganga and its tributaries**, **Brahmaputra & Barak** river tributaries and **Mahanadi & other rivers**.

The 2nd edition of the **Industrial Park Rating System (IPRS) Report** was launched by the **Department for Promotion of Industry and Internal Trade (DPIIT)**. All the States of India and 51 SEZs, including 29 Private, have participated in the IPRS 2.0 Report. The Report is an **extension of the India Industrial Land Bank**, which features more than 4,400 industrial parks in a GIS-enabled database to help investors identify their preferred location for investment.

The report classifies different industrial parks into categories namely **'leaders', 'Challenger', 'Aspirers'.**

The IPRS 2.0 Report will enhance India's industrial competitiveness and attract investment.

IPRS was organized as a pilot level exercise in **2018** with support from **Asian Development Bank** along with its knowledge partner **PwC**.

**CRISP-M Tool: Climate Resilience Information System and Planning** (CRISP-M) tool is a web and mobile phone-based Geographic Information System (GIS) aided tool that has been designed to **help communities make climate-smart decisions**. The tool will help integrate climate information in the GIS-based planning and implementation of Mahatma Gandhi NREGA.

This tool will be used in seven states where the **Foreign Commonwealth and Development Office (FCDO), Government of UK** and **Ministry of Rural Development**, are jointly working towards climate resilience. The states are Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha and Rajasthan.

**Palk Bay Scheme and Bottom Trawling**: Palk Bay Scheme is also known as Scheme for Diversification Of Trawl Fishing Boats From Palk Straits Into Deep Sea Fishing Boats. It is a Tamil Nadu-specific scheme aimed at providing 2,000 vessels in three years to fishermen of the State and motivating them to abandon bottom trawling. It aims to **reduce fishing pressure** around the proximity of the **International Maritime Boundary Line (IMBL)** so that Tamil Nadu fishermen do not cross the IMBL and fish in Sri Lankan waters. Under the scheme is the Centre is providing 50% cost of the fishing vessel, the State government is providing 20% cost and the 10% cost will be the Institutional funding. The beneficiary will put the remaining 20% for the vessel. **Bottom Trawling** is an ecologically destructive fishing practice. It involves trawlers dragging weighted nets along the seafloor. The major problem in bottom trawling is **Bycatch** (captures juvenile fish and other non-targeted fish species). This will cause great depletion of aquatic resources and affect marine conservation efforts.

**Mount Manipur**: The Government of India has renamed **Mount Harriet** of **Andaman and Nicobar (A&N) Islands** to **Mount Manipur**. Mount Harriet is the third-highest island peak in the A&N Islands. It is the place where Manipur's **Maharaja Kulchandra Singh** and 22 other freedom fighters were imprisoned during the **Anglo-Manipuri war** (1891). Hence, Mount Harriet has been renamed as Mount Manipur to pay tribute to those freedom fighters of Manipur. The **Anglo-Manipur War** was an armed conflict between the British Empire and the Kingdom of Manipur. The war lasted between 31 March and 27 April 1891, ending in a British victory. This war also led to Manipur officially becoming a princely state under the indirect rule of the British crown.