

MONTHLY

# EPIC!

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

AN EXCLUSIVE CURRENT AFFAIRS MAGAZINE FOR  
**PRELIMS + MAINS**  
PREPARATION

FEBRUARY 2022

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 Jaiswal

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 current affairs (online) classes.

Presence of mentors like Ayush sir and Dipin sir acts as a bonus. I am truly grateful to the entire ForumIAS team for being the building block of my preparation.

THANK YOU !!

Apala Mishra

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UPSC AIR- 03

CSE-2020.

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

I'm grateful to ForumIAS for the same.

Karishma Nair

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(On a side note, very grateful for the long motivating emails by Nayan sir as well)

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

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## Focus Article

### #1 Union Budget FY2022-23

**News:** The Union Minister for Finance presented the Budget for FY2022-23 in the Parliament.

**What are the stated goals of Union Budget 2022-23?** - The Budget goals for FY2022-23 aim to further India's aspirations in **Amrit Kaal**.

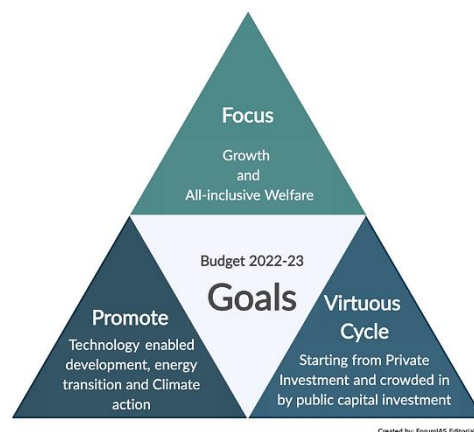
Amrit Kaal is period of next 25 years, from the 75<sup>th</sup> to 100<sup>th</sup> year of the Independence.

The Budget 2022-23 seeks to lay the footing and **give a blueprint to drive the economy over Amrit Kaal** - from India@75 to India@100.

The stated objective of the Government in the next 25 years is to **(a) Enhance the lives** of the nationals of India; **(b) Reduce the divide** in development between villages and cities; **(c) Lessen the Government's interference** in people's lives; **(d) Embrace the latest technology**.

By accomplishing specific goals during the *Amrit Kaal*, the Government strives to achieve the vision India@100. They are: **(1)** Complementing the macroeconomic-level development focus with a microeconomic level **all-inclusive welfare** principle; **(2)** Boosting the digital economy and fintech **technology-enabled evolution, energy transition, and climate action**; **(3) A virtuous cycle** of private investment with public capital investment, supporting crowd in private investment.

To achieve the vision, the Government has laid down the following 4 priorities: **(1)** PM GatiShakti; **(2)** Inclusive Development; **(3)** Productivity Enhancement & Investment, Sunrise opportunities, Energy Transition, and Climate Action; **(4)** Financing of investments.



### 1. PM Gati Shakti

- PM GatiShakti is a strategy for economic growth and sustainable development based on the approach of 'sabka prayaas', i.e., measures by central government, state governments and private sector for Integrated planning and coordinated Implementation of critical Infrastructure projects.
- The seven engines that drive PM GatiShakti are Roads, Railways, Airports, Ports, Mass Transport, Waterways and Logistics Infrastructure.
- The scope of PM GatiShakti National Master Plan will encompass the seven engines for **economic transformation, seamless multimodal connectivity and logistics efficiency**.
- The projects pertaining to these 7 engines in the National Infrastructure Pipeline will be aligned with PM GatiShakti framework.

#### 1.1 ROAD TRANSPORT

- National Highways Network to be expanded by 25000 Km in 2022-23.
- INR 20,000 Crore to be mobilized for National Highways Network expansion.

#### 1.2 MULTIMODAL LOGISTICS PARKS

- Contracts to be awarded through PPP mode in 2022-23 for implementation of Multimodal Logistics Parks at four locations.

#### 1.3 RAILWAYS

- One Station One Product** concept to help local businesses & supply chains.

- 2,000 Km of railway network to be brought under **Kavach**, the indigenous world-class technology for safety and capacity augmentation in 2022-23.
- 400 new generation **Vande Bharat** Trains to be manufactured during the next three years.
- 100 PM **GatiShakti** Cargo terminals for multimodal logistics to be developed during the next three years.

#### 1.4 PARVATMALA

- **National Ropeways Development Program**, **Parvatmala** to be taken up on PPP mode.
- Contracts to be awarded in 2022-23 for 8 ropeway projects of 60 Km length.



## 2. Inclusive Development

### 2.1 AGRICULTURE

- **INR 2.37 lakh crore direct payment** to 1.63 crore farmers for procurement of wheat and paddy.
- **Chemical free Natural farming to be promoted** throughout the country. Initial focus is on farmer's lands in 5 Km wide corridors along river Ganga.
- NABARD to facilitate fund with blended capital to finance start-ups for agriculture & rural enterprise.
- '**Kisan Drones**' for crop assessment, digitization of land records, spraying of insecticides and nutrients.

### 2.2 KEN BETWA PROJECT

- INR 1,400 crore outlay for implementation of the Ken – Betwa link project.
- 9.08 lakh hectares of farmers' lands to receive irrigation benefits by Ken-Betwa link project.

### 2.3 MSMEs

- **Udyam, e-shram, National Career Service (NCS) and Aatmanirbhar Skilled Employee Employer Mapping (ASEEM) portals** to be interlinked.
- 130 lakh MSMEs provided additional credit under **Emergency Credit Linked Guarantee Scheme (ECLGS)**. ECLGS to be **extended up to March 2023**. Guarantee cover under ECLGS to be expanded by Rs 50,000 Crore to total cover of Rs 5 Lakh Crore.
- Rs 2 lakh Crore additional credit for Micro and Small Enterprises to be facilitated under the **Credit Guarantee Trust for Micro and Small Enterprises (CGTMSE)**.
- Raising and Accelerating MSME performance (RAMP) programme with outlay of INR 6,000 Crore to be rolled out.

### 2.4 SKILL DEVELOPMENT

- **Digital Ecosystem for Skilling and Livelihood (DESH-Stack e-portal)** will be launched to empower citizens to skill, reskill or upskill through on-line training.
- Start-ups will be facilitated through 'Drone Shakti' scheme for promoting Drone-As-A-Service (DrAAS).

### 2.5 EDUCATION

- 'One class-One TV channel' programme of PM eVIDYA to be expanded to 200 TV channels.
- Virtual labs and skilling e-labs to be set up to promote critical thinking skills and simulated learning environment.



- High-quality e-content will be developed for delivery through Digital Teachers.
- Digital University for world-class quality universal education with personalised learning experience to be established.

## 2.6 HEALTH AND SAKSHAM ANGANWADIS

- An open platform for **National Digital Health Ecosystem** to be rolled out.
- ‘**National Tele-Mental Health Programme**’ for quality mental health counselling and care services to be launched. A network of 23 tele-mental health centres of excellence will be set up.
- Integrated benefits to women and children through Mission Shakti, Mission Vatsalya, Saksham Anganwadi and Poshan 2.0. Two lakh anganwadis to be upgraded to Saksham Anganwadis.



- > 3.8cr households under **Har Ghar, Nal Se Jal**
- > 80 lakh houses under **PM Awas Yojana**
- > Develop lagging blocks under **Aspirational Blocks Programme**
- > Develop villages on Northern Border under **Vibrant Villages Programme**
- > Digital Banking by all Post Offices
- > **75 Digital Banking Units** in 75 districts by Scheduled Commercial Banks

Source: PIB

## 2.7 OTHER INCLUSIVE INITIATIVES

- Rs. 60,000 crore allocated to cover 3.8 crore households in 2022-23 under **Har Ghar, Nal se Jal**.
- **Housing for All**: Rs. 48,000 crore allocated for completion of 80 lakh houses in 2022-23 under PM Awas Yojana.
- **Prime Minister's Development Initiative for North-East Region (PM-DevINE)**: New scheme PM-DevINE launched to fund infrastructure and social development projects in the North-East. An initial allocation of Rs. 1,500 crore made to enable livelihood activities for youth and women under the scheme.
- **Vibrant Villages Programme** for development of Border villages with sparse population, limited connectivity and infrastructure on the northern border.

## 3. Productivity Enhancement & Investment, Sunrise opportunities, Energy Transition, and Climate Action

### 3.1 BANKING

- 100% of 1.5 lakh post offices to **come on the core banking system**, upgrading the capabilities for offering common banking services at each branch in the network.
- Scheduled Commercial Banks to set up 75 Digital Banking Units (DBUs) in 75 districts.

### 3.2 URBAN PLANNING

- Modernization of building bylaws, Town Planning Schemes (TPS), and **Transit Oriented Development** (TOD) will be implemented.
- Battery swapping policy to be brought out for setting up charging stations at scale in urban areas.

### 3.3 ATMANIRBHARTA IN DEFENCE

- 68% of capital procurement budget earmarked for domestic industry in 2022-23, up from 58% in 2021-22.
- **Defence R&D to be opened up for industry**, start-ups and academia with 25% of defence R&D budget earmarked.

### 3.4 OTHER PRODUCTIVITY ENHANCEMENT AND INVESTMENT MEASURES

- **Land Records Management**: Unique Land Parcel Identification Number (LPIN) for IT-based management of land records.
- Accelerated Corporate Exit: Centre for Processing Accelerated Corporate Exit (C-PACE) to be established for speedy winding-up of companies.



- e-Passports with embedded chip having multi-layered cyber security features to protect data will be rolled out.
- **AVGC Promotion Task Force:** An animation, visual effects, gaming, and comic (AVGC) promotion task force to be set-up to realize the potential of this sector.
- **Telecom Sector:** Scheme for design-led manufacturing to be launched to build a strong ecosystem for 5G as part of the Production-Linked Incentive Scheme.
- **Export Promotion:** Special Economic Zones Act to be replaced with a new legislation to enable States to become partners in 'Development of Enterprise and Service Hubs'.

### 3.5 SUNRISE OPPORTUNITIES

- Government contribution to be provided for R&D in Sunrise Opportunities like Artificial Intelligence, Geospatial Systems and Drones, Semiconductor and its eco-system, Space Economy, Genomics and Pharmaceuticals, **Green Energy**, and **Clean Mobility Systems**.

### 3.6 ENERGY TRANSITION AND CLIMATE ACTION

- Additional allocation of Rs. 19,500 crore for Production-Linked Incentive for manufacture of high efficiency solar modules to meet the goal of 280 GW of installed solar power by 2030.
- 5-7% biomass pellets to be co-fired in thermal power plants: (a) CO<sub>2</sub> savings of 38 MMT annually; (b) Extra income to farmers and job opportunities to locals; (c) Help avoid stubble burning in agriculture fields.
- Four pilot projects to be set up for coal gasification and conversion of coal into chemicals for the industry.
- Financial support to farmers belonging to Scheduled Castes and Scheduled Tribes, who want to take up agro-forestry.

## 4. Financing of Investments

### 4.1 PUBLIC CAPITAL INVESTMENT

- Outlay for capital expenditure **stepped up sharply by 35.4%** to Rs. 7.50 lakh crore in 2022-23 from Rs. 5.54 lakh crore in the current year. Outlay in 2022-23 to be **2.9% of GDP**.
- **'Effective Capital Expenditure'** of Central Government estimated at Rs. 10.68 lakh crore in 2022-23, which is about 4.1% of GDP.

### 4.2 GIFT-IFSC

- World-class foreign universities and institutions to be allowed in the GIFT City.
- An **International Arbitration Centre to be set up** for timely settlement of disputes under international jurisprudence.

### 4.3 MOBILISING RESOURCES

- Data Centres and Energy Storage Systems to be given infrastructure status.
- Venture Capital and Private Equity invested more than Rs. 5.5 lakh crore last year facilitating growth of one of the largest start-up ecosystem. Measures to be taken to help scale up this investment.
- Blended funds (funds with mixed portfolio of value and growth stocks) to be promoted for sunrise sectors.
- Sovereign Green Bonds to be issued for mobilizing resources for green infrastructure.



- ▶ Integration of central and state level systems through IT bridges
- ▶ **Unique Land Parcel Identification Number** for IT based management of land records
- ▶ Establishing **C-PACE** to facilitate voluntary winding up of companies
- ▶ End to end online **e-Bill System** and utilising **surety bonds** in government procurement
- ▶ Animation, Visual effects, Gaming, and Comic (AVCG) promotion task force
- ▶ Support to **5G** under **PLI** scheme
- ▶ Opening up defence R&D for **industry, startups and academia**
- ▶ **68%** capital procurement budget for Defence sector from domestic industry in 2022-23

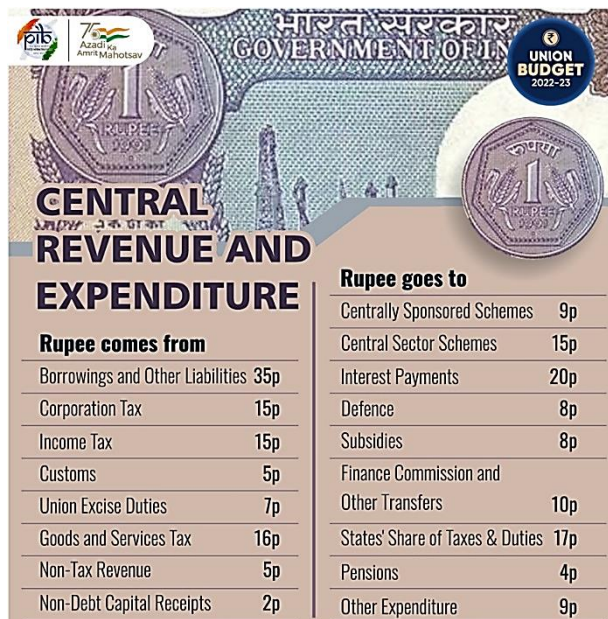
- Introduction of Digital Rupee by the Reserve Bank of India starting 2022-23.

#### 4.4 PROVIDING GREATER FISCAL SPACE TO STATES

- Enhanced outlay for 'Scheme for Financial Assistance to States for Capital Investment' from INR 10,000 crore in Budget Estimates to INR 15,000 crore in Revised Estimates for current year.
- Allocation of Rs. 1 lakh crore in 2022-23 to assist the states in catalysing overall investments in the economy: fifty-year interest free loans, over and above normal borrowings.
- In 2022-23, States will be allowed a fiscal deficit of 4% of GSDP, of which 0.5% will be tied to power sector reforms

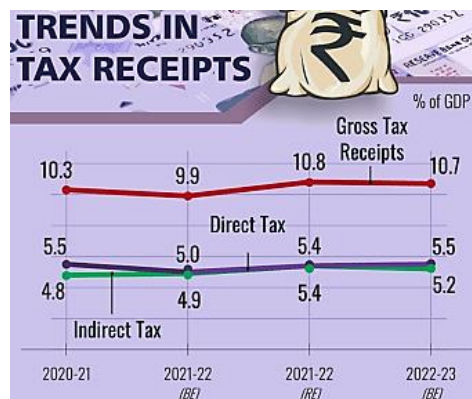
#### 4.5 FISCAL MANAGEMENT

- Budget Estimates 2021-22: INR 34.83 lakh crore.
- Revised Estimates 2021-22: INR 37.70 lakh crore.
- Total expenditure in 2022-23 estimated at INR 39.45 lakh crore.
- Total receipts other than borrowings in 2022-23 estimated at INR 22.84 lakh crore.
- Fiscal deficit in current year: 6.9% of GDP (against 6.8% in Budget Estimates).
- Fiscal deficit in 2022-23 estimated at 6.4% of GDP.



**How is the Union Budget 2022-23 expected to support economic growth?** - The Government has chosen an **investment-led growth strategy** that **substantially ramps up capital expenditure**, while largely holding back revenue expenditure. Capital expenditure allocations have increased from 1.65% of GDP in FY20-21 to 2.6% in FY22-23. Capital spending allocation rose to the highest in 18 years. Capital Expenditure is expected to boost growth; **(1)** According to different studies, 1 rupee spent towards capital expenditure can give returns between Rs 2.5 and Rs 4.8 (over periods ranging from 1-7 years). This will: **(a)** Increase India's GDP growth rate, which has been decelerating since 2017-18; **(b)** Reduce the unemployment rate; **(c)** Address the **K-shaped recovery**, which has resulted in **significant scars for economically weaker sections**; **(d)** Create new productive assets that will enhance future productivity; **(2)** New roads, ports etc will reinvigorate several other industries through **forward and backward linkages** e.g., infrastructure projects will support the cement and steel sectors while enhancing employment. This will **increase private final consumption expenditure (PFCE)**; **(3)** In time, as tax revenues from new economic activity increase and as private sector investments become self-sustaining, the Government will retreat from its leading role in investments, thus bringing down its borrowing requirements; **(4)** Budget 2022-23 has introduced a number of measures to **reduce compliance burden**, encourage voluntary compliance, reduce litigation, and improve the ease of doing business. This will **attract private investments**; **(5)** The **increased IT and telecom allocations** are an investment in India's future. The rollout of 5G promises to create a **foundation for next-generation technologies**; **(6)** Along with an emphasis on semiconductor manufacturing announcements related to the introduction of a digital currency, the issuance of e-passports; IT-based land records etc. **put faith in India's technological capabilities**. This will enable India to **transition to a more digital economy**; **(7)** Initiatives in education like bridging the digital divide, setting up of 200 TV stations and digital universities will support inclusive growth.

**What are the tax proposals in the Budget?** – (1) The Budget intends to take forward the **policy of stable and predictable tax regime**; (2) **Tax relief** has been provided to **persons with disabilities**; (3) **Specific tax regime for virtual digital assets** has been introduced. Any income from the **transfer of any virtual digital asset** is to be **taxed at the rate of 30%** in the hands of the recipient with 1% deducted at the source; (4) **Litigation management** to reduce litigation between the Taxpayers and the Department; (5) IT-driven customs administration in SEZs.



### What are the criticisms of the Budget 2022-23?

– The Budget has been presented at a time when the economy has still not recovered from the shock of the COVID-19 pandemic. Various Reports like **ICE360 survey** have shown that **India's economic recovery is K-Shaped** which means that the income of poor sections is decreasing further. In this backdrop, the most vocal criticism has been regarding the neglect of the social sector given the hardships faced by the poor: (1) **School Education**: While the Government announced expansion of 'One Class, One TV Channel', focus should have been on **basic infrastructure and teacher vacancies**. The budget for school education has been

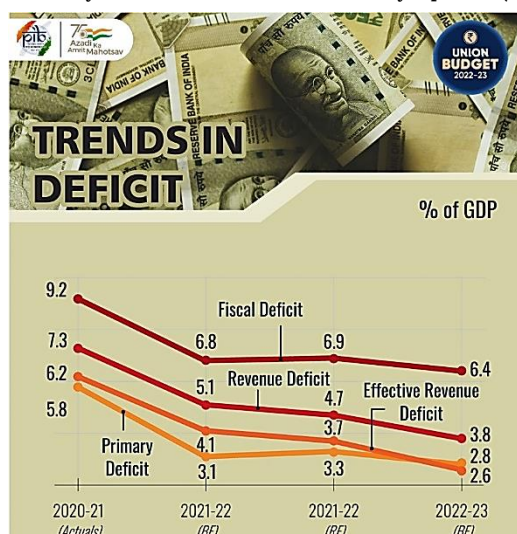
improved only slightly to INR63,449 crores from last year's INR54,873 crores; (2) **Healthcare**: Health budget has been increased by 16% despite the pandemic. For the **Jal Jeevan mission** only 44% of the allocated funds of consumed. Budget of Health and water & sanitation has been clubbed which is not a best practice; (3) Budgets for important schemes such as **Saksham Anganwadi**, maternity entitlements and social security pensions are around the same as the allocations for last year. The inflation adjusted allocation for various schemes like ICDS (part of POSHAN) are lower than that in 2014-15. Similarly the **Samarthya** scheme **was also allocated less than budgeted amount last year**, and has **no reference in this year's budget**; (4) The allocation for **Ayushman Bharat** was Rs 6,400 crore in 2021-22 which was same as previous year. But the Revised Estimates show that only Rs 585 crore was actually spent; (5) **MGNREGA**: The allocation for **MGNREGA** at Rs. 73,000 crores (no increase from previous year) also does not reflect the **increased demand for work** or the pending wages of Rs. 21,000 crores. During the pandemic the spending on MGNREGA was Rs. 111,000 against budgeted Rs. 73,000 indicating rural distress; (6) Social scientists say that the push for digital technologies may not be able to address the rural distress due to **digital divide** e.g., the Government should focus on **providing basic amenities through brick-and-mortar institutions, with qualified personnel** to cater to health and learning needs; (7) Some economists have argued that the **high taxes on fuels raises prices and reduces real incomes of people** making the economy susceptible to recession. The Government should resort to **other measures like a**

### PT BOX

#### Welfare Spending

Data from the International Labor Organization show that the spending on social protection (excluding health) in India is 1.4% of the GDP. The average for low-middle income countries is 2.5%. The current spending is much below the desired levels of 5-6% of GDP. The National Health Policy 2017 has a target of increasing public health expenditure to 2.5% of GDP by 2025. The healthcare budget needs to be enhanced to >3% of GDP from current level of 1.8%.

This can impact the inclusive development in India.





**higher corporate tax and wealth tax** to enhance revenues; **(8)** The government debt ratios are around 85-90% of GDP but the budget has only promised a modest fiscal consolidation of 0.5% of GDP. The interest payments of the Centre have jumped by nearly 40% between 2020-21 and 2022-23. High deficits have increased market borrowings; **(9)** There are **no marked reductions in protective Customs duty structure**, which act against sustained growth of exports and successful global value chain participation; **(10) Capital expenditure has long gestation periods** and the expected benefits to the common people may take time to accrue. When all other engines of growth are struggling the **investment cycle might not be sustainable**. Government should have looked at **putting more money in the hands of the people**; **(10)** Allocation has been **reduced to various environmental programmes** like Commission for Air Quality Management (CAQM), National Clean Air Programme, **Climate Action Plan** and **National Coastal Mission**.

**What should be done to improve the Indian Economy? – (1) Almost 60% of the actual spending is at the State level.** Hence, the states and centre must co-ordinate to reduce gaps between outlay and outcomes. **(2)** Focus should be on job creation to fasten the recovery of economy with support to labour-intensive sectors like tourism and health; **(3)** The **GST Council** should engage in more decisive action in correcting the inverted duty structure and including excluded items as well as improving all-round compliance; **(4)** Outlay on health must be enhanced, Ayushman Bharat should be **expanded to cover the outpatient costs** faced by the poor; **(5)** Faster implementation of **BharatNet Scheme** for providing high-speed digital connectivity to all villages to enable the digital push; By and large, Budget 2022-23 is in the desired direction (focus on improving the supply side) in the given circumstances. It has also **presented a 25-year blueprint**. But the impact of the Budget on the economy and the implementation of the blueprint will depend on the efficiency with which the various proposals are implemented.

## General Studies Paper I

### #1 Gender Gap in Contraception

**News:** NFHS-5 Survey revealed improvement in the use of contraception among women aged 15-49 years, but female sterilization continues to be the most common method despite availability of safer and economical methods indicating Gender Gap in contraception.

**What are the latest statistics regarding contraception use? –** The data have been provided by the NFHS-5: **(1)** There has been a more than **10 percentage-point increase in the use of contraception** among currently married women aged 15-49 years: from 53.5% in 2015-16 to 66.7% in 2019-20; **(2)** The use of condoms has risen from 5.6% to 9.5%; **(3)** **Female sterilization** continues to be the **most popular choice**, with an **adoption rate of 37.9%**; **(4)**

#### PT BOX

##### Female and Male Sterilization

Female sterilisation is an operation to permanently prevent pregnancy. The **fallopian tubes are blocked** or sealed to **prevent the eggs reaching the sperm** and becoming fertilised. This method is called **Tubal Ligation**. There are other methods like **hysterectomy** (removal of uterus) or **Oophorectomy** (removal of ovaries) but they pose health-risks.

##### Male Sterilization

A **vasectomy** is a surgical procedure to **cut or seal the tubes that carry the sperm** to permanently prevent pregnancy.

**What is the Gender Gap in Contraception? –**

**(1)** The **rise in adoption of contraception** among women indicates **greater bodily autonomy** exercised by women; **(2)** According to the NFHS-4, **only about 8% of women were found to make independent decisions** on the use of contraception; **(3)** Despite not having the authority to make decisions, **the burden of contraception falls on women**. Female sterilization is the most wide-spread

method, **despite the availability of cheaper and safer options available**. This asymmetry in female vs male sterilization indicates the Gender Gap in contraception; (4) NFHS-3 and NFHS-4 highlight that a higher proportion of **women with college or higher levels of education** tend to opt for **reversible methods of contraception over female sterilization**. Many lesser educated women don't have such freedom and are 'subjugated' to undergo sterilization.

**What have been recent government initiative in this area?** – Government has proposed to increase the **age of marriage for girls from 18 to 21 years**. There have been studies that confirm that an increase in the age of marriage for females **reduces the total fertility of women**. It also leads to an **improvement in the bargaining power of women**, as it may reduce age gaps between husbands and wives. However, this proposal has been criticised for taking away the right of self-determination for women and exhibiting paternalistic attitude towards women.

**What should be the way forward?** – (1) Studies across the world and in many part of India have shown that **increase in education translates into increased use of contraception** and increased family planning. In addition to this, there is need for **awareness** about the benefits of different methods of contraception to the **community at large**; (2) Special emphasis should be given to bring **awareness specially among men about the relevance of family planning**. Men should be made aware about the use of several male contraceptive methods that are safer, cheaper and procedurally simpler than female sterilization. This can be done by **utilizing the country's existing network of community health workers**, like ASHA workers or Anganwadi workers. Some additional male workers can also be employed to ease the direct communication; (3) **Law on contraception**: (a) This will make **access to a sound sexual health a legal right** of every citizen; (b) This would also facilitate **access to information and knowledge** by removing unnecessary restrictions on the advertisement and publicity of contraceptives; (c) It can also be used to make the **availability and accessibility of contraceptives easier** by enrolling the services of Primary Health Centres, particularly in rural areas.

## #2 Suicides due to unemployment highest during Pandemic

**News:** The Ministry of Home Affairs informed the Rajya Sabha that the highest number of suicides due to unemployment were reported in 2020, the year a lockdown was imposed for several month due to COVID-19 pandemic. The country experienced large scale job losses and economic slowdown in several sectors during this period.

**What is suicide?** – Simply put, it can be defined as the act of killing of oneself prematurely. Suicide is an intentional act where a person tries to escape the **mental and/or external problems** that they face. The World Health Organization estimated that nearly 7 Lakh people die of suicide every year i.e., one person every 40 seconds across the world. Although suicide was, till 2017, a punishable offense under the Indian Penal Code (IPC), the term 'suicide' was not been defined anywhere in the IPC.

**How does Indian law view suicide?** – **Article 21** of the Constitution reads: *No person shall be deprived of his life or personal liberty except according to procedure established by law*. The **Right to die** however, is not included within the meaning of Right to Life under Article 21 of the Constitution.

Under **Section 115 of the Mental Health Act, 2017**, a survivor of attempted suicide can avail **rehabilitation services** and care provided by the government. With the effect of this provision, attempt to suicide **no longer entails a criminal liability** as was earlier the case under Section 309 of the IPC. While attempt to suicide under section 309 of IPC has been decriminalized, abetment to suicide remains an offense under section 306. Decriminalization of suicide has been a gradual process. (1) The Law Commission in 1971 in its 42<sup>nd</sup> Report recommended repeal of Section 309 being of the view that this penal provision is "harsh and unjustifiable". (2) After this report came the case of **P. Rathnam v. Union of India** in 1994. The Supreme Court held that section 309 as **unconstitutional** and void for it

violated Article 21. The court also observed that the provision was **cruel and inhuman** as it once again punished a person who had already suffered an agony grave enough to prompt him towards attempting suicide. (3) However, the legal system went a step back in the subsequent judgment of **Smt. Gian Kaur vs. State of Punjab**, 1996. In this judgment the Supreme Court overruled its earlier judgment of *P. Rathnam v. Union of India*. The court observed that the 'right to life' did not include the 'right to die' and found them to be inconsistent with each other. It was agreed that the right to life includes 'right to die with dignity' but that **does not include unnatural death**. The court further held that the **right to life is a natural right and the right to end a life amounts to an unnatural right** that cannot be provided under Article 21. (4) Then came the case of **Aruna Shanbaug v. Union of India**, 2009. Popularly known as the '**Euthanasia Case**', this case became a landmark judgment in the legal history of India. Aruna Shanbaug was in a coma or a Persistent Vegetative State (PVS) for nearly 42 years until her demise in 2015. The Supreme Court suggested the Parliament to consider the decriminalization of Section 309 of the Indian Penal Code and lay guidelines for **passive euthanasia for patients who were in vegetative state and had no hope for recovery**. The judgment recognized the right to die with dignity and permitted passive euthanasia (by removing life support) in the country. This judgment became the reason for the introduction of the Mental Healthcare Bill in the Rajya Sabha in the year 2013 and was finally passed in the year 2017.

**What does the government have to say?** - In reply to a written question, Minister of State for Home informed the Rajya Sabha that **5,213 people had died of suicide due to bankruptcy or indebtedness in 2020** as compared to 5,908 in 2019 and 4,970 in 2018. Replying to accusations of mismanagement of the pandemic by the government, the Minister said the **government had launched a number of programs for employment and income generation for the citizens**. He enumerated programs like **Aatmanirbhar Bharat Rojgar Yojana (ABRY), National Career Service (NCS) Project, Make-in-India and Digital India** aimed at incentivizing employers for creation of new jobs.

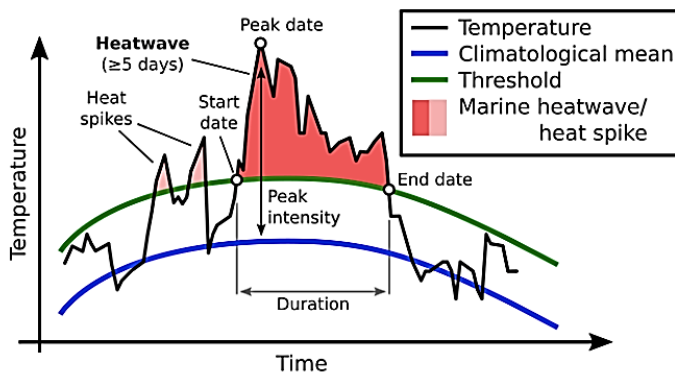
**What is the way forward?** - Suicide is a public health priority, especially during pandemic times. After its decriminalization, suicide is seen not as an offence but as a condition that requires treatment more than punishment. Unfortunately, mental health still remains a taboo in the Indian society. What is required is **spreading awareness** and providing facilities to the people that are **cost effective and easily accessible**. Creating a positive impact is still a distant dream, however, legal rectification is a step in the right direction.

### #3 Marine Heat Waves and their Impact

**News:** A new study has revealed that the increased frequency of Marine Heat Waves is impacting the pattern of Monsoon rainfall in India.

**What is a Marine Heat Wave (MHW)?** -

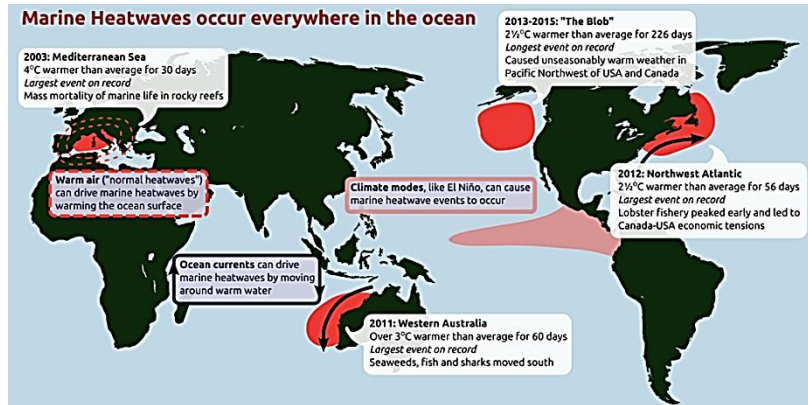
(1) Marine Heat wave is the phenomena of **period of high ocean surface temperatures** over an extended period of time; (2) Marine Heat Wave is said to occur when seawater surface temperatures **exceed a seasonally-varying threshold for at least 5 consecutive days**. The threshold is generally 5-7°C above the normal temperature; (3) Marine heatwaves **can occur in summer or winter** - they are defined based on **differences with expected temperatures for the location and time of year**.





**What are the reasons for Marine Heat Waves?** – (1) Ocean Scientists identify three type of causes behind heat waves: (a) Local factors; (b) Teleconnection processes; (c) Regional climate patterns; (2) The Local factors for MHW include: (a) Local ocean advection (horizontal and vertical heat transfer within a local column of ocean water);

(b) Air-sea heat flux; (c) Thermocline stability; (d) Wind stress (stress exerted by wind on water surface); (3) **Teleconnection Processes impact weather and climate patterns of geographically distant areas.** Teleconnection factors include Oceanic Rossby and Kelvin Waves; (4) Regional climatic patterns include **oceanic oscillations like the El-Nino Southern Oscillation (ENSO)** which contributed to the massive heat wave 'The Blob' in the North-east Pacific in 2013-15; (5) **Anthropogenic atmospheric heating** is increasing the frequency of MHWs. IPCC has observed that Oceans have absorbed almost 90% of excess heat in the atmosphere and the frequency of MHW events has doubled since 1982. The number of MHWs in the west Indian ocean **increased by around 1.5 events per decade between 1982 and 2018** and by around 0.5 events per decade in north Bay of Bengal in the same period. There were a total of 66 events in west Indian Ocean and 94 in north Bay of Bengal in the 36 years.



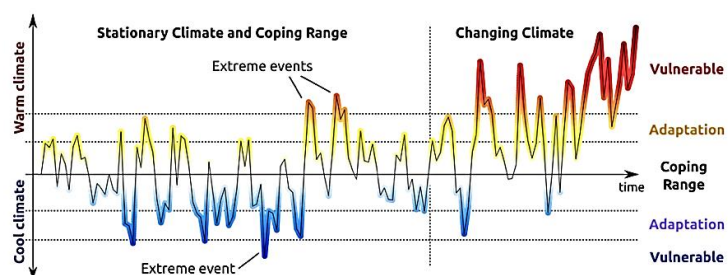
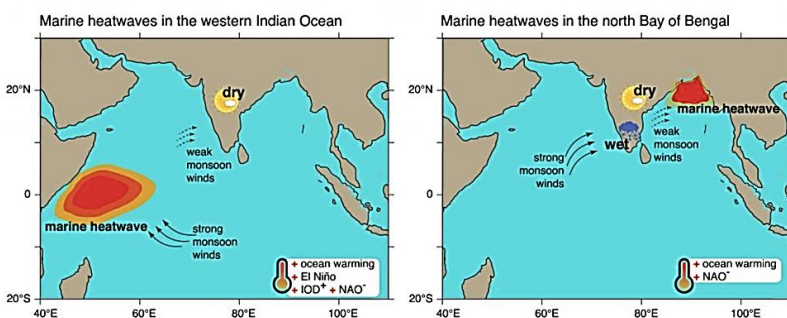
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**What are the impacts of Marine Heat Waves?** – Marine Heat Waves can cause; (1) **Extreme weather events** like hurricanes and tropical storms; (2) **Disrupt the water cycle**, making floods, drought and wildfires on land more likely; (3) A study by the Indian Institute of Tropical

Meteorology (IITM) has found that the MHWs in the Bay of Bengal and Indian Ocean have led to **reduction in monsoon rainfall in Central India while increasing it over Southern Peninsula**; (4) MHWs **disrupt marine habitats** resulting in **loss of bio-diversity**: (a) Disruption in habitats can cause **species to migrate, disturbing the ecological balance**; (b) MHWs have also been associated with the **mass mortality of marine invertebrates**; (c) 85% of corals in the Gulf of Mannar near the Tamil

Nadu coast got bleached after the marine heatwave in May 2020. Marine **species have certain coping range**. If the temperature goes **beyond adaptation range, species become vulnerable**; (5) Disturbance in ecological balance has a **profound socio-economic impact on coastal communities** e.g., the productivity of economically important species like lobsters is reduced thus impacting livelihood of communities. Similarly the **impact on marine eco-tourism** (e.g., due to loss of coral reefs/coral

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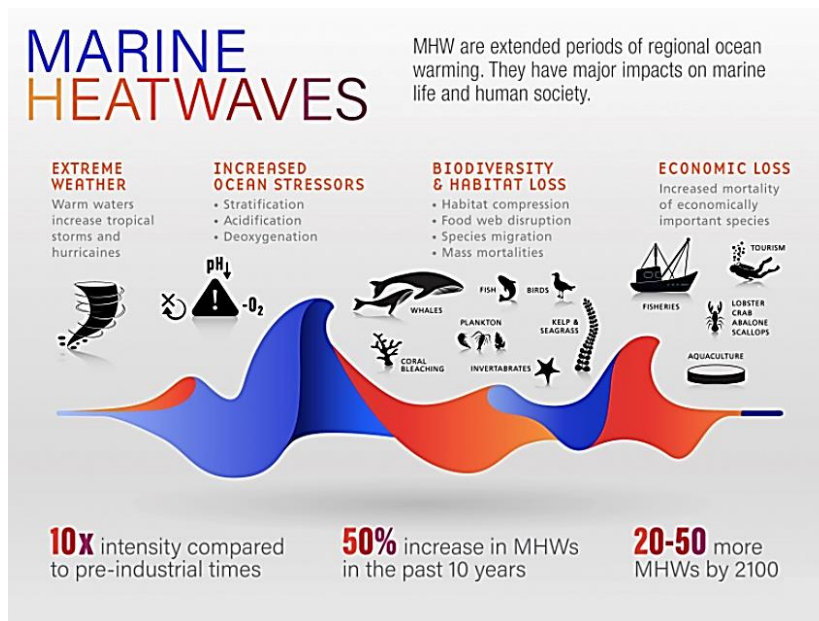
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**bleaching**) can hurt communities; **(6)** MHWs often occur **alongside other stressors such as ocean acidification, deoxygenation, and overfishing**. In such cases, MHWs not only further damage habitats, but also increase the risk of deoxygenation and acidification.

**What can be done?** – An Issue Brief by IUCN recommends:

- (1)** Governments must **invest in nature-based solutions** alongside ambitiously reducing fossil fuel-based emissions. The **IUCN Global Standard for Nature-based Solutions** should be adopted;
- (2)** **Agencies and Governments must build research capacity** to:
  - (a)** Monitor MHWs;
  - (b)** Understand their impacts;
  - (c)** Predict future heatwave events;
  - (d)** Highlight biodiversity most at risk.



Developing global networks, such as the **Marine Heatwave International Group**, will allow experts to implement research programmes globally; **(3)** Effective responses to MHWs require action from a broad range of stakeholders: Policymakers, Researchers, the private sector (fisheries, aquaculture, ecotourism), Conservationists, and the Civil society. **Local management agencies should therefore raise awareness across all stakeholders and implement forecast systems** to help achieve a coordinated response; **(4)** **Governments** should design and implement measures to **protect communities and build regional ocean resilience** e.g., designating Marine Protected Areas that act as refuge for species of coral, kelp and seagrass; and enforcing catch management (like fishing restrictions) in interest of sustainable fishing and maritime economic activities.

## General Studies Paper II

### #1 100 Years of Public Accounts Committee: Challenges and Improvements

**News:** The Public Account Committee of the Parliament has completed 100 years of existence. While the Committee has played a crucial role in exercising control over the Government, its role can be made more effective by brining certain reforms.

**What are the various provisions related to the Public Account Committee?** – The Public Accounts Committee (PAC) is **the oldest of all House panels**. It is one of three Financial Parliamentary committees, the other two being the **Estimates Committee** and the **Committee on Public Undertakings**. The PAC was **introduced in 1921** based on the Government of India Act, 1919. With the adoption of the Constitution of India, it became a **Parliamentary Committee functioning under the Speaker**. **(1)** The PAC consists of **22 Members of Parliament**, of which 15 are from Lok Sabha and 7 from Rajya Sabha. A Minister is not eligible to be elected as a member of the Committee; **(2)** The term of office of the members is one year. The Public Accounts Committee is constituted every year under Rule 308 of the **Rules of Procedure and Conduct of Business in Lok Sabha**; **(3)** The **Chairperson** is **appointed by the Speaker of the Lok Sabha**. Since 1967, the Chairperson of the committee is selected from the

opposition; (4) The Committee is assisted by the **Comptroller and Auditor General (CAG)** in the examination of Accounts and Audit Reports. CAG has been described as a friend, philosopher, and guide to the PAC.

**What is the significance of the Public Accounts Committee?** – (1) While other Department Related Standing Committees can adopt reports with dissent notes by some members, the **PAC must adopt all reports by consensus**. This is unique about the PAC, and helps it **maintain neutrality**; (2) Customarily, the leader of the largest opposition party in the Lok Sabha is the Chairperson of the PAC. Hence, It plays a crucial role in **scrutinizing the use of Government funds** without the influence of political party in power; (3) The PAC at times, through its **criticism of the inefficient public expenditure** of the Government, creates a strong public opinion about the working of the Government. The incumbent Government to remain in power tries to rectify the inefficiency in its public expenditure and policymaking. Thus, the committee **helps in enforcing accountability of the Executive** to the people.

**What are the challenges faced by the PAC?** – The effectiveness of the PAC to enforce the accountability of the Government has been limited by: (1) The recommendations and the corrective measures suggested by the PAC are **not binding and enforceable**; (2) The PAC examines the expenditure of the Government on a post-facto basis. Further, the **PAC has no power to limit the expenses**; (3) The PAC cannot issue an order.

Only the Parliament can take a final decision on its findings; (4) **Lack of technical knowledge**: Usually, the PAC members are generalists, and CAG's reports require expert evaluation; (5) Separate subcommittees of the PAC consider expenditures incurred by different ministries like Defence, Railways etc. These reports **lack in-depth scrutiny** of the Government's accounts. Moreover, the **individual reports lack insights about broader perspective**; (6) No dedicated time is allotted for the discussion on PAC reports.

## PT BOX

### Estimates Committee of the Parliament

Estimates Committee scrutinises the functioning of Ministries of the Government in terms of expenditure and utilisation of funds.

The committee consists of **30 members**, all **elected from Lok Sabha every year**.

The Chairperson is appointed by the Speaker of the Lok Sabha. A Minister is not eligible to become a member of the committee.

### Committee on Public Undertakings

The Committee examines the **reports and accounts of the Public Sector Undertakings (PSUs)**.

The committee consists of 22 members, 15 elected by the Lok Sabha and 7 members of the Rajya Sabha.

The members are elected every year. The chairperson is appointed by the Speaker of the Lok Sabha. A Minister is not eligible to become a member of the committee.

## Functions of the Public Accounts Committee

### Examine CAG Audit Report

- The PAC examines the Audit report prepared by the CAG after it has been laid before the Parliament.
- The PAC prepares a report on its findings and presents it to the Parliament.

### Watchdog of the Public Purse

PAC acts as the watchdog of the public purse by examining the audit report on Appropriation Account and Finance Account.

### Scrutiny of the Accounts

- The PAC scrutinises the appropriation account to verify
- If the funds were legally available.
- If a competent authority sanctioned its use.
- If the rules laid by the procedure were followed.

### Policy Review

- The PAC reviews the public expenditure from the point of view of the economy, prudence, wisdom and propriety to bring out the cases of waste, loss, corruption, extravagance and inefficiency.

### Additional Reviews

- PAC examines the income and expenditure statements of the State Corporations, Autonomous and Semi-autonomous bodies, trading and manufacturing schemes.
- The PAC considers the report of the CAG in cases where the President may have required him to conduct an audit of any receipts and to examine the accounts of stores and stocks.

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What can be done to improve the performance of the PAC? – The report of the ‘All India Conference of Chairpersons of PACs of Parliament and State/UT Legislatures’ suggested few essential reforms: **(a) Amendment to the CAG Act** to facilitate: **(i)** The CAG should be **made responsible to Parliament**, like in the UK and Australia; **(ii)** The PAC should be consulted on the appointment of the CAG; **(iii)** Public Private Partnership projects should be examined by CAG as public money is spent on them; **(b)** The Union and State PACs should **take up suo motu cognisance** of public issues and Government’s flagship programmes and examine financial wrong-doings;

Issues with Government Accounting and the CAG	
Accounting Standards	The Government of India uses Cash Flow Accounting. The Industry standard is Accrual Accounting and the private companies follow this standard. Even the CAG has said that Accrual Accounting brings more transparency and accountability.
Appointment of the CAG	There is no criteria regarding the selection of the CAG. The CAG is chosen by the Prime Minister unlike the CVC where the Leader of Opposition is also part of the Selection Committee.
Cadre of the CAG	The CAG is generally appointed from the Indian Administrative Service (IAS). Officers from other services like the the Indian Audit and Account Service (IAAS) are ignored. The last IAAS Officer to serve as CAG was in 1972-1978.

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Additional measures can also be taken. **(1)** The **recommendations of the PAC should be made mandatory**; **(2)** The PAC should have the **powers to examine the retired officials** apart from the incumbent ones; **(3)** The PAC **proceedings should be open to the press** except in sensitive matters;; **(4) Conduct Independent audits**: Two independent private sector accounting firms can be selected by the PAC to provide analytical comments about CAG reports confidentially to the PAC. It would help in realizing transparency in government spending; **(6) Improving the effectiveness**: The Speaker of the Lok Sabha has suggested that there should be a **committee of Chairpersons of PACs** (of Parliament and State Legislatures) and that committee should have a comprehensive discussion on the working of the PACs and brainstorm on the manner in which the working of such committees can be more effective. The Public Accounts Committee (PAC) plays a crucial role in ensuring the accountability of the Government. Hence, it is in the interest of the nation to strengthen the PAC.

## #2 Supreme Courts quashes suspension of MLAs from the Assembly

**News:** The Supreme Court has quashed the suspension of 12 MLAs from the Maharashtra Assembly. The MLAs had been suspended for 1 year. The SC has termed the suspension as arbitrary and unconstitutional.

**What was the case? – (1)** The 12 MLAs were **suspended for a year** for unruly behaviour in July 2021 by a **resolution of the Maharashtra Legislative Assembly**; **(2)** The suspended MLAs **filed a writ petition in the Supreme Court** against the Maharashtra Legislative Assembly and the State of Maharashtra and asked for the suspension to be quashed; **(3)** The MLAs challenged the suspension mainly on grounds of **denial of the principles of natural justice** and of **violation of laid-down procedure**.

### PT BOX

#### Article 212 of the Constitution

Article 212 (1) states that the validity of any proceedings in the Legislature of a State shall not be called in question on the ground of any alleged irregularity of procedure.

#### Rule 53 of the Maharashtra Legislative Assembly Rules

Rule 53 empowers the Speaker to maintain order in the House by suspending an MLA in a graded manner. The period of suspension can be increased with every successive incident of misconduct but never beyond the remainder of the ongoing session.



**What were the arguments given by the Maharashtra Assembly?** – (1) The house had acted within its legislative competence under Article 212 and Courts do not have jurisdiction to inquire into the proceedings of the legislature; (2) The State had also said that a seat does not automatically become vacant if the member does not attend the House for 60 days, but it becomes vacant only if declared so by the House; (3) The State has also referred to Article 194 on the Powers and Privileges of the House and argued that **any member who transgresses these privileges can be suspended through the inherent powers of the House** and denied that the power to suspend a member can be exercised only through Rule 53 of the Assembly.

**What were the arguments given by the Supreme Court?** – (1) **Against Rule 53:** The SC said that the suspension has to follow the procedure laid down in Rule 53. The **suspension of a member** must be preferred as a **short term or a temporary, disciplinary measure** for restoring order in the Assembly. Anything in excess of that would be irrational suspension; (2) **Violates Basic Democratic Values:** The suspension beyond the ongoing session is **violative of basic democratic values**, as it would mean the **constituency of the said member would remain unrepresented**; (3) **A suspension could be**

#### PT BOX

#### SC Observation regarding Article 190

During the hearings the SC had observed that under Article 190(4) of the Constitution, if a member of a House is absent from all meetings without its permission for a period of 60 days, the House may declare the seat vacant. The SC further said that while the **House has power to suspend a member, it cannot be for more than 59 days. Each constituency has an equal amount of right to be represented** in the House, and no representation of a constituency for a year becomes unconstitutional.

**used to manipulate opposition:** A thin majority coalition government could use such suspensions to **manipulate the number of opposition party members** and the opposition will not be able to effectively participate in discussions/debates in the House fearing suspension of its members; (4) **No Complete Immunity from Judicial Review:** The Court considered whether the Legislature had complete immunity from judicial review in matters of irregularity of procedure. It ruled that **procedures are open to judicial review** on the touchstone of being **unconstitutional, grossly illegal, irrational or arbitrary**.

**What has the SC remarked regarding functioning of the Legislatures?** – (1) The Parliament and Legislative Assemblies are **becoming a more uncooperative place**; (2) It is becoming a stage to exchange rude remarks and **launch personal attacks** on one another; (3) It has become common to hear that the **House could not complete its usual scheduled business**; (4) With the completion of 75 years of Independence and ambitions of becoming a world leader, elected members should at least know that they are **expected to show statesmanship and not brinkmanship** in the House.

### #3 High Proportion of Under-trials in Prisons

**News:** The latest data from the National Crime Records Bureau has shown that proportion of under-trials in prisons has increased to 76% in 2020. This has sparked debate regarding criminal justice system and bail provisions in India.

**What is the current status of under-trials in prisons?** – An under-trial is a person who is held in custody awaiting trial for a criminal offence. (1) The proportion of undertrials has risen to 76% in 2020, up from 69% in 2019; (2) Delhi has highest proportion of under-trial prisoners at 90.7% followed by J&K/Ladakh (90.5%) while Kerala has lowest at 59%; (3) A study by an independent sociologist has revealed that more than 70% of the under-trials prisoners are from marginalized sections of the society.

**What are the reasons for high proportion of under-trials?** – (1) There is very high **pendency of cases**, the number exceeding 4 crore; (2) The **criminal justice system is under-staffed**: (a) The UN recommends 222 police personnel per 1 lakh population while the **actual strength in India is only 137/lakh**. This delays investigation and prolongs prosecution; (b) The Law Commission had recommended having 50 Judges/1,000,000 (1 million) population. The **ratio was 21 in 2020**, without accounting for vacancies; (c) There are **high number of vacancies for Judges**: 38% in High Courts and 20% in subordinate courts in 2020; (3) A large number of **undertrial prisoners are poor** and belong to marginalized communities. They are **unaware of their rights**, and **lack resources** to get legal aid and secure bail money; (4) **Unnecessary Arrests**: The National Police Commission observed in its 3<sup>rd</sup> Report that almost 60% of the arrests are unnecessary or unjustified; (5) The Lower Judiciary does not apply the bail provisions uniformly and bail right is denied to most prisoners; (6) The **2020 Prison Statistics report** revealed that in 2020, the release of convicts has declined by 41.2 %, and of undertrials has declined by 19.6 % as compared to 2019.

## Bailable and Non-Bailable Offences

Bailable Offences	Non-Bailable Offences
<ul style="list-style-type: none"> <li>- Defined in Section 2(a) and First Schedule of the CrPC.</li> <li>- As a general rule, offences punishable with less 3 years of imprisonment are bailable although there are exceptions.</li> <li>- Bailable Offences include Simple Hurt (IPC Sec. 337), Public Nuisance (IPC Sec. 290).</li> <li>- A person prepared to give bail must be granted a bail. Right to claim bail is absolute and indefeasible: The Supreme Court in <i>Rasik Lal vs Kishore</i> (2009).</li> </ul>	<ul style="list-style-type: none"> <li>- Generally offences punishable with death or imprisonment more than 7 years are non-bailable like rape, murder.</li> <li>- A person doesn't have a right to be released on bail, bail can be granted at the discretion of Court.</li> <li>- Generally a person is not released if there is a reasonable ground that the person is guilty of offence.</li> <li>- There are exceptions under which bail can be granted by the Court, which makes it discretionary.</li> </ul>

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**What are the remedial measures?** – (1) Major reforms are required in the criminal justice system. The understaffing in Judiciary and police need to be addressed on an urgent basis; (2) The Supreme Court has observed in multiple judgments that '**Bail is a rule, jail is an exception**'. This judgment has to be implemented in lower judiciary; (3) Enhancing free legal aid to the under-trials though improving capacity and reach of NALSA; (4) The Law Commission in a **Consultation Paper on Law Relating to Arrest** has recommended (a) Amendment to the Criminal Procedure Code, 1973 to reduce unnecessary arrests; (b) Statutory incorporation of safeguards contained in Supreme Court's Judgment in **D.K. Basu vs State of West Bengal (1996)** case; (c) Avoiding arrests merely on suspicion of complicity in an offence; (d) Increasing **compoundability of offences** and introducing **plea bargaining**; (e) No arrest/detention for questioning etc.

High proportion of under-trials results in unnecessary overcrowding of prisons; inhumane conditions; extra expenditure on prison maintenance and violation of fundamental rights. The issue needs urgent attention of the Government and the Judiciary.

### PT BOX

#### Compounding of Offence

Compoundable Offence is an offence where the complainant can enter into a compromise with the accused and agrees to drop the charges. Section 320 of the Criminal Procedure Code (CrPC) deals with Compounding. Certain offences like adultery, defamation can be compounded without Court's permission, while theft, causing grievous hurt etc. can be compounded only after permission by a Court of Law.

#### Cognizable Offence

Under the CrPC, a Cognizable offence is one in which the police officer has the authority to make an arrest without a warrant and can start investigation without the due permission of the Court. Cognizable offences include rape, murder, dowry death, kidnapping etc.

#### #4 The Issue of Freebies in Elections

**News:** The Supreme Court has issued notices to the Government and the Election Commission of India (ECI) for their response on the issue of the 'freebies' in elections. A petition before the SC has sought to direct the ECI to deregister political parties promising irrational freebies.

**What are freebies?** – The literal meaning of freebie is **something that is given free of charge or cost**. The **political parties promise a lot of free services** to the electorate in their election manifestoes like **free electricity, laptops, cycles, electronic appliances** etc. These have been termed as 'freebies' and are considered economically and fiscally imprudent by many economists.

However the **distinction between basic welfare measures and the 'freebies' is not straightforward**. Provision of affordable basic services like healthcare, education etc. is the fundamental responsibility of the government. Directive Principle of State Policy also exhort the government to fulfil its obligations. Hence according to this reasoning there is nothing wrong in parties promising free services to the people.

However, the counter-argument is that such services should be promised taking the fiscal condition of State into consideration. Moreover as argued in the petition before the SC, **the issue is the distribution of private goods** like laptops, electronic appliance (TV) etc., **instead of public merit goods** like education.

**What are the arguments in support of freebies?** – (1) **Welfare State:** State has to take proactive measures for the welfare of the poor. **Article 39(b)** calls for resource distribution for achieving common good. Some economists argue that 'trickle down' effect of economic development is absent, and welfare measures are necessary to uplift the poor; (2) **Addressing inequality:** The **OXFAM report 2021** has shown that the income of 84% of households in the country declined in 2021. Welfare measures can help plug the gap; (3) Services like **free healthcare** improve human development indicators, productivity of labour besides other benefits. **Free vaccination during COVID-19** pandemic helped in management of the health emergency; (4) **Social Stability:** Freebies enable the government to ease growing discontent among the marginalized sections; (5) The government **provides several incentives to the corporate sector** like tax holidays to boost investments. 'Freebies' provide a safety net to the poor.

**What are the arguments against Freebies?** – (1) **Undermines the spirit of Democracy:** Free incentives influence the voting behaviour as people do tend to vote for the parties promising free goods. This impacts the fairness of elections as observed by the Supreme Court; (2) **Fiscal Stress:** Freebies generally fall under revenue expenditure. Excess spending on freebies creates fiscal stress and increase Government debt; (3) Debt waivers give rise to '**moral hazard**' and an incentive to default. It also discourages those who repay their debts; (4) **Taxpayer discontent:** There is discontent among honest taxpayers because the public services remain poor because of the expenditure on freebies; (5) **Wastage and Unintended Consequences:** Free electricity is one of the reasons for poor status of DISCOMs. Free electricity is also one of the reasons for over-irrigation and ground-water depletion in Punjab; (6) **Many promises made during elections are not kept** as parties focus on providing freebies, leaving little fiscal space for any other spending. This was **Supreme Court's observation** on current petition.

**What steps can be undertaken going forward?** – (1) The **Election Commission** should be given **greater powers** like power to deregister a political party, power of contempt etc. This would curtail distribution of liquor and other goods during elections and ensure expenditure as per the desired limit; (2) The governments should improve on **job creation and infrastructure development** which has multiplier effect on economic growth; (3) The focus of the Government should be on **improving public expenditure efficiency**. This requires **focusing on outcomes and not merely outlays** e.g., distribution of LPG subsidy through direct benefit transfer (DBT) which led to a decline in the subsidy bill; (4) There

is a need to **distinguish between freebies and subsidies**. The **Political parties should be mandated to provide a fiscal plan** elucidating the fiscal costs and the measures to raise revenues to meet the costs while promising the electorate in their manifestoes; (5) There is a need to **raise awareness** among the masses that **‘freebies’ are bad for the society in the long run**, and they must not be swayed by such tactics.

### #5 ‘A Case for a More Federal Judiciary’: Balance between the Supreme Court and the High Courts

**News:** Increasing criticism of judiciary in public and recently in Parliament during Budget Session.

**How has the Judiciary been envisaged by the Constitution?** – India has a Federal polity and the Supreme Court has held that **federalism is part of basic structure of the Constitution**. According to A.V. Dicey, “The essential characteristic of federalism is the distribution of limited executive, legislative and judicial authority...”. However, the framers of the Constitution had opted for a single integrated Judiciary: (1) Dr. B.R. Ambedkar stated in the Constituent Assembly that the India had a dual polity but it had **no dual judiciary**. The High Courts and the Supreme Court form **one single integrated judiciary** and provide remedies in all cases arising under Constitutional law, Civil law, or Criminal law; (2) The Constitution envisaged the **equality of power of the HC and the SC Judges** e.g., the process of removing a High Court Judge is the same as that of a Supreme Court Judge; (3) On many occasions the Supreme Court has reiterated that the **Supreme Court is superior to a High Court only in the appellate sense**.

**How has the balance tilted towards the Supreme Court?** – Several developments since the 1990s have tilted the balance towards the Supreme Court: (1) **Evolution of the Collegium System**: The **Collegium consists of Judges of the SC** and has the power to appoint and transfer Judges and Chief Justices to the High Courts. This has **shifted the power to Supreme Court** as was evident in the controversy surrounding transfer of Chief Justice of Madras High Court to Meghalaya; (2) Successive governments have passed laws to **create parallel judicial systems of Tribunals** which bypass the High Courts e.g., under the Section 62 of the IBC, an **appeal against an order of the National Company Law Appellate Tribunal can be made directly to the Supreme Court**; (3) The SC is intervening in matters which are trivial and **have no constitutional ramifications** e.g., deciding the height of *dahi handi* during Gokulashtami festival. The Supreme Court has been entertaining PILs, which could have been effectively dealt with by a High Court, sending the message that there is no need to go to HC.

**Why is there a need to strengthen the federal nature of the judiciary?** – (1) A robust federal judicial system is a basic requirement for a federal state to interpret the constitution. It adjudicates upon the rights of the Federal units and the Center; (2) The need for this balance was underscored during the Emergency, when the High Courts stood out as beacons of freedom; (3) Empirical research in the USA shows that **judicial review by a centralized judiciary tends toward unitarism**. In Nigeria, research has shown that the Supreme Court has favoured interpretations that support the rights of the Center over the States.

The weakening of the state-level Institutions sets off a weakening of the entire body of the state. Hence, the Supreme Court should recognize this and restore the federal balance by re-empowering the High Courts. A **delicate balance is required** to be maintained between the Supreme Court and the High Courts in order for the constitutional structure dreamt of by B.R. Ambedkar to work.

### #6 Right to Freedom of Religion and ‘Essential Religious Practices’ Test

**News:** There has been a controversy in Karnataka regarding wearing of religious attire by students in school and college campus. This has raised questions on rights protected under Art. 25 of the Constitution of India.



**How is the religious freedom protected under the Constitution? – (1) Article 25(1)** of the Constitution guarantees the freedom of conscience and the right freely to profess, practise and propagate religion; **(2)** The right is not absolute. The State can restrict the right on the grounds of **public order, decency, morality, health and other state interests**.

**What has been the Judiciary's view on Religious Freedom?** – The Supreme Court has evolved a 'Essential Religious Practices' test to determine what religious practices can be constitutionally protected: **(1)** In the **Shirur Mutt case in 1954**, the SC invented the **doctrine of 'essentiality'**. The Court held that the term 'religion' will cover all **rituals and practices 'integral' to a religion**, and took upon itself the responsibility of determining the essential and non-essential practices of a religion; **(2)** In 2004, the SC prohibited the *Ananda Marg* Sect to perform *Tandava* dance in public as it wasn't essential practice of the sect; **(3)** In 2016, the SC upheld the discharge of a Muslim airman from the Indian Air Force for keeping a beard. The Court ruled the keeping a beard was not an essential part of Islam; **(4)** In **Bijoe Emmanuel Case** the SC overturned the expulsion of 3 students from a school in Kerala as the Court ruled that compulsory singing of the National Anthem was violative of the right under Article 25(1).

**What has been the Judiciary's view regarding Hijab?** – **(1) Amna Bint Basheer v Central Board of Secondary Education (2016)**: The High Court of Kerala upheld the right of the candidates to appear in the exam wearing headscarves. The Court directed the authorities to provide additional safeguards to frisk the candidates to ensure integrity of the examination process; **(2) Fathima Tasneem v State of Kerala (2018)**: The High Court of Kerala held that the collective rights of an institution would be given primacy over the individual rights of the petitioner.

#### #7 'Judges mustn't be swayed in favour of death penalty': Supreme Court

**News:** The Supreme Court has commuted the death sentence of a man to life imprisonment citing mitigating factors. The Judgment may become a significant precedent to anti-death penalty cause.

**What are the key highlights of the Judgement?** – **(1)** The judges should not be swayed in favour of death penalty merely because of the dreadful nature of the crime and its harmful impact on the society. They should equally consider the **mitigating factors in favour of life imprisonment**; **(2)** The Court referred to the '**evolution of the principles of penology**' which had grown to accommodate the philosophy of '**preservation of human life**'; **(3)** The Judgment noted that though capital punishment serves as a deterrent; the principles of penology have evolved to balance the other obligations of the society, i.e., **of preserving human life unless termination thereof is inevitable** and is to serve the other societal causes and collective conscience of society; **(4)** The Court remarked that the lower judiciary noted the abhorrence of the crime but did not carefully consider the mitigating factors in favour of the accused.

#### PT BOX

##### Penology

Penology is a subcomponent of criminology that deals with the philosophy and practice of various societies in their attempts to repress criminal activities and satisfy public opinion via an appropriate treatment regime for persons convicted of criminal offences.

##### Mitigating Factors

According to the Cornell Law School, mitigating factors are the factors that **lessen the severity or culpability of a criminal act**, e.g., defendant's **age**, extreme **mental or emotional disturbance** at the time of crime, **mental retardation**, or **lack of a prior criminal record**.

**What is data on Prisoners on Death Row?** – **(1)** A recent report by Project 39A, a research and advocacy group at National Law University, found that the number of prisoners on death row at the end of 2021 was the highest in India since 2004; **(2)** As of December 2021, as many as 488 prisoners in India were

facing death sentences, an increase of nearly 21% from 2020 figure of 404; (3) The offences under IPC which are punishable by death sentence include **treason** (IPC 121), **abetment of mutiny** (IPC 132), **murder** (IPC 302), **kidnapping for ransom** (IPC 364), **rape and gangrape** (IPC 376). Apart from these crimes, there are other legislative acts which prescribe capital punishment like Army Act, 1950; Defence of India Act, 1971; The Narcotics Drugs and Psychotropic Substances Act, 1985; The Maharashtra Control of Organised Crime Act, 1999; POCSO Act, 2012 etc.

## #8 Anti-Mob Lynching Laws

**News:** The Bills passed against mob lynching in the past 4 years by 4 States have not been implemented with the Union Government taking a view that lynching is not defined under the IPC.

**What is Mob Lynching?** - Mob lynching is a term used to describe the acts of targeted violence by a large group of people. The violence is tantamount to offences against human body or property- both public as well as private as defined under the IPC.

### Is Mob Lynching defined under Indian Penal Code (IPC)?

- In 2019, Union Home Ministry informed Parliament that there was “no separate” definition for lynching under the IPC. Lynching incidents could be dealt with under Sections 300 and 302 of the IPC pertaining to murder.

In 2017, the National Crime Records Bureau (NCRB) collected data on mob lynching but it was not published and discontinued as these crimes are not defined and the data were found to be unreliable.

The states of Rajasthan, Jharkhand, Manipur and West Bengal have passed anti-mob lynching bills.

### Stalled crackdown

A brief look at anti-lynching Bills passed by four States that are caught in a question of definition

#### JHARKHAND

The Prevention of Mob Violence and Mob Lynching Bill, 2021, provides for punishment ranging from three years in prison to life imprisonment, in case of death of the victim. Those convicted may be fined between ₹3 lakh and ₹25 lakh depending on the severity of the crime



#### RAJASTHAN

The Rajasthan Protection from Lynching Bill, 2019, provides for life imprisonment and a fine from ₹1 lakh to ₹5 lakh to those convicted in cases of mob lynching leading to the victim's death



#### WEST BENGAL

The West Bengal (Prevention of Lynching) Bill, 2019, has a provision for death sentence. It proposes a jail term from three years to life imprisonment for those involved in assaulting and injuring a person. The Bill, while defining terms such as “lynching” and “mob”, says the West Bengal Lynching Compensation Scheme may be framed under it



#### MANIPUR

The Manipur Protection from Mob Violence Bill, 2018, proposes rigorous life imprisonment for those involved in mob violence, if it results in the death of a victim



**Why are the Bills pending?** - (1) The Bills are awaiting the President's nod as some punishments laid down in the Bills were higher than those in the Central statutes; (2) The President has to go with the advice given by the Council of Ministers, represented by the Ministry of Home Affairs (MHA) in the case of such legislation; (3) The MHA examines the state legislations on three grounds: (a) repugnancy with central laws; (b) deviation from national or central policy; (c) legal and constitutional validity.

**What are the views of the Supreme Court on Mob Lynching?** - In 2018, the Supreme Court asked Parliament to make lynching a separate offence.

But the Ministry of Home Affairs informed the Parliament that the Government had decided to overhaul the IPC and the Code of Criminal Procedure (CrPC) and mob-lynching would also be examined by the Committee for Reforms in Criminal Laws.

The suggestions received by the committee would be examined by the Ministry before the changes are adopted.

## #9 The Supreme Court upholds the validity of OBC Quota in NEET Admissions

**News:** The Supreme Court has upheld the quota for the OBC candidates in NEET All India Quota seats for Undergraduate and Postgraduate Medical and Dental Courses in State colleges.

**What judgment has been delivered by the SC?** - (1) The Central Government had announced to **extend 27% reservation for OBCs** and **10% reservation for the Economically Weaker Section (EWS)** under the **All India Quota (AIQ) Scheme** for the undergraduate (UG) and postgraduate (PG) medical and dental courses; (2) The quota was challenged before the Supreme Court; (3) The SC held

that **reservation is not at odds with merit**. It observed that **merit cannot be reduced to narrow definitions of performance in an open competitive examination**, which only provides formal equality of opportunity; (4) The SC further observed that open competitive examinations do not reflect the social, economic and cultural advantage that accrues to certain classes and contributes to their success in such examinations; (5) Hence, Merit should be socially contextualised and reconceptualized as an instrument that advances social goods like equality. In such a context, **reservation is not at odds with merit but furthers its distributive consequences**; (6) In addition, the Court also upheld the criteria for the EWS (Rupees 8 lakhs gross annual income cut-off) to operate for the current admission year so as to not delay the admission process further.

**What is the significance of the judgment in merit vs reservation debate?** – (1) The judgement has the potential to settle the merit versus reservation debate. The judgement has given

**more importance to substantive equality rather than formal equality** that underlies the Constitutional promise of equality of opportunity; (2) The court has said that individual difference cannot be used to negate the role of reservation in remedying the structural disadvantage suffered by some groups; (3) The court has reiterated that **reservations under Article 16(4) is not an exception but an extension of the principle of equality under Article 16(1)**. In *K.C. Vasanth Kumar vs State of Karnataka* (1985), the court had criticized the purely economic understanding of reservation and the rigid nature of the socio-cultural institution of caste.; (4) The SC has also **recognized the role of cultural capital**. The cultural capital ensures that a child is unconsciously trained by the environment to take up higher education or high posts based on family's standing. Hence, it is a disadvantage for first-generation learners and for individuals who come from communities whose traditional occupations are not helping them to perform well in open examination; (5) More **focus on merit (a) results in exclusion; (b) legitimizes community linkages; (c) reaffirms social hierarchies**. The SC relied on its judgement in *B.K. Pavitra vs State of Karnataka* which said that **efficiency of administration** is not an abstract ideal

## PT BOX

### All India Quota Scheme (AIQ)

The AIQ Scheme was introduced in 1986 under the direction of the Hon'ble Supreme Court.

It provides for **domicile-free merit-based opportunities** to students from any State to aspire to study in a good medical college located in another State.

All India Quota consisted of 15% of total available UG seats and 50% of total available PG seats in government medical colleges.

There was no reservation in the AIQ Scheme up to 2007. In 2007, the Supreme Court introduced a reservation of 15% for SCs and 7.5% for STs in the AIQ Scheme.

When the **Central Educational Institutions (Reservation in Admission) Act** became effective in 2007 providing for uniform 27% reservation to OBCs, the same was implemented in all the Central Educational Institutions. The provision has been extended to State Medical and Dental institutions now.

### HOW DOMICILE INFLUENCES ACCESS TO SOCIAL JUSTICE THROUGH RESERVATION

There is a widespread variation in benefits of NEET Reservation across various states due to disparities in access

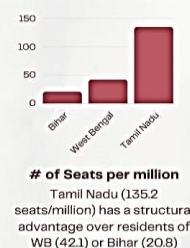
#### QUOTA

85% of the seats are reserved for candidates domiciled within the State while 15% of the seats are for the rest of India.

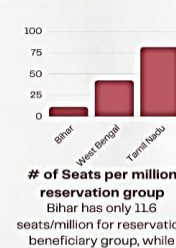


**% of Community vs Reservation**  
Bihar has 79% population of SC/ST/OBC while reservation of 50%  
TN has 97% population of SC/ST/OBC while reservation is 69%

There is widespread variation in % of population of SCs/STs/OBCs and the seats reserved for them.



**# of Seats per million**  
Tamil Nadu (135.2 seats/million) has a structural advantage over residents of WB (42.1) or Bihar (20.8)



**# of Seats per million reservation group**  
Bihar has only 11.6 seats/million for reservation beneficiary group, while Tamil Nadu has 81.6

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measured by the performance of a qualified open category candidate. Efficiency must be **defined in an inclusive sense**, where diverse segments of society find representation; (6) The Judgement has also **questioned examination as a measure of merit**. The Judgment cited various studies that have shown disconnect between the skills measured by examinations and the tasks candidates are expected to perform. Exams can only reflect the current competence of an individual but not the range of their potential, capabilities or excellence.

**What is the way forward?** –: (1) EWS reservation has fixed the same income limits for ‘creamy layer’ OBC and EWS, but it has **not considered the question of cultural capital**. Hence constitutionality of it has to be reviewed by the judiciary; (2) Efficiency of administration must be defined in an inclusive sense and diverse segments of society should find representation in governance. Hence, there is a need to **correct prejudicial stereotypes**; (3) There is a need to **redesign examinations to remove linguistic, class, school boards, and regional bias**. It will help in democratizing access to higher education; (4) The judgement has recognized the existence of social privileges that hide behind merit. Hence, it **highlights the need of caste census** that can reveal privilege accumulation and warn us against conservative policy demands; (5) There is a need to **scrutinize the state-level differences**. As indicated by data an OBC from Tamil Nadu who is in the 97<sup>th</sup>-ile in that state would be competing against a 38<sup>th</sup>-ile OBC from West Bengal. There is a need to create a **data-oriented framework** to ensure equality of opportunity

## #10 Regulating ART and Surrogacy

**News:** The Parliament passed the Surrogacy (Regulation) Act and ART (Regulation) Act in December 2021. However, the Acts have left some gaps which need to be addressed

**What is Assisted Reproductive Technology (ART) and Surrogacy?** – (1) The Act defines **Assisted Reproductive Technology (ART)** as all techniques that attempt to obtain a pregnancy by handling reproductive cells (sperm or oocyte) outside the body and transferring the gamete or the embryo into the reproductive system of a woman. Examples of ART services include gamete (sperm or oocyte) donation, **in-vitro-fertilisation** (fertilising an egg in the lab) and gestational surrogacy (the child is not biologically related to the surrogate mother); (2) **Surrogacy** is an arrangement where a **woman bears a child for another couple** or person with the intention of handing over the child to them after birth.

### PT BOX

#### Assisted Reproductive Technology

According to the Centres for Disease Control and Prevention (CDC) of USA, ART procedures involve **all fertility treatments in which either eggs or embryos are handled**. In general, ART involves surgically removing eggs from a woman’s ovaries, combining them with sperm in the laboratory, and returning them to the woman’s body or donating them to another woman. **ART does NOT include treatments in which only sperm are handled** (e.g., artificial insemination) or procedures in which a woman takes medicine only to stimulate egg production without the intention of having eggs retrieved.

**What is the need to regulate surrogacy and ART?** – (1) **Growth of ART Market:** A market projection (by Fortune Business Insights) has noted that the **size of the ART market is expected to reach US \$45 billion** by 2026. Among Asian countries, India’s ART market is pegged at third position; (2) According to the Ministry of Health and Family Welfare, the number of ART clinics in India is likely more than 40,000. But **only about 1,850 (or < 4.65%) clinics and banks are either enrolled or identified with ICMR**. This has led to a plethora of legal, social and ethical issues; (3) **Prevent the exploitation of patients:** Many unregulated clinics were exploiting the surrogate mothers for profits. There were grey areas with respect to rights of the children born out of surrogacy; (4) **Creation of database:** Without registration and a proper database of medical institutions and clinics providing ART services, it is impossible to regulate services like surrogacy and **Medical Termination of Pregnancy**. Hence, both the Acts facilitate

proper registration; (5) The Supreme Court in the **Baby Manji Yamada vs Union of India case, 2018**, prompted the Government to pass the Act to regulate surrogacy and ART. The Court recognized the legal status of '**commercial**' surrogacy and ruled that the intending parent may also be a single man or homosexual couple.

**What are the salient provisions of the ART Act and Surrogacy Act? - (1)**

The ART Act has provision for creation of the **National Assisted Reproductive Technology and Surrogacy Board** and the **National Assisted Reproductive Technology and Surrogacy Registry**. Additionally, State Assisted Reproductive Technology and Surrogacy Boards will be created in each State; (2) The ART Act **outlaws the sale of gametes** (unfertilized egg and sperm), **zygotes** (a single

cell organism resulting from a fertilized egg) and **embryos** (the early development stage of a human); (3) The Surrogacy Act permits only **altruistic surrogacy**. Surrogacy is permitted only for intending couples who: (a) Suffer from proven infertility or (b) For any condition or disease specified through regulations; (4) Surrogacy is **not allowed** for (a) Commercial purposes; (b) For producing children for sale, prostitution or other forms of exploitation; (5) Under the ART Act, a **National Registry** will be created which will act as a **central database of all the clinics and banks** of the country. **Registration is compulsory** for all clinics and banks; (6) **Appropriate Authorities** will be created in each State and UT which will (a) Grant, suspend or cancel registration of clinics and banks; (b) Enforce standards; (c) Investigate complaints; (d) Take appropriate legal action against the misuse of ART among others.

**How do the ART and Surrogacy Act protect the rights of stakeholders? - (1)**

**Written informed consent** of all the parties seeking assisted reproductive technology; (2) A child born out of a surrogacy procedure will be **deemed to be the biological child** of the intending couple; (3) An abortion of the surrogate child requires the **written consent of the surrogate mother** and the

authorisation of the of the appropriate authority; (4) Clinic shall not offer to provide a couple or woman

#### DIFFERENT ART PROCEDURES AND THEIR USES

ART Procedure	Description	Use
In Vitro Fertilization (IVF)	A medical procedure that involves the fertilization of egg and sperm outside of the body.	For a variety of infertility disorders.
Gamete Intrafallopian Transfer (GIFT)	A surgical procedure that involves planting unfertilized eggs and sperm into the fallopian tubes.	When IVF is not an option. Most common when fallopian tubes are blocked or missing.
Zygote Intrafallopian Transfer (ZIFT)	A surgical procedure that involves planting a pre-fertilized egg into the fallopian tubes.	Combines IVF and GIFT.
Intracytoplasmic Sperm Injection (ICSI)	Involves an injection of a single sperm into the center of the egg.	For cases of male infertility; used in conjunction with IVF.
Preimplantation Genetic Testing	Tests for eggs with abnormal chromosomes so only the unaffected eggs/embryos are planted in the uterus.	For individuals with increased risks of conceiving a child with a known medical condition.
Surrogacy	An arrangement typically with a third party that involves providing the genetic material and/or the gestational role.	When an individual is unable to provide the genetic material and/or carry a pregnancy to full term.

#### Functions of the National Assisted Reproductive Technologies and Surrogacy Board

Advisory	Advise the Government on policy matters related to Assisted Reproductive Technologies and Surrogacy
Monitoring	Monitor the implementation of the Act
Regulation	Lay down the code of conduct for the clinics and banks Set standards for physical infrastructure, laboratories, and equipment.
Supervisory	Supervise the functioning of National Registry and liaison with the State Boards

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with a child of a **pre-determined sex**; (5) The Surrogacy Act strictly limits surrogate mother only to be married women between age of 25-35 years having a child of her own; (6) The Surrogacy Act provides for basic rights of proper **pre- and post-natal care to the surrogate mother**; (7) **Exploitation** of the commissioning couple, woman or the gamete donor in any form is a **penal offence** under the ART Act; (8) The penal provisions include **imprisonment up to 10 years and a fine up to 10 lakh rupees** in case medical practitioners and clinics are **caught engaging in commercial surrogacy and abandonment of the child born through ART** or surrogacy procedures, among others. These offences have been made **bailable and cognizable**, which means a warrant is not required to start the investigation or arrest the person.

**What are the challenges associated with the Acts?** – (1) Total ban may push the commercial surrogate market underground. Poor women may still enter into illegal transactions but will have no legal recourse in case of any medical or other complications. Also many women had resorted to commercial surrogacy to improve their economic status. They might have to search for alternate livelihood; (2) **Scientifically difficult provisions**: The new ART law allows retrieval of not more than seven oocytes from a single donor. A good donor produces 10-18 eggs. Higher the number of eggs, higher the chances of pregnancy during the same IVF cycle. If the number of eggs to be retrieved are capped, there will be **requirement of multiple cycles** or donor stimulations, **which will increase the cost for intending couples**; (3) The Act also restricts the **gametes of one donor to be used by only one commissioning couple or woman**. Two intending couples sometimes share donated gametes from the same donor to bring down the cost. Restricting the sharing will further increase the costs further; (4) The new laws **mandate both clinics and banks to ensure the eligibility of intending couples and donors** however **only banks are allowed to do screening of donors and retrieve eggs**. There are ART clinics in small towns where maintaining banks is not feasible because of economies of scale. If screening or retrieving eggs is limited only to Banks, frozen eggs will have to be transferred to clinics from banks which is not as effective as fresh eggs. This favours co-located clinics and banks (usually in urban areas) and small clinics might suffer; (5) **Challenges in responsibility**: Although, it holds the clinics responsible for causing abandonment of a child born of surrogacy, the Act fails to provide for rehabilitation of the abandoned child; (6) The Act restricts surrogacy only to **married heterosexual couples**. The rights of LGBT community and single parent have been ignored.

**What should be done to improve ART and surrogacy in India?** – (1) **Follow the international practices**: Many countries like the UK, South Africa, Greece and Netherlands allow only altruistic surrogacy, but the eligibility for being a surrogate mother is far relaxed in these countries. They have no such requirement for women being married, and there no restrictions on the number of times women can be a surrogate. The current ICMR guidelines allow donations up to six times. Similar norms can be adopted; (2) **Regulating commercial surrogacy** would have been a better alternative than banning it. Rather than penalising surrogacy, the person providing a womb for surrogacy must be secured with a contract, ensuring proper, insurance and medical checks; (3) **Make the Act inclusive**: LGBTQIA+ and single men can also be included into the ambit.

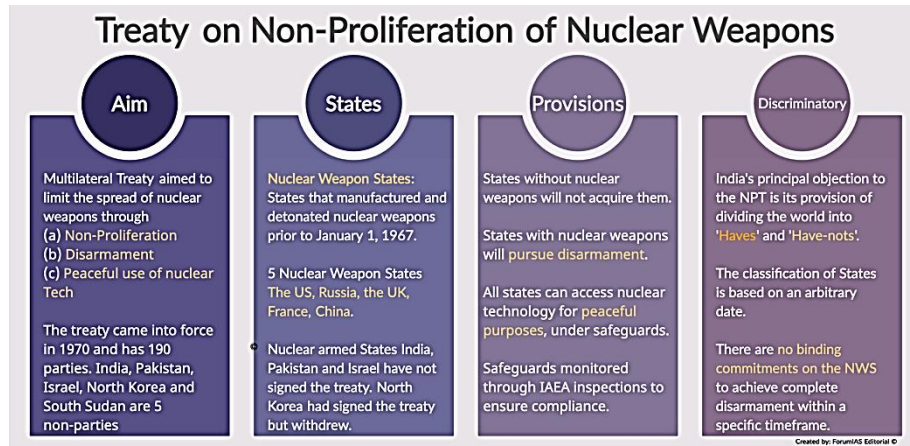
## #11 Pledge by the P5 Nations on Nuclear Weapons

**News:** The 5 Permanent Members (P5) of the UN Security Council (UNSC) have pledged to prevent the spread of nuclear weapons and to avoid nuclear conflict.

**What is the pledge made by the P5 Nations?** – (1) The **spread of atomic weapons must be prevented**. A nuclear war cannot be won and must never be fought; (2) **Avoidance of war between the Nuclear-weapon States** and the reduction of strategic risks is the foremost responsibility of the P5; (3) Nuclear Weapons should **serve defensive purposes, deter aggression and prevent war**; (4) The P5 have expressed their intention to maintain and further strengthen the national measures to **prevent unauthorized or unintended use of nuclear weapons**; (5) The P5 have pledged to abide by a key article

in the Non-Proliferation Treaty (NPT) under which countries have committed to **full future disarmament from nuclear weapons**.

What is the significance of this pledge? – (1) The pledge comes at a time when tensions between Russia and the US have reached a level not seen since the end of Cold War, over a Russian troop build-up close to the Ukrainian border; (2) The statement also



comes at a time when the world powers seek to reach an agreement with Iran on reviving the **Joint Comprehensive Plan of Action (JCPOA)**, which became toothless by the US walking out of the accord in 2018.

**How can nuclear proliferation be avoided?** – According to UN Secretary-General António Guterres, the following approaches need to be adopted: (1) Member states should move towards nuclear disarmament; (2) Countries should adopt new measures of 'transparency and dialogue'; (3) Member states should address the boiling nuclear crises in the Middle East and Asia; (4) Countries should strengthen the existing global bodies that support non-proliferation, including the **International Atomic Energy Agency (IAEA)**; (5) Member states should promote the peaceful use of nuclear technology; (6) Member states should remind the world's people – and especially the young ones – that eliminating nuclear weapons is the only way to guarantee that it will never be used.

**What are the risks to the strategic stability in South Asia because of Nuclear Weapons?** – Some security experts claim that India's recent tests of **Shaurya Hypersonic Missile** and the **Agni P Missile** have increased sophistication of India's nuclear arsenal and deteriorates strategic stability in the region. However this is incorrect: (1) India has **not shifted from its No-first use policy**; (2) Only India's operational posture has undergone **shift to a higher readiness level**, and this will actually act as a deterrent for Pakistan and China.

Pakistan's stance poses greater threat to the stability because: (1) Pakistan has a larger nuclear arsenal than India and it has also **not adopted a no-first-use policy**; (2) Pakistan pursues an **asymmetric escalation posture** including development, **deployment of tactical nuclear weapons**; (3) Pakistan presumes that the **tactical and strategic use of atomic weapons can be kept separate**; a percept rejected by India because there can be no real distinction between **counter value** and **counterforce strikes**.

#### PT BOX

**Counter value** is the targeting of an opponent's assets that are of value but not actually a military threat, such as cities and civilian populations.

**Counterforce** is the targeting of an opponent's military forces and facilities.



## General Studies Paper III

### #1 Employment Guarantee for the Urban Poor

**News:** The Chairperson of HUL has suggested to launch a job-guarantee scheme for the urban poor. The suggestion comes in the backdrop of rising unemployment in India.

**What is the need urban employment scheme?** – (1) The rural employment guarantee scheme (MGNREGA) played a **crucial role in dampening the impact of pandemic** on loss of livelihoods; (2) Labor-intensive services like hotels, restaurants, and proximity based services have been severely impacted by the pandemic with closures and layoffs. Jobs in cities are still scarce; (3) The lockdowns and lack of any job security led to **massive reverse migration** to villages during the pandemic; (4) According to **ICE360 Survey (2021)** conducted by People's Research on India's Consumer Economy, the **country's poorest 20% saw their household incomes decline by 53% over the last five years**. On the other hand, the richest fifth saw a 39% increase; (5) The informal sector in urban areas is still recovering from the Impact of roll-out of GST and demonetization.

**What are the challenges associated with the urban job guarantee scheme?** – (1) The scheme will add to the **fiscal burden on the Government**. The public debt level has already reached 90% of the GDP which is not sustainable. Urban areas have higher cost of living, so **urban wages have to be higher than that of MGNREGA**. This will add to expenses.; (2) An urban employment guarantee scheme might give **further impetus to migration to urban areas** and increase burden on public infrastructure.

Parameter	FY 2021-22		FY 2020-21		FY 2019-20
	Value (Cr)	% Change	Value (Cr)	% change	Value (Cr)
Total Persons demanded work	11.33	-10.6%	12.67	+43.5%	8.83
Total households worked	6.61	-8.7%	7.24	+38.4%	5.23
Total Persons worked	9.52	-10.5%	10.64	+42.4%	7.47
Total Person-days	305.74	-18.1%	373.06	+46.6%	254.42
Total Person-days by women	166.23	-15.9%	197.65	+42.6%	138.64

#### MGNREGA: Jump in demand since the onset of the Pandemic

The above data have been compiled from the MGNREGA Public Data Portal. The data clearly indicate the jump in the MGNREGA job demand in the wake of COVID pandemic. The demand jumped by >40% between 2019-20 and 2020-21. The fall from 2020-21 to 2021-22 indicates recovery, but the demand is still ~25-30% higher than the pre-pandemic level. (% change is with respect to previous fiscal year)

**What is the way forward?** – (1) The Government has proposed to give a massive push to infrastructure sector through high capex in the Budget. This will support job creation; (2) A prominent economic analyst with a renowned publication has favoured urban employment guarantee scheme with a **small wage differential with respect to rural areas**. This will check the migration while providing income support and a **safety net to the urban poor**. This will also **increase consumption** and help in revival of the economy; (3) Researchers at Ajim Premji University have suggested a scheme focused on creating public assets in urban areas that has potential to cover 20 million urban casual workers for 100 days, at a wage rate of Rs 300 per day, with an overall cost of Rs 1 lakh crore annually. The assets created can be monetized to generate revenue stream to support the scheme.

## #2 Comparison of Poverty Estimation Methods

**News:** The ranking of India worsened in the GHI report 2021. Former RBI Governor, Mr. Rangarajan has compared the common poverty estimation methods and has provided some suggestions for improvements.

**What are the different methods used for Poverty estimation? – (1) Consumption method:** Any household failing to meet the **minimum level of consumption expenditure** can be treated as a poor household. This minimum level of consumption expenditure can be derived from minimum expenditure on food and non-food items; **(2) The Multidimensional Poverty Index (MPI):** It was developed in 2010 by the Oxford Poverty & Human Development Initiative (OPHI). It is based on **10 indicators related to health, education, and standard of living**. A person is MPI poor if they are deprived of at least **one-third of the weighted MPI indicators**. The NITI Aayog, using similar methodology, released the report 'India: National Multidimensional Poverty Index, Baseline Report'; **(3) The Human Development Index (HDI):** It is a summary measure of achievements in three key dimensions of human development (a long and healthy life, access to knowledge, and a decent standard of living); **(4) Global Hunger Index (GHI):** It is based on **four indicators (undernourishment, child stunting, child wasting, and child mortality)**. The scores are aggregated to calculate the GHI score for each country. Countries are ranked based on the GHI score.

**Why Consumption method is best? – (1)** The Multi-Dimensional Poverty Index **arbitrarily sets a cut-off of one-third of weighted indicators**. The same criticism applies to NITI Aayog's MPI for India; **(2)** The HDI only shows country rankings; **(3) GHI is a partial index**, not related to entire household poverty; **(4)** The consumption method can determine the poverty line and poverty ratio as well and hence it is a better index to measure poverty.

**What are the trends in poverty based on various methods? – (1)** Estimates of poverty based on consumer expenditure, using the Tendulkar Committee methodology, show the **poverty ratio came down from 37.2% to 21.9%** and the number of poor came down by 137 million (between 2004-05 and 2011-12); **(2)** The MPI has almost halved between 2005-06 and 2015-16 coming down to 27.5% reducing the number of poor from 635 million to 364 million; **(3)** HDI values for India increased significantly from 0.536 in 2005 to 0.624 in 2015 and to 0.645 in 2019.

**What are the issues in the consumption-based estimates? – (1)** At present, there are no officially released estimates after 2011-12; **(2)** There is an **alarming difference between aggregate private consumption expenditure** data provided by the National Sample Survey (NSSO) and the National Accounts Statistics (NAS), which has been increasing over time. The difference was 10% in the late 1970s, has widened to 53.1% in 2011-12.

**What is the way forward? – (1)** The NSSO Advisory Group or the National Statistical Commission must study the problem and come out with possible suggestions for **improving the collection of data** through both estimates and narrowing their differences.; **(2)** The National Statistical Office can collect the consumer expenditure data for a normal year after analyzing the reasons for the difference between NSS and NAS estimates.

## #3 Manufacturing of Semiconductors in India

**News:** The Government has launched INR 76,000 Crore PLI Scheme to promote manufacturing of Semiconductors in India. The Ministry of Electronics and Information Technology has released a 5-year Roadmap and Vision Document for the electronics sector.

**What is the importance of semiconductor chips?** – (1) Semiconductor chips are the heart and brain of **all modern electronics and Information and Communications Technology (ICT) Products**, including automobiles, household gadgets like refrigerators, and essential medical devices such as ECG machines; (2) Semiconductor chips are also central to the development of **emerging technologies like AI, 5G, or driverless cars**; (3) After petroleum and cars, semiconductors at **an annual turnover of US\$500 billion** are globally the most-traded products.

#### PT BOX

##### Semiconductors

A semiconductor has electric conductivity between that of a conductor and an insulator. Semiconductors are made from pure elements like silicon or germanium or compounds like gallium arsenide.

Their conductivity is enhanced through doping. It is a process of adding small amounts of impurities to these pure elements, which causes large changes in the conductivity of the material.

**What is the rationale behind the PLI Scheme?** – The incentive scheme is aimed at **creating a viable design and manufacturing system for semi-conductors** in India. Domestic semiconductor manufacturing is important because; (1) There is **heavy dependence on imports** for meeting domestic semiconductor demand. In 2020, India imported US \$15 billion worth of electronics with 37% of them from China. **India's demand is expected to reach US \$100 billion by 2025**; (2) Imported semiconductor chips are **susceptible to malware and backdoor spying** posing **risk for strategic areas** like defence and telecom. Hence there is a need to build domestic manufacturing ecosystem; (3) **Safeguarding against future chip crunches**: At present there is a global shortage of electronic chips which is affecting automobile and electronic goods production. A robust domestic industry would **insulate from global supply and price shocks**; (4) This move will **make Indian manufacturers globally competitive** to attract investment in the areas of cutting-edge technology. Moreover, any **intellectual property** that is generated will be a big bonus; (5) Semiconductor manufacturing ecosystem will **create livelihood opportunities** and mitigate the unemployment challenge; (6) Economies with a large production of Semiconductor chips, like the US, Japan, Korea, China and Singapore, have benefited the most in terms of **enhancing their GDP** and establishing a **strong foothold on the global economy**.

**What are the challenges in setting up a semiconductor fabrication unit (FAB) in India?** – (1) **Capital intensive**:

A chip manufacturing unit requires investment of US \$5-7 billion. Moreover consistent investment is required because the technology changes rapidly. Chipmakers like Intel, TSMC each spend over US \$20 billion in R&D, process improvement and new fabrication machinery every year; (2)

**R&D Ecosystem**: There is lack of R&D ecosystem in India to support the development of new technologies. The manufacturing of semiconductors requires the use of high-end technologies. These technologies are licensed from patent holders at a very high price. Moreover, **fabrication technology is complex with very high failure rates**; (3) **Bureaucratic inefficiencies**: The process of establishing an indigenous semiconductor



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facility requires clearances and approvals from multiple government departments. Further, there exists a considerable degree of bureaucratic delay at each stage of approvals that discourages the establishment of manufacturing units; **(4) Infrastructure:** There are infrastructure constraints e.g., the smooth production of semiconductors requires the availability of an uninterrupted 24\*7 power supply but many regions are marred by intermittent supply; **(5) Structural Flaws:** FDI in electronics is less than 1% of the total FDI inflow because of the dearth of skilled labor, delays in land acquisition, and the uncertain tax regime.

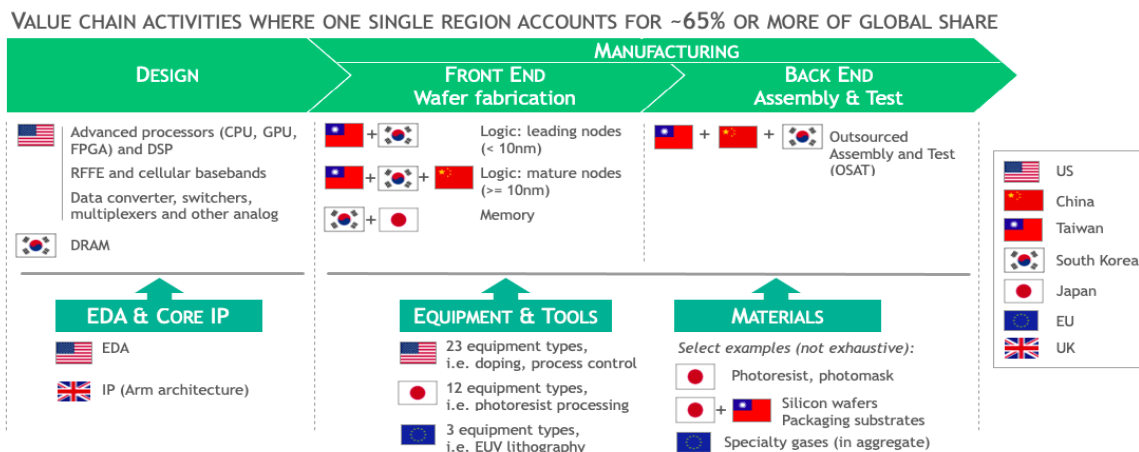
**Which part of the Semiconductor value chain should India focus upon?** – The value chain for semiconductor manufacturing consists of the **Design process** (which is R&D intensive), and the Manufacturing process: Front end: **Fabrication**, Back end: **Assembly and Testing**.

Industry experts suggest that India should focus upon the following areas: **(1) R&D-intensive activities** like electronic design automation (EDA), core intellectual property (IP), and chip design. USA is the leader in this segment. India can get part of the business by supporting its existing chip-design experts and funding technology and innovation centres, including top engineering colleges; **(2) Semiconductor fabrication** facilities for making of advanced chips with **focus on medium and low-end chips**. This is because; **(a)** Due to the **pandemic related supply disruptions and geopolitical tensions** (the US, Japan and China), many other countries have announced plans for setting up local Fabs. This might **lead to a surplus capacity for high-end Fabs by 2024**; **(b)** Much of the expertise needed for making such chips is available with local firms. This will allow India to become a high-volume and low-cost original design manufacturer (ODM) for medium- and low-end chips; **(3) Assembly, testing and packaging (ATP) segment:** This segment captures 10% of the value. China is the current leader. With low-cost skilled technical manpower, India is a natural choice to take some part of the business.

#### PT BOX

##### Medium and Low-end Chips

For the Medium and Low-end chips, the distance between the two transistors on the chip is more than 20 nanometers (nm). Chips with distance <20 nm fall in the high-end category.



The value chain of semiconductor manufacturing is concentrated in the East Asian Region (Taiwan, South Korea, Japan, and China), the US and in the EU and the UK. (Semiconductor Industry

**What is the way forward?** – **(1) Focus on back-end of manufacturing:** To lower the risks of investment, India should especially look at back-end of manufacturing such as assembly, packaging and testing. Once it stabilises and an ecosystem develops, front-end of manufacturing can be established; **(2)** Simultaneously, government needs to **take advantage of the presence of Indian engineers in chip design**, the part of the chain that contributes the largest value; **(3) Hand-holding start-ups** of entrepreneurial engineers can also produce large payoffs; **(4) Proactive cooperation of States:** Areas



like stable power, large quantities of clean water and land, are State subjects, and it will be up to State governments to create the right climate for easy implementation of semiconductor projects; **(5) Transport logistics:** Good roads, and rail and air connections to the site will support the manufacturing ecosystem; **(6)** The government can provide assurance on **minimum domestic procurement** by the government and the private sector; **(7) More budgetary outlay:** The average fab unit incurs capital expenditure of several billion dollars. The US \$10 billion (INR 76,000 Crore) outlay in the PLI Scheme is on the lesser side, considering fiscal support is needed for other sub-elements of the mission too. Government should consider increasing the outlay in the future.

**What are recommendations given in Vision Document?** – The Ministry of Electronics and Information Technology has released a 5-year roadmap and vision document for the electronics sector, titled ‘**\$300 bn Sustainable Electronics Manufacturing & Exports by 2026**’. It recommends: **(1)** The report focuses on a five-part strategy that includes: **(a)** Building competitiveness and scale by **attracting global electronics manufacturers**; **(b)** Shifting and developing sub-assemblies and component ecosystems; **(c)** Building a design ecosystem; **(d)** Nurturing Indian champions; **(e)** Steadily removing cost disabilities faced by India; **(2)** The report seeks a **competitive tariff structure** on electronic components and the **removal of all regulatory uncertainty**; **(3)** It recommends a ‘**winner takes all**’ strategy backed by economies of scale and global competitiveness, new and revised incentive schemes for some sectors and the need to **address issues of sustainability and ease of doing business**.

#### #4 Ban in import of Drones

**News:** The Government has issued a new order prohibiting import of drones in certain forms. The move is expected to have a profound effect on the domestic Drone Manufacturing sector.

**What are the restrictions placed by the Government’s order?** – **(1)** The ban is applicable to drones in **Completely-Built-Up (CBU)**, **Semi-knocked-down (SKD)** or **Completely-Knocked-down (CKD)** forms. In the knocked-down form, the components of drones are imported separately and the final assembly is done after import; **(2)** The import of drones will be allowed for: **(a)** Government entities; **(b)** Educational institutions recognised by Central or State governments; **(c)** Government recognised R&D entities; **(d)** Drone manufacturers for R&D purposes as well as for defence and security purposes; **(3)** The order also says that the **import of drone components is ‘free’**, implying that the local manufacturers don’t need permission from DGFT for importing components of drones like chips, motors, batteries etc. This is expected to increase indigenous drone manufacturing.

#### PT BOX

##### Applications of Drones

**Defence and Security:** Surveillance, Situational analysis, Crime control, VVIP security, Combat operations, Communication in remote areas and counter-drone solutions.

**Health sector:** Delivery of medicines, Collection of samples from remote or epidemic/pandemic-affected areas.

**Environment:** Anti-poaching actions, Monitoring of forests and wildlife, Pollution assessment, and Evidence gathering.

**Agriculture:** Crop and soil health monitoring, Anti-locust work, Insurance claim survey, Creation of Land Records and Property rights.

**Disaster management:** Incidence response especially in fire accidents and disasters like Earth Quake etc., Rescue and recover missions, Monitoring and assessing damages, etc.

**Law Enforcement:** Surveillance of large crowds and ensuring public safety, Monitoring criminal and illegal activities.

**Why has the Government decided to ban imports of drones?** – **(1)** The industry is expected to attract investments of INR 50 billion in the next 3 years. The industry turnover is expected to reach INR 9 billion in FY23-24, from INR 600 million in FY20-21 creating about 10,000 direct jobs and additional 500,000 jobs in the drone services industry. The Government wants to **safeguard the industry from**

**imports and enhance domestic manufacturing;** (2) 90% of the drones in use in India are **imported especially from China**. This is a cause of concern for the government; (3) Domestic design and manufacturing will address data security concerns and leaking of sensitive data to China.

**What are the challenges associated with banning drone imports?** – (1) There is a **lack of domestic capacity** and supply chain network for drone manufacturing in India. An immediate ban will lead to disruption; (2) The **costs will increase for drone users** as domestic drones would be more expensive than the more economical imported drones; (3) The **disruption in drone supply** will hamper domestic sectors like Kisan Drone initiative in Agriculture.

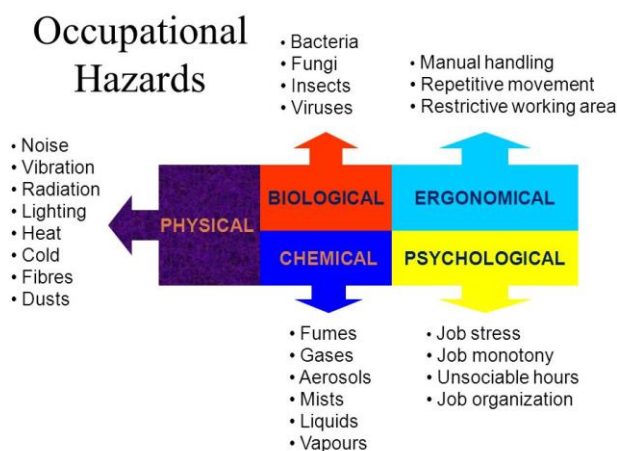
**What measures have been taken to promote indigenous drone manufacturing?** – (1) The government introduced Liberalised Drone Rules in 2021 which simplified various procedures and provisions like exemptions for R&D entities, reduced compliance burden etc.; (2) **Drone Certification Scheme**, 2021 will help in simpler, faster and transparent type-certification of drones; (3) **Production-linked incentive scheme for drones and drone components** aims to make India a “global drone hub by 2030”. It has allocated ₹120 crores for a period of three years. The scheme will also **encourage foreign manufacturers to set up assembly lines in India**; (4) The Guidelines of Sub-Mission on Agricultural Mechanization (SMAM) have been amended to promote drone use in agriculture like upto 100% grants on drones etc.

**What should be done to promote indigenous drone manufacturing?** – (1) The Government should provide support to local manufacturers to develop the manufacturing ecosystem like incentives to start-ups and MSMEs; (2) **Favourable regulatory mechanism** for the Indian software companies engaged in drone software; (3) Increase investments in the drone and counter-drone technologies; (4) **Create awareness about the pros and cons of drone use**: The usage of drones is fairly a new concept in India. A lot of safety regulations have to be made mandatory for both manufacturers and users. The Government can create awareness about the pros and cons of drone use.

## #5 Occupational Safety and Health in India

**News:** A report released by Safe in India Foundation has shown the poor status of occupational safety in India with most accidents caused due to lack of adequate safety measures and poor safety training. This calls for review of the institutional measures regarding occupational safety.

**What is the meaning of Occupational Safety and Health?** – (1) Occupational Safety and Health (OSH) is associated with improving the safety and health standards at the workplace. Every occupation has health or safety risks associated with it, and it is every **employer's responsibility to ensure that their employees can carry out their work as safely as possible**; (2) The ILO Constitution sets forth the principle that **workers must be protected from sickness, disease and injury arising from their employment**; (3) According to the most recent ILO global estimates, **2.78 million work-related deaths are recorded every year**, of which 2.4 million are related to occupational diseases.



**What are the various provisions related to Occupational Safety in India?** – (1) The occupational safety had been covered through individual laws e.g., the Factories Act, 1948; Mines Act, 1952; The Dock Workers (Safety, Health and Welfare) Act, 1986 etc.; (2) All the provisions from the individual laws have

been combined together in the **Occupational Safety, Health and Working Conditions Code, 2020**. The code lists down the duties of employers and employees, and **envisages safety standards for different sectors, focusing on the health and working condition of workers**, among other provisions related to hours of work, leaves, etc. The code has provisions related to industrial inspection by the safety inspectors and penalty for failure to comply with the safety standards.

**What are the shortcomings in the current system?** – (1) Labour Bureau compiles and **publishes data on industrial injuries related only to few sectors** like factories, mines, railways, docks and ports. Other sectors like construction, services sector etc. are not included which **results in under-reporting**. Many **States fail to report cases to Labour bureau** as happened in 2013-14 with several major states such as Delhi, Gujarat, Kerala, Odisha, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal; (2) Unregistered mines and factories are also not covered. In addition, lack of inspection in **unregistered entities exposes workers to hazardous conditions**; (3) The inspection regime has several shortcomings. Major States such as Maharashtra (38.93%), Gujarat (57.52%), Tamil Nadu (58.33%), and Bihar (47.62%) **has poor employment rates of inspectors**. In 2019, there was 1 inspector for every 487 registered factories and 0.04 inspector per 1,000 workers. It reveals that **inspectors are over-burdened**; (4) The **inspection rate has declined** from 36.23% during 2008-11 to 34.65% during 2012-2015 and further to 24.76%; (5) The **labour inspectors are poorly equipped** to undertake the inspections; (6) The **conviction rates for 2015-2019 stood at 61.39%** in a penal system where only 15.7% cases were decided during 2015-19. The average fine per conviction was Rs. 12,231. With overall poor conviction and lenient penalties, there is low deterrence for violations of the safety provisions.

**What remedial steps should be undertaken?** – (1) OSH is a human and labour right. Hence, there should be a **strong monitoring mechanism** and **comprehensive database** to frame corrective actions and policies; (2) India has ratified International Labour Organization (ILO) conventions, the Labour Inspection Convention, 1947 (C081) and Labour Statistics Convention, 1985 (C160). The shortcomings in the system mentioned above violate these conventions. Hence, the labour codes, especially the OSH Code should be reviewed and rectified accordingly; (3) There is a need to undertake sustained **campaigns to make people aware about the occupational safety** and health and imbibe a culture of safety in general.

## #6 Questions regarding status of Crypto-assets in India

**News:** The Government has announced a slew of measures for virtual digital assets. However, there are some aspects which require greater clarification

**What are the various provisions regarding crypto-assets in the Union Budget?** – (1) **Digital Rupee:** The Reserve Bank of India will launch a Digital Rupee; India's version of a Central Bank Digital Currency (CBDC) by 2022-23. The CBDC will be backed by blockchain technology;

(2) **Definition of Crypto Assets:** The Finance Bill, 2022 has for the first time **provided a definition of crypto assets**. Essentially, the Finance Bill has provided for a definition of virtual digital assets which is **wide enough to cover emerging digital assets**, including non-fungible tokens (NFTs), assets in the metaverse, digital currencies and tokens, among others;

(3) **Tax on Crypto Assets:** The Budget has proposed that **transfer of any virtual/cryptocurrency asset will be taxed at 30%**. No deduction except the cost of acquisition will be allowed, and no loss in transaction will be allowed to be carried forward; (4) In order to monitor the

### PT BOX

#### Virtual Digital Asset

According to the definition provided in the Finance Bill; any information or code or number or token **generated through cryptographic means** or otherwise providing a digital representation of value exchanged with or without consideration that can be **transferred, stored, or traded electronically** can be defined as 'virtual digital assets' (VDA).



money trail in crypto deals, a **1% Tax Deduction at Source** (TDS) will be imposed on every transaction using cryptocurrencies; **(5) Gifts** in virtual digital assets would be **taxed in the hands of the recipient**. The Tax law has not legitimised the cryptocurrency, it only prescribes taxes on capital gains in crypto-assets.

These announcements have granted some degree of legitimacy to the cryptocurrency. But it has also left many unanswered questions.

**What are the uncertainties regarding crypto-assets?** – **(1)** The 30% tax rate on transfer of any virtual/cryptocurrency asset is in line with short-term capital gains on equity, futures trades in commodities etc. But there is lack of clarity **whether the tax is being imposed only on short-term capital gains or all capital gains**; **(2)** It is not clear **whether trading losses can be offset**, as is the norm with other assets; **(3)** Whether the digital rupee have any interest-bearing or not; **(4)** Accounting of digital Rupee in money supply; **(5)** Can digital Rupee be used in a forex transaction or as an instrument of outwards or inwards remittance; **(6)** Can digital Rupee be withdrawn from circulation; **(7)** Any income from the transfer of any VDA shall be taxed at 30%. But it is unclear **whether the ‘transfer’ would include coin rewards for mining and staking**. A mining reward, sometimes in the form of coins is paid to the miners. The coins are not paid by an entity but are won on the network. Therefore, there is no transfer or transferor per se.

**What is the way forward?** – To have a more robust taxation framework for cryptocurrencies, the Government must clarify: **(1)** Cryptocurrencies – whether recognised as legal tender in other nations or not – will be covered by the definition of VDAs; **(2)** Whether mining rewards in the form of coins are taxable under section 115BBH; **(3)** Introduce the framework for taxing cryptocurrencies under goods and services tax law to offer tax certainty.

## #7 Geospatial Sector in India

**News:** With almost a year after the introduction of new guidelines for the Geospatial sector, there has been a positive response from the industry

**What is Geospatial Technology?** – **(1)** It is a term used to describe a range of modern tools like the Geographic Information System (GIS), Remote Sensing (RS) and Global Positioning System (GPS); **(2)** It enables **acquisition of data that is referenced to the earth** and can be **used for mapping, analysis, modelling, simulations and visualization**; **(3)** The tools like GIS, GPS and Remote Sensing **capture spatial information about objects, events and phenomena** (indexed to their geographical location on earth, **geotag**); **(4)** The **location data may be Static or Dynamic**. Static location data include position of a road, an earthquake event or malnutrition among children in a particular region while dynamic location include data related to a moving vehicle or pedestrian, the spread of an infectious disease etc.

### PT BOX

#### Geospatial Technology in Government Schemes

The technology has use in **policy formulation and implementation** as well e.g., in India large amounts of spatial data are already being utilised in key infrastructure programmes like the National Hydrology Project (NHP), Bharatmala, AMRUT, Smart Cities, SVAMITVA and National Infrastructure Pipeline (NIP).

**What are the uses of Geospatial Technology?** – **(1)** The technology may be used to create **intelligent maps** to help **identify spatial patterns** in large volumes of data; **(2)** The technology **facilitates decision making** based on the importance and priority of scarce resources. The use of geospatial technologies can help ensure timely completion of projects through tracking, monitoring and managing performance as per plans; **(3)** Geospatial technology has become an indispensable part of everyday life with its use in **tracking widespread activities and phenomena** like transportation and logistics, traffic navigation, route mapping, meteorology, forestry, real estate, disaster management etc.

**What is the Current Status of Geospatial Sector in India?** – (1) According to **India Geospatial Artha Report 2021**, the Indian geospatial economy is currently valued at INR 38,972 crore and employs approximately 4.7 lakh people. The sector is expected to grow to INR 52,000 crore by 2025 at the current growth rate of 7%; (2) The principal users of the sector include defence and intelligence (14%), urban development (13%) and utilities (11%), transport infrastructure (10%) and real estate (7%); (3) From the supply side, the **sector is still dominated by the government** as well as government-run agencies such as the Survey of India (SOI).

**What is the significance of Geospatial Sector?** –

(1) **Economic Growth:** The sector has potential to grow to Rs **63,100 crore by the end of 2025** if supported by adequate policy support measures by the Government of India;

(2) **National Security:** The Government of India started investing heavily in geospatial technologies after the Kargil war. The war highlighted the adverse effects of dependence on geospatial data sourced from foreign countries;

(3) **Employment Generation:** Private Companies like Amazon, Zomato etc. use this technology to smoothly conduct their delivery operations which supports livelihood generation. Further the estimated human resource size of the sector is expected to reach 9.5 lakh by 2025;

(4) **Implementation of Schemes:** The flagship schemes of the Government like the **Gati Shakti program** can be smoothly implemented using geospatial technology. The scheme involves huge investments in construction of about 25,000 Kms of highways, multimodal transport, and modernization of land records;

(5) **Boost to Make in India:** Focusing on the sector will allow Indian companies to develop indigenous apps like an Indian version of google maps; (6) **Land Record Management:** Using this technology, the data related large number of landholdings can be appropriately tagged and digitized. It will not only help in **better targeting** but would also **reduce the quantum of land disputes in courts**. Barring Karnataka, the records are not updated in other states; (7) **Crisis Management:** Technology and logistics were perfectly supported through the use of geospatial technology during the COVID-19 vaccination drive. In addition, the technology can be useful in disaster management like cyclone relief operations etc.

**What steps have been taken by the Government for the sector?** – (1) **Guidelines for Geospatial Data, 2021:** The guidelines released by the Ministry of Science and Technology in February 2021 **deregulated existing protocol and liberalized the sector** to a more competitive field. The guidelines **eliminated the requirement of permissions** as well as scrutiny. Companies now can self-attest, conforming to government guidelines; (2) **Geospatial Energy Map of India:** It has been developed by **NITI Aayog** in collaboration with Indian Space Research Organization (ISRO). It aims to provide a comprehensive view of energy production and distribution in the country. It will be useful in planning and making investment decisions. It will also aid in disaster management using available energy assets; (3) **Union Budget 2022-23:** Government would support the **use of Kisan drones** for land assessment, digitization of land records and spraying insecticides and nutrients; (4) **Yuktdhara Portal:** It has been launched by

## Challenges facing Geospatial Sector in India

### Absence of sizeable market

Low demand for geospatial services and products on a scale linked to India's potential and size. This is mainly due to the **lack of awareness among potential users** in the Government and private sector

### Human Resource Deficit

There is **lack of skilled manpower** to collect, store and analyze the data across the entire geospatial pyramid. Unlike the West, India lacks a strata of **core professionals who understand geospatial technology end-to-end**

### Data Availability and Sharing constraints

The unavailability of foundation data, especially at high-resolution; and the lack of clarity on data sharing and collaboration **prevents co-creation and asset maximization**

### No Tailor-made Solutions

Barring a few cases, there are still **no ready-to-use solutions** especially built to solve the problems of India.

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the Ministry of Rural Development to serve as a **repository of assets** (with geotags) created under the various National Rural Development Programmes, such as MGNREGA. It will integrate a wide variety of thematic layers, multi-temporal high-resolution earth observation data with the analysis tool.

**What changes have happened after the deregulation?** - The experts are projecting the geospatial market to reach around **1 lakh-crore by the year 2029** with 13% Compound Annual Growth Rate (CAGR). The geospatial sector is **seeing new interest from more investors** e.g., the initial public offering (IPO) of MapmyIndia got over subscribed (154 times) and listed at 53% premium. The other noticeable activity was the launching of a city mapping programme by Genesys International in India.

**What should be done to promote the Sector in India?** - (1) **First and foremost** is the need to publish the entire policy document and raise awareness among Government and private users. The data available with government departments should be unlocked, and data sharing should be encouraged and facilitated; (2) There is a need to establish a geo-portal to **make all public-funded data accessible through data as a service model**. It is important to inculcate the culture of data sharing, collaboration and co-creation. Further there is a need to develop a **geospatial data cloud locally** and facilitate a solution as service; (3) There is a need to generate foundation data across India. This should include the **Indian national digital elevation model (InDEM)**, data layers for cities, and data of natural resources; (4) The Government can **start a bachelor's programme in geospatial** in IITs and NITs. A dedicated geospatial university can be established. These programmes will propel research and development efforts which are crucial for the development of technologies and solutions locally; (5) Digital India should prioritize **the creation of 3D national digital twins** of our environments (water, road, rail, cities & rural) to track and monitor ailing structures and utilities; (6) National organizations like **SoI and ISRO should be entrusted with** the responsibility of regulation and the projects related to the **nation's security and scientific significance**. These organizations should not compete with entrepreneurs for government business as the latter remains in a disadvantageous position; (7) The **draft National Geospatial Policy (NGP)** and the Indian Satellite Navigation Policy (SATNAV Policy) should be duly finalized to augment the sector.

Geospatial technology will be crucial to drive growth ambitions of the country, providing employment and also aiding the new-age ecosystem, by providing location intelligence at your fingertips. More and more sectors such as agriculture, environment protection, power, water, transportation, health etc. desire the technology in order to truly realize their potential.

## #8 Breakthrough in Nuclear Fusion Technology

**News:** The Scientists at the Joint European Torus (JET) Facility, UK have said that they have achieved a new milestone in the quest towards producing energy from Nuclear Fusion.

**What is the new breakthrough?** - (1) The Scientists at the JET facility have produced **59 Megajoules (MJ) of energy in about 5 seconds** through a Nuclear Fusion reaction; (2) The new record is more than double the energy produced in 1997, 21.7 MJ in about 4 seconds; (3) Although the amount of energy produced is small in reference to commercial scale of energy production (reaction was sustained only for 5 seconds), the **breakthrough represents validation of the design choices made to harness the nuclear fusion energy**.

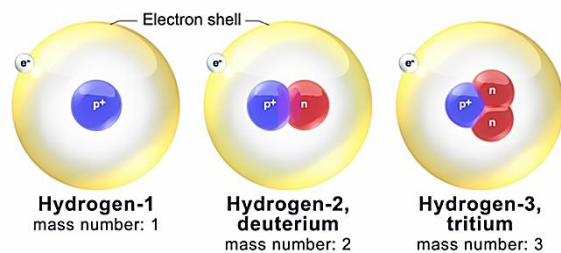
### PT BOX

#### Isotopes

Isotopes of an element have same number of protons but different neutrons. Hydrogen has three isotopes, Protium (1 proton), Deuterium (1 proton, 1 neutron) and Tritium (1 proton, 2 neutrons)



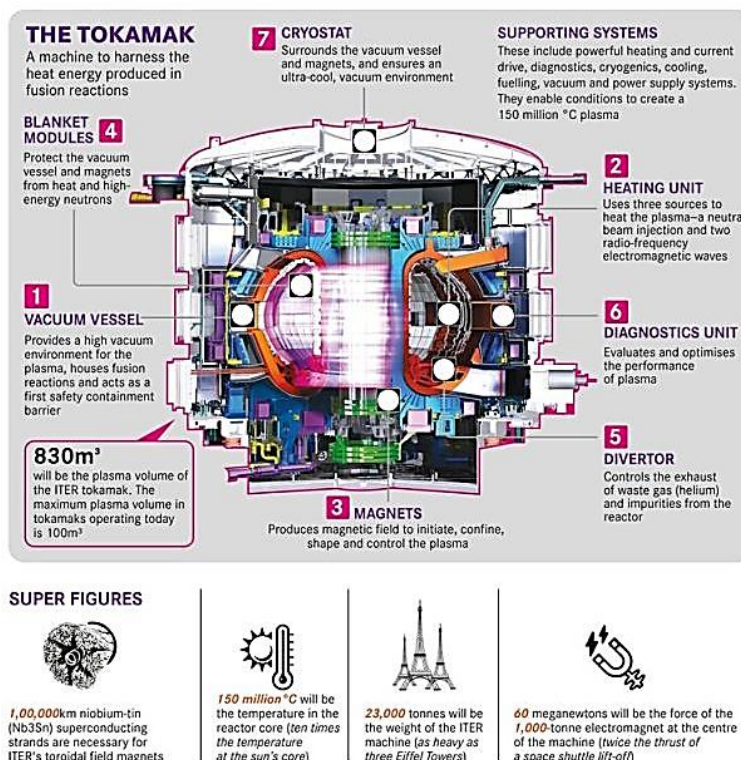
**What is Nuclear Fusion?** – (1) Nuclear Fusion is the process through which **two or more atomic nuclei combine** together to **form one or more different atomic nuclei**, sub-atomic particles along with **release of energy**. When **nuclei of heavier elements combine** (heavier than iron or cobalt) **energy is generally consumed**; (2) One of the most common nuclear fusion reaction is the reaction between deuterium and tritium (isotopes of hydrogen) to combine to form helium. This reaction is the **primary source of energy in the stars** including the Sun; (3) As the **atomic nuclei are positively charged** (due to protons), **they repel each other**. Thus **combining nuclei must possess high energy** in order to overcome the repulsion and combine together. This high energy **comes only at very high temperature** of the order of millions of degrees. The **matter exists in the plasma form** at such high temperatures. Plasma is 4<sup>th</sup> state of matter and consists of **ionized particles**.



**What are the challenges in harnessing energy through nuclear fusion?** – Nuclear Fusion occurs at very high temperature. This poses some engineering challenges in harnessing energy from nuclear fusion: (1) It is **difficult to create and sustain high temperature** (millions of degrees); (2) There is no **material that can withstand such high temperature**; (3) There must be sufficient plasma particle density so that the nuclei can combine; (4) Sufficient confinement time (to hold the plasma, without expanding and containing within a defined volume).

These conditions are very difficult to establish and pose a big engineering challenge. Hence: (a) It is **difficult to produce energy in a controlled and sustainable manner through nuclear fusion**, unlike nuclear fission; (b) Even if conditions are created (high temperature) to initiate nuclear fusion reaction, it is **very difficult to control them**; (c) Moreover a lot of energy is consumed in creating high temperature which means that most artificial Nuclear Fusion experiments (for now) consume more power than they generate.

**What is Magnetic Confinement and Tokamak?** – (1) Scientists have been trying to overcome these challenges. One of the ways they have devised is through **magnetic confinement of plasma**. Through this technique, the plasma at high temperature is **confined into a fixed space through magnetic field**, thus **avoiding physical contact with any material**; (2) Several types of devices are being developed based on the technique of magnetic confinement to control the process of nuclear fusion. These include **Tokamaks, Stellarators, z-pinch, compact toroids** like spheromak; (3) Tokamak is a device which uses magnetic field to **confine the plasma in the shape of a torus**. It was conceptualized by the Soviet Scientists in 1950s. Other





devices like **Stellarators** show **serious plasma instabilities** which are absent in Tokamaks, making them the **most promising device in controlling nuclear fusion** in future; (4) Tokamak has a main **vacuum vessel** that contains the plasma, **magnets** that create the magnetic field to confine the plasma, **blanket module** to protect the vacuum vessel and magnets from heat and the **cryostat** that surrounds the vessel and magnets.

**What is ITER?** – (1) The **International Thermonuclear Experimental Reactor** ITER fusion reaction is based on the isotopes of hydrogen (deuterium and tritium). **ITER will be the world's largest tokamak**; (2) 35 countries, including India, Russia, the United States, the United Kingdom, China, European Union, are collaborating to jointly build the largest Tokamak as part of the **International Thermonuclear Experimental Reactor (ITER)**; (3) The machine assembly of ITER is underway in southern France. With the installation of the Cryostat, a device to cool the reactor, covering the assembly is slated to be completed by 2025; (4) The first plasma is expected to be produced at the end of 2025 or early 2026. After testing and troubleshooting, energy production might commence in 2035. The plant is expected to generate 500 MW power and consume 50 MW for its operation, resulting in a net 450 MW power generation.

**What are the advantages of nuclear fusion?** – (1) **Abundant energy**: Gram for gram, thermonuclear power **produces four million times more energy than burning coal**. A kilogram of fusion fuel contains about 10 million times as much energy as a kilogram of coal, oil or gas; (2) **Sustainability**: Fusion fuels are widely available and nearly inexhaustible e.g., deuterium can be distilled from all forms of water which is abundantly available in oceans; (3) **Non-pollutant**: Nuclear fusion does not emit harmful toxins like CO<sub>2</sub> or other greenhouse gases. The **only waste product** from nuclear fusion **is the harmless helium** which is an inert and non-toxic gas; (4) **No risk of meltdown**: Any disturbance or malfunction will lead to the cool down of plasma within seconds and the reaction stops. Since the fuel and by-products in fusion reactions are not radioactive, there **are no associated nuclear radiation hazards** as seen in Chernobyl disaster.

Scientists are working hard to overcome the engineering challenges in creating and maintaining a stable nuclear fusion process. If scientists are able to overcome these challenges, nuclear fusion could meet humanity's energy needs for millions of years and can also help mitigate the climate change. The recent achievements provide an encouraging way forward in this regard.

## #9 Study on Superbugs and Anti-microbial Resistance

**News:** According to a study published in the Lancet, Anti-Microbial Resistance (AMR) is a major health threat both to the World and India. According to the study, superbugs kill around 1.27 million people globally every year.

**What is anti-microbial resistance and Superbugs?** – (1) According to the WHO, Anti-microbial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites **stop responding to the medicines designed to kill them or inhibit their growth**. These micro-organisms **adapt to these drugs** to ensure their survival. 'Antibiotic resistance' specifically refers to resistance of bacteria to anti-biotics; (2) AMR makes it difficult to treat the infections as the germs do not respond to medicines. **Treatable infections**

## FISSION VERSUS FUSION

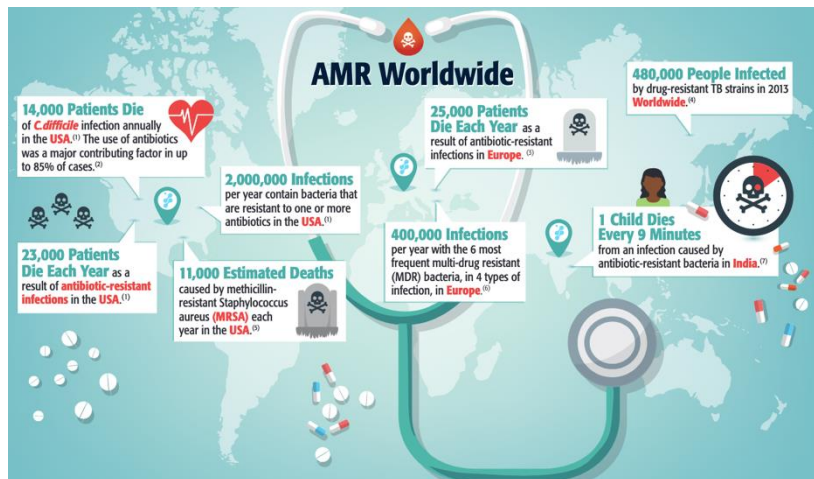
COMPARING THE 2 TYPES OF NUCLEAR REACTIONS

Fission	Fusion
Heavy Nuclei split to form smaller nuclei like Uranium into Barium, Strontium and Krypton and the product nuclei are generally radioactive	Lighter Nuclei combine to form larger nuclei like Hydrogen into Helium and the product nuclei are not radioactive
Fission Reactions are chain reactions, i.e. the products promote and sustain the reaction	Fusion Reactions are not chain reactions and the reaction stops if conditions are not maintained
Fission Reactions are possible at normal room temperature	Fusion reactions require very high temperature: of the order million of degree Celcius
The energy released per unit of fuel is almost million times more than conventional energy sources	The energy released is 3-4 times that of the nuclear fission reaction

Created by: ForumIAS Editorial ©

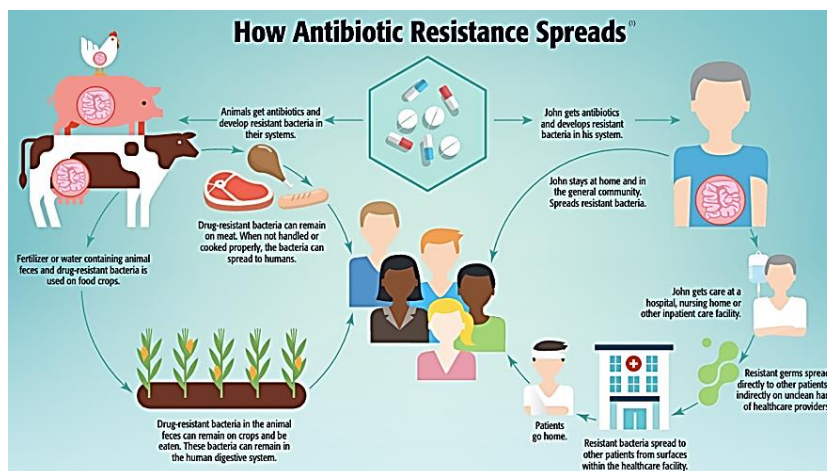
can become fatal due to AMR; (3) **Superbugs** are strains of micro-organisms that are resistant to most of the medications.

**What are the reasons for AMR?** – AMR develops because of several reasons. These include: (1) **Over-use of anti-biotics** and other drugs in **humans as well as commercial farm animals**. In farming, anti-biotics are used to boost productivity. Microbes that develop resistance to drugs in animals enter human body through: (a) **Direct contact** between animals and farmers; (b) **Meat consumption**; (c) **Through plants** via manure produced from animal dung; (2) Poor prescription practices; (3) **Self-medication** and incomplete course of medication. Antimicrobials are easily available as ‘over the counter drugs’ in many countries; (4) **Contamination through pharmaceutical manufacturing sites**: The untreated waste releases large amounts of active antimicrobials into the environment; (5) No new classes of antibiotics have been launched in the market in the last 3 decades. This is a result of inadequate incentives for their development and production. A recent report from the non-profit PEW Trust found that over 95% of antibiotics in development today are from small companies.



**What are the findings of the study on Superbugs?** –

(1) Superbugs directly kill around 1.27 million people globally every year. In addition, AMR played a key associated role in the 4.95 million deaths worldwide; (2) Almost **30% or 3.89 lakh of these deaths occurred in South Asia** in 2019; (3) **E.coli and MRSA** (Methicillin-Resistant *Staphylococcus Aureus*) were among the drug-resistant bacteria that led to most deaths; (4) AMR posed a threat to people of all ages but **young children were most vulnerable** with one in five deaths attributable to AMR occurring in children under the age of five; (5) The high levels of hospitalisations during the **COVID-19** have possibly accelerated the burden of AMR as most patients were prescribed antibiotics; (6) The study has also highlighted three concerns going forward: (a) Growing drug resistance in children; (b) Tepid response by Governments; (c) Lack of research for new antibiotics; (7) The study has also found that **AMR disproportionately affects poor individuals** who have **little access to second-line, more expensive antibiotics** that could work when first-line drugs fail.



**What are the challenges posed by AMR?** – (1) **Threat to the health care system**: Antimicrobial drugs prevent infections post a routine surgery or cancer treatment. Their ineffectiveness would impair the modern healthcare system and can render many medical procedures impracticable and many diseases/infections incurable; (2) **Loss of Human Lives**: It is estimated that AMR might cause 10 million

annual deaths post 2050; **(3) Economic Costs:** The countries would require abundant capital to manage the AMR crisis in the future. As per an estimate, it may cost up to \$100 trillion by 2050; **(4)** Scientists are worried that the **next global pandemic might be caused by a superbug** e.g., in 2021 researchers found a **superbug (C. Auris)** on remote sandy beaches of Andaman Islands that was multi-drug resistant. C Auris when enters the human body causes severe bloodstream infections, illness and can lead to sepsis.

**How can the AMR challenge be addressed?** – The threat of AMR can be addressed by: **(1) Rationalizing the use of antibiotics.** There are global good practices e.g., patient education in Peru and the EU's VALUE-Dx programme that has increased the use of point-of-care diagnostics. This has resulted in prudent drug intake; **(2) Tracking the spread of AMR:** Surveillance measures to identify drug-resistance need to expand beyond hospitals. This should include livestock, wastewater, and farm run-offs. Denmark's efforts to prevent the use of antibiotics in livestock had reduced AMR prevalence; **(3)** The WHO launched the **Global Action Plan (GAP) on AMR** in 2015. At present almost 80 countries have announced **National Action Plans** to address AMR. This must be expanded; **(4) Global Coordination:** International alignment and coordination are paramount in both policymaking and its implementation to prevent the spread; **(5) New Drug Development:** Pharma manufacturers must be encouraged to develop new antimicrobial drugs. In this regard, a multi-sectoral **\$1 billion AMR Action Fund** was launched in 2020 to support the development of new antibiotics; **(6) Accessibility:** There is a need to ensure better accessibility of antimicrobials. Globally, 5.7 million people die every year because they cannot access drugs for infections that are treatable; **(7)** The Lancet study has suggested: **(a)** Reducing human exposure to antibiotics in meat; **(b)** Preventing the need for antibiotics through vaccination programs and vaccine development.

**What initiatives have been taken by the Government of India to prevent AMR?** Taking cognizance of the seriousness of the issue, the government has taken several steps to prevent AMR in people, such as: **(1)** National programme on AMR containment was launched during 12th FYP in 2012-17. Under this programme, AMR Surveillance Network has been strengthened by establishing labs in State Medical College. 30 sites in 24 states have been included in this network till 30th March 2021; **(2)** National Action Plan on Antimicrobial Resistance (NAP-AMR) focusing on One Health approach was launched on 19th April 2017 with the aim of involving various stakeholder ministries/departments; **(3)** Delhi Declaration on AMR– an inter-ministerial consensus was signed by the ministers of the concerned ministries pledging their support in AMR containment; **(4)** ICMR has established AMR surveillance and research network (AMRSN) in 2013, to generate evidence and capture trends and patterns of drug resistant infections in the country. This network comprises of 30 tertiary care hospitals, both private and government; **(5)** Government launched Red Line campaign, to prevent irrational use of prescription-only antibiotics and also to create awareness on the dangers of taking antibiotics without being prescribed; **(6)** ICMR has taken initiatives to develop new drugs /medicines through international collaborations in order to strengthen medical research in AMR.

## #10 Neglected Tropical Diseases (NTDs)

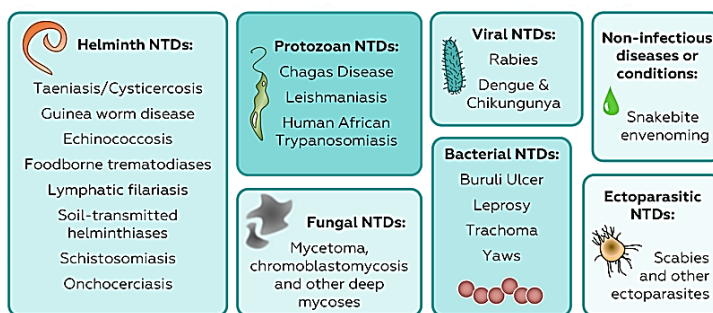
**News:** World Neglected Tropical Diseases Day was celebrated on January 30. The wide prevalence of Neglected Tropical Diseases indicates the urgent attention required to eliminate them.

**What are the Neglected Tropical Diseases (NTDs)?** – **(1)** Neglected Tropical Diseases (NTDs) are a group of infections that are **most common in the tropical regions** of Africa, Asia, and the Americas among marginalized communities; **(2)** The basic reason behind existence and spread of NTDs is lack of **access to clean water or safe ways to dispose of human waste**; **(3)** The NTDs are caused by a variety of pathogens such as viruses, bacteria, protozoa, and parasitic worms; **(4)** These diseases generally **receive less funding for research and treatment** than diseases like tuberculosis, HIV-AIDS, and malaria.



**Why is there a need to pay attention to NTDs?** – (1) NTDs affect more than 1.7 billion people globally. The diseases are preventable and treatable; (2) NTDs can cause permanent disabilities, impact mental and emotional health e.g., Lymphatic Filariasis (*haathipaon* or Elephant Feet) is the **second-leading cause of permanent disability in the world**. It attacks the human lymphatic system and can cause painful swelling of limbs (lymphoedema), genitalia (hydrocele) and disfigurement of breast; (3) Some NTDs are **deadly** e.g., Visceral Leishmaniasis or the Kala-Azar or Black Fever.

In case of India, Lymphatic Filariasis is endemic in 328 districts across 21 states / Union territories. Kala-Azar is endemic in 54 districts across four states of India. These diseases affect 650 million and 140 million people in the country, respectively.



List of neglected tropical diseases according to the WHO classification

**What is the WHO Roadmap to eliminate NTDs?** – The World Health Organization (WHO) has launched a new road map to prevent, control, eliminate and eradicate a set of 20 NTDs by 2030. The features include: (1) Reducing the number of people in need of NTD treatment by 90%; (2) Elimination of at least one NTD in more than 100 countries; (3) Complete elimination of dracunculiasis (guinea worm) and yaws; (4) The roadmap calls for three strategic changes in approach to end NTDs: (a) From measuring process to **measuring impact**; (b) From disease-specific planning and programming to **collaborative work across sectors**; (c) From externally driven agendas on programmes that are **country-owned and country-financed**.

**What steps have been taken by the government to eliminate NTDs?** – India has already eliminated several NTDs, including guinea worm, trachoma, and yaws. The Government is making efforts for other NTDs as well: (1) The Government has set a target of 100% elimination of Lymphatic Filariasis and Kala-Azar in line with global targets; (2) The Government also supports **morbidity management and disability prevention** for those affected by lymphoedema and hydrocele; (3) Preventive methods like **Mass Drug Administration (MDA)** rounds are **periodically deployed in endemic areas**

#### PT BOX

##### London Declaration on NTDs

London Declaration on NTDs is a **collaborative disease eradication program**. It was launched on 30 January 2012 in London.

It is based on the World Health Organization 2020 roadmap to **eradicate or prevent transmission of NTDs**.

The declaration aimed to **eliminate or control 10 NTDs by 2020** by providing more than US \$785 million to support research and development. Significant progress has been made since 2012, but not all the goals have been met by 2020.

during which anti-filarial medicines are provided free-of-cost to at-risk communities. **Vector-control measures** like **Indoor Residual Spraying** are under-taken to prevent sandfly breeding; (4) State and Union governments have introduced **wage compensation schemes** for those suffering from Kala-Azar and associated sequela. Sequela is a condition which is the consequence of a previous disease. Sequela of Kala-Azar is known as Post-Kala Azar Dermal Leishmaniasis; (5) The programmes were adapted to COVID-19 led disruptions like using bowls to distribute medicines from a safe distance; (6) MDA coverage and compliance have improved with the use of dynamic dashboards that helped in **better planning and implementation**; (7) A **WHO-supported regional alliance** was established by the Governments of **India, Bangladesh, and Nepal** in 2005 to expedite early diagnosis and treatment of the



most vulnerable populations and improve disease surveillance and control of sandfly populations (Kala-azar).

Despite COVID-19 pandemic and a stretched healthcare system there has been an improvement in case surveillance, case detection and case prevalence rates with respect to Kala-Azar in 2021. There is decrease of 35% in all reported case as compared to 2020. Also, 99% of Kala-Azar endemic blocks have achieved the elimination target.

**What is the way forward?** – (1) Improving access to quality healthcare, water, sanitation, hygiene, addressing climate change and ensuring gender equity, mental health and well-being should be made core of elimination strategy; (2) multi-stakeholder and cross-sectoral partnerships and collaboration is required to play a central role in sustaining the momentum gained.

### #11 Star Rating System and Impact on Environment Regulation

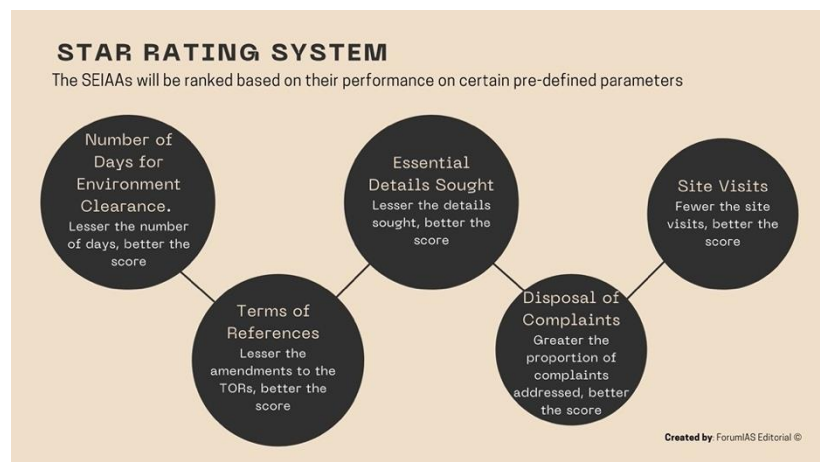
**News:** The Union Ministry of Environment, Forest and Climate Change has brought out a proposal to rank the States based on how quickly they grant environment clearances to the proposed infrastructure projects. Environmental Activists have termed the proposal against the basic principles of environmental regulation.

**How are infrastructure projects approved by the EIA Agencies?** – (1) According to the notification of the Ministry of Environment, Forest and Climate Change (MoEFCC), projects are classified into two **categories: A and B**; (2) Projects above certain threshold (e.g., coal mines with area > 150 hectares, or the thermal power plant with capacity > 500MW) fall in **category A** and **clearance is provided by MoEFCC** based on the recommendations of an **Expert Appraisal Committee (EAC)**; (3) Clearance for **category B projects is provided by the State Environment Impact Assessment Authority (SEIAA)** based on the recommendations of a **State level Expert Appraisal Committee (SEAC)**; (4) SEIAAs are set up under the **Environment Protection Act 1986**. Bulk of the projects requiring environment clearances fall in category B (~90%).

**What is the Star Rating Scheme put forward by the Ministry?** – (1) The Star Rating system proposes to ‘rank’ and ‘incentivise’ States on how ‘quickly’ and ‘efficiently’ they can accord environmental clearance to various projects;

(2) It lists out **7 criteria to rate the SEIAAs** on ‘transparency, efficiency and accountability’; (3) Points will be awarded based on the performance on certain defined parameters like **number of days taken to grant clearances, details sought for granting clearances** etc.;

(4) SEIAA with a score of seven or more would be rated ‘**Five Star**’; (5) According to the Government, the rationale of the rating system is to **prompt improvements** in the approval process in order to **enhance ‘ease of doing business’**, especially in the context of ‘ranking of states based on the time taken in according clearances’.



Marks	Days taken for clearance	% of disposal of TORs	% of Essential details Sought	% of complaints redressed
2	< 80 days	-	-	-
1	< 105 days	> 90%	< 10%	All
0.5	105-120 days	80-90%	= 20%	50%
0	> 120 days	< 80%	> 30%	< 50%

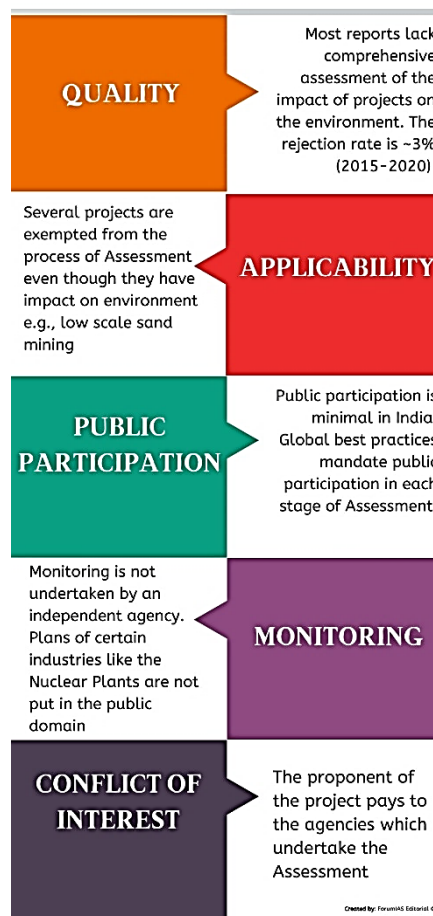
**What are the concerns regarding the Rating System?** – (1) Many Environment activists argue that the provisions of the rating system are **violative of the Environment (Protection) Act**. The system **incentivizes the SEIAAs to provide quick clearance** which might prompt them to compromise the ‘detailed scrutiny’ of projects; (2) It may lead to an **unhealthy competition amongst the States** to clear the projects as early as possible to improve their ratings. This might compromise SEIAAs’ function to assess the impact of industrial, real estate and mining schemes on the environment; (3) It **undermines the role of regulatory oversight in environmental protection**, which is recognised in several Supreme Court verdicts as one of the key instruments to ensure the **right to life**; (4) The Ease of Doing Business (EoDB) rankings are not the sole criterion to attract investments. The **EoDB process is itself under scrutiny**. Hence it is not prudent to compromise the clearance process over the EoDB rankings.

However, the officials of the MoEFCC have clarified that the ranking criteria was not intended to accelerate the speed with which clearances were accorded but to encourage the SEIAA to adhere to **timelines already specified by the provisions of the Act**.

**What are the other recent steps that undermine Environmental Regulation?** – Several steps compromise the process: (1) The time period for providing environmental clearance to a project has been **reduced from 105 days to 75 days**; (2) The Government has **extended the timeline** for thermal power plants to **meet the emission norms by 3 years to 5 years**; (3) **Coastal Regulation Zones** rules have been diluted; (4) Amendments to the Forest Conservation Act has made it **easier to divert the forest land** for development activities; (5) The MoEFCC pointed out that the **average time taken to provide environmental clearances has reduced** by a significant margin in the past two years. But it hasn’t been clarified if this reduction in time has improved the level of scrutiny of projects on critical environmental yardsticks. (6) The draft EIA notification 2020, too dilutes the provision of the EIA 2006 as: (a) notice period for public hearing has been cut from 30 days to 20 days. (b) provisions added for post-facto environmental clearance. (c) Many projects have been added under the B2 category, which are exempted from EIA.

**What steps can be taken to improve the EIA?** – (1) **Independent Agency**: The complete EIA process (from screening to monitoring) should be done by independent agencies. The Government can **establish a National Accreditation Body for agencies carrying out EIA**. A centralized baseline data bank should also be created; (2) **Capacity building**: The Union Government should **take steps to increase trust** in the system and **ensure that all States have competent experts** who can conduct appraisals without fear or prejudice; (3) **Robust and Inclusive public hearing**: The EIA process should **provide key role for local people**, especially tribals, through Panchayats and Urban Local Bodies (ULBs) at every stage. The traditional

### Challenges to the EIA Process



knowledge of locals needs to be incorporated in the assessment process. **(4) Promote Strategic Environmental Assessment (SEA):** The Government can promote the Strategic Environmental Assessment Process which is more comprehensive and extensive compared to EIA. Compared with the EIA, the SEA provides recommendations at a strategic level and allows a better control over interactions or cumulative effects. The SEA process is already being practiced in Nepal. The same can be adopted in India.

The **India State of Forest Report (ISFR) 2021** highlighted concerns such as a decline in forest cover in the Northeast, degradation of natural forests etc. So, the Government must take steps to protect the environment in all possible ways, especially by curbing the diversion of forest land for non-forest use.

## #12 Budgetary Allocation to Disaster Management

**News:** Experts are of the view that the Budget has not allocated adequate amount to disaster relief and has fallen short in addressing gaps to build disaster resilience.

**Why is the allocation provided under disaster resilience is not enough? – (1)** According to the World Meteorological Organization's 'State of the Climate in Asia' report, India lost Rs 65 lakh crore in 2020 alone because of tropical cyclones, floods, and droughts; **(2)** According to a report released by SBI in 2021, nearly 83,000 lives (minus COVID-19 related deaths) have been lost due to natural disasters in India since 2001; **(3)** But the allocation under relief operations for natural calamities has been decreased to Rs 1,511.93 crore in 2022-23 from Rs 1,538.03 crores in 2021-22. This allocation is not sufficient as between 1991 and 2021, **India covered only 8% of the total losses** and there is a **protection gap** (difference between the required and available insurance) of 92% during this period.

**Why is there a need to review the Disaster Funds? – (1)** The **list of items and norms of assistance** from State Disaster Relief Fund and National Disaster Response Fund (NDRF) are **outdated and need to be revised**; **(2)** The compensation provided is **highly inadequate** e.g., Under the 2015-20 guidelines, the compensations for partial and full damage to a kutchcha house are INR 3,200 and INR 95,1000 respectively. However, INR 95,100 is rarely paid as compensation and Rs 3,200 is highly inadequate for restoring even a kutchcha house.

**What steps should be taken by the Government for Disaster Relief? – (1)** The state allocations for SDRF are not enough, and there is a need to increase them; **(2)** There is a need to bring **uniformity of compensation** across the country; **(3) Disaster-Risk Reduction (DRR) measures** should be incorporated in departments like rural housing, especially in vulnerable areas like coastal regions within 5 kms of the sea, building disaster-resilient houses in ecologically sensitive zones; **(4)** Government

### PT BOX

#### SDG 13: Climate Action

Take urgent action to combat climate change and its impacts

- Strengthen resilience and adaptive capacity.
- Integrate climate change measures into national policies, strategies and planning.
- Improve education and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

should **allocate financial resources** to formulate community-level disaster management plans. It should map the blocks and Gram Panchayats which are susceptible to disaster and fund them to operationalize their DRR plan; **(5)** More focus should be on vulnerableCo groups such as women, children, elderly and disabled people; **(6)** Additionally, achieving SDG 13 requires urgent actions to combat climate change. The focus should shift to villages, towns, and other locations in states which are affected by disasters every year. There is a need to speed up **relief distribution and rehabilitation**, and also enhance compensation amounts. To add to this, **disaster-resilient houses** and **social security safety nets** should be built.

## Factly

### Polity

#### #1 Law on reservation of private jobs for locals in Haryana

**News:** The Punjab and Haryana High Court had stayed the law made by Haryana Legislative Assembly reserving 75% of the new jobs in the private sector. However the SC has set aside the interim order of the High Court.

#### About the Law

The **Haryana State Employment of Local Candidates Act of 2020** seeks to provide **75% job reservation** for local people in private-sector jobs. The reservation is ensured on jobs having **salaries less than INR 30,000/month** (revised from INR 50,000/month earlier). The law is applicable to private companies, societies, trusts, and partnership firms etc. located in the State. The Act would not be a permanent legislation but remain in force for 10 years of being enacted. The companies found to be violating the Act are liable to a fine between ₹10,000 and ₹2 Lakh.

It will be applicable to the new job openings only and won't affect the outsiders already working on the affected jobs. An exemption can be claimed by employers in the situation where an adequate number of local candidates with the desired skills, qualifications, and proficiency are not available.

**MP, Jharkhand and Andhra Pradesh** have also made similar laws earlier that reserved 70-75% of the jobs for locals.

#### Issues with the Law

This law has been criticised for being inconsistent with the provisions of the constitution.

Especially, Article 19(1)(g) and Article 16(2). Article 19(1)(g) provides freedom of profession to the citizens, and Article 16(2) prevents State from discrimination on the basis of place of birth and residence.

The provisions will increase cost of business to farmers and is akin to the 'license raj' era.

The plea filed by the Industrial Bodies before the Punjab and Haryana High Court states that the **Act violates Article 14** (Equality before Law) and **Article 15**, which prohibits discrimination on various grounds religion, race, caste, sex or place of birth.

The plea also argued that the reservation was being introduced by way of a '**sons of the soil**' policy, which infringed upon the constitutional rights of both employers and employees to work anywhere in the country.

#### Status of the Law

The Supreme Court has **set aside the interim stay** provided by the High Court. The SC has asked the **HC to expeditiously decide on the writ petition** filed before it by industry bodies, **within 4 weeks**.



**The issue of reserving jobs for local youth** HC

As the Haryana law providing 75% reservation in the private sector to job seekers from the state was granted an interim stay on Thursday, a look at why the development is important

<p><b>WHAT IS THE LAW?</b></p> <p>The Haryana State Employment of Local Candidates Act, 2021, provides for 75% reservation for a 'local candidate' for posts where the salary is below ₹30,000. The Act, which covers private firms, societies, trusts as well as partnership firms, came into force January 15</p>	<p><b>WHO CHALLENGED IT?</b></p> <p>A clutch of petitions was filed by various bodies including Faridabad Industries Association, Rewari Chamber of Commerce and Industries, Gurgaon Industrial Association, and others</p>
<p><b>WHAT DID THE COURT SAY?</b></p> <p>The HC said it stayed the law as it failed to find favour with the state's arguments on treating the legislation prime facie valid in the interest of unemployed youths</p>	
<p><b>WHAT NOW?</b></p> <p>HARYANA'S ADDITIONAL ADVOCATE GENERAL JAGBIR SINGH MALIK SAID ON THURSDAY THAT THE STATE WILL FILE A SPECIAL LEAVE PETITION BEFORE THE SUPREME COURT</p>	



### Arguments given by the Government of Haryana

The law merely makes a geographical classification, which is permitted under the Constitution.

The law was enacted in the compelling situation of increasing unemployment in the state and it will protect the right to life/livelihood of people domiciled in the State.

The law does not discriminate against any person on grounds of place of birth or residence, but provides employment to local candidates on the basis of domicile.

### #2 Proposal by Government of Kerala to amend powers of Lokayukta

**News:** The Government of Kerala has proposed to **amend the Kerala Lokayukta Act**. This move has attracted criticism from the opposition.

#### About the proposal

The proposal will give the government powers to **either accept or reject the verdict of the Lokayukta** after giving an opportunity of being heard. At present under Section 14 of the Act, a public servant has to vacate office if directed by the Lokayukta.

#### State Laws related to Lokayuktas

Lokayuktas are the equivalents of the Lokpal in States. The law gave **states the autonomy to frame their own laws**. So, the Lokayukta's powers vary from state to state on various aspects, such as tenure, and the need for sanction to prosecute officials. A few examples of how the provisions vary from state to state are:

**Nagaland:** It passed the law allowing the Government of Nagaland the power to keep the post of the state Lokayukta vacant for a year.

**Goa:** The Lokayukta does not have powers of prosecution.

**Bihar:** It passed a law that sought to punish people filing false cases before the Lokayukta. The offence would carry a jail term of up to three years. The move was criticised on the ground that it could be misused against whistle-blowers.

**UP:** In 2012, Uttar Pradesh passed a law for increasing the tenure of Lokayukta to 8 years. In 2015, the State brought another amendment removing the High Court Chief Justice from the selection committee.

### #3 Lok Adalats not Courts; settlement decrees not precedents: Supreme Court

**News:** In a recent judgement, the Supreme Court has ruled that Lok Adalats are not Courts and their settlement decrees cannot be cited as a precedent before a court of law.

#### About the Case

The case related to payment of compensation to land owners for acquisition of land by NOIDA Authority in 1984. In 2016, one land owner asked for a higher compensation and the NOIDA Authority agreed and reached settlement through a Lok Adalat. Other land owners too sought higher compensation and cited the Lok Adalat settlement of 2016. The Allahabad High Court agreed that the Lok Adalat had a precedential value and awarded higher compensation to all owners. The Judgment was challenged by the NOIDA Authority.

#### Supreme Court's View

The Supreme Court disagreed with the High Court's view. The SC said that the **Lok Adalats do not employ any judicial scrutiny** and under the Legal Services Act only encourage the parties to settle disputes amicably. Even though the **awards by Lok Adalat are enforceable like a decree, they have no precedential value**.

The settlement decrees of Lok Adalats cannot be cited as a precedent before a court of law to claim similar reliefs by others who were not a party to the compromise before the Lok Adalat.

#### #4 Assam-Arunachal Border Dispute

**News:** The Chief Ministers of Assam and Arunachal Pradesh met to discuss decades-old boundary dispute between the two states.

##### Historical Background of the Boundary Dispute

(a) The dispute dates back to the British era when in 1873, the British announced Inner Line regulation. British demarcated planes and frontier Hills, which were later designated as **North-East Frontier Tracts in 1915**. These Northeast frontier tracts make up today's Arunachal Pradesh.

(b) After independence, the administrative jurisdiction was passed over to Assam, with frontier tracts renamed as **Northeast Frontier Agency (NEFA) in 1954**. Later in 1972, Arunachal Pradesh was declared as a union territory, and gained statehood in 1987.

(c) However, in 1951, based on the recommendation of a Committee headed by the then Assam Chief Minister **3,648 sq. km of the plain area was transferred from Arunachal Pradesh to Assam's** then Darrang and Lakhimpur districts. Arunachal Pradesh refuses to accept this notification, and this has become a bone of contention.

##### Issue about the Demarcation

**Assam** feels that the demarcation as per 1951 notification is Constitutional and legal.

But, **Arunachal Pradesh** holds that the transfer was done without consultation of its people. It was arbitrary, defective and no tribal leader from Arunachal Pradesh was consulted. Also, Arunachal Pradesh had customary rights over these lands and the tribes paid taxes to Ahom rulers.

##### Efforts for Resolution

(a) In 1983-84, out of 800 km, 489 km was demarcated. Further demarcation could not take place, as Arunachal Pradesh did not accept the recommendations.

(b) Assam filed a case in Supreme Court in 1989, highlighting encroachment made by Arunachal Pradesh. The Court constituted a Commission in 2006. The Commission submitted its report in 2014 and called for resolution through consensus and discussions.

The Chief Ministers of the two states aim to resolve the dispute. Assam is working to resolve its border disputes with all its neighbouring states including Meghalaya. However, there is a need for a long-term plan which includes all stakeholders.

##### PT BOX

##### Inner Line Permit

The concept of Inner Line Permit comes from the colonial era. Under the Bengal Eastern Frontier Regulation Act, 1873, the British framed regulations restricting the entry and regulating the stay of outsiders in designated areas. Simply put, an Inner Line Permit is a document that allows an Indian citizen to visit or stay in a stay that is protected under the ILP system. The system is applicable in four North Eastern states of Arunachal Pradesh, Nagaland, Mizoram and Manipur. An ILP is issued by the state government concerned. It can be obtained after applying either online or physically. It states the date of travel and also specifies the particular areas in the sate which the ILP holder can travel to.

#### #5 National Commission for Safai Karamcharis

**News:** The Union Cabinet has approved the extension of the tenure of the National Commission for Safai Karamcharis (NCSK) for three years.

##### About the National Commission for Safai Karamcharis (NCSK)

National Commission for Safai Karamcharis (NCSK) was constituted in 1994 as a **statutory body** under the provisions of the NCSK Act, 1993.

It was initially set up for three years (till 1997). Later the validity of the Act was extended up to 2002 and then up to 2004. The NCSK Act ceased to have effect from 2004.

Since then, the tenure of the NCSK has been extended as a **non-statutory body** from time to time through resolutions. The tenure of the present Commission was up to 31st March 2022. It has now been extended to March 2025.

### Mandate of the National Commission for Safai Karamcharis

(a) Make recommendations to the Government regarding specific programmes for welfare of Safai Karamcharis; (b) Study and evaluate the existing welfare programmes for Safai Karamcharis; (c) Investigate cases of specific grievance of Safai Karamcharis; (d) To study and monitor the working conditions of Safai Karamcharis; (e) Make reports to the Central or State Governments on any matter concerning Safai Karamcharis.

According to the provisions of the **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013**, the NCSK has been assigned the following work: (a) To monitor the implementation of the Act; (b) Tender advice for its effective implementation to the Centre and State Governments, and enquire into complaints regarding contravention/non-implementation of the provisions of the Act.

The major beneficiaries of the extension would be the Safai Karamcharis and identified manual scavengers in the country. The number of Manual Scavengers identified as of 2021 is around 58,000.

### #6 India ranked 46<sup>th</sup> in EIUs Democracy Index

**News:** The Economist Intelligence Unit has released the Democracy Index, 2021.

#### About the Democracy Index

The Democracy Index was started in 2006. It provides a **snapshot of the state of democracy** worldwide in 165 independent states and two territories.

The index is based on **60 indicators grouped into five categories**: (a) Electoral process and pluralism; (b) Civil liberties; (c) Functioning of government; (d) Political participation; (e) Political culture.

Each country is provided with a score of **0 to 10** based on the above indicators.

Based on their scores, each country is then classified into any one of the four types of regime: (a) Full democracy; (b) Flawed democracy; (c) Hybrid regime; (d) Authoritarian regime.

#### Key Findings of the Democracy Index

**Norway has topped the index followed by New Zealand.** It has been classified as a full democracy.

**India** is ranked 46th on the 2021 index with an overall **score of 6.91**. It has been classified as a **flawed democracy**. In 2020, India was ranked 53rd in the index.

Less than half (45.7%) of the world's population now live in a democracy of some sort, a significant decline from 2020 (49.4%). Only 6.4% reside in a "full democracy".

More than a third of the world's population (37.1%) live under authoritarian rule, with a large share being in China.

The Economist Intelligence Unit (EIU) was created in 1946. It is the **research and analysis division of The Economist Group** and the world leader in global business intelligence.

## Policy

### #1 Report on 'Police – Training, Modernization and Reforms' by Parliamentary Panel

**News:** The Parliamentary Panel on Home Affairs has submitted a report in Rajya Sabha titled 'Police – Training, Modernisation and Reforms'.

**Key Findings of the Report – (a) The Police Complaint Authorities (PCA)** constituted at the State and District levels are headed by the **senior police officers**. However, Odisha (PCA headed by Lokpal) and

Punjab (PCA headed by a retired chief secretary-level officer) are exceptions; **(b)** There is a 21% shortfall in the actual strength of State Police forces; **(c)** As many as 648 police stations in the country do not have telephones. The largest shortfall was found in the North-East States; **(d)** Around 257 police stations did not have vehicles and 143 did not have wireless sets; **(e)** Only 17 states have either enacted the Model Police Act, 2006 or amended their existing Act; **(f)** Women account for only 10.3% of police force; **(g)** The report has expressed concerns on the use of drones to commit crimes and transport drugs and arms, particularly in Punjab and J&K which share an international border with Pakistan.

**Key Recommendations of the Report** – **(a)** The report has recommended that a Police Complaint Authority **should be independent of the state police** and should comprise retired HC judges, ex-bureaucrats and jurists as members, besides having representation of women; **(b)** The **Bureau of Police Research & Development (BPR&D)** can **assess the effectiveness of the independent police complaint authority** in the States by checking whether the complaints against police personnel have gone up or reduced, types of complaints received and action taken; It has recommended the Centre to advise States to: **(c)** **Conduct recruitment drives in a mission mode**; **(d)** **Immediately equip their police stations with adequate vehicles and communication devices**, else it may lead to dis-incentivization of modernisation grants from the centre; **(e)** Create a road map for **ensuring 33% representation of women in police**; **(f)** It has recommended the Centre to **create a central pool of anti-drone technology and give states/UTs access to it**; **(g)** Offline and online modules to help the personnel de-stress through yoga, exercises and counselling; **(h)** **Clusters of police stations in a state should be linked to a particular university or college**, as it is important for the police to **understand the social, cultural, legal, political, economic and technological changes happening in the society**; **(i)** **Separation of investigation from law and order** to maintain accountability and increase police autonomy in probing crimes; **(j)** Virtual trials should be held, particularly for those involving high-risk groups via video conferencing.

## #2 Policy for Accreditation of Journalists

**News:** The Government has issued a new policy on accreditation of journalists.

### About the Policy

The policy has introduced a new section listing down **10 reasons that can result in the suspension of the accreditation** e.g., if a journalist acts in manner which is prejudicial to the sovereignty and integrity of India, the security of the state, friendly relations with foreign states, public order, decency or morality or in relation to contempt of court, defamation or incitement of an offence. Other grounds include being charged with a 'serious cognizable offence', violation of any of the terms and conditions of the accreditation, furnishing false/fraudulent, forged information/ documents etc.

### Eligibility Criteria for Accreditation

**(a)** A journalist should have a minimum five years professional experience as a full-time working journalist or a minimum of 15 years as a freelancer to become eligible; **(b)** Veteran journalists, with over 30 years of experience and who are older than 65 years of age, too are eligible; **(c)** A newspaper or a periodical need to have a minimum daily circulation of 10,000, and news agencies must have at least 100 subscribers; **(d)** Rules are applicable on foreign news organizations and foreign journalists also. The policy has introduced a provision that journalists working with digital news platforms are also eligible if the website has a minimum of 10 lakh unique visitors per month.

No accreditation will be granted to freelance journalists working for foreign news media organisations. Applications for accreditation are checked by a **Central Press Accreditation Committee** headed by the **DG, PIB**. A mandatory security check is conducted by the Ministry of Home Affairs.



### Benefits of Accreditation

(a) Accreditation recognizes them as a **'professional working journalist'**; (b) Only accredited journalists are allowed to report from the premises where VVIPs or dignitaries such as the President, the Vice President or the Prime Minister are present; (c) It allows the journalist to **protect the identity of her sources**; (d) The accreditation card is valid for entry into buildings under MHA security zone.

### Concerns regarding the Rules

(a) Vague and broad terms can be misused to threaten journalists e.g., 'defamation' or 'acting in a manner prejudicial to the security of the State' are subjective terms and can be misused; (b) There is a lack of clarity on who will define the terms mentioned and decide whether the journalist's conduct violates any of the conditions.

### #3 Report of Parliamentary Standing Committee on MGNREGA

**News:** The Parliamentary Standing Committee on Rural Development has submitted its evaluation report on Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).

### Recommendations of the Report

(a) The committee has recommended an **increase in guaranteed days of work from 100 to 150**; (b) The budgetary allocation of the scheme should be done in a more 'pragmatic manner' so that there is no dearth of funds in mid-year and flow of funds for payment of wages and material share is maintained seamlessly; (c) The committee **highlighted the inordinate delay in the payment of wages** to the beneficiaries. Hence, it has asked the Department of Rural Development to take all possible measures to clear the wage liabilities as soon as possible; (d) The committee has recommended **increasing the wage rates** under MGNREGA by linking it with an index commensurate with inflation.

### #4 New India Literacy Programme

**News:** The Government has approved a new scheme 'New India Literacy Programme' for the period FYs 2022-2027 to cover all the aspects of Adult Education to align with National Education Policy 2020.

### Status of Adult illiteracy in India

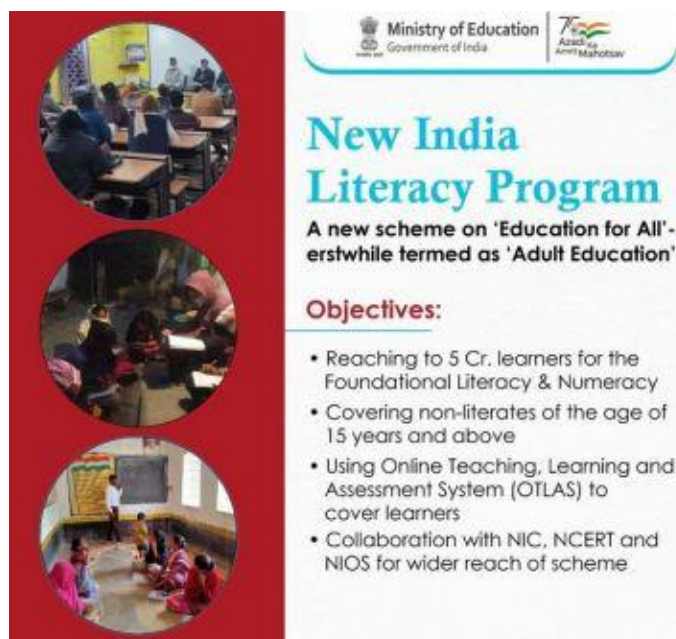
As per Census 2011, the absolute number of non-literates in the country, in 15 years and above age group is 25.76 crore. About 7.64 crore persons have been certified as literates under the **Saakshar Bharat programme**. Hence, it is estimated that currently, around 18.12 crore adults are still non-literate in India.

### About the New India Literacy Programme (NILP)

The **Ministry of Education** in convergence with various Ministries and Departments will implement the scheme.

The scheme will be implemented through volunteerism through online mode.

It is a **Centrally Sponsored Scheme**.



The poster for the New India Literacy Program (NILP) features a red background with three circular images showing people in various settings: a classroom, a group of people sitting on the floor, and a person writing on a board. The text on the poster includes the Ministry of Education logo, the title 'New India Literacy Program', a subtitle 'A new scheme on 'Education for All' - erstwhile termed as 'Adult Education'', and a list of objectives.

**Objectives:**

- Reaching to 5 Cr. learners for the Foundational Literacy & Numeracy
- Covering non-literates of the age of 15 years and above
- Using Online Teaching, Learning and Assessment System (OTLAS) to cover learners
- Collaboration with NIC, NCERT and NIOS for wider reach of scheme

### Objective: Imparting Skills

The objective of the scheme is to **impart not only foundational literacy and numeracy but also to cover other components** which are necessary for a citizen of the 21st century such as

- **Critical life skills** (financial literacy, digital literacy, commercial skills, health care and awareness, child care and education, and family welfare)
- **Vocational skills** (with a view towards obtaining local employment);
- **Basic education** (including preparatory, middle, and secondary stage equivalency) and
- **Continuing education** (including engaging holistic adult education courses in arts, sciences, etc and recreation, as well as other topics of interest or use to local learners).

### Targets

The scheme will cover **non-literates of the age of 15 years and above** in all states/UTs.

The target for Foundational Literacy and Numeracy for FYs 2022-27 is 5 crore learners at **1 crore learners per year** by using “**Online Teaching, Learning and Assessment System (OTLAS)**.”

The focus will be on all aspirational districts, districts with literacy rates less than the National/State average, etc.

### #5 Scheme for Economic Empowerment of DNTs (SEED)

**News:** The Minister of Social Justice and Empowerment launched the Scheme for Economic Empowerment of DNTs (SEED) for the welfare of **De-notified, Nomadic and Semi Nomadic Communities**.

#### Need for SEED Scheme

The DNTs, NTs, SNTs are one of the most deprived and economically weaker communities in India. The policies of the colonial government affected lives and livelihood adversely with the enactment of the **Criminal Tribes Act, 1871 during British rule** wherein they were branded as criminals. This has led to the forcible alienation from their traditional occupations and habitations. They remained hunter-gatherers and pastoral/peripatetic.

After the Independence, they have not benefitted much from the planned development of over seven decades. They were deprived of state support like the SCs/STs.

#### Major Government Initiatives to mainstream DNTs, NTs, SNTs

Various efforts were undertaken for bringing these communities into the mainstream. Accordingly, the first commission was set up in October 2003. The **Renke Commission** was set up in 2008.

In 2015, **National Commission** was constituted under the chairmanship of **Bhiku Ramji Idate**. This commission was tasked to **identify and proper listing** of these communities in different states, to evaluate the progress of development of these communities in the states so that a systematic approach can be developed for the development of these communities.

Based on the recommendation of this commission, the Government has set up the **Development and Welfare Board for DNTs, SNTs & NTs (DWBDNCs)** in 2019.

The Government also **decided to create an umbrella scheme** for empowerment of these communities and accordingly, the Scheme for Economic Empowerment of DNTs, SNTs & NTs (**SEED**) has been formulated and launched.

#### About the SEED Scheme

The Aim is to economically empower De-notified, Nomadic and Semi Nomadic Communities.

The scheme will be for a period of 5 years starting Financial Year 2021-22 to 2025-26. The scheme has been formulated for families having income from all sources of Rs.2.50 lakh or less per annum and not availing any such benefits from similar Scheme of Centre Government or the State Government.

### Components of the Scheme

The scheme includes measures like **coaching for competitive examinations for children, health insurance coverage, financial assistance for construction of houses.**

### #6 Federated Digital Identities

**News:** The Ministry of Electronics and Information Technology (MeitY) has proposed to establish 'Federated Digital Identities'.

#### About Federated Digital Identities

**It is the proposed one unique ID** under which a citizen's multiple digital IDs like the PAN, Aadhaar, driving licence and passport numbers etc. can be interlinked, stored and accessed for digital transactions such as authentication and eKYC services.

It aims to optimize the number of digital identities that a citizen needs to have.

This proposal is part of the Electronics and IT Ministry's **India Enterprise Architecture 2.0 (IndEA 2.0).**

#### Rationale behind Federated Digital Identities

At present having multiple IDs increases the difficulties of the users. Hence, a unique digital identity is being proposed to ease the user experience and remove the need of creating multiple identities and sharing profile/user information repeatedly.

Some expected benefits are: **(a)** It will empower the citizen by putting him/her in control of these identities and providing him/her the option of choosing which one to use for what purpose; **(b)** It will also do away with the need for repeated verification. For example, when a beneficiary is registered for the PDS scheme, that record will be linked to Aadhaar by the PDS system storing the Aadhaar number (or a tokenized version of it).

#### About India Enterprise Architecture (IndEA)

India Enterprise Architecture (IndEA) was designed in 2017 with a view **to enable alignment of the IT developments with the business vision of Government organizations.**

It provides a set of architecture reference models aimed at a holistic and integrated approach to e-Governance.

IndEA 2.0 is a framework that enables Governments and private sector enterprises to design IT architectures that can span beyond their organizational boundaries and enable the delivery of holistic and integrated services to the customers.

## Economy

### #1 National Ropeway Development Programme - Parvatmala

**News:** The Government has announced in the Budget that the National Ropeways Development Programme – 'Parvatmala' will be initiated through Public-Private Partnership (PPP) mode.

#### About the National Ropeways Development Programme

**The** Ministry of Road Transport and Highways (MORTH) will be the nodal ministry.

The aim of the programme is to **develop ropeways in hilly areas** of the country in a Public-Private Partnership (PPP) mode.

**Around 8 ropeway projects** for a length of 60 km would be awarded in 2022-23.

**The programme will also cover congested urban areas**, where conventional mass transit systems are not feasible.

The programme is being presently started in regions like **Uttarakhand, Himachal Pradesh, Manipur, Jammu & Kashmir** and the other **North-Eastern states.**

### Benefits of ropeways

- (a) **Economical mode of transportation:** Ropeways have lower land acquisition costs which more than compensates for higher cost of construction per km than roadways.
- (b) **Faster mode of transportation:** Owing to the aerial mode of transportation, ropeways have an advantage over roadway projects where ropeways can be built in a straight line, over a hilly terrain.
- (c) **Environmentally friendly:** Due to low dust emissions. Material containers can be designed to rule out any soiling of the environment.
- (d) **Last-mile connectivity:** Ropeway projects adopting 3S (a kind of cable car system) or equivalent technologies can transport 6000-8000 passengers per hour.
- (e) **Ideal for difficult/challenging/sensitive terrain:** This mode of transportation will enable mobility to people living in difficult areas and help them become part of the mainstream.
- (f) **Ability to handle large slopes:** Ropeways and cableways (cable cranes) can handle large slopes and large differences in elevation. Where a road or railroad needs switchbacks or tunnels, a ropeway travels straight up and down the fall line.

## #2 Vande Bharat Trains

**News:** The Government has announced in the Union Budget that 400 Vande Bharat trains will be manufactured in the next three years.

### About the Vande Bharat Trains

- (a) Vande Bharat is a **semi-high speed train**. Currently, two Vande Bharat trains are in operation, **Delhi-Varanasi** and **Delhi-Katra**; (b) They are **self-propelled trains that do not require an engine**. This feature is called a **distributed traction power system**, which is increasingly becoming the norm the world over for passenger operations. Distributed power gives the train higher acceleration and deceleration compared to loco-hauled trains, which take a much longer time to reach top speed or to gradually come to a halt.

### Key Features of Vande Bharat Trains

The trains have fully sealed gangways for a **dust-free environment**, modular **bio-vacuum toilets**, **automatic entry/exit doors** with sliding footsteps, diffused **LED lighting**, and **sensor-based interconnecting doors** in each coach.

### New features in 400 Vande Bharat Trains

- (a) These trains will have improvements in terms of better seating, an **anti-bacterial system in AC**, less noise, the **ability to reach 160 km/h in 140 seconds**, and will be less costly; (b) Railways is also looking at making several of these trainsets with **aluminium instead of steel**. An aluminium body will make **each train set around 40-80 tonnes lighter** than a current Vande Bharat. This will mean **lower consumption of energy as well as better speed potential**.

### Benefits of Vande Bharat Trains

- (a) Reduced travel time; (b) Higher Energy Efficiency; (c) Reduce Turnaround Time; (d) Faster Acceleration and Deceleration among others.

## #3 National Strategy and Roadmap for Development of Rural Tourism

**News:** The Ministry of Tourism has formulated a National Strategy and Roadmap for Development of Rural Tourism in India.

### About Rural Tourism

Any form of tourism that **showcases the rural life, art, culture, and heritage at rural locations**, thereby benefiting the local community economically and socially. It enables interaction between the tourists and the locals for a more enriching tourism experience.



### Strengths of Rural Tourism in India:

(a) Indian villages have unparalleled culture, craft, music, dance and heritage to offer to the visitors; (b) Expansion of road infrastructure has made most of the rural areas accessible; (c) Well-developed ecosystem of home stays, farm houses etc., that provide stay facilities along with the opportunity to experience the nature from close quarters; (d) Pleasant climatic conditions and biodiversity among others.

### Shortcomings of rural tourism in India:

(a) Lack of prioritization for rural tourism at the State and National level; (b) Poor profiling of rural product offerings; (c) Poor tourism supporting infrastructure, like ICT, in rural areas; (d) Lack of tourism awareness and skills in rural areas; (e) Poor resource allocation.

### About the National Strategy and Roadmap for Development of Rural Tourism

Its aim is to **prioritize rural tourism at national level**.

It further aims at convergence of various schemes addressing issues such as poverty, empowerment of women and strengthening the economic status of the rural people.

**Key Pillars:** The strategy document focuses on the following key pillars:

(a) Model policies and best practices for rural tourism; (b) Digital technologies and platforms for rural tourism; (c) Developing clusters for rural tourism; (d) Marketing support for rural tourism; (e) Capacity building of stakeholders; (f) Governance and institutional framework.

### #4 Udyam Registration for the MSMEs

**News:** The Ministry of MSME has released data related to ownership of MSME units registered under Udyam

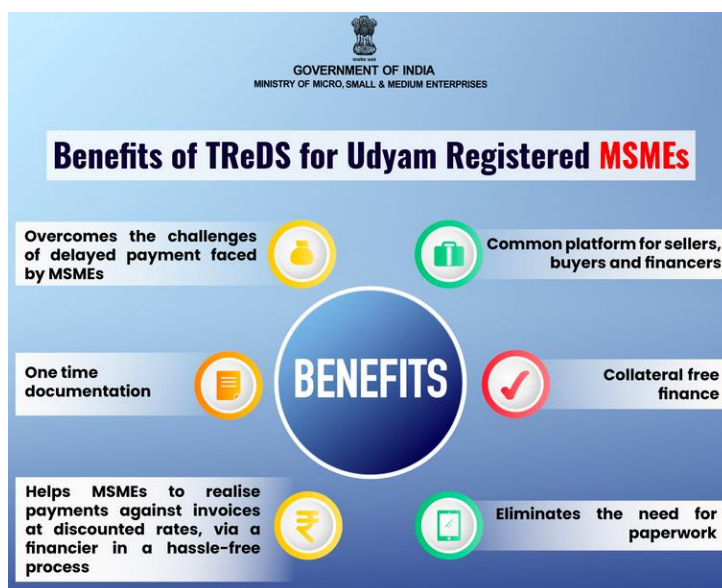
#### About Udyam Registration

It was launched in July 2020. It is a registration portal for MSMEs.

This portal is more streamlined than the previous Udyog Aadhaar Memorandum. The portal is also fully integrated with Income Tax and GST IN (Goods and Services Tax Identification Number) systems.

Upon registration on this portal, an enterprise will be assigned a permanent identification number to be known as 'Udyam Registration Number'.

The registration on this portal is necessary for any MSME (regardless of the social category of ownership) that wants to **avail concessions or benefits from the Central and State governments** and want to get covered under schemes of the governments, including priority sector lending of banks.



#### Details of enterprises under Udyam

(a) The Ministry of MSME recently released the data regarding the number of Scheduled Caste (SC) owned enterprises covered under this system; (b) **Scheduled Caste entrepreneurs own 6%** of the MSMEs; (c) **Maharashtra tops India's list** in the number of MSMEs owned by entrepreneurs (96,805)

units) from the Scheduled Castes. Tamil Nadu (42,997 units) and Rajasthan (38,517 units) occupy the second and third slots; **(d)** Among the number of SC-owned MSME enterprises, **micro-enterprises accounted for the highest ownership** followed by small and medium.

## #5 India Tech Start-up Ecosystem

**News:** NASSCOM in association with Consultancy Firm Zinnov has released a report titled 'Indian Tech Start-up Ecosystem: Year of The Titans'.

### Key Findings of the Indian Tech Start-up Ecosystem report

**(a)** More than **2,250 start-ups** were added in the year 2021. This is 600 more than what was added in 2020; **(b)** Start-ups raised about US\$24.1 billion in 2021, a two-fold increase over pre-COVID levels; **(c)** Currently, India has **about 70 active start-ups** which have crossed the **valuation of US\$1 billion** or more (or **unicorns**); **(d)** Globally, India remained at the number three spot, **behind the US and China**, which had start-ups that had a valuation of \$1 billion or more. The U.S. remains the leading source of Foreign Direct Investment (FDI) in start-ups; **(e)** About 50% of deals involving start-ups had at least one investor domiciled in India; **(f)** Industries that saw **the most net new job creation were BFSI** (Banking, Financial Services and Insurance), **ed-tech, retail and retail tech, food-tech, supply chain management, and logistics** and mobility.

### 2021: RECORD BREAKING YEAR FOR INDIAN STARTUPS

	2020	2021	
Number of startups	22,800 – 23,800	25,000 – 26,000	2250+ added, 600+ more than what was added in 2020
Deep-Tech	2700+	3000+	300+ new Deep-Tech start-ups, 11% higher than 2020
Total Funding	\$8.2 billion	\$24.1 billion	2X from pre-COVID high, biggest year ever
Total Unicorns	39	70	Highest additions in a single year, with a cumulative valuation of \$ 90Bn# (42 added this year)
IPOs	0	11	Most number of tech IPOs in a year, ~ \$47.8n market cap (9 set-up before 2011)
M&A	84	185	80% led by Global or Indian start-ups
Cumulative Valuation	\$150-170 billion	\$320-330 billion	2X growth in cumulative valuation of startups
Job creation	6 lakh direct	6.6 lakh direct	Startups enabled 34 lakh indirect jobs in 2021, 70% of them enabled by e-commerce, mobility and food-tech

Source: NASSCOM Report



### Recommendations by the Indian Tech Start-up Ecosystem Report

The report has suggested a few priority areas that can further fuel the growth of the start-up ecosystem. These areas are: **(a)** Encouraging tech start-ups to innovate for India; **(b)** Retaining the best digital talent in the country; **(c)** Procurement reforms to enable start-ups scale; **(d)** Creating avenues for attracting foreign investments into Indian start-ups; **(e)** Growing global thought leadership for “world-class from India”.

## #6 Global Economic Prospect Report

**News:** The World Bank has published the Global Economic Prospect Report. The report highlights that the results of the COVID-19 Pandemic are far from over.

### Findings of the Report

The report forecasts that that **global economic growth will slow** to 4.1% in 2022, from 5.5% in 2021. This is because; **(a)** the Governments are losing the capacity to provide further fiscal support due to rising debt; **(b)** Supply chain bottlenecks that impede the flow of goods and services, and the resulting inflation will add to existing economic miseries. Several economies are at **high risk of debt distress** and **energy prices** are expected to **surge** further.

Economies like Argentina (10%) and India (8.3%) will have high growth rate but that is due to base year effect as most economies contracted during 2020-21.

Usually, emerging market and developing economies (EMDEs), helped by their lower base, grow faster than advanced economies. But, they will perform poorer than advanced economies in 2023. This is because EMDEs have limited policy space to provide additional support.

### Reasons for uneven growth

One of the main reasons for the uneven recovery is the recent growth of **hyper-nationalism**. It is typically **disastrous for an economy in the long run**. Countries under its influence try to become self-sufficient by **raising barriers to trade, capital and ideas from elsewhere**.

### Possible implications of hyper-nationalism

This **may stagnate growth** (as happened in Argentina in the early decades of the 20th century) and **prevent the development of the society**.

In this globalized world, new ideas and research is emerging everywhere. Countries should try to absorb the **best from everywhere**, and uphold the vision of a **common human identity**.

## #7 Society for Worldwide Interbank Financial Telecommunications (SWIFT)

**News:** The US and NATO has threatened to cut-off Russia from the international SWIFT payment network if Russia attempts to invade Ukraine.

### About SWIFT

(a) SWIFT is a **messaging network used by banks and financial institutions** globally for **quick and faultless exchange of information pertaining to financial transactions**; (b) The network connects more than 11,000 banking and securities organizations in over 200 countries and territories; (c) It is **headquartered in Belgium**;

Each participant on the platform is assigned a **unique 8-digit SWIFT code** or a **Bank Identification Code (BIC)** which is essential for any inter-bank transfer;

SWIFT is only a **platform that sends messages and does not hold any securities or money**. It enables **standardized and reliable communication** to facilitate the transaction.

### Governance of SWIFT

(a) SWIFT is owned and controlled by its shareholders (financial institutions) representing approximately 3,500 firms from across the world; (b) SWIFT is overseen by the G-10 Central Banks which includes **Belgium, Canada, France, Germany, Italy, Japan, The Netherlands, United Kingdom, United States, Switzerland, and Sweden** as well as the **European Central Bank (ECB)**, with its lead overseer being the National Bank of Belgium; (c) In 2012, this framework was reviewed, and the **SWIFT Oversight Forum** was established in which the G-10 central banks are joined by the Central Banks of **India, Australia, Russia, South Korea, Saudi Arabia, Singapore, South Africa, the Republic of Turkey, and the People's Republic of China**.

### Impact of exclusion from SWIFT

If a country is excluded from SWIFT, its **foreign funding would take a hit**, making it **entirely reliant on domestic investors**. This is particularly troublesome when institutional investors are constantly seeking new markets in newer territories. Iranian banks were ousted from the system in 2018 despite resistance from several countries in Europe.

### Security of SWIFT

Using SWIFT **as a tool of economic sanctions** has resulted in the network itself becoming a target for cyberterrorist attacks. In 2016, Lazarus Group from North Korea infiltrated the network of Bangladesh Bank using malware, took control of Swift terminals within the bank and initiated transfers to multiple locations in the Philippines.

### Alternatives to SWIFT

China launched **China's Cross-Border International Payment Systems (CIPS)** in 2019.

In 2014, during the time when Russia annexed Crimea and was threatened of SWIFT sanctions, it launched a messaging system, the **System for Transfer of Financial Messages (SPFS)**.

Both the countries are in advanced stages of linking the two systems and **various countries like Turkey and India are willing to join the system.**

## International Relations

### #1 India-Central Asia Summit

**News:** The Prime Minister of India hosted the India-Central Asia Summit virtually.

#### About the India-Central Asia Summit

It is the first of its kind engagement between India and the Central Asian countries at the level of leaders. The summit was attended by the Presidents of **Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan**. The **objectives of the summit were:** (a) To establish that cooperation between India and Central Asia is essential for regional security and prosperity; (b) To give an effective structure to cooperation between India and Central Asian Countries and institutionalize the mechanism; (c) To create an ambitious roadmap for cooperation.

#### Key highlights of the India-Central Asia Summit

**Delhi Declaration:** The leaders issued the Delhi Declaration at the end of the summit.

**Institutionalise the Summit Mechanism:** The countries agreed to institutionalise the Summit mechanism by deciding to hold it every 2 years. An **India-Central Asia Secretariat in New Delhi** would also be set up to support the new mechanism.

**Annual Meetings:** There will be annual meetings of the Foreign, Trade and Cultural Ministers and Secretaries of Security (National Security Advisors).

**Connectivity, Defence and Cultural Relations:** The leaders discussed cooperation in areas of connectivity, defence and cultural contacts. The leaders agreed on regular engagement on areas related to energy, connectivity, infrastructure, counter-terrorism and issues in Afghanistan etc.

**Trade:** The possibility of increasing trade with the Central Asia region beyond the currently low levels of about \$2 billion was also discussed. The President of Turkmenistan stressed on the importance of the TAPI gas pipeline project that runs from Turkmenistan through Afghanistan and Pakistan to India.

**The situation in Afghanistan:** The leaders reaffirmed the importance of **UNSC Resolution 2593** passed in 2021 which unequivocally demanded that Afghan territory not be used for terrorist acts and called for concerted action against all terrorist groups, including those sanctioned by the United Nations Security Council (UNSC).

### #2 India and UAE signed Comprehensive Economic Partnership Agreement

**News:** India and UAE signed a Joint Vision Statement on '**Advancing Comprehensive Strategic Partnership**' and **Comprehensive Economic Partnership Agreement (CEPA)** during a virtual summit.

#### About the Trade Agreement

The agreement is expected to provide significant benefits to Indian and UAE businesses, **enhance market access and reduce tariffs**. The shared objective of the agreement is to promote new trade, investment and innovation in diverse sectors, including economy, energy, climate action, emerging technologies, skills and education, food security, healthcare, defense and security. The CEPA is expected to **increase the bilateral trade between the two countries from the present level of USD 60 Bn to USD 100 Bn in the next five years**. The agreements are important from the point of view of employment as it is estimated that about 10 Lakh jobs shall be generated across multiple labour-intensive sectors. It shall help Indian exporters get access to West Asian countries and Africa through



UAE. This agreement shall also prove helpful for the Indian pharmaceutical companies in getting regulatory approval, registration and market authorization for their medicines in countries like UK and USA.

This trade deal comes with **strict rules of origin conditions**. To avoid the dumping of products of a third country in India, **40% of the value addition** on the products exported to India shall be done in UAE.

The two leaders, Prime Minister Modi and the Crown Prince of UAE also released a **Joint Commemorative Stamp** on the occasion of the 75<sup>th</sup> anniversary of India's independence and the 50<sup>th</sup> year of UAE's foundation.

Several Memoranda of Understanding [MoUs] were also signed during this summit. These were:

- MoU on **'Food Security Corridor Initiative**
- MoU between India's Gift City and Abu Dhabi Global Market **on cooperation in financial projects and services**
- MoU on **Climate Action**
- MoU on **Education**

### India-UAE relations

UAE and India are important trade partners. **UAE is India's third largest trade partner** surpassing China and the US. India ranks as UAE's number one trading partner for non-oil exports. The two countries are **jointly committed to fighting extremism and terrorism**. Both UAE and India have joint maritime exercises like **Desert Eagle** to maintain peace and security in the region. UAE has the highest number of Indian Diaspora in the world (about 35 Lakhs). Both the countries have also collaborated in space with **ISRO launching UAE's first nano-satellite, Nayif-1**.

### #3 America COMPETES Act, 2022

**News:** The United State House of Representative passed the America COMPETES Act 2022.

#### What is the COMPETES Act, 2022?

The main aim of the America Creating Opportunities for Manufacturing, Pre-Eminence in Technology, and Economic Strength (COMPETES) Act, 2022 are: **(a)** To open up new vistas for talented individuals from across the world with a new start-up visa; **(b)** To make the supply chains stronger and reinvigorate the innovation engine of the country's economy to outcompete China and the rest of the world for decades to come.

#### Key provisions of the COMPETES Act, 2022

**(1)** It allocates grants and loans to encourage semiconductor production in the US and to improve supply chain resilience and manufacturing; **(2)** It proposes funding to address social and economic inequality and immigration e.g., it offers **an exemption for STEM** (Science, Technology, Engineering or Mathematics) **PhDs from the green card limit**; **(3)** It has allocated USD 600 million a year to build manufacturing facilities to make the United States less dependent on solar components manufactured in China; **(4)** It proposes a new category of visa called the "W" classification. This visa will be for non-immigrant entrepreneurs with an ownership interest in a start-up entity, essential employees of a start-up entity and their spouses and children.

#### PT BOX

##### Rules of Origin

Rule of Origin are the criteria needed to determine **the national source of a product**. Their importance is derived from the fact that duties and restrictions in several cases depend upon the source of imports. Rules of origin are used to implement measures and instruments of commercial policy such as **anti-dumping duties and safeguard measures**; to determine whether imported products shall receive **most-favored-nation (MFN) treatment or preferential treatment**; for the purpose of trade statistics; for the application of labelling and marking requirements; and for government procurement.

### Significance of the COMPETES Act for India

This Act would create more opportunities in the US for Indian talent and skilled workers. Usually, Indians and Indian companies corner the biggest share of H-1B work permits issued every year. With this new category, Indian professionals will likely have a better shot at opportunities.

### #4 Digital Services Act

**News:** The European Parliament has passed the **Digital Services Act (DSA)**, which is aimed towards protecting the privacy of users.

#### About the GDPR

The EU already had the **General Data Protection Regulation (GDPR)**, which offers granular privacy protection to everyone (not limited to the EU citizens). GDPR classified data about race, ethnicity, political opinions, religious beliefs, etc. An online platform cannot use such data for targeted advertisement. Dark patterns are prohibited. These refer to links that include users to affiliate websites or advertisements.

#### About the Digital Services Act

It lays down the **dos and don'ts** about the removal of harmful, illegal content, facilitating sales of illegal products, targeted advertising, and the way interfaces are designed. It also makes it mandatory for large **online platforms to do the risk assessment** annually or semi-annually about the dissemination of illegal content, the malfunctioning of the given service, and any "actual and foreseeable negative effects on the protection of public health".

New requirements have been **added to tackle deep fakes**. The act prohibits platforms that distort recipients' ability to make free and informed decisions. It is against alleged practices which induce users to purchase goods that they do not want or reveal any personal information.

#### Conditions specified in the DSA act to protect users

(a) Intermediaries should not make websites that make certain consent options more prominent; (b) Use of targeting techniques that reveal the personal data of minors is prohibited; (c) Deep fakes should be clearly labelled; (d) Platforms must provide information as how the data will be monetized to recipients so that they can make informed consent; (e) Platforms are prohibited from disabling users access to functionalities if they refuse to give consent.

### #5 Genocide Convention

**News:** Gambia and Myanmar are fighting a case in the International Court of Justice regarding genocide in Myanmar. Recently, Gambia has urged the ICJ to reject Myanmar's challenge to the case.

#### About the Genocide Convention

The word Genocide is credited to Raphael Lemkin who also campaigned for its international treaty.

The UN **General assembly resolution 96(I)** against genocide was **co-sponsored by Cuba and India**. This resulted in a **convention against genocide in 1948 which came into effect in 1951** with more than 150 states party to the convention.

Its provisions include: (a) **Article I:** Prevent and punish genocide; (b) **Article V:** Enact legislation to give effect to the convention, effective penalties for those guilty of the crime; (c) **Article VI:** Try those charged with genocide in a competent tribunal.

#### Status of the Genocide Convention in India

India **has not enacted any legislation** in accordance with Article VI of the Genocide Convention. Nor has genocide been criminalized under any domestic law.

The provisions of the **Indian Penal Code** relating to rioting, unlawful assembly and 'promoting enmity between different groups' **do not incorporate the basic elements** of the crime of genocide.

## #6 Diplomatic Boycott of Winter Olympics 2022

**News:** India joins a long list of countries that did not send government delegations to Beijing, China for the Winter Olympics.

### About the Boycott

The United States announced **diplomatic boycott** of the event in December 2021. Soon other countries like the **United Kingdom, Australia, New Zealand, Canada, Japan, New Zealand and the Netherlands** followed suit. The Winter games became a point of controversy due to concerns over the **safety of one of China's top players, the privacy of the visiting athletes and now the choice of the torch bearer**. China chose the Commander of PLA troops who was involved in the Galwan Valley clashes with India as the torch bearer of the opening ceremony.

This deliberate choice made India announce a diplomatic boycott the Winter Games of 2022.

A diplomatic boycott means that the countries will **not send an official government delegation** to Beijing during the Games. Top diplomats attending the Olympics are labeled as 'VIP Visitors'. Many nations have boycotted the games because of the **encampment of Uighur Muslims in Xinjiang and the actions of China in the South China Sea**.

However, these diplomatic boycotts have no effect on the sports part of the event. Athletes from all countries, including India continued to take part in the Winter Olympics in Beijing unhindered.

## Environment

### #1 EIA Report: 'Connecting the Dots: Plastic Pollution and the Planetary Emergency'

**News:** An UK based NGO, Environmental Investigation Agency (EIA), has released the report titled 'Connecting the Dots: Plastic pollution and the planetary emergency'.

### Key Findings of the Report

(a) The world's plastic pollution threat constitutes a '**planetary emergency**' that's equal to climate change and biodiversity loss; (b) The report has revealed that an estimated **250 million tonnes of plastic will make it to the oceans by 2025** and this number could increase to 700 million tonnes by 2040; (c) This increment in number is due to the **overproduction of virgin plastics**, a type of plastics manufactured from non-recyclable materials; (d) The increase in plastic production is also leading to an **increment in the emissions of carbon dioxide** and the resulting waste is also causing death among animals. An estimated **1.78 billion tonnes of carbon dioxide was released during plastic pollution** in 2015 alone.

### Suggestions given by the Report

(a) **New global plastics Treaty:** The UNEP report titled: 'Making Peace with Nature' identified three existential environmental threats – **Climate Change, Biodiversity loss and Pollution**. Biodiversity Loss and Climate Change are already being addressed through dedicated **Multilateral Environmental Agreements (MEAs)**. A global treaty on similar lines is needed for plastic pollution as well.

(b) **Prioritize policies that address multiple threats acting at different timescales:** This must include measures to: (i) Urgently **eliminate the discharge of plastics** into the environment; (ii) **Phase down plastic production** to sustainable levels; (iii) Promote the upscaling of reuse, refill and traditional packaging systems tailored to national contexts.

(c) **Meeting nationally determined contributions:** Countries need to work toward reducing the climate impact from extraction, processing, cracking and polymerisation through targeted measures in their Nationally Determined Contributions (NDCs) under the Paris Climate Agreement.

## #2 Climate Hazards and Vulnerability Atlas of India

**News:** The India Meteorological Department (IMD) has released the Climate Hazards and Vulnerability Atlas of India.

### About the Atlas

The Atlas has been developed by the scientists at the Climate Research and Services (CRS) office of the India Meteorological Department (IMD), Pune. The atlas has used the **Geographic Information System (GIS)** tools and provides district maps on hazard events and vulnerability.

The atlas will have two uses: **(a)** It will act as a reference for impact-based warnings that IMD issue for various regions; **(b)** It can be used to plan climate-resilient infrastructure.

### Key findings of the Atlas

**Most Impacted by Cyclones:** West Bengal's **South 24 Parganas district** is most frequently impacted by cyclones among Indian districts. The **return period of cyclonic storms** in the district was 1.67 years on a scale of 1.5 to 60 years. Shorter return periods indicate more frequent cyclones.

**Cyclone Vulnerability:** **Purba Medinipur** in West Bengal had the **highest cyclone vulnerability** in the country for cyclones of all intensities.

**Baleshwar in Orissa** topped the list in terms of **vulnerability to severe cyclonic storms**. South 24 Parganas was the second-most vulnerable to all cyclones, and ranked third in terms of severe cyclonic storms.

**Other key Findings:** Around 4% of the districts and 7% of the population in India are highly vulnerable to cyclones. Most of the coastal districts of the East Coast are highly vulnerable to cyclones.

## #3 Impact of Climate Change on Fishing

**News:** According to a report published in the journal Global Change Biology, fish stocks that move across two or more exclusive economic zones (EEZ) would be greatly impacted by climate change.

### Key Findings of the Report

By 2100, Climate change will force 45% of the fish stocks that cross through two or more exclusive economic zones to shift significantly from their historical habitats and migration paths. By 2030, 23% of these transboundary fish stocks will have changed their historical habitat range.

Countries in **tropical locations such as the Caribbean and South Asia** will be hit first with the increase in the temperature of ocean waters.

### Impact of shifting of historical habitats

**Reduced Catch Proportion of Fish:** Changes in fish stock distribution will affect catches. By 2030, 85% of the World's EEZs will have seen a change in the amount of their transboundary catch.

**Conflicts between countries:** Many countries that are highly dependent on fisheries for livelihood and food security would emerge as hotspots for transboundary shifts. This can **lead to conflicts** between countries, as many of the fisheries management agreements to regulate shared stocks were established in past decades and the present circumstances are markedly different.

### Suggestions given by the Report

**(a)** Crafting agreements that allow fishing fleets to fish in neighbouring countries waters while offering a share of the catch or profit; **(b)** Rebalancing and renegotiating many of the catch quota agreements that are already in place; **(c)** Action on mitigating climate change should help reduce projected shifts.

## #4 NGT Order on Fly Ash Mission

**News:** The National Green Tribunal (NGT) in one of its order in January 2022 has directed the constitution of a 'Fly Ash Management and Utilisation Mission'.



### About Fly Ash

Fly ash is an unwanted **unburnt residue of coal combustion in a coal thermal power plant**.

It is emitted along with flue gases during the burning of coal in a furnace and collected using electrostatic precipitators. It is then converted into wet slurry and transported to scientifically designed ash ponds. However, the gross under-utilisation of this by-product over the years has led to the **accumulation of 1,670 million tonnes of fly ash**.

### NGT Order to overcome the underutilisation of Fly Ash

The National Green Tribunal (NGT) has directed the constitution of a '**Fly Ash Management and Utilisation Mission**'.

The Goal of the Mission would be to **coordinate and monitor issues relating to the handling and disposal of fly ash** and to **make the roadmaps and progress in fly ash utilisation** available for all thermal power plants and their clusters.

The mission is to be jointly headed by the Secretaries of the Union Ministry of Environment, Forest & Climate Change (MoEFCC) and Union Ministry of Coal and Power.

Chief Secretaries of concerned states will also be on board.

The secretary of MoEFCC will be the nodal agency for coordination and compliance.

### #5 New Ramsar Sites in India

**News:** Khijadiya Bird Sanctuary in Gujarat and Bakhira Wildlife Sanctuary in Uttar Pradesh have been included as Ramsar Site from India on the occasion of World Wetlands Day on February 02. The National Wetland Decadal Change Atlas was also launched.

### About Khijadiya Bird Sanctuary

(a) Khijadiya sanctuary is located in **Gujarat**; (b)

It is a **freshwater wetland** located near the coast of the **Gulf of Kutch**. It was formed following the creation of a bund (dike) in 1920 by the then ruler of the erstwhile princely state of **Nawanagar** to protect farmlands from saltwater ingress; (c) The sanctuary is **now part of Marine National Park, Jamnagar**, the first marine national park in the country. The sanctuary is also **part of the Central Asian Flyway**; (d) Khijadiya Bird Sanctuary has become the **fourth wetland of Gujarat** to get the Ramsar tag. **Nalsarovar Bird Sanctuary, Thol Wildlife Sanctuary and Wadhvana wetland** are the other Ramsar sites in the state.

### Wildlife in Khijadiya Bird Sanctuary

(a) The site provides habitat to endangered Pallas's fish-eagle (*Haliaeetus leucoryphus*) and Indian skimmer (*Rynchops albicollis*), and the vulnerable common pochard (*Aythya ferina*).

(b) The site also regularly supports more than 1% of the South and South-west Asian population of **Dalmatian pelicans**, more than 2% of greylag goose and more than 20% of common crane.

### About Bakhira Wildlife Sanctuary

(a) Bakhira Wildlife Sanctuary is located in Uttar Pradesh; (b) It is a **freshwater marsh** and is the largest natural floodplain wetland of eastern Uttar Pradesh. A freshwater marsh is a non-tidal, non-forested marsh wetland that contains fresh water and is continuously or frequently flooded; (c) The

### PT BOX

#### Eco-Sensitive Zones

Eco-Sensitive Zones (ESZ) or Ecologically Fragile Areas (EFAs) are areas in India notified by the Ministry of Environment, Forests and Climate Change (MoEFCC) around protected areas such as national parks and wildlife sanctuaries. The objective of declaring an area as ESZ is to create some kind of "shock absorbers" to the protected areas by regulating and managing the activities around such areas. ESZs also act as the buffer zones from areas of high protection to areas accorded relatively milder protection. It is to be noted that though Environment Protection Act, 1986 does not mention the word "Eco-Sensitive Zones", the government uses section 3(2)(v) of the Environment Protection Act, 1986 and rule 5(1) of the Environment (Protection) Rules, 1986 to declare ESZs and EFAs.

sanctuary was established in 1980 and is protected under the Wildlife Protection Act (1972). It has declared as an 'eco-sensitive zone' which extends up to a kilometre around its boundary.

#### Wildlife in the Bakhira Wildlife Sanctuary

(a) The sanctuary serves as a **natural habitat for the State bird, Sarus**. It also provides a **wintering ground** for over 25 species that migrate on the **Central Asian Flyway**, some of which are endangered Egyptian vulture (*Neophron percnopterus*), the vulnerable greater spotted eagle (*Aquila clanga*) among others; (b) The sanctuary also **supports 45 species of fish** such as vulnerable European carp (*Cyprinus carpio*) and the catfish Wallago attu, and the near-threatened Gangetic ailia (*Ailia coila*) and silver carp (*Hypophthalmichthys molitrix*).

**India now has 49 Ramsar sites which is the highest in South Asia.**

#### Wetlands in India

(a) Globally, wetlands cover 6.4% of the geographical area of the world; (b) In India, **wetlands make up 4.63% of the total geographical area**. Among them, inland-natural wetlands account for 43.4% and coastal-natural wetlands 24.3%. India has **19 types of wetlands**; (c) **Gujarat** is at the top with 22.7% of total wetlands areas of the country. It is followed by **Andhra Pradesh, Uttar Pradesh and West Bengal**.

#### Ramsar Sites

(a) The countries with the most Ramsar Sites are the **United Kingdom (175)** and **Mexico (142)**. Bolivia has the **largest area under convention protection**; (b) India has a total of 49 designated wetlands spread over 18 states and two Union Territories. Of the 49 sites, 10 are in UP, 6 in Punjab, 4 each in Gujarat and Jammu and Kashmir among others.

#### About National Wetland Decadal Change Atlas

It has been prepared by the **Space Applications Centre (SAC), Ahmedabad**. The original Atlas was released by SAC in 2011. The Atlas highlights the **changes which have happened in Wetlands across the country in the past decade**. The Atlas has been used extensively by all the State Governments in their planning processes

#### #6 Kakoijana Forest Reserve

**News:** Villagers in Assam's Bongaigaon district have opposed a move by the State government to upgrade Kakoijana Reserve Forest to a wildlife sanctuary.

#### Kakoijana Reserve Forest

Kakoijana Reserve Forest is located in Bongaigaon district of Assam. It was constituted in the year 1966 as a reserve forest. The reserve is one of the better-known homes of the golden langur (*Trachypithecus geei*). Golden langur is found only in Assam and Bhutan. It is listed in the world's 25 most endangered primates.

#### Opposition to conversion into a Wildlife Sanctuary

(a) Once the Kakoijana Reserve Forest is converted to a wildlife sanctuary, **stricter rules will be applied and this will impact the customary and traditional practices**. Consequently the villagers will lose the rights over the forest; (b) The villagers have demanded that the reserve forest **should be converted into a community forest** reserve using **Forest Rights Act, 2006**. This is because some of the areas inside the forest are sacred, and its sanctity should be maintained; (c) The villagers have also said that they can conserve the forest better. They pointed out that the conservation efforts by them had helped the authorities concerned to **restore the forest canopy from less than 5% to more than 70%**. This in turn

helped increase the golden langur population from less than 100 to more than 600 over almost three decades.

## #7 Coal Gasification

**News:** In the Union Budget 2022-23, the Union Finance Minister has announced four coal gasification-pilot projects will be set up.

### About Coal Gasification

Coal gasification is a process in which **coal is partially oxidised** with air, oxygen, steam and carbon dioxide **to form a fuel gas**. This gas is then used instead of piped natural gas, methane and others for deriving energy. Coal gasification reduces the SO<sub>x</sub>, NO<sub>x</sub> and soot emissions relative to the amount of power generated as compared to conventional method of coal combustion.

China has the biggest number of coal gasification projects in the world. 5% of China's total coal consumption is from its gasifier. The US also has some coal gasification plants running.

### Issues with Coal Gasification

(a) Coal gasification actually produces more carbon dioxide than a conventional coal-powered thermal power plant. According to estimates by Centre for Science and Environment, generating electricity using gasified coal produces 2.5 times more carbon dioxide than using normal coal; (b) Coal gasification plants are costlier than conventional power plants; (c) Coal is the main feed for gasification, coal gasification does not help in India's decarbonisation goals.

## #8 Volcano Eruption near Tonga Island

**News:** A volcano erupted in Tonga, the plumes of which reached the **mesosphere**. This eruption is the largest volcanic event recorded in the last three decades. The eruption also caused a devastating **tsunami** that caused great destruction in Tonga.

### About Tonga Island and the Eruption

Tonga is an **archipelago located in South-western Pacific Ocean**. These Islands sit on the **Indo-Australian plate just west of the Tonga Trench**. Tonga Islands lie along the **pacific ring of fire**. Here due to constant movement of the tectonic plates and creation of subduction zones, volcanic activity is frequent. In this particular case, the **Indo-Australian plate got subducted below the Tonga plate** causing rocks to melt and magma to come up to the surface as lava. The eruption caused



tsunamis in Tonga, Fiji, American Samoa, Vanuatu, and along the Pacific rim, including damaging tsunamis in New Zealand, Japan, the United States, the Russian Far East, Chile, and Peru.

Extreme heat from the volcanic eruption and humidity of the ocean surrounding it combined and caused an explosive upsurge of the volcanic plumes. This explosion sent the plumes to the **mesosphere** which is a layer of the Earth's atmosphere (extending from 50 km to 85 km). The eruption caused changes in local weather conditions, producing nearly 400,000 **lightning strikes** within a few hours of the eruption. This caused a **meteotsunami** which pushed water as far away as Puerto Rico in the Caribbean Sea. This wasn't the same tsunami that spread out across the Pacific, but rather, it was caused by the pressure waves of the eruption. Due to relatively **low sulphur dioxide release**, major changes in global temperature did not occur.

## Science and Technology

### #1 Small Satellite Launch Vehicle

**News:** ISRO Chairman has said that the Small Satellite Launch Vehicle (SSLV) named 'SLV-D1 Micro SAT' will be launched in April 2022.

#### About the Small Satellite Launch Vehicle (SSLV)

It is an **all-solid three-stage vehicle** with the capability to launch up to **500 kg satellite mass** into **500 km Low Earth Orbit (LEO)**.

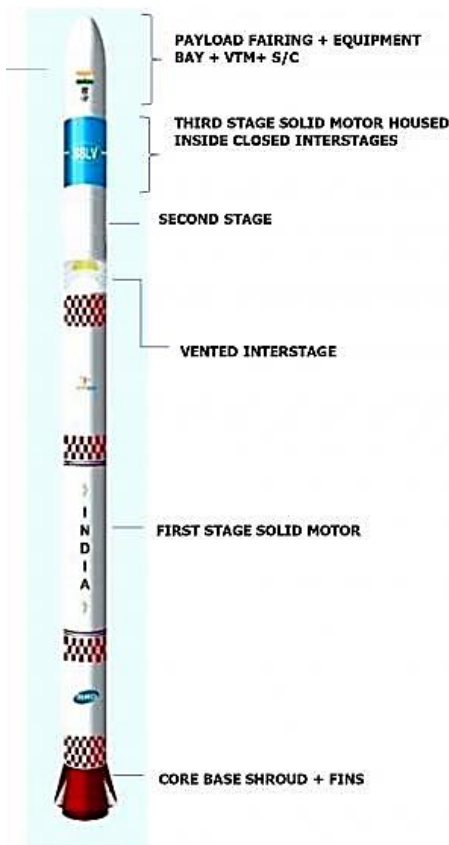
The demand for small satellites has emerged in recent years on account of the need for developing countries, private corporations, and universities for small satellites. Small satellites find ready application for various purposes such as for using formations of small satellites to gather data from multiple points, doing in-orbit inspection of larger satellites, conducting university related research, testing or qualifying new hardware before using it on a more expensive/sophisticated spacecraft etc.

Until now, the small satellites have been launched using PSLV,

#### Advantages of SSLV

The SSLV would help in: **(a)** Reduced turn-around time; **(b)** Launch on demand; **(c)** Cost optimization for realization and operation; **(d)** Flexibility in accommodating multiple satellites; **(e)** Minimum launch infrastructure requirements.

The development and manufacture of the SSLV are expected to create greater synergy between the space sector and private Indian industries which is a key aim of the Department of Space.



### #2 Global Cybersecurity Outlook 2022 by WEF

**News:** The Global Cybersecurity Outlook 2022 Report has been released by the World Economic Forum.

#### About the Report

**(a)** The report gives **insights on near-term future cybersecurity challenges** and develops **actionable solutions** to address them; **(b)** The report also highlights measures that need to be taken to **enhance cyber resilience** within organisations and the wider ecosystem.

#### Key Findings of the Global Cybersecurity Outlook 2022

The accelerating pace of digitalisation fuelled by the COVID-19 pandemic has led to: **(a)** **151% surge in global ransomware attacks** in 2021; **(b)** An average of 270 cyberattacks per organisation in 2021, a 31% increase over 2020; **(c)** Cyber security leaders around the globe have listed **ransomware, identity theft and critical infrastructure failure** among their top personal cyber risk concerns; **(d)** Cyber incidents are becoming costly and damaging, sometimes even **paralysing critical services and infrastructure**; **(e)** Companies need 280 days on average to identify and respond to a cyberattack. To put this into perspective, an incident that occurs on January 1, may not be fully contained until October 8.



### Solutions suggested by the Global Cybersecurity Outlook 2022

(a) **Prioritise cybersecurity** in all domains of society and the economy; (b) **Anticipate, recover and adapt** quickly to cyber incidents; (c) Shift from a **cyber-defensive posture** to a stronger **cyber-resilience position**, i.e. to anticipate attacks and be prepared for likely digital shocks; (d) **Mobilise a global response** to address systemic cybersecurity challenges and ensure no communication or coordination gaps between cybersecurity and business leaders.

### #3 Anti-Doxxing Policies for Meta

**News:** Meta's oversight board suggested Facebook and Instagram to make strict doxxing rules. The Board urged Meta to consider **doxxing as a "severe" offence** which should **prompt temporary account suspension**.

#### About the Issue

Doxxing is the act of publishing others' personal information on the internet with **malicious intention** that can make them **victims of harassment (mental and physical) and cyber-attacks**. Meta's Board highlighted the issue of doxxing and carelessness of the users and further explained how doxxing is used to shame or punish people who would rather stay anonymous, because of their controversial beliefs or other types of non- mainstream activity.

The board limited the sharing of private residential addresses by the user to promotion of charitable causes or finding missing people, animals, objects, or for contacting business service providers.

The Board showed concern over the effects of doxxing as it can result in **emotional distress, loss of employment and even physical harm or death**.

### #4 ISRO's breakthrough in Quantum Communication

**News:** Scientists from the Space Applications Centre and Physical Research Laboratory have used quantum entanglement to create a hack-proof communications system.

#### About the Experiment

(a) Scientists used the real-time **Quantum Key Distribution (QKD)** to conduct hack-proof communications between two places separated by 300 meters; (b) They created a channel to share secure text, image transmissions and two-way

video calling; (c) With this demonstration, India is getting ready for satellite-based demonstrations of fundamental quantum mechanics experiments as well as quantum communication for future-proof data security.

#### SPOOKY BUT SECURE

- **Quantum cryptography uses quantum physics** – the properties of elementary particles – to create a secure communications system
- **Elementary particles are not only particles** – they are also waves!
- **A wave has mathematical probabilities of being in one place or another, or doing**

one thing or another, until it is actually observed

- **Under observation, the wave "collapses",** and becomes a particle doing something specific

- **Einstein described another key quantum effect, entanglement,** as "spooky". Particles can be paired. If the state of one

paired particle changes, the state of the other paired particle instantly changes

- **These peculiar properties can be used to create quantum cryptographic systems**

- **Users of such a quantum communication system can immediately tell** if it has been snooped on

#### About Quantum Communication

Quantum communication is one of the safest ways of connecting two places with high levels of code and quantum cryptography **that cannot be decrypted or broken by an external entity**.

If a hacker tries to crack the message in quantum communication, it **changes its form in such a manner that would alert the sender** and would **cause the message to be altered or deleted**.

#### About Quantum Entanglement

Quantum entanglement is a physical phenomenon that occurs when a group of particles are generated, interact, or share spatial proximity in a way such that the **quantum state of each particle of the group**

cannot be described independently of the state of the others, including when the particles are separated by a large distance.

### #5 Concerns regarding Negative-Ion Technology

**News:** The Authority for Nuclear Safety and Radiation Protection (ANVS), Netherlands has issued a statement identifying various negative ion wearable products containing more radioactivity than legally permitted.

#### About Negative Ions

(a) An ion is an atom, or a molecule, which has gained or lost one or more electrons; (b) Negative ions are made when **sunlight, radiation, air, or water break down oxygen**. (c) It is believed that **negative ions create positive vibes and uplift the mood**. These ions also have an impact on pollutants by making them negatively charged and get them collected on surfaces.

#### About Negative Ion Technology

(a) Negative ion technology **embeds negative ions in personal products** and is currently being advertised as a **means to maintain health, balance energy, and improve well-being**; (b) This technology is used in certain silicone wristbands, quantum or scalar-energy pendants, sleep masks, jewellery among others; (c) The minerals that produce these negative ions often include **naturally occurring radioactive substances** such as uranium and thorium.

#### Concerns related to Negative Ion Technology

(a) The radiation detected in some of these Negative Ion Technology products has been **higher than the background level, and in some cases high enough to require licensing**; (b) These products were found to contain radioactive materials and therefore continuously **emit ionizing radiation**. Exposure to ionizing radiation can cause **adverse health effects** including **tissue and DNA damage**.

#### Steps taken against these consumer products containing radioactive substances

IAEA has released the “**Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards**” in 2014.

These standards says that the **frivolous use of radiation or radioactive substances** in toys and personal jewellery or adornments, which result in an increase in activity, **is unjustified**.

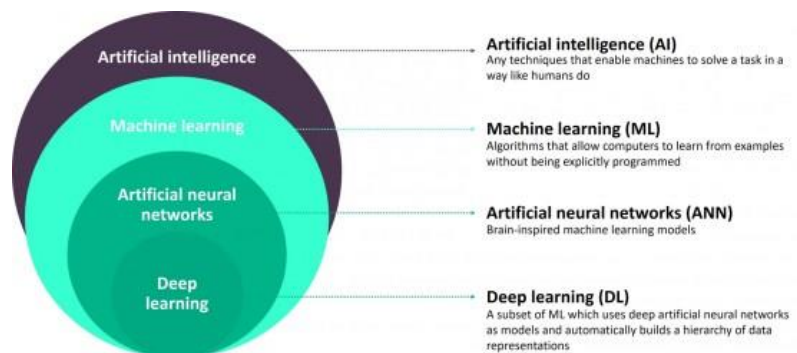
In **India, the Atomic Energy (Radiation Protection) Rules, 2004** also contains provisions consistent with those of the IAEA.

### #6 Artificial Neural Networks

**News:** The global Artificial Neural Network (ANN) Market report was published. As per the current report, ANN Market is to set phenomenal growth from 2021 to 2028.

#### About Artificial Neural Network (ANN)

(a) Artificial Neural Networks (ANN) also known as Neural Networks are a **vital subset of Machine Learning** and are at the heart of deep learning algorithms; (b) Their name and structure are inspired by the human brain, **mimicking the way**



**biological neurons signal to one another;** (c) ANNs are based on algorithm **that learns from experience** and repeated tasks performed by users.

It is fed massive volumes of data in the beginning phases. In most cases, training is done by providing input and informing the network about what should be the output.

**Backpropagation** is a commonly used method for training artificial neural networks, especially deep neural networks.

### Applications of Artificial Neural Network (ANN)

The applications of ANN are: (a) Image Pre-processing and Character Recognition; (b) Forecasting; (c) Credit rating; (d) Fraud detection; (e) Portfolio management among others.

## #7 Geomagnetic Storms

**News:** Several Satellites that were part of the Starlink Project were caught in a Geomagnetic storm a day after they were launched. This is being described as an unusual and huge event, as around 40 satellites, most of a single launch batch, were lost in a single solar event.

### About Geomagnetic or Solar storms

(a) Solar storms are **magnetic plasma** ejected at great speed **from the solar surface**; (b) They occur when a surge of solar wind (charged particles from the sun) interacts with Earth's magnetic field and generates charged particles and currents in Earth's upper atmosphere. (c) The largest storms that result from these conditions are associated with solar coronal mass ejections (CMEs) where a billion tons or so plasma from the sun, with its embedded magnetic field, arrives at Earth.

### Harmful Impact

(a) Some solar storms that come close to the Earth can impact **space weather** in near-Earth space and the upper atmosphere; (b) They can **effect operations of space-dependent services** like the Global Positioning Systems (GPS), radio, and satellite communications, high-frequency radio communications, aircraft flights, power grids, and space exploration programmes; (c) They can also create disturbances in **the magnetosphere which is a protective shield** surrounding the Earth; (d) **Astronauts on space-walks** face health risks from possible exposure to solar radiation outside the Earth's protective atmosphere.

### PT BOX

#### Starlink Project

Starlink is the name of a satellite network developed by the private spaceflight company SpaceX to provide low-cost internet to remote areas/locations. SpaceX eventually hopes to have as many as 42,000 satellites in this mega constellation. Though, the project could prove to be a milestone in the field of communication and connectivity, there are certain legitimate concerns as well associated with the project. Some scientists worry that the amount of metal that will be burning up in Earth's atmosphere as old satellites go defunct, can not only substantially add to the problem of space debris but also cause unpredictable changes to the planet's climate

Current computer models are capable of predicting a storm's time of arrival and its speed but not its structure or orientation. As the global dependence on satellites is increasing day by day for almost every activity, there is a need for **better space weather forecasts** and **more effective ways to protect satellites**.

## #8 Satellite Internet

**News:** Jio Platforms has launched a joint venture with European satellite-based broadband service company SES to enter the satellite internet space.

### About Satellite Internet

(a) Satellite Internet is the technology that **beams the internet down from a satellite** that's orbiting the Earth; (b) Jio, Bharti Airtel OneWeb and Starlink want to send thousands of these satellites to orbit. Jio will

use the geostationary (GEO) and medium earth orbit (MEO) satellites, while Starlink and OneWeb will use the low earth orbit (LEO) satellites.

### Difference between GEO, MEO and LEO Satellites

LEO satellites are cheaper to make and deploy, but require a satellite constellation working in sync to offer coverage on earth. On the other hand, GEO and MEO Satellites are larger, deployed in higher orbits and cost more. These satellites cover a larger area and require fewer ground stations, which makes them ideal for targeted coverage.

### Advantages of Satellite Internet

There are areas where fibre connections aren't able to reach. Hence, satellite networks are being used to bring connectivity to such areas, which include hills and remote islands.

### Disadvantages of Satellite Internet

**(a) Low bandwidths:** Experts say current satellite connections will bring only about 1-2 MB bandwidth; **(b) Troubleshooting** can also be a problem because it needs specialized knowledge.

## #9 HCNG Fuel for Vehicles

**News:** The Ministry of Road Transport and Highways has notified the use of Hydrogen as an automotive fuel in the country. It has notified an 18% blend of Hydrogen with CNG.

### About HCNG

**(a)** HCNG stands for Hydrogen-enriched Compressed Natural Gas. HCNG is produced by blending hydrogen with CNG; **(b)** It can be used in place of gasoline, diesel fuel/LPG and its combustion produce fewer undesirable gases in comparison to normal automobile fuel.

### Benefits of HCNG

**(a)** It emits 70% less carbon dioxide; **(b)** It reduces total hydrocarbons emissions by around 15%; **(c) Increases fuel efficiency** by 3-4%; **(d)** The **power output is better** than CNG; **(e)** HCNG is **easier and safer to use** than hydrogen as it contains very low energy content from hydrogen, i.e., up to 30% by volume.

### Concerns associated with HCNG

**(a)** The physical blending of CNG and hydrogen involves a series of energy-intensive steps that would make **H-CNG more expensive than CNG**; **(b)** HCNG use would require a change in the structural aspects of the engine.

## #10 Policy on EV Charging Stations

**News:** The Ministry of Power has issued the revised consolidated Guidelines & Standards for charging infrastructure for Electric Vehicles.

### Objective of the Guidelines

**(a)** To enable a faster adoption of electric vehicles in India by ensuring safe, reliable, accessible and affordable charging infrastructure and ecosystem; **(b)** To promote energy security and reduction of emission intensity of the country by promotion of the entire EV ecosystem.

### Key features of the Guidelines

**(a)** Any individual/entity is free to set up **Public Charging Stations (PCS) without the requirement of a licence** provided that such stations meet the technical, safety as well as performance standards; **(b)** Electric vehicle owners can charge their vehicles at their residence or offices using their existing electricity connections; **(c) Housing societies, malls, office complexes, restaurants, hotels are allowed**



to install PCS for charging of vehicles; (d) The tariff for supply of electricity to Public EV Charging Stations shall not exceed the “average cost of supply” till 31st March 2025; (e) Any Public Charging Station may obtain electricity from any generation company through open access; (f) Public Charging Station will be required to tie up with at least one online Network Service Provider (NSPs) to enable advanced remote/online booking of charging slots by EV owners.

### #11 Super Vaccine for future pandemics.

**News:** Scientists are trying to develop a super vaccine that provides protection against all variants of Corona Virus.

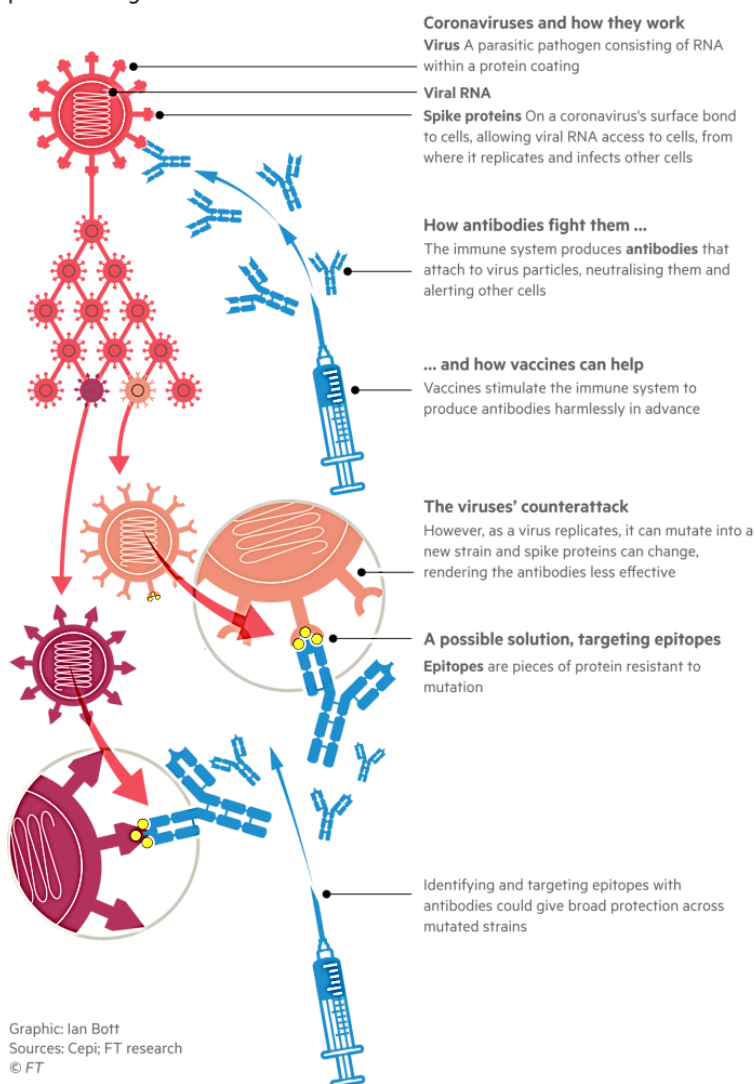
#### Why is there a need for super vaccine?

(a) The successive mutations in the coronavirus leading to multiple variants have limited the ability of vaccines in controlling the pandemic. (b) Breakthrough infections and reinfections, despite booster doses, in omicron variant have highlighted the need for a super vaccine. (c) Three major outbreaks related to corona virus, viz. SARS, MERS and Covid-19, in less than two decades is an indicator that there can be more frequent mutations in the future.

#### How will the universal vaccine function?

(a) For the universal vaccine, researchers are working on identifying “conserved” parts of the virus – pieces of protein known as epitopes. (b) Epitopes are present in all coronaviruses and resist any change during mutations. The idea is to have a vaccine that trains the body to recognise this conserved region, prompting an immune response to a broader array of coronaviruses. (c) One of the most advanced candidates for the vaccine has been developed by scientists at the US military’s Walter Reed Army Institute of Research. A pre-clinical study suggested it may provide broad protection against Sars-Cov-2 variants of present as well as other coronaviruses. (d) In theory, such a vaccine would protect people against known and yet to emerge strains of coronavirus. (e) The super-vaccines will not only offer global protection but would also be cheaper, as huge R&D costs of updating and rolling out a vaccine against each new variant will be spared.

A ‘universal’ vaccine could offer broad protection against different coronaviruses



## #12 NeoCoV variant of Coronavirus Strain

**News:** Researchers from China have been warning about a strain of coronavirus that could be even deadlier than Covid-19. This new strain is called 'Neo-Cov'.

### About NeoCoV

NeoCoV is a **bat coronavirus** that was first identified in 2011. It was identified in South Africa in a species of **bats known as Neoromicia**, which is where the name NeoCoV was derived from.

Neo-Cov is not a new Covid-19 variant. It belongs to a distinctly different genera (a type of sub-classification) of coronaviruses known as merbecovirus. In 2014, it was found that NeoCoV shares an 85% similarity to the Middle East respiratory syndrome coronavirus (MERS-CoV) in the genome sequence, making it the closest known relative of MERS-CoV.

MERS-CoV was first identified in 2012 in Saudi Arabia. It is a zoonotic virus which means it can transmit between animals and human. Dromedary camels were the major host of the virus at that time.

### Impact on Humans

So far, the virus has only been found to infect bats. Hence, this means that in its current form, it does not infect humans yet and has thus not caused any deaths.

NeoCoV is **currently spreading only among animals**. However, scientists fear that one mutation alone may enable the virus to penetrate the human immune system.

NeoCoV virus also has an extremely high transmission and fatality rate, as it can **cause death in at least one out of three infected people**.

Moreover, infection with NeoCoV could not be cross-neutralized by antibodies targeting SARS-CoV-2 or MERS-CoV.

## #13 Tamil Nadu refuses to permit the setting up of Indian Neutrino Observatory in Theni

**News:** The Indian Neutrino Observatory (INO) project was to be set up in **Bodi West Hills in Theni district of Tamil Nadu**. However, the Tamil Nadu government has filed an affidavit in the Supreme Court stating its refusal to permit the setting up of INO in the area.

### About Neutrinos

Neutrinos are **sub-atomic particles with a small mass and no electric charge**. They interact with matter via **weak force**. Neutrinos are **produced in the stars (including the Sun)** as a result of **nuclear fusion and decay processes in the core**. The study of these neutrinos is helpful in the understanding of how complex particles and matter evolved from simple particles. It is also instrumental in the study of nucleons (protons and neutrons).

### About INO

The INO (Indian Neutrino Observation) is an ambitious **multi-institutional project** that seeks to build an **underground laboratory and an ICAL- Iron Calorimeter Detector** for the study of neutrino particles. It is funded by the **Department of Science and Technology** and the **Department of Atomic Energy**. The INO aims to assess and study the properties of neutrinos and to make precision measurements of the parameters related to neutrino observations.

### Grounds for refusal of permit by Tamil Nadu

The Tamil Nadu Government refused to give a permit to the setting up of INO due to **(a)** The Bodi Hills are an **Ecologically Sensitive Area**. The amount of tunneling work required for the building of the laboratory would create problems like construction waste material, rock bursts and roof collapses in this fragile area. **(b)** The area is also an important watershed and catchment area for **Sambhal and Kottakudi rivers**. According to the TN Government, the lives and livelihoods of 5 districts depend on this catchment area. **(c)** The area is also an important area from the aspect of biodiversity. It links

**Periyar Tiger Reserve in Kerala and Srivilliputhur Meghamalai Tiger Reserve.** Quarrying and construction activity of this extent shall disturb animal migration and habitat of the region.

## History, Art and Culture

### #1 Hoysala Temples nominated for World Heritage

**News:** Hoysala Temples of Belur, Halebid and Somnathapura in Karnataka have been finalised as India's nomination for consideration as World Heritage for the year 2022-2023.

#### About the Sacred Ensembles of Hoysala

Sacred Ensembles of Hoysala were built in the 12th-13th century. They are represented here by the three components of Belur, Halebid and Somnathpur.

The Hoysala temples have a basic Dravidian morphology though they reflect other influences including that of Central India's Bhumija mode, northern and western India's Nagara traditions, and Karnataka Dravida modes of the Kalyani Chalukyas.

The Hoysala architect made selections of features from other temple styles, which they further modified with their own particular innovations. This resulted in a new Hoysala Temple form.

#### Chennakeshava Temple – Belur

Chennakeshava Temple is also referred to as Vijayanarayana Temple of Belur. It is a 12th-century Hindu temple in Karnataka.

The temple was commissioned by King Vishnuvardhana in 1117 CE, on the banks of the Yagachi River in Belur also called Velapura, an early Hoysala empire capital.

The temple is devoted to Vishnu.

The richly sculptured exterior of the temple narrates scenes from the life of Vishnu and his incarnations and the epics, *Ramayana* and *Mahabharata*. However, some of the representations of Shiva are also included.

#### Hoysaleswara Temple- Halebid

Hoysaleswara temple also referred simply as the Halebidu temple is a 12th-century Hindu temple dedicated to Shiva.

The temple was built in 1121 CE during the reign of the Hoysala King, Vishnuvardhana Hoysaleswara.

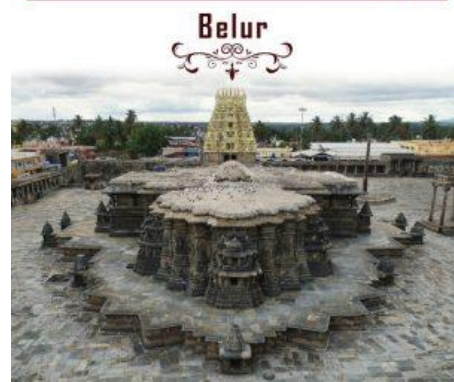
The temple is most well-known for the more than 240 wall sculptures that run all along the outer wall.

#### Keshava Temple- Somanathapura

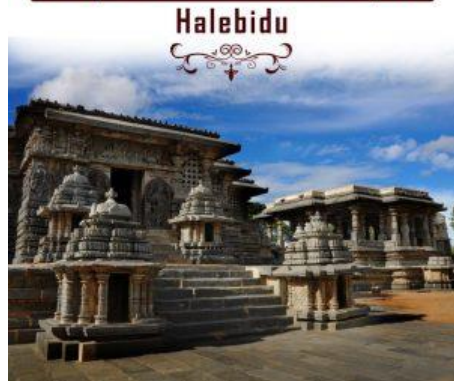
Keshava Temple is a Vaishnava temple on the banks of River Kaveri at Somanathapura, Karnataka.

The temple was consecrated in 1258 CE by Somanatha Dandanayaka, a general of the Hoysala King Narasimha III.

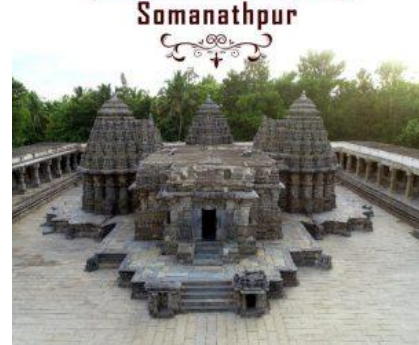
#### Channakeshava Temple



#### Hoysalesvara Temple



#### Kesav Temple



The temple is enclosed in a courtyard with a pillared corridor of small shrines (damaged). The main temple in the centre is on a high star-shaped platform with three symmetrical sanctums (*garbha-griha*). The western sanctum was for a statue of Kesava (missing), the northern sanctum of Janardhana and the southern sanctum of Venugopala, all forms of Vishnu.

## #2 Statue of Ramanujacharya unveiled in Hyderabad

**News:** The Prime Minister has unveiled the Statue of Equality in Hyderabad, Telangana.

### About the Statue of Equality

Statue of Equality is a 216-foot-tall statue dedicated to 11th-century social reformer and saint, Ramanujacharya. The statue will be in a sitting position. It is composed of 'panchaloha', a combination of five metals comprising gold, silver, copper, brass, and zinc. The statue will be the second-highest sitting statue in the world [the tallest is the Great Buddha in Thailand at 302 ft].

### About Ramanujacharya

Sri Ramanujacharya was born in 1017 in Sri Perumbudur, Tamil Nadu. He was one of the most important exponents of the Sri Vaishnavism tradition within Hinduism.

He is famous as the chief proponent of **Vishishtadvaita sub-school** of **Vedānta**. He was also referred to as **Ilaya Perumal**, which means the radiant one.

He worked tirelessly against casteism and social hierarchies, proclaiming that all living beings had the right to realization.

He also enacted several reforms in temple administration e.g., at one time the entire administration in the Srirangam temple in Tiruchirappalli was controlled by a specific caste. He included persons from different castes in the temple administration. A number of responsibilities were given to women also.

He wrote **nine works** that came to be known as the **Navratnas** including three major commentaries, the **Vedartha-Sangraha**, the **Sribhasya** and the **Bhagavadgita-bhasya** aimed at providing philosophical foundation for devotional worship.

### About Vishishtadvaita

Vishishtadvaita is a non-dualistic school of Vedanta philosophy. It is non-dualism of the qualified whole, in which Brahman alone is seen as the supreme reality, but is characterized by multiplicity.

It can be described as qualified monism or qualified non-dualism or attributive monism. It is a school of Vedanta philosophy that believes in all diversity subsuming to an underlying unity.

## #3 Guru Ravidas

**News:** The birth anniversary of Ravidas, a major religious event for lakhs of devotees was celebrated on February 16, 2022.

### About Guru Ravidas

Guru Ravidas was a **mystic poet-saint of the Bhakti Movement** from the 15th and 16th centuries. He founded the Ravidassia religion.

He is believed to be a **disciple of the bhakti saint-poet Ramananda** and contemporary to the bhakti saint-poet Kabir.

He is also considered as a **spiritual guru of the Meera Bai**.

His idea of '**Begampura**' was considered as his moral and intellectual achievement. *Begampura* was a city conceived by him. In that city, there will be no sorrow, no caste and class.

The **Panch Vani** text of the **Dadupanthi** tradition within Hinduism also includes numerous poems of Guru Ravidas.



#### #4 Women Freedom Fighters

**News:** Union Minister of State for Culture has released a pictorial book '**India's Women Unsung Heroes**' of freedom struggle as part of Azadi ka Amrit Mahotsav. The book has been released in partnership with Amar Chitra Katha.

Women Freedom Fighters	Contribution to Freedom Movement
<b>Rani Abakka</b>	She was the Queen of Ullal, Karnataka. She fought and defeated the mighty Portuguese in the 16th century.
<b>Velu Nachiyar</b>	She was the Queen of Sivaganga and was the first Indian queen to wage war against the British East India Company.
<b>Matangini Hazra</b>	She was a brave freedom fighter from Bengal, who laid down her life while agitating against the British.
<b>Gulab Kaur</b>	She was a freedom fighter who abandoned her own hopes and dreams of a life abroad to fight for and mobilise the Indian people against the British Raj.
<b>Chakali Ilamma</b>	She was a revolutionary woman who fought against the injustice of zamindars during the Telangana rebellion in the mid-1940s.
<b>Subhadra Kumari Chauhan</b>	One of the greatest Hindi poets, who was also a prominent figure in the freedom movement.
<b>Durgawati Devi</b>	Brave woman who provided safe passage to Bhagat Singh after the killing of John Saunders and much more during her revolutionary days.
<b>Sucheta Kripalani</b>	A prominent freedom fighter who became the independent India's first woman Chief Minister of UP Government.
<b>Accamma Cherian</b>	She is an inspirational leader of the freedom movement in Travancore, Kerala. She was given the name 'Jhansi Rani of Travancore' by Mahatma Gandhi.
<b>Aruna Asaf Ali</b>	She was an inspirational freedom fighter who is perhaps best remembered for hoisting the Indian National flag in Mumbai during the Quit India Movement in 1942.
<b>Durgabai Deshmukh</b>	She was a dedicated worker for the cause of emancipation of women in Andhra Pradesh and was also an eminent freedom fighter and member of the Constituent Assembly.
<b>Rani Gaidinliu</b>	Naga spiritual and political leader, she led an armed uprising against the British in Manipur, Nagaland and Assam.
<b>Usha Mehta</b>	She was a freedom fighter from a very young age, who is remembered for organising an underground radio station during the Quit India Movement of 1942.
<b>Parbati Giri</b>	She was one of Odisha's most prominent women freedom fighters who was called the Mother Teresa of Western Odisha for her work in the upliftment of her people.
<b>Tarkeshwari Sinha</b>	She was a prominent freedom fighter during the Quit India Movement, she went on to become an eminent politician in the early decades of independent India.
<b>Snehlata Varma</b>	She was a freedom fighter and tireless worker for the education and upliftment of women in Mewar, Rajasthan.
<b>Tilleshwari Baruah</b>	She was one of India's youngest martyrs, she was shot at the age of 12 by the British, during the Quit India Movement, when she and some freedom fighters tried to unfurl the Tricolour atop a police station.
<b>Jhalkari Bai</b>	She was a woman soldier who grew to become one of the key advisors to the Rani of Jhansi and a prominent figure in the First War of Indian Independence, 1857.

<b>Padmaja Naidu</b>	She was the daughter of Sarojini Naidu and a freedom fighter in her own right, who would later become Governor of West Bengal and a humanitarian after Independence.
<b>Bishni Devi Shah</b>	She inspired a large number of people in Uttarakhand to join the freedom movement.

### #5 Shifting of the Amar Jawan Jyoti to the National War Memorial

**News:** The Government of India has put out the eternal flame of the Amar Jawan Jyoti underneath India Gate and merged it with the one instituted at the National War Memorial in 2019.

#### About Amar Jawan Jyoti

Amar Jawan Jyoti (the flame of the immortal soldier), was inaugurated in 1972. It was located underneath the India Gate in Delhi. It was established to **mark India's victory over Pakistan in the 1971 War**, which resulted in the creation of Bangladesh.

The key elements of the Amar Jawan Jyoti included a black marble plinth, a cenotaph, which acted as a tomb of the unknown soldier. The plinth had an inverted L1A1 self-loading rifle with a bayonet, on top of which was a soldier's war helmet. The installation had four urns on it, with four burners. These burners were called the eternal flame, and it was never allowed to be extinguished.

#### Shift to the National War Memorial

The flame has been **merged with another eternal flame at the National War Memorial**. According to the Government, this was done because Amar Jawan Jyoti's eternal flame paid homage to the soldiers killed in the 1971 War, but it did not mention their names. Names of all Indian martyrs from all the wars, including the 1971 war and the wars before and after it are housed at the **National War Memorial**. Hence it is a true tribute to have the flame paying tribute to martyrs there.

Another argument is that the India Gate represented India's colonial past. The India Gate was established to commemorate the fallen soldiers under the British Empire and not the national war.

### #6 A statue of Netaji Subhash Chandra Bose will be established in the canopy next to the India Gate.

**News:** The government has decided to install a grand statue of Subhas Chandra Bose under the canopy at India Gate. The new statue will be 28 feet high. Till the statue is completed, a hologram statue of Netaji will be placed under the canopy. The canopy **used to have a statue of King George V, which was removed in 1968**.

#### About India Gate

The India Gate was built by the British after the World War I (WWI). It was earlier known as the All India War Memorial. The India Gate was designed by Sir Edwin Lutyens and was unveiled by Lord Irwin in 1931. It was erected as a memorial to around 90,000 Indian soldiers of the British Indian Army, who had died in several wars and campaigns till then including the WWI. Names of more than 13,000 dead soldiers are mentioned on the memorial commemorating them. As it was a memorial for the Indian soldiers martyred in wars, the Amar Jawan Jyoti was established underneath it by the government in 1972.

#### About the National War Memorial

The National War Memorial was inaugurated in February 2019, in an area of around 40 acres. It was built to commemorate all the soldiers who have laid down their lives in the various battles, wars, operations and **conflicts of Independent India**.

The architecture of the memorial is based on **four concentric circles**.

Largest is the **Raksha Chakra** or the circle of protection which is marked by a row of trees, each of which represent soldiers, who protect the country.

The **Tyag Chakra**, the circle of sacrifice, has circular concentric walls of honour based on the *Chakravyuh*. The walls have independent granite tablets for each of the soldiers who have died for the country since Independence (26,466 names as of January 2022). A tablet is added every time a soldier is killed in the line of duty.

The **Veerta Chakra**, the circle of bravery, has a covered gallery with six bronze crafted murals depicting the battles and actions of our Armed Forces.

The final is the **Amar Chakra**, the circle of immortality, which has an obelisk, and the eternal flame. The flame from the Amar Jawan Jyoti at the India Gate has been merged with this flame, which has been kept burning since 2019 when the memorial was unveiled. The flame is a symbol of the immortality of the spirit of the fallen soldiers.

Busts of the 21 soldiers who have been conferred with the highest gallantry award of the country, **Param Vir Chakra**, are also installed at the memorial.

### Commemorating Netaji Subhash Chandra Bose

(a) The Government has declared 23rd January as **Parakram Diwas** to commemorate the 125th birth anniversary of Netaji Subhas Chandra Bose; (b) The Government has instituted the annual Subhas Chandra Bose **Aapda Prabandhan Puraskar** to recognize and honour the invaluable contribution and selfless service rendered by individuals and organisations in India in the field of disaster management. The award is announced every year on 23rd January; (c) The Republic Day celebrations from this year will start on January 23 instead of January 24 to include the birth anniversary of Netaji Subhas Chandra Bose.

### #7 No Build Zone around Monuments

**News:** The Centre plans to bring a change in the policy of keeping a **100-metre area** around Centrally-protected monuments prohibited for construction activity. This policy could be replaced with site-specific limits to be decided by an expert committee. Union Culture Ministry is working on amendments to the **Ancient Monuments and Archaeological Sites and Remains (AMASR) Act, 1958**.

#### About the AMASR Act:

AMASR Act provides for the preservation of ancient and historical monuments, archaeological sites, remains of national importance, for the regulation of archaeological excavations and for the protection of sculptures, carvings and other like objects. The act provides for the preservation and protection of all historic monuments that have been declared to be of national importance by the Ancient and Historical Monuments and Archaeological Sites and Remains (Declaration of National Importance) Act, 1951 and by section 126 of the States Reorganization Act, 1956. The AMASR Act, 1958, was amended in 2010 to declare the 100-metre radius of protected monuments as prohibited areas and the next 300-metre radius as regulated areas. However, according to a recent Parliamentary Standing Committee report there seems to be no specific reason for this classification.

#### Proposed Changes:

The proposed amendment will seek to bring a change in **Section 20A** of the Act which deals with declaration of prohibited areas and carrying out public works in prohibited areas. **Expert monument committees would decide the prohibited area around a monument**. These areas could be as wide as 500 meters for some sites like the Taj Mahal. The amendment to this provision would enable the ASI to hold the relevant authorities liable in case of illegal buildings at a protected site and thus help in curbing the menace of encroachment.

## Miscellaneous

### #1 Coastal Vulnerability Index

**News:** Indian National Centre for Ocean Information Services (INCOIS) has prepared the Coastal Vulnerability Index (CVI).

#### About the Coastal Vulnerability Index (CVI)

INCOIS has carried out a **coastal vulnerability assessment** for the entire Indian coast at States level. It has brought out an Atlas comprising 156 maps to prepare a Coastal Vulnerability Index (CVI).

The atlas determines the **coastal risks** due to future sea-level rise based on the physical and geological parameters for the Indian coast.

The parameters: **(a)** Tidal range; **(b)** Wave height; **(c)** Coastal slope; **(d)** Coastal elevation; **(e)** Shoreline change rate; **(f)** Geomorphology; **(g)** Historical rate of relative sea-level change.

This assessment can be useful information for **coastal disaster management** and **building resilient coastal communities**.



#### Coastal Multi-Hazard Vulnerability Mapping

A coastal Multi-Hazard Vulnerability Mapping (MHVM) was carried out using parameters like sea level change rate, shoreline change rate, high-resolution coastal elevation, extreme water level from tide gauges and their return periods.

The maps depict coastal low-lying areas exposed to the coastal inundation.

## Pointly

### 1. I4Fund: India-Israel Industrial R&D and Technological Innovation Fund

I4F is a cooperation between the Department of Science and Technology (DST) and the Israel Innovation Authority. Its aim is to **promote, facilitate and support joint industrial R&D projects** between companies from India and Israel. The Focus areas are **Agriculture, Energy, Healthcare, Information & Communication Technologies (ICT) and Water**.

**Global Innovation & Technology Alliance (GITA)** is appointed to implement the I4F program in India, while **Israel Innovation Authority** is the implementing agency in Israel.

### 2. Nusantara: New Capital of Indonesia

Indonesian parliament has approved a Bill to **relocate the Nation's capital from Jakarta to Kalimantan area on Borneo Island**. The new centre will be called 'Nusantara'. It is a Javanese name for the Indonesian archipelago chosen by the President. The **current capital Jakarta** suffers from issues like **chronic congestion, floods and air pollution**.





### 3. Exercise Milan

Exercise Milan is a **biennial multilateral naval exercise conducted by the Indian Navy**. It was first held in the year 1995 in the Andaman and Nicobar Islands.

The exercise is **being held in Visakhapatnam for the first time instead of the Andaman and Nicobar Islands**. The theme of the exercise is 'Camaraderie Cohesion Collaboration'.

The exercise will see participation from **around 40 countries such as the US, Russia, Australia, UK, Japan, South Korea, France and Israel, Saudi Arabia** among others.

### 4. Exercise Paschim Lehar

It is a **joint maritime exercise** conducted under the aegis of Western Naval Command. Its objective is to **enhance Inter-Service synergy among the Indian Navy, Indian Air Force (IAF), Indian Army and Coast Guard**. The exercise included the participation of ships and submarines of the Indian Navy, Aircrafts of IAF, various elements of Army and Patrol Vessels of Coast guard.

### 5. Sela Tunnel Project

Sela Tunnel Project is located in the **West Kameng District of Arunachal Pradesh**. The tunnel is a part of the Balipara-Chariduar-Tawang (BCT) road, one of the key strategic projects near the Chinese border. The tunnel will be the **longest twin-lane tunnel above 13,000 feet in the world** and will **provide all-weather connectivity to Tawang**. The project will also allow **faster deployment of weapons and soldiers** to forward areas in the Tawang sector.



### 6. Bomb Cyclone

A bomb cyclone is a **winter cyclone**. It occurs through the process known as **bombogenesis**. The word 'bombogenesis' is a combination of cyclogenesis (the formation of a cyclone) and bomb. A bomb cyclone occurs when a mid-latitude cyclone rapidly intensifies. Bomb cyclones are preceded by rapid drop in pressure: It occurs when a storm's central barometric pressure drops at least 24 millibars in 24 hours. The lower the pressure, the more powerful the storm.

### 7. Army tag for a new Gecko

Herpetologists have found a new species of a **bent-toes gecko in Umroi Military Station, Meghalaya**. The scientific name of the species is **Cryptodactylus exercitus**. In Latin, exercitus means army. Since the species was found in a military base, it was named in such a manner to honor the Army for its services to the nation. **India has 40 species** of the bent-toed gecko and the **northeast accounts for 16** of them.

### 8. SVAMITVA (Survey of Villages and Mapping with Improved Technology in Village Areas)

SVAMITVA is an ongoing scheme launched by PM Modi in April 2021. The scheme plans to prepare **digital maps of all of India's 6,00,000 villages**. **3D maps** will be created **for 100 cities** across India. The scheme uses drones to prepare a variety of maps useful in forest management, disaster management, electrical utilities, land records, water distribution, and property taxation. The updated guidelines have liberalized the approval mechanism of the scheme making it easier for the private companies to prepare maps, use drones and develop applications via location mapping.

### 9. Crimson Rose Butterflies fly across Indian Ocean to reach Sri Lanka

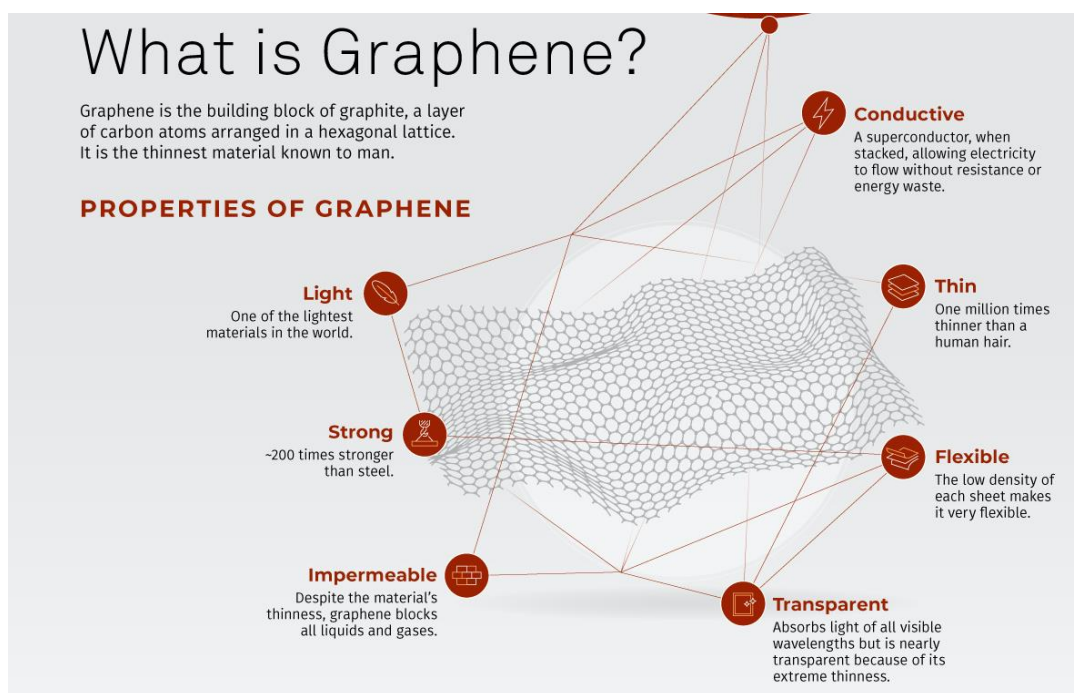
Thousands of crimson rose butterflies (scientifically named - **Pachliopta hector**) were seen in **Dhanushkodi, Rameswaram Island** in India flying across the Indian Ocean to reach Sri Lanka. *Pachliopta hector* is a large swallowtail butterfly belonging to **Papilionidae** family. It is known to migrate along coasts and seas. These butterflies, because of their brightly colored wings, are a delight to watch especially when they make small stops on flowering plants to fuel their long journey.

### 10. Black Percher Dragonfly sighted in Seshachalam Hills

Black percher or **black ground skimmer (Diplacodes lefebvrii)** is a species of dragonfly. It belongs to the **phylum arthropoda**, class **insecta** and order **odonata**. Range: It is a very widespread and common species in **Africa** and **southern Eurasia**. In India, it has been sighted in forest locations of Karnataka and coastal Andhra Pradesh. But this appears to be its maiden appearance in the **Seshachalam** ranges. It is recorded from almost all kinds of well-vegetated freshwater habitats, including seasonal. It is also known to move near forest streams.

### 11. Graphene Innovation Centre in Thrissur, Kerala

The Government of Kerala has announced the country's first Graphene Innovation Centre. Graphene is a **one-atom-thick layer of carbon atoms arranged in a hexagonal lattice**. It is the **thinnest, most electrically and thermally conductive material** in the world. It is also **flexible, transparent and incredibly strong**. Graphene has widespread use in **bio-medical applications** (like targeted drug delivery, testing kits), composites and coatings, electronics, batteries, membranes to separate materials, ultra-sensitive sensors etc.



## 12. EOS-04 Satellite

ISRO has launched the EOS-04 Satellite on board the PSLV-C52. EOS-04 is the **fourth in the series of earth observation satellites**. It is a **Radar Imaging Satellite**, weighs about 1710 kg and will be placed in a sun-synchronous polar orbit. It will provide **high-quality images under all weather conditions** for applications such as agriculture, forestry and plantations, soil moisture & hydrology, and flood mapping. **EOS-02** is yet to be launched. It is a **microsatellite** to be flown on a new launch vehicle called **SSLV (Small Satellite Launch Vehicle)**.

At present, India has **53 operational satellites**, of which 21 are earth observation and another 21 are communication-based. The other eight are navigation satellites and 3 are science satellites.

## 13. m-WRAPR

Azooka Labs, a start-up at the Indian Institute of Science (IISc) has launched mWRAPR. It is India's **first indigenous bio-sample collection kit**. It can be used as a **bio-sample collection kit** and storage medium for samples destined for **genomic sequencing labs, biobanks and research labs handling biological samples for molecular analysis**. The kit helps to preserve genetic content in all types of biological samples including microbiomes, saliva, cells, tissues, blood, body fluids and fecal tubes.

## 14. Denison Barb (Miss Kerala)

Denison barb (Miss Kerala), a fish species, has been included in Schedule I of the Wild Life (Protection) Amendment Bill, 2021. It is also known as red-line torpedo barb, or roseline shark. It is a **native freshwater fish species**, commonly found in parts of Karnataka and Kerala. Its **IUCN Status** is endangered. The fish species is being exploited for the aquarium trade. Inclusion in Schedule I is being opposed on the grounds that it is found in 11 rivers and the income from it acts as an incentive for fishermen to protect habitats.

## 15. Tiger Range Countries

Tiger Range Countries are the countries where the tigers are still found in the wild. At present there are 13 Tiger Range Countries. These countries are **Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Myanmar, Malaysia, Nepal, Russia, Thailand, and Vietnam**.

## 16. White Cheeked Macaque

Scientists from the Zoological Survey of India (ZSI) have found a new mammal species named 'White Cheeked Macaque' in central Arunachal Pradesh. Its **scientific name is** *Macaca leucogenys*. **This macaque is distinct from other macaques** found in the region as it displays white cheeks, long and thick hairs on the neck area and a longer tail. With this discovery, India's mammal count increases from 437 to 438.

## 17. Spot-Billed Pelican or Grey Pelican

It is a member of the pelican family. It is a large pale waterbird with a hefty pinkish pouched bill marked with dark spots on the upper mandible. Its **IUCN Status is Near Threatened** and it falls in Schedule IV of the **Wildlife (Protection) Act, 1972**.

It is a bird of large inland and coastal waters, especially large lakes. A parasitic (nematode) infestation has led to mass deaths of spot-billed pelicans (*Pelicanus philippensis*) in Andhra Pradesh.

## 18. Basai Wetland

The Basai Wetlands has shrunk to a quarter of its original size over the years.

It is located in Gurgaon, Haryana. The wetland lies in one of the **paleochannel** of the **Sahibi River**, a tributary of Yamuna which originates from the Aravalli range in Rajasthan and flows through west and South Haryana into Delhi where it is also known as the Najafgarh drain. It houses 20,000 birds of over 280 species including migratory birds and endangered birds. It is recognised as a **Key Biodiversity Area**.

by the IUCN and the Wildlife Institute of India and as an Important Bird Area (IBA) by BirdLife International.

### 19. Septemeranthus

A new genus of a **parasitic flowering plant** named 'Septemeranthus' has recently been discovered from the **Nicobar group of islands**. Septemeranthus belongs to the family Loranthaceae, a **hemi-parasite** under the sandalwood order Santalales. It is **endemic only to the Nicobar group of islands**. It partially depends on its host but also has leaves capable of photosynthesis.

### 20. Difference between Parasitic and Hemi-Parasites Plants

TOTAL PARASITE VERSUS PARTIAL PARASITE	
TOTAL PARASITE	PARTIAL PARASITE
A complete parasite that depends on the host to fulfil all its requirements	A parasite that depends on the host for some requirements
Depend on the host plant for sugar, minerals, and water	Photosynthetic and produce their own food, depending on the host for water and shelter
Called holoparasitic plants	Called hemiparasitic plants
Achlorophyllous (does not contain chlorophyll)	Chlorophyllous (contain chlorophyll)
Ex: dodder, broomrape, and Rafflesia	Ex: Castilleja, mistletoe, yellow rattle, etc.

### 21. Other Effective Area-based Conservation Measures Site

**Aravalli Biodiversity Park** has been declared India's first '**Other Effective Area-based Conservation Measures**' (OECM) site. The OECM tag is given by the IUCN. The tag is conferred upon areas that have **achieved effective in-situ conservation of biodiversity**, but are outside protected areas like national parks and sanctuaries. The OECM tag does not bring any legal, financial or management implications but designates the area as a biodiversity hotspot on the international map.

### 22. Aravalli Biodiversity Park

The Aravalli Biodiversity Park is located in Gurugram. It has **semi-arid vegetation** with lots of native plants, trees, shrubs and several species of birds. The park was transformed into a city forest from a 40-year-old mining site through the efforts of citizens, ecologists and scientists along with the help of the urban local body of Gurugram.

### 23. One Ocean Summit

The One Ocean summit is being **organised by France in cooperation with the United Nations and the World Bank**. The objective of the summit is to mobilise the international community to take **tangible action towards preserving and supporting healthy and sustainable ocean ecosystems**. The United Nations has declared the decade between 2021 and 2030 as the '**Decade of Ocean Science for Sustainable Development**' to raise awareness and restore declining marine life.

### 24. World Sustainable Development Summit (WSDS)

It is an annual event organized by **The Energy and Resources Institute (TERI)** since 2001. The summit was earlier known as **Delhi Sustainable Development Summit**. Its aim is to bring together a wide



number of participants in the **fight against climate change**. Participants include governments, business leaders, academicians, climate scientists, youth, and civil society.

### 25. Lassa Fever

Lassa fever-causing **virus is found in West Africa**. It was first discovered in 1969 in Lassa, Nigeria. The **virus spreads by rats**. A person can become infected if they come in contact with items that is contaminated with the urine or faeces of an infected rat. It can spread from person to person through bodily fluids or through mucous membranes like eyes or nose. The death rate associated with this disease is low, at around 1%. The antiviral drug ribavirin seems to be an effective treatment for Lassa fever if given early on in the course of clinical illness.

### 26. e-Government Development Index (EGDI)

The **United Nations Department of Economic and Social Affairs (UN DESA)** has been publishing the EGDI and survey report since 2001. The Survey assesses the **e-government development status** of all UN Member States. The EGDI is the weighted average of 3 dimensions of e-Government: **(a) The Scope and quality of online services** (Online Service Index, OSI); **(b) The Status of the development of telecommunication infrastructure** (Telecommunication Infrastructure Index, TII); **(c) The inherent Human Capital** (Human Capital Index , HCI). **India has been ranked 100<sup>th</sup> (out of 193) in 2020**, up from 118<sup>th</sup> in 2014. India had achieved 96<sup>th</sup> rank in 2018.

### 27. Kala Kumbh

Kala Kumbh was organised by the **National Gallery of Modern Art (NGMA)**. It was an artist workshop for painting scrolls representing the **tales of valour of unsung heroes of India's freedom movement**. The works of art done on the gigantic scrolls formed an integral part of the Republic Day celebrations 2022. Inspiration had also been drawn from the illustrations in the Constitution of India which have been **done by Nandalal Bose**

### 28. National Gallery of Modern Art

It is a premium art gallery under the **Ministry of Culture**. It was **established in 1954** by then Vice-President **Dr S Radhakrishnan**. It is a repository of the cultural ethos of the country and showcases the changing art forms through the passage of the last hundred and fifty years, starting from about 1857 in the field of Visual and Plastic arts. It is headquartered in **Jaipur House, New Delhi**.

### 29. Medaram Jatara

Medaram Jatara also known as **Sammakka Saralamma Jatara** is a **tribal festival** held in the state of Telangana. The festival is conducted in honour of the Goddesses **Sammakka and Saralamma**. It is celebrated **once in two years** in the month of 'Magha' (February) on the full moon day. It is the **second-largest fair in India, after the Kumbh Mela**. It is organised by **Koya Tribe** in collaboration with the Tribal Welfare Department, Government of Telangana.

### 30. Koya Tribe

**Koya** is a tribal group found in Southern and Central India, especially **Chhattisgarh, Telangana, Andhra Pradesh and Odisha**. Koyas speaks the Koya language, also known as **Koya Basha** and is a member of the **Dravidian language family**. The Koyas are mainly **settled cultivators and artisans** expertise in making bamboo furniture including mats for fencing, dustpans, and baskets. They grow Jowar, Ragi, Bajra and other millets.

### 31. Use of Drones to transport Lakadong Turmeric in Meghalaya

Drones have been used for the transportation of **Lakadong turmeric from Meghalaya** to other parts of the country. Lakadong turmeric faces severe market access issues due to the **remoteness of the**

**location, topography and terrain.** Lakadong turmeric has been identified under the **One District, One Product (ODOP)**. This turmeric has the highest curcumin content of 7-9% (in comparison to 3% or less in other varieties). Meghalaya has also **applied for a Geographical Indication tag** for Lakadong turmeric.

### 32. One District One Product Scheme

One District One Product (ODOP) is an initiative towards realizing the true potential of a district. Its aim is to **identify one product per district based on the potential and strength of a district** and national priorities. A cluster for that product will be developed in the district and market linkage will be provided for that. This will help **convert each district of the country into an Export Hub** by identifying products with export potential. It also aims to address bottlenecks in exporting products and support local manufacturers. It is an **initiative of the Department for Promotion of Industry and Internal Trade (DPIIT)**.

### 33. Swachhta Start-up Challenge

The Ministry of Housing & Urban Affairs (MoHUA) in partnership with the Department of Promotion of Industry and Internal Trade (DPIIT) and **Agence Française de Développement (AFD)** has launched the Swachhta Start-Up Challenge. Its aim is to provide an **impetus to innovative start-ups to drive transformation in the sanitation and waste management sector**. The challenge is open across 4 thematic areas: **(a)** Social inclusion; **(b)** Zero dump (Solid Waste Management); **(c)** Plastic waste management; **(d)** Transparency through digital enablement.

### 34. NECTAR

North East Centre For Technology Application and Reach (NECTAR) is an **autonomous society** set up under the Department of Science & Technology. The Centre looks at **harnessing and leveraging niche frontier technologies** available with Central Scientific Departments and Institutions for **public and social good** and to **expand the benefits of technology for equitable and inclusive social and economic development of the North Eastern Region of our country**. It is headquartered in Shillong. The NECTAR under the **Saffron Bowl project** has identified few locations in Arunachal Pradesh and Meghalaya for saffron cultivation.

### 35. Saffron Bowl Project

It has been launched to **expand the cultivation of saffron from Kashmir to the North-East India**. Pampore in J&K is called **Saffron Bowl of Kashmir** and **Pampore Saffron Heritage is one of the Globally Important Agricultural Heritage systems (GIAHS)** recognised sites in India. Saffron is used to make saffron spice. It is a very precious and costly product. It is cultivated and **harvested in the Karewa (highlands) of Jammu and Kashmir**.

### 36. Assistance to National Sports Federations (ANSF)

The Union Government has approved continuation of Scheme of Assistance to National Sports Federations (NSFs) from 2021-22 to 2025-26. It is the flagship Central Sector Scheme of the Ministry of Youth Affairs and Sports. The scheme is the main source of **funding for preparation of national teams for all major competitions**, including the Olympic Games, Paralympics, Asian Games, Para Asian Games, Commonwealth Games (CWG) and other major international tournaments. The scheme also aims to **improve the bench strength of Indian athletes** through a **strong talent identification and development system**.

### 37. Charkha Kranti

The Charkha Kranti is an initiative launched by the **Khadi and Village Industries Commission (KVIC)** to **popularize Charkha and the symbolism of Charkha across the globe**. Under this, KVIC has undertaken several steps like; **(a)** World's largest wooden Charkha has been installed at the IGI Airport,

New Delhi; **(b)** The Biggest Ever Charkha distribution in Independent India was held at Ludhiana, Punjab; **(c)** Pietermaritzburg station in South Africa sported a Khadi look and trains draped in Khadi fabric. It was the first such program sponsored by KVIC on foreign soil; **(d)** Stainless Steel Charkha was unveiled in Bihar to commemorate **Champan Satyagraha** centenary celebrations etc.

### 38. Operation AAHT

The Railway Protection Force (RPF) has launched 'Operation AAHT'. It has been **launched to curb human trafficking**. As part of the operation, special teams will be deployed on all long-distance trains/routes with focus on rescuing victims, particularly women and children, from the clutches of traffickers. Through Operation AAHT, the RPF could act as a **bridge cutting across States** to assist the local police in the mission to curb the menace.

### 39. SAMRIDH Initiative

Atal Innovation Mission (AIM), NITI Aayog and U.S. Agency for International Development (USAID) announced a new partnership under **the Sustainable Access to Markets and Resources for Innovative Delivery of Healthcare (SAMRIDH) Initiative**. SAMRIDH initiative has been launched in 2020. The purpose of the initiative is to **create and rapidly scale market-based health solutions**. The collaboration **aims to improve access to affordable and quality healthcare for vulnerable populations in tier-2 and tier-3 cities, and rural and tribal regions**.

### 40. National Single Window System (NSWS)

The National Single Window System (NSWS) was launched in 2021 by the Union Minister for Commerce and Industry. It is a **digital platform that serves as a guide for investors to apply for approvals**. The platform eliminates the need for investors to visit multiple Platforms and offices to gather information and obtain clearances from different stakeholders. 20 Ministries and Departments have been integrated into NSWS. 14 States/UTs have been onboarded.

### 41. Paray Shikshalaya

The **Government of West Bengal** has launched 'Paray Shikshalaya' Initiative. It is an **open-air classroom initiative for students from class 1 to 7**. Its aim is to **encourage students who dropped out of schools** during the COVID-19 pandemic to continue their education. Under the initiative, schools which have open-air spaces held the classes there. Students are being called in batches and **arrangements for mid-day meals** have also been made for the students taking these classes.

### 42. Vigyan Jyoti Scheme

The Vigyan Jyoti programme is being implemented in 100 schools in the country and all the schools are situated in rural areas. The Nodal Ministry is **Department of Science & Technology**. Its aim is to **address the underrepresentation of women in different fields of Science Technology Engineering and Mathematics (STEM)** in the country. The scheme envisages **hand-holding and interventions from Class IX and till the PhD level to encourage girls** to pursue a career in underrepresented areas of STEM. **Navodaya Vidyalaya Samiti (NVS)**, an autonomous organization of the Ministry of Education, is the **implementation partner of Vigyan Jyoti**.

### 43. National Institute of Career Services (NICS)

National Institute for Career Service (erstwhile Central Institute for Research and Training in Employment Service) was set up in 1964 under Directorate General of Employment (DGE), Ministry of Labour & Employment. Its aim is to be a National Centre of Excellence to provide enhanced employability through Training, Research & Capacity Building Programme in the area of Employment under National Employment Services.

#### 44. Prammarsh

NICS has launched **Prammarsh**, an online counselling workshop. The aim of Prammarsh is to bridge the industry-academia gap and spread awareness about various choices available to students under the National Education Policy (NEP) 2020.

#### 45. Support for Marginalised Individuals for Livelihood and Enterprise (SMILE) Scheme

The **Union Minister for Social Justice and Empowerment** has launched the SMILE Scheme. It is a Central Sector Scheme. Its aim is to provide welfare and **rehabilitation to the Transgender community and the people engaged in the act of begging**. It has two sub-schemes: **(a)** Comprehensive Rehabilitation for Welfare of Transgender Persons that includes **scholarships** for transgender students, **skill development**, medical and housing facility (**Garima Greh**) among others; **(b)** Comprehensive Rehabilitation of persons engaged in the act of Begging that includes **provision of shelter homes, outreach initiatives** etc.

#### 46. Promotion of University Research and Scientific Excellence (PURSE) Program

PURSE is one of the flagship Infrastructure programs of the **Department of Science and Technology**, launched in 2009 exclusively for the University sector. The main objective of the scheme is to **strengthen the research capacity of Indian Universities** and provide support for nurturing the research ecosystem and strengthening the R&D base of the Universities in the country.

NOTE : With effect from 1<sup>st</sup> February, the monthly ForumIAS Epic Magazine, for the month will provide wholistic coverage for the said month up to 20<sup>th</sup> of the month. This ensures that issues / stories that occur after 21st of the month are allowed to fully develop and are covered wholistically in the next month.