1. **The pivotal role of sport in an aspirational India**

- A sound mind lies in a sound body. There is growing evidence that **sports act as a catalyst for the development of personal and social skills among youngsters.** The **potential of sports to be considered as a career** option gives rise to the question of its position and preference compared to other **conventional career alternatives.**
- Pursuing sports as a career face numerous obstacles in India, including **socioeconomic, linguistic, cultural, dietary habits, societal taboos, and gender bias that hinder a huge chunk of India's young aspiring population** to continue their passion for sports.
- There is a need to **reshape sports governance in India and look forwards towards democratisation of sports culture.**

Sports Governance in India

- In the early**1950s**, the Federal Government created the **All India Council of Sports (AICS)** to apprehend the declining standards of sports in the country.
- In 1982, after Asian games, the **Department of Sports** was transformed into the **Department of Youth Affairs and Sports.**
- In 1984, the **National Sports Policy was initiated.**
- In 2000, the Department was converted into a **Ministry of Youth Affairs and Sports (MYAS).**
- In 2011, the Ministry of Youth Affairs and Sports notified the **National Sports Development Code of India 2011.**
- In 2022, the Ministry of Civil Aviation launched **National Air Sport Policy 2022 (NASP 2022) for Aerobatics, Aeromodelling, Ballooning, Drones, Hang gliding and powered hang gliding, Parachuting**

Challenges Related to the Sports Sector in India

- **Lack of Parental Push:** In India **most families pressurise their children to outshine in academics** and work hard towards becoming an **Engineer, Doctors or successful entrepreneur.**
  - The underlying feeling is that **sports do not fetch a decent livelihood or make one wealthy.**

- **Social and Economic Inequalities:** Social and economic inequalities have a negative impact on Indian sport.
  - Denial of access to sports infrastructure **due to poverty, concentration of stadiums and other sports avenues only in cities, lack of encouragement to girls to participate in sports,** etc, have **impaired the development of a positive sports culture** in the country.
- **Policy Lacunae:** For the development of any sector, **formulation and execution of an effective policy is a sine qua non.**
  - This is true for sports also. Till date, the **sports policy planning and implementation is centralised in the country** due to the paucity of resources, this has led to many incidents like **IPL Spot Fixing**, **Olympic Games bidding scam, Sexual harassment incidents in women's hockey teams.**
- **Corruption and Mismanagement of Sports Authorities:** Corruption has become synonymous with sports administration in India.
  - Whether it is the most popular cricket or hockey or weightlifting, most of the **sports authorities in India have come under attack due to corruption charges.**
  - Besides, the **involvement of politicians in the administration of sports bodies for a very long period** and **controversies surrounding the 2010 Commonwealth Games,** dented the image of sports administrators in India.
- **Use of Performance Enhancing Drugs:** Use of **performance enhancing drugs** is still a major problem in the sports sector. India ranks **first when it comes to Anti-Doping Rule Violations** or the World Anti-Doping Agency's Adverse Analytical Findings.
  - This problem still needs to be addressed effectively, despite the creation of the **National Anti-Doping Agency** in the country.
- **Empty Playgrounds:** Modern technology and **video games have distracted children from playing physical games.** Today many children are on their mobile phones instead of playing with their friends on the playground.
  - Due to this the **young children are becoming susceptible to many diseases at an early age**, like **diabetes and hypertension**.

Recent Government Initiatives Related to the Sports Sector

- **Samagra Shiksha Abhiyaan**
- **Fit India Movement**
- **Khelo India**
- **SAI Training Centers Scheme**
- **Sports Talent Search Portal**
- **National Sports Awards Scheme**
- **Target Olympic Podium**

Looking ahead

- **Democratisation of Sports Culture**: There is a need to r**evive India's sports culture at the grass-root level** by creating a **strong framework for sports governance in India.**
  - **Sport has historically taken a back seat in the Indian education system. A shift in school attitudes about sports has the potential to reshape the sporting landscape in India.**
    - The **Fit India Movement mentions** that the **schools are also allowed to include traditional and regional games in the curriculum** but making **sports a mandatory component of the curriculum** needs to be clarified.
  - **Equal Push to All Sports:**It is high time the **public and private sector should come together** to lift the Indian sport sector from the **present deplorable situation.**
    - Extension of **Justice Lodha Committee recommendations on BCCI to all other sports bodies** will be a right step in this direction.
  - **Promoting Gender Equality:** There is a need to **break down the stereotypes that continue to make women less likely to take up sporting activities.** It also means promoting women's advancement as professional athletes and **leaders in the sport sector.**
    - There is also a need to **close the gap in investment in women's sport and promote equal economic opportunities for women and girls. BCCI"s Gender Pay Parity** initiative is a good step in this direction.

	▪ **Filling Up Infrastructural Loopholes:** India must **invest heavily in building modern infrastructure** with **international best practices in sports training, sport medicine, research, and analysis** across all sports institutions in order to become a leading sports nation. ▪ The quality of infrastructure can be scaled up to the village level and **regional centres should be made available for those who are serious at taking their sporting career to professional level.** ▪ **Ocean of Job Opportunities:** Sports are being revolutionised by new technological interventions like **Semi-Automated Offside Technology (SAOT), an artificial intelligence sensor getting used inside footballs in FIFA World Cup 2022 games to detect offsides.** ▪ There are many jobs being created via this technological revolution in sports, **especially in the field of Artificial Intelligence and Data Science.** This can benefit India's young demographic dividend.
2.	**Have GM crops caused damage to the environment?** ▪ Now-a-days with the **rapid advance in research and development in Agricultural Biotechnology,** countries are approving many **genetically modified crops for commercial release** and agricultural production. ▪ Though, it is widely claimed that **Genetic modified organisms (GMO)**offer dramatic promise for meeting some of the greatest challenges but it also poses certain risks, because it brings together **new gene combinations which are not found in nature** having possible harmful effects on **health, environmental and non-target species.** ▪ **Therefore, Genetically Modified crops must be carefully scrutinised** before they can be put into production. <u>Genetic Modification</u> ▪ "Genetic modification" involves altering the genes of an organism, be it a plant, animal or microorganism.

- **GM technology involves direct manipulation** of **DNA** instead of using controlled pollination to alter the desired characteristics.
- It is one the **approaches to crop improvement,** all of which aim at **adding desirable genes and removing undesirable ones** to produce better varieties.

Current State of GM Crop Cultivation in India

- Indian farmers started cultivating **Bt cotton**, **a pest-resistant**, genetically modified version of cotton, in 2002-03.
- Bt modification is a type of genetic modification where the Bt gene obtained from the **soil bacterium Bacillus thuringiensis** is introduced into the target crop, in this case, cotton.
  - **Bt cotton is resistant to bollworm, a pest that destroys cotton plants.**
- By 2014, around **96% of the area under cotton cultivation in India was Bt cotton, making India the fourth-largest cultivator of GM crops** by acreage and the **second largest producer of cotton.**
- Apart from cotton, there are **more than 20 crops under research and development in about 50 public and private sector organisations in India.** Out of these, 13 crops have been approved for contained limited field trials in India.
- In October 2022, **Genetic Engineering Appraisal Committee (GEAC)**under the **Union Ministry of Environment, Forest and Climate Change** recommended the **"environmental release" of the transgenic hybrid mustard DMH-11** for seed production.

Regulation of Genetic Modified Crops in India

- In India, strict regulations are in place to control threats to animal health, human safety, and biodiversity at large during the **processes of development, cultivation and transboundary movement of GM crops.**
- Acts and rules that regulate GM crops in India include:
  - **Environment Protection Act, 1986 (EPA)**
  - **Biological Diversity Act, 2002**
  - **Plant Quarantine Order, 2003**
  - **Food Safety and Standards Act, 2006**

- **Drugs and Cosmetics Rule (8thAmendment), 1988**
- Broadly, the rules cover:
  - All activities related to research and development of GMOs
  - Field and clinical trials of GMOs
  - Deliberate or unintentional release of GMOs
-

Challenges Associated with GM Crops

- **Ecological Concerns:** Gene flow due to cross pollination can result in **development of tolerant or resistant weeds** that are difficult to eradicate.
  - GM crops **could lead to erosion of biodiversity and pollute gene pools** of endangered plant species.
  - **Genetic erosion has already** occurred as the farmers have replaced the use of **traditional varieties with monocultures.**
- **Loss of Nutritious Value:** As **genetic modification focuses more on increasing crops" production**, extending their lifespan, and **deterring pests**, some crops" nutritional value has sometimes been compromised as well.
  - It has been reported that **some genetically modified foods drastically lacked nutritional value when compared with the original variety.**
- **Threat to Wildlife:** Altering the genes of plants can also have serious effects on wildlife. For example, **genetically modified plants, such as tobacco or rice, used to make plastic or pharmaceuticals,** can pose a **threat to mice or deer that eat crop debris after harvesting.**
- **Risk of Toxicity:** Due to the nature of the product changes after genetic modification it becomes an alien for human metabolism.
  - Sometimes, **newer proteins in transgenic crops** that are not **consumed as food can become allergens and pose a risk of toxicity.**

Risks of GMOs

Environmental	Health	Agricultural
Toxins in pest-resistant GMOs could negatively impact non-target organisms and harm ecosystems.	Proteins transcribed and translated from transferred genes could cause allergic reactions in humans or other animals – *currently GM foods are not properly labeled.*	GMOs with pest toxins could increase evolution of resistance in certain pest populations.
Cross-species pollination could spread herbicide resistance genes and create 'super-weeds'.	Antibiotic resistance genes used as markers during gene transfer could spread to pathogenic bacteria.	Big biotech companies hold monopolistic legal rights (patents) over GM seeds.
Biodiversity could be negatively affected by destruction of pests, weeds, and even competing plants.	Transferred genes could mutate and cause unexpected risks.	GMOs do present two major agricultural problems in the forms of pesticide- and herbicide-resistance.

Looking ahead

- **Curbing Illegal Cultivation of GM Seeds**: In order to curb **the illegal cultivation of GM seeds, the Genetic Engineering Appraisal Committee (GEAC)**should:
  - Collaborate with state governments and **launch a nation-wide investigation drive.**
  - Take action on **threats of deliberate GM crop cultivation.**
  - Investigate and **prosecute those involved in the illegal supply of GM Seeds.**
  - Encourage **organic farming along with the GM crops.**
- **Indigenous Gene Banks:** Native varieties should be preserved due to their ability to adapt to diseases and nutritional value. **Gene banks can be established to assist various research institutions** in conducting research and to help conserve indigenous varieties.
- **Blending Modern and Traditional Technology:** Supporting **precise agriculture technologies** with regulatory measures that **preserve indigenous methods of farming** is essential for **agricultural sustainability in India.**
  - **Promoting investment will motivate all technology developers to take interest in crops that are relevant to India** and using technologies for which there is a clear regulatory framework.

	▪ **Comprehensive Move Towards Sustainability:** To create better food options and sustainable crop management, **genetic modifications must be combined with improved farming credit, better use of water, and reduced waste.** ▪ **Environmental Impact Assessment (EIA):Compulsory Environmental Impact Assessment** must be carried out by regulatory bodies in collaboration with independent environmentalists to **assess the long-term impact of GM crops on ecology and health.**
3.	**What are Hybrid Electric Vehicles (HEVs) and how do they work?** ▪ **Electric vehicles** have been **increasingly getting popular in India** over the past year. Other than the multiple consumer-oriented two wheelers and four wheelers that have launched lately, we have also seen **many public transport vehicles** like city buses go electric in cities like Mumbai and Delhi. ▪ However, while the **electric revolution continues**, many issues that stop consumers from **getting into electric vehicles or EVs continue to exist**. One of these is the lack of a widespread **charging infrastructure**, which potentially handicaps EV users from taking longer trips to more remote areas. To deal with these issues, brands have been coming up with **hybrid electric vehicles (HEVs)**– cars that club the benefits of both **petrol engines and electric motors**, while aiming to negate the cons of both. **What are Hybrid vehicles?** ▪ To understand **hybrid vehicles or HEVs**, let's have a quick recap of **how petrol and electric vehicles work**. Petrol vehicles work on petrol engines and use combustion to power the vehicle. Here, **controlled burning of fuel inside the car releases energy in the form of both heat and motion**, the latter of which is converted to the spinning of the wheels, via a complex mechanism of **pistons, shafts, gears and axles**. ▪ In an **electric car**on the other hand, **there is no engine** and there are no gears. The power comes from a **rechargeable battery**, and the vehicle moves with the help of an **electric motor**. All the energy

involved here is electric, which also means there aren't a lot of moving parts that require regular servicing. However, the battery itself does gradually lose its ability to retain the same amount of charge over time. Also, the range of most EVs available today in India is also limited.

- **In hybrid vehicles**, there are **multiple types of mechanisms that power cars**. The two most common ones are **series-hybrid** and **parallel hybrid**.

Series Hybrid cars

- As the name suggests, these **cars use an electric motor**, connected with a **petrol engine in series**. In such mechanisms, **the combustion engine has no contact with the wheels of the vehicle**, except **via the electric motor**. The working here relies on the petrol engine burning fuel and creating energy, but instead of creating kinetic and heat energy, a **generator converts the energy from the petrol engine directly to electricity**, which **powers the electric motor**, giving power to the car.
- **Most series hybrid vehicles**, while they rely on an electric motor, cannot be charged externally like **conventional electric cars**. They must be fuelled, as only the petrol engine can create the power to generate electricity for the electric motor.
- These vehicles are **great for regions like India**, where the infrastructure of electric charging remains scarce. Users still rely on fuel, but end up getting much better efficiency as the converted electric energy is more efficient than the combustion powering the vehicle directly. Additionally, mechanisms are also in place to recharge the electric motor every time you brake, resulting in further savings.

Parallel Hybrid cars

- With **parallel hybrid cars**, there is a **common transmission in the vehicle** that can **pull power from both the electric motor and the fuel engine**, both of which are connected **in parallel**. Such cars can be **completely automatic, manual, or even CVT (Continuous Variable Transmission) based** on the make and the mode a user drives in.
- In such a mechanism, the electric motor itself can only be recharged from regenerative braking, while the **fuel you put in the car will**

	power the engine. Since both the motor and the engine can power the wheels, users have more control for when they want to drive efficiently versus when they want more responsive, sporty driving at the cost of fuel efficiency. As a result, **wheel power keeps switching between the engine and the motor based on driving conditions**. ▪ **Parallel hybrid designs** are used by a number of brands like Toyota, Hyundai, Ford, Honda, etc. They are also more popular over series hybrid cars majorly for one reason – better performance. **Series Parallel Hybrid cars** ▪ While they may not be as common, cars that implement both a **series and a parallel hybrid architecture** in the same vehicle also exist. These cars, like the Toyota Prius, combine the benefits of a series connection and a hybrid connection. ▪ The wheels can now be **powered by both the electric motor and the fuel engine**, but power delivery is now in the hands of the user who can choose to power the vehicle completely by the **electric motor (series)**or the **engine (parallel)**. This works via a power switch that can choose where the wheels get their power from. **Which Hybrid cars are available in India?** ▪ While there are not a **lot of Hybrid vehicles** to choose from in India, manufacturers like Toyota and Honda have already entered the segment with cars like the Toyota Urban Cruiser Hyryder and the Honda City eHEV. Meanwhile, you also have options from brands like Maruti Suzuki, MG Hector and more expensive options from brands like Lexus and Porsche.
4.	**Astronomers spot 'planet killer asteroid': Is it a threat to Earth?** ▪ A team of astronomers has discovered **three massive near-Earth asteroids** hiding in the **glare of the Sun**. Of these, one called **2022 AP7**is believed to be the **largest planet killer-sized asteroid** to be spotted in nearly a decade, and is "**potentially hazardous**" to Earth. ▪ According to a study published in The Astronomical Journal, the **three asteroids are from a group** that is found within the **orbits of Earth**

and Venus. However, they are tough to spot as the **brightness of the Sun shields** them from **telescope observations**.

- In an interview with CNN, the lead author of the study, **Scott S Sheppard**, an astronomer at the Earth and Planets Laboratory of the **Carnegie Institute of Science** in Washington DC, said an asteroid like **2022 AP7**could have "**a devastating impact on life as we know it**" and could potentially lead to a "**mass extinction event**".

So, how did they spot the asteroids?

- Since they were concealed by the **Sun's glare**, the astronomers conducted their observation during **twilight hours**— a brief but favourable **10-minute window every night**. They used a **Dark Energy Camera** at the Cerro Tololo Inter-American Observatory in Chile.
- With the high-tech camera, a programme of the **US' National Science Foundation's (NSF's) NOIRLAB**, they were able to capture large swathes of the sky with immense sensitivity. The camera was originally built to carry out a **Dark Energy Survey**, conducted by the **US Department of Energy** and the NSF between 2013 and 2019.
- Apart from dealing with the **glare of the Sun**, the astronomers also had to tackle another major issue — since the **asteroids are close to the horizon**, they are **blurred** and distorted by the **Earth's atmosphere**.

Asteroids that are further away from the Sun are easier to detect.

What do we know about the asteroids?

- Scientists have so far discovered **only around 25 asteroids** with their orbits within **Earth's orbit**.
- Of these, Sheppard's team has now discovered three. "We have found **two large near-Earth asteroids** that are **about 1 kilometre across**, a size that we call planet killers," Sheppard said, speaking about two of the three discovered asteroids. The two — **2021 LJ4**and **2021 PH27** — have orbits that are safely constrained inside the limits of Earth's orbit. At less than a kilometre in diameter, **2021 LJ4 is the smallest in size**. The asteroid, **2021 PH27**, is the **closest known asteroid to the Sun**. Due to this; **its surface gets hot enough to melt lead**.

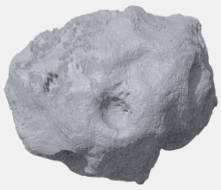
What about the 2022 AP7 asteroid?

- Among the **three asteroids**, one in particular stands out — the **5-kilometre-wide 2022 AP7 asteroid** has an orbit that may someday put it on a **collision course with our planet**. At present, researchers have **little information about the asteroid**, including further details on its possible trajectory and its composition.

Is there an immediate threat to Earth?

- At present, **the asteroid only crosses the Earth's orbit** while it is on the **opposite side of the Sun**e., when the **Sun comes between the Earth and the asteroid**. This will continue for several centuries as it takes the asteroid about five years to orbit the sun, according to a CNN report.
- An asteroid of this size could have a "**devastating impact**", Sheppard said, as the Earth's atmosphere would be **inundated with dust and pollutants for years**, preventing sunlight from entering.
- Over time, its **orbital movement will slowly evolve to be more in sync with Earth's**. As of now, however, Sheppard has said it will "**stay well away from Earth**", according to CNN.

How likely are we to be hit by an asteroid?

Asteroid size	Frequency	How common?	Damage caused
 25m	Once in 100 years	5m near Earth (0.4% found)	Explosion in sky - could cause injuries
 140m	Once in 20,000 years	25,000 (39% found)	1-2km crater - possible mass casualties
 1,000m	Once in 500,000 years	900 (more than 95% found)	10km crater - global devastation
 10,000m	Once in 100m-200m years	4 (100% found)	100km crater - mass extinctions

5. **To infinity and beyond: Indian space startups**

- The **Space domain** is expanding as never before, with **rapidly increasing investment from both the public and private sectors** and an accelerated pace of technological innovation, pioneering **The New Space Age.**
- **India's Space Economy** is likely to be worth nearly **USD 13 billion by 2025**, with the **satellite launch services** segment set to witness the fastest growth due to increasing private participation.

- The successful launch of **Vikram-S, India's first privately built rocket from start-up Skyroot,** has focused welcome attention on the **opening up of space to private enterprise.**
- While it **affords many opportunities, it also poses distinct challenges** that need to be examined to develop holistic perspectives of New Space and move towards peaceful and Sustainable Development in the Space sector.

Vikram S

- **Vikram S is a rocket** developed by **Indian Space Technology** startup **Skyroot** It is named after **Vikram Sarabhai**, the founder of India's space programme.
- It is a single-stage **sub-orbital launch vehicle** that would carry three customer payloads.
  - It has been **built using advanced technologies including carbon composite structures and 3D-printed components.**

Development in the Space Sector Important

- **Positive Carryover to Other Sectors:** Space avenue is an **integration of the aerospace, IT hardware and telecom sectors.** It is thus argued that investment in this arena would foster **positive carryover effects to other sectors as well.**
- **Connect the Unconnected**: As for connectivity, **satellite communication can reach more remote areas where conventional networks would require a heavy complimenting infrastructure.**
  - The **World Economic Forum** had stated (in September 2020) that **satellite communication can help connect 49% of the world's unconnected population.**
- **Tackling Climate Change:** Satellites provide **more accurate information on weather forecasts** and **assess (and record) long-term trends in the climate** and habitability of a region.
  - For example, by **monitoring the long-term impact of climate change** at regional, territorial, and national scales, **governments would be able to devise more pragmatic and combative plans of action** for farmers and dependent industries.

- Additionally, they can also serve as **real-time monitoring and early-warning solutions against natural disasters** such as **earthquakes, tsunamis, floods, wildfires, mining etc.**
  - Real-time tracking can also serve **multiple purposes in defense.**

Challenges Related to Outer Space

- **Small Window for Private Entry**: Approximately **15,000 crore is earmarked for ISRO"s annual budget, most of which is spent on building rockets and satellites**. Also, **the private sector has a relatively small window of opportunity.**
  - Due to this, India's space economy is small, and its potential has not been fully realized.
- **Influence of China in Space:** Due to the successful launch of its own navigation system, **BeiDou**, China has established a **strong presence in space.**
  - A strong position for China will be solidified if **Belt Road Initiative (BRI) members contribute to or join China's space sector**. Emerging space powers like India face a serious challenge in this regard.
- **Rise of Space Debris:** Increasing space exploration is **causing more space debris to accumulate in the outer solar system,** which can damage ongoing and future space missions due to high orbital speeds.
  - Space Debris can also **lead to ozone depletion.**
- **Increasing Global Trust Deficit:** An arms race for weaponization of outer space is creating an **environment of suspicion, competition, and aggressiveness** across the globe, **potentially leading to conflict.**
  - It would also put at risk the **entire range of satellites as well as those involved in scientific explorations and communication services.**
- **Unregulated Commercialisation**: **Commercialization of outer space is accelerating due to the development of satellite expeditions** to provide Internet services **(Starlink-SpaceX)** and for space tourism **(Jeff Bezos).**
  - If no regulatory framework is in place, rising commercialisation could lead to **monopolization of space.**

Looking ahead

- **Legislative Backing to Private Entities:** As per the **Economic Survey 2020–2021,** over 40 funded start-ups are working in India in the space segment and the number is likely to increase in the coming years.
  - The current and emerging scenario justifies the need for **casting the rights and obligations of private entities in legal certainty** through a **National Legislation on private space activities in India.**
  - It would also support India to effectively discharge its obligations under **UN Treaties on Outer Space activities.**
- **Enhancing Space Self-Defense Capacities:** As space becomes a fourth battlefield, India needs to enhance its space capabilities. The **Kilo Ampere Linear Injector (KALI)** is being **developed as a possible response to incoming missiles** intended to disrupt the country's peace is a good step in this direction.
- **Defending India's Space Assets:** In order to effectively defend its space assets, including debris and spacecraft, India needs reliable and accurate tracking capabilities.
  - **Project NETRA**, **an early warning system in space to detect debris** and **other hazards to Indian satellites is a good step in this direction.**
- **Space 4Women in India:** India can replicate The **United Nations Office for Outer Space Affairs (UNOOSA)' Space 4Women project** to promote **gender equality and women's empowerment in space.**
  - **Space awareness programmes should be established in rural areas in India,** and **college-ISRO internships can be developed specially for female students** to introduce them to the possibility of extending their wagons beyond our planet.
- **Permanent Seat in Space:** India should take the initiative to cooperate with international bodies and plan for a **planetary defense program** and **joint space missions** in the long term.
  - Also, with the **Gaganyan mission, ISRO has begun to focus on manned space flight as part of its rethinking of India's space presence.**

6. **Spoilt soils erode food security**

- Nearly 3.7 million hectares suffers from nutrient loss in soil (depletion of soil organic matter or SOM).
- Soil degradation affects around 29% of India's total land area.
- Depending on climate and vegetations it takes 200-400 years to form 1 cm of soil.
- United Nations sustainable development goals aims to reach having 75% healthy soils by 2030.
- In order to realise such goals, several global efforts have been made to spread awareness on adverse impacts of soil degradation including the celebration of world soil day.

Soil and its significance

- Soil is second largest carbon sink after the oceans.
- It supports healthy plant growth and hence enhances nutrition.
- It supports water percolation and thus maintains groundwater levels.
- It helps to regulate climate of earth by storing carbon.
- It helps maintaining landscape that is more resilient to the impacts of droughts and floods.

Degradation of soil and its consequences

- Soil degradation is the physical, chemical and biological decline of soil quality.
- It is caused by-
- Loss of organic matter and decline in soil fertility.
- Structural condition and burning of crop residues.
- Erosion, runoff, leaching and excessive flooding.
- Adverse changes in salinity, acidity or alkalinity.
- Effects of toxic chemicals, pollutants, fertilizers and pesticides.
- Irrigation with contaminated wastewater.
- Nutrient loss and pollution are biggest threat to soil.
- It undermines global nutrition and food security.
- Contributors to soil degradation- industrial activities, mining, waste treatment, agriculture, fossil fuel extraction
- It threatens-
- Agricultural productivity,
- In-situ biodiversity conservation,
- Water quality,
- Socio-economic well-being of land dependent communities.

Indian Government's efforts to tackle soil degradation

- Five-pronged strategy outlined by PM:
- It includes:
- Making soil chemical-free.
- Saving soil biodiversity.

- Enhancing SOM (soil organic matter).
- Maintaining soil moisture.
- Mitigating soil degradation and preventing soil erosion.
- Pradhan Mantri Krishi Sinchayee Yojana:
  - It is a Centrally Sponsored Scheme launched in 2015.
  - It aims to prevent soil erosion, regeneration of natural vegetation, rainwater harvesting and recharge of groundwater table.

Soil Health Card (SHC)

- It was launched by Ministry of Agriculture and Farmers'' Welfare in 2015.
- SHC is used to assess the current status of soil health and after some time- determine changes in soil health.
- It contains status of soil with respect to 12 parameters-
- Macro-nutrients -Nitrogen, Potassium, phosphorus.
- Secondary- nutrient -Sulphur.
- Micro – nutrients- Zinc, iron, copper, manganese, boron monoxide.
- Physical parameters- pH, EC, OC.
- SHC recommends fertilizer and soil amendment required for the farm.
- Scheme is implemented by- Department of Agriculture of all the State and Union Territory Governments.
- Earlier, farmers lacked information related to soil type, soil deficiency and soil moisture content.

National Mission for Sustainable Agriculture (NMSA)

- It has various schemes that promotes traditional practices such as organic farming and natural farming.
- This reduces dependency on chemicals and other Agri-inputs.
- This decreases the monetary burden on smallholder farmers.
- It is one of the eight Missions under the National Action Plan on Climate Change (NAPCC).

Programmes under NMSA

- Rainfed Area Development (RAD) will promote- Soil health card based nutrient management practices, farmland development, resource conservation and crop selection according to local agro climatic condition.
- Sub-Mission on Agroforestry encourages tree plantation on farm land "Har Medh Par Ped", along with crops/ cropping system.
- National Bamboo Mission aims to boost cultivation of bamboo to ensure proper supply for industry.
- Climate Change and Sustainable Agriculture: Monitoring, Modelling and Networking provides climate change related information and knowledge by piloting climate change model projects under climate smart sustainable management practices suitable to local agro-climatic conditions.

- Soil Health Management (SHM) will promote location and crop specific soil health management like Residue management and Organic farming.
- This will be done by creating soil fertility map, appropriate land use, judicious application of fertilizers and minimizing soil degradation.
- Food and Agriculture Organisation of United Nations' effort for soil conservation

- It will develop forecasting tools using data analytics to aid vulnerable farmers to make decisions on crop choices, particularly in rainfed areas.
- It will work with National Rainfed Area Authority and Ministry of Agriculture and Farmers' Welfare (MoA&FW).
- It will support Deen Dayal Antyodaya Yojana-National Rural Livelihoods Mission's (DAY-NRLM) Community Resource Persons-.
- Aim-to increase capacity in on-farm livelihoods for adoption of sustainable and resilient practices, organic certification and Agri-Nutri-gardens.
- Deendayal Antyodaya yojana was launched by Ministry of Housing and Urban poverty alleviation in 2016.
- It works for boosting crop diversification and landscape-level planning.
- Target eight States- Madhya Pradesh, Mizoram, Odisha, Rajasthan, Uttarakhand, Chhattisgarh, Haryana and Punjab.
- In Andhra Pradesh, FAO supports farmers in sustainable transitions to agro-ecological approaches and organic farming.
- It will work with the State government and Indian Council of Agricultural Research (ICAR).

World Soil Day

- In 2002, International Union of Soil Sciences proposed world soil day to raise awareness about the degrading condition of the soil.
- It was drawn under leadership of Kingdom of Thailand.
- In June 2013, the FAO Conference endorsed World Soil Day and requested its official adoption at 68th United nations General Assembly.
- The UNGA designated December 5 2014 as the first official World Soil Day.

World Soil Day (WSD) 2022

- Theme- "Soils: Where food begins".
- It will raise awareness on the importance of maintaining healthy soils, ecosystems and human well-being by addressing the growing challenges in soil management, encouraging societies to improve soil health and prescribing the sustainable management of soil.
- Looking ahead

- Better soil health is a key to end hunger problems striving in World and India particularly. It will help ensure reaching the goals of United

	nations sustainable development under-Goal 2: Ending Hunger, Goal 3: Good Health and Wellbeing, Goal 13: Climate Action, Goal 15: Reducing Desertification of Soils. In this regard, there is a strong need to strengthen policy at Government level and create enough awareness amongst farming communities, construction industry and similar stakeholders to ensure soil of health remains at an optimal level.
7.	**Acting East: India in the Indo-Pacific** ▪ **The concept of Indo-Pacific** is a recent one; about a decade old. However, it has risen to significance quite rapidly. One of the reasons behind the popularity of the **Indo-Pacific region** is the shift in the **center of gravity of geopolitics** towards ▪ The world's largest economies are located in the **Indo-Pacific region** namely, **China, India, Japan, Indonesia, South Korea, Thailand, Australia, Taiwan, Malaysia and** ▪ India's "**Look East**" and "**Act East**" policies also entered the phase of **Indo-Pacific policy and strategy in 2018.** The **northeastern region of India** is immensely significant from strategic as well as economic point of view when it comes to strengthening India's ties with the southeast and east Asian nations which are also a part of the Indo-Pacific. <u>Look East and Act East Policies</u> ▪ **Look East Policy:** ▪ In order to recover from the loss of the strategic partner **USSR**(end of the **Cold war 1991**), India sought to build up a relationship with the **USA** and allies of the **USA** in **Southeast Asia.** ▪ In this pursuit, former Prime Minister of India **P V Narasimha Rao** launched **Look East policy** in **1992,** to give a strategic push to India's engagement with the **South-East Asia region**, to bolster its standing as a **regional power** and a **counterweight to the strategic influence of China.** ▪ **Act East Policy:** ▪ The **'Act East Policy**' announced in November 2014 is the **upgrade** of the **Look East Policy.**

- It is a diplomatic initiative to promote **economic, strategic and cultural relations** with the vast **Asia-Pacific region** at different levels.
- It involves **intensive** and **continuous engagement** with **Southeast Asian countries** in the field of **connectivity, trade, culture, defense and people-to-people-contact at bilateral, regional** and **multilateral levels.**

NER Connects India with Indo-Pacific Region

- **Strategic Significance:**
  - **North-East India** is the gateway to **South-East Asia** and beyond. It is India's land-bridge to
  - **India's Act East Policy** places the northeastern states on the territorial frontier of India's eastward engagement.
- **Economic Importance:** Investments in NER states basically have two fronts:
  - The strategic location of the region connects the product markets of the larger Indian geography with the robust **South and Southeast Asian markets.**
  - The existence of potent input market catalysts such as **social**(diversity, cultural richness), **physical** (potential energy supply hubs), **human** (inexpensive, skilled labour) and natural (minerals, forests) capitals in the region.
- **Infrastructure Development:**
  - **Japan** has been engaged for decades in the development and modernization of infrastructure, particularly road connectivity, across states in the region.
  - **The country** is presently involved in the construction of the **Dhubri-Phulbari bridge across** the **Brahmaputra River.**

Challenges in Connecting NER with Indo Pacific

- **Serious Non-Traditional Threats:** It includes the pernicious phenomena of **smuggling, drug trafficking, transnational border crime, rebel activity, and the inflow of refugees from Myanmar.**
- **China's Malicious Activities:** China has been known to play a pivotal role in the India's border tensions in the Northeast region such as **Doklam conflict** and in exacerbating the above-mentioned serious non-traditional threats.

- Militant groups in northeastern region are getting funding from **China** such as **United Liberation Front of Assam (U.L.F.A.)** in 1979.

- **Internal Security Concerns: Extremist and insurgency groups** that have international links in escaping security forces, using of **hideouts in neighbouring countries** like **Myanmar,** and the alleged **presence of international intelligence agencies** like **ISI** that operate in the **NER** are other major concerns that **hinder the optimum utilization of NER"s potential.**
- **Growth and Developmental Challenges:** Isolation from the rest of India, lack of efficient infrastructure, poor road connectivity and slow pace of industrial growth are major causes of the NER's backwardness.

Develop NER

- **Act-East from Northeast:** Comprehensive implementation of Act East policy is relevant to the entire country but particularly important for the long-term growth of the NER.
  - The agenda for its implementation must be prepared in **active association with the State Governments of NER.**
- **Managing Border and Connectivity Issues:** Connectivity drives commerce, **air links to the NER should be a priority.** The development of road and railway projects should also be **in accordance with disaster-resilient measures.**
  - A fair assessment shows that there is **plenty of room for future border management and road connectivity**. that is both functional and people-focused.
  - Japan has been India's major partner in development of NER; such partnerships need to be leveraged with other countries too.
- **More Employment Opportunities:** Thousands of graduates are produced by local universities of NER. To uplift their living standard, creation of appropriate jobs and employment opportunities are need of the hour.

8.	**Bhagwan Birsa Munda: The Lord who created a Kingdom**

- Birsa Munda was a tribal leader and the creator of an alternative faith called "Birsait", who belonged to the Munda tribe in the Jharkhand region, the then Bengal Presidency. Munda's death anniversary is observed on June 9 every year.
- He was the first tribal freedom fighter, considered a significant figure in India's struggle for tribal identities and rights since independence. He died in prison after getting arrested for revolting against the British.

Rejecting Christianity

- One of the lesser-known facts about Birsa Munda was his rejection of Christian Missionaries and conversion activities in tribal areas. He was an exemplary student, so his father Sugana Munda put him in the German Mission School, where he was converted to Christianity and named Birsa David.
- When the seeds of freedom against the British erupted in the late 1800s, Birsa's father withdrew him from the school and left Christianity, and they went back to their traditional tribal religion. Anuncios As Birsa was negatively affected by Christianity, he offered an alternative faith called "Birsait". He was shocked at the British government and Christian Church's forced religious conversions. Many tribal people converted to his religion, and he became the representative of their tribal religion and was considered a healer.

Fighting For Tribal Roots

- The **Munda tribe inhabited the Chota Nagpur region** of today's Jharkhand. When **Birsa Munda was born in 1875**, the British were attempting to establish control over and exploit forest lands, disrupting the tribal way of life. This was done in part by allying with local zamindars, who helped force the tribals into bonded labour.
- A **feudal zamindari system** was introduced, destroying the tribal "**Khuntkatti**" agrarian and land ownership system that was more community-based. The Raj brought in outsiders — moneylenders and contractors, as well as feudal landlords — to aid them.
- **Munda** received his early education under the guidance of his teacher **Jaipal Nag**. Influenced by him, **Birsa converted to Christianity** in order to join the German Mission School. He, however, opted out of the school after a few years.
- With the **impact of British rule in the region**, as well as the activities of Christian missionaries, many tribals became critical of the British

	and missionaries' presence. From 1886 to 1890, **Birsa Munda spent a large amount of time in Chaibasa**, which was close to the centre of the **Sardari agitation**. The Sardars' activities had a strong impact on him and he became a part of the **anti-missionary** and **anti-government programmes**. By the time he left Chaibasa in 1890, Birsa was strongly entrenched in the movement against the British oppression of the tribal communities. ▪ **Birsa soon emerged as a tribal leader** who brought people together on fighting for these issues. **He became a God-like figure**, with him leading the faith of '**Birsait**'. Soon, members of the Munda and Oraon communities started joining the Birsait sect and it turned into a challenge to British conversion activities. ▪ The alienation of tribals from their land and livelihood enraged Birsa Munda. Anuncios Birsa announced himself as the Prophet for the Munda tribe and vowed to fight. He wanted to establish a kingdom for the tribals called "Munda Raj". **Ulgulan movement** ▪ The **Ulgulan movement of 1899**also involved the **use of weapons and guerrilla warfare** to drive out foreigners. Munda encouraged the tribals to refuse following colonial laws and paying rent. He encouraged changes in the social sphere too; challenging religious practices to fight against **superstition**, and became known as **'Bhagwan' (God)** and **'Dharati Aba' (Father of the earth)** by his followers. ▪ But the British were soon able to halt the movement. On 3 March 1900, **Munda was arrested by the British police** while he was sleeping with his tribal guerilla army at Jamkopai forest in Chakradharpur. ▪ It is believed **he died in Ranchi jail due to an illness** on 9 June 1900, at the young age of 25. Though he lived a short life and the movement died out soon after his death, Birsa Munda is known to have paid a significant role in mobilising the tribal community against the British and forcing the colonial officials to introduce laws protecting the land rights of the tribals.
9.	**From SAARC to BIMSTEC**

- Since **2014**, **no SAARC summit** has taken place which makes the organisation **dysfunctional**.
  - The **19th SAARC summit** of 2016 was planned to be held in **Islamabad**, **Pakistan** but got cancelled after an attack on an Indian army camp in Kashmir.
- Increasing hostility between **India** and **Pakistan** also has made SAARC **ineffective**.
- As the Revival of SAARC in the current scenario is **extremely difficult**, one of the options that India has is to focus on other regional grouping such as **BIMSTEC.**

SAARC

- On **8 December 1985** in **Bangladesh**, SAARC was established by Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.
  - Since then, **December 8** is commemorated as **SAARC Charter Day**.
  - **Afghanistan** later joined the **SAARC**.
- It is an **intergovernmental organisation** that aims to promote **economic growth** in **South Asia**.

Significance of SAARC

- It is coherent with government's '**neighbourhood first' policy**.
- SAARC is **only** intergovernmental organisation with a **pan-South Asia reach**.
- India can judiciously use SAARC to serve **its interests** in South Asian region.

Challenges and drawbacks of SAARC

- SAARC has **failed** to **accomplish** most of its objectives.
- **Charter** of **SAARC** functions on the **principle of unanimity**.
  - It gives each of the **eight member**-countries a **veto power**.
  - Pakistan is **obstructing** work of **SAARC** by repeatedly **vetoing** several initiatives like **motor vehicles agreement**.
    - **Motor vehicles agreement** was aimed at improving **regional connectivity**.
- South Asia is still extremely **poor** and **least integrated region** in the world.

- **Intraregional trade (less than 5%)** and **investment** in **South Asia** are **lower** than other regional blocks like- **Association of South East Asian Nations** (ASEAN) and **Sub-Saharan Africa**.
- **Deterioration** in **India-Pakistan** relations has led to **incapacity** of SAARC.
- Weak SAARC will **weaken** other regional institutions like **South Asian University** (SAU).
    - **South Asian University** is important to **strengthen India's soft power** in the region.

Counties adopting 'bilateralism' due to failure of SAARC

- Due to SAARC's failures, member countries have **turned to bilateralism**, which in turn has **adversely affected SAARC.**
- Bilateralism is an **easier option** since it calls for dealings between only two countries, whereas SAARC requires one country to deal with seven countries.
- Thus, bilateralism **decreases the countries' dependence on SAARC** to achieve their objectives.

Should countries rely on 'bilateralism' or 'regionalism'?

- Regionalism can **deliver prosperity in the South Asian region**.
- Regionalism has brought **immense success** in other parts such as **East Asia and Africa.**
- Looking at ASEAN's success in regional integration, lawyers Julien Chaisse and Pasha L. Hsieh have developed the concept of a **new regional economic order**.
    - It is a process through which developing countries search for a **trade-development model**, based on incrementalism and flexibility.
    - This is different from the neoliberal model laid down by the **Washington Consensus.**
- In recent years, **BIMSTEC** has gained popularity among South Asian countries as a platform for regional cooperation.

BIMSTEC

- It is an **intergovernmental organisation** established in **1997**.
- It comprises **five South Asian nations**- Bangladesh, Bhutan, Nepal, India and Sri Lanka and two ASEAN countries- Myanmar and Thailand.
    - **Pakistan** is not a **BIMSTEC** member.

	▪ In recent years, India is concentrating more on **BIMSTEC** than **SAARC**. ▪ Result -After 25 years, BIMSTEC has adopted its **Charter in 2022**. ▪ BIMSTEC Charter is **better** than the SAARC Charter. ▪ **Example: Article 6** of the **BIMSTEC Charter** is related to **Admission** of new members to the group. ▪ This will help in **addition** of countries such as the **Maldives**. <u>Loophole in BIMSTEC</u> ▪ BIMSTEC charter lacks **flexible participation scheme** for **economic integration** similar to **ASEAN Minus X formula.** ▪ It allows **two** or **more ASEAN members** to initiate negotiations for **economic commitments**. ▪ **No** country enjoys **veto power** to thwart economic integration between willing countries. <u>Suggestions to revive BIMSTEC</u> ▪ **India** should initiate- flexible **'BIMSTEC Minus X'** formula in the **BIMSTEC** Charter. ▪ This can allow **India** and **Bangladesh** or **India** and **Thailand** to conduct their **bilateral free trade agreement** (FTA) under BIMSTEC. ▪ This could strengthen **BIMSTEC** by enabling **gradual expansion** of these **binding commitments** to other members. ▪ A high-quality **FTA** that offers better **economic integration** will be an ideal step. ▪ India should explore legal ways to **move successful SAARC institutions** such as **SAU** to **BIMSTEC**. ▪ BIMSTEC should adopt **New regional economic order** model and imbibe it in its Charter. **Regionalism** can deliver **prosperity** in **South Asian** region when **multilateralism** is weakening. Since, **South Asia** cannot abandon **regionalism** so **reviving SAARC** by making political changes into it and updating its Charter is an ideal way forward. Stronger **BIMSTEC** will help India in maintaining influence over **South Asian region** and will increase **economic prosperity** of the overall region.
10.	**Food safety net must be expanded without any delay**

	▪ **The National Food Security Act (NFSA),** 2013, through the Public Distribution System (PDS), provides a crucial safety net for roughly 800 million people. ▪ In response to the humanitarian crisis, the Government doubled the entitlements of the **800 million who were already covered by the PDS** (from five kilograms per person per month, to 10kg). But that does nothing for those without ration cards. ▪ The humanitarian crisis resulting from the COVID-19 lockdown, made it apparent that too many were still excluded from the PDS. **The National Food Security Act (NFSA), 2013:** ▪ The issue of "food security" at the household is continuously being addressed by the Government since long, through the Public Distribution System and the Targeted Public Distribution System. ▪ The enactment of **the National Food Security Act, (NFSA) 2013** on July 5, 2013 marks a paradigm shift in the approach to food security from welfare to rights based approach. ▪ The Act is being implemented in all the States/UTs, and on an all India basis, out of maximum coverage of **81.34 crore persons,** around 80 crore persons have been covered under NFSA at present for receiving highly subsidized food grains.

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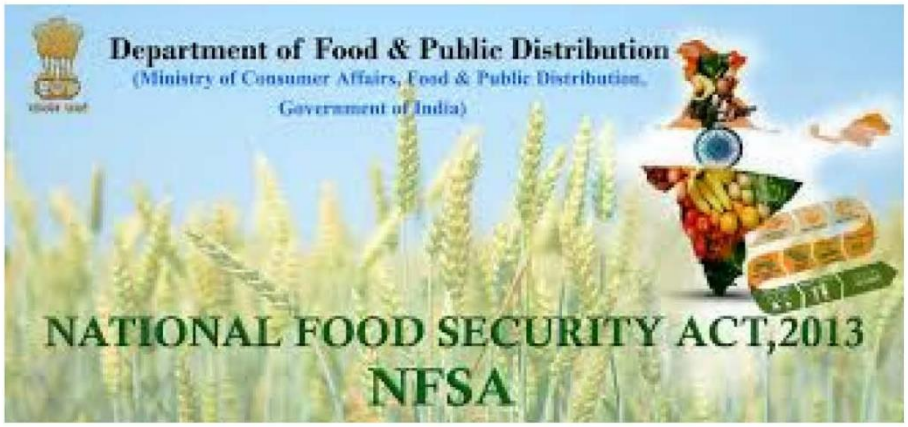
National Food Security Act (NFSA), 2013



- Priority Households to be covered under TPDS, decided by the State govt.
- Existing household Antyodaya Anna Yojana.
- Existing AAY household will continue to receive 35 Kgs of foodgrains per household per month.
- 5 Kgs of foodgrains per person per month at Rs. 3/2/1 per Kg for rice/wheat/coarse grains.
- Meal and maternity benefit of not less than Rs. 6,000 to pregnant women and lactating mothers.
- Meals to children upto 14 years of age.
- Food security allowance to beneficiaries in case of non-supply of entitled foodgrains or meals.
- Setting up of grievance redressal mechanisms at the district and state.

Features of NFSA 2013

- **Coverage and entitlement:** Up to 75% of the rural population and 50% of the urban population are covered under the Targeted Public Distribution System (TPDS), with a uniform entitlement of 5 kg per person per month.
- **Antyodaya Anna Yojana (AAY) households**-35 kg per household per month
- **Subsidised prices:** Food grains under TPDS are made available at subsidised prices of Rs. 3/2/1 per kg for rice, wheat and coarse grains.
- **Identification of Households:** It is done by States/UTs.
- Eldest woman of the beneficiary household (18 years or above) is considered as "Head of Family" to issue ration cards.
- **Grievance Redressal Mechanism:** Grievance redressal mechanism at the District and State levels.
- **Maternity Benefit:** Pregnant women and lactating mothers are also entitled to receive maternity benefits of not less than Rs. 6,000.
- **Transparency and Accountability:** Provisions have been made for disclosure of records relating to PDS, social audits and setting up of Vigilance Committees to ensure transparency and accountability.

Issues Involved

- Government during COVID -19 doubled the entitlements of the 800 million who were already covered by the PDS (from five kilograms per person per month, to 10kg. However, it does not cover those without ration cards.
- **The Exclusion Problem:** This could be because the NFSA coverage ratios were too low to start with, or due to the 'freeze' in coverage in absolute terms (around 800 million).
- Between the last Census in 2011 and today, population increase has not been accounted for in determining the number of ration cards.
- The 2021 Census has been postponed indefinitely. This means that even a decadal update has not happened.

Problems and Miseries of Migrant Labourers Case

- The Supreme Court agreed that the prayer to increase coverage **"seems to be genuine and justified".**
- It directed the Union of India to "come out with a formula so that the benefits under NFSA are not restricted as per the census of 2011.

- Supreme Court said that the Government could consider **"projection of population increase"** to resolve this issue.
- **Response by the Government:**
  - Any change or revision in the number of beneficiaries would necessitate an amendment in the Act. As **Section 9 of the NFSA** requires that coverage be determined on the basis of the latest census published.
  - On the basis of NITI Aayog's view, the Government responded that the **"prime concerns"** while fixing the ceiling at the time of enactment of the NFSA was that "as standard of living of people would improve over a period of time, the coverage may be reduced.

Issue with the Government's Response

- **The Government relies on logic:** As per capita income has increased, the vulnerable population "would have gone down considerably". However, an increase in the average does not necessarily imply an increase for everyone.
- Government attempts repeatedly to **shift the blame to State governments but States** are responsible for identifying people for PDS ration cards.

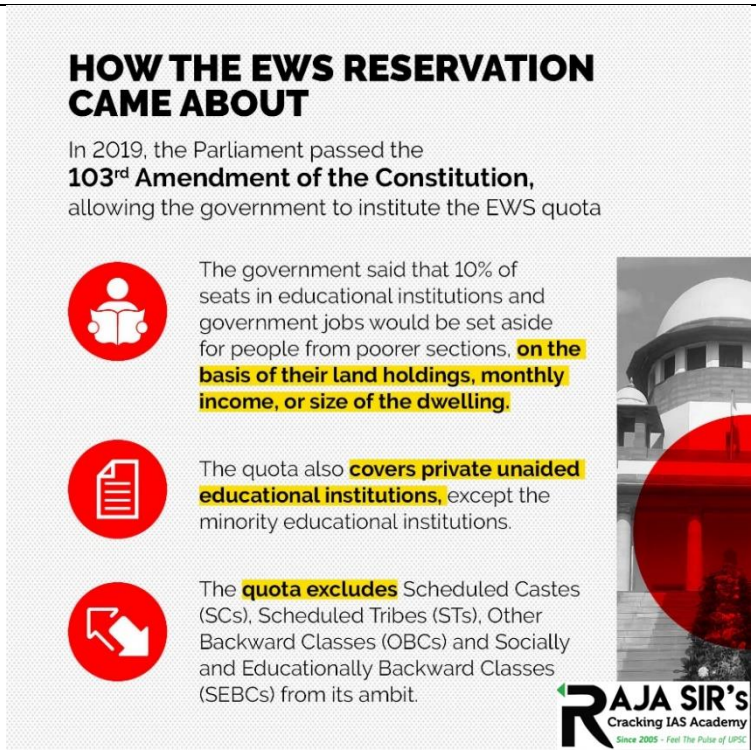
Coverage by States

- Several State governments have used their own resources for instance states such as **Chhattisgarh and Odisha** expanded coverage beyond the centrally determined quotas.
- There were **809 million (in 2020) NFSA PDS beneficiaries** supported by the central government. An additional 90 million people got benefits through their State governments. States were subsidising another 51 million people, but their entitlements were less than those of NFSA beneficiaries.

Looking ahead

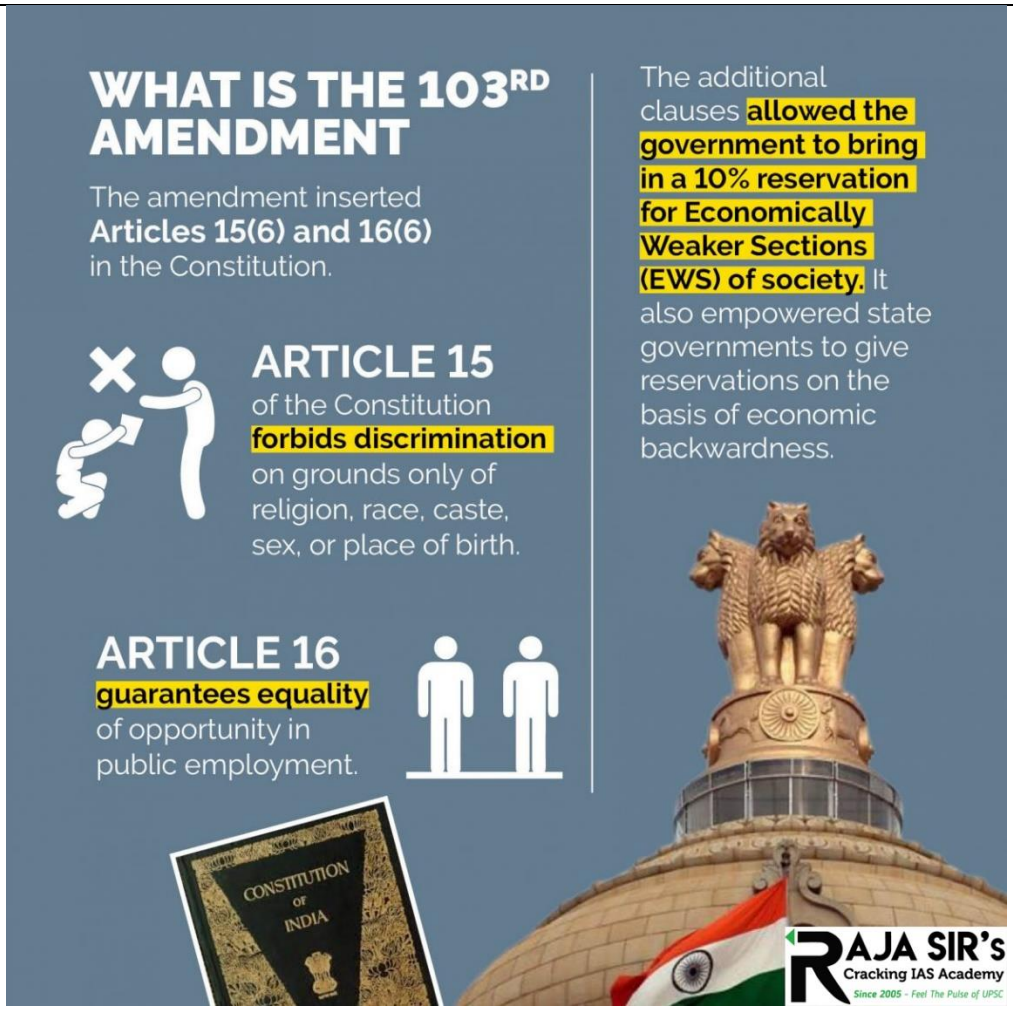
- Robust procurement trends and a comfortable food stocks position make an expansion affordable.
- Adjusting for population increase, as directed by the Supreme Court, will increase coverage by roughly **10% (from 800 million to 900 million).**
- This is nothing when compared to the **doubling of food subsidy** resulting from the "double ration" (10 kg per person per

	month) provision granted as COVID-19 relief to 800 million existing ration card beneficiaries. ▪ The Government should not delay any further in providing the additional coverage of roughly **100 million across States.** ▪ Government should make sure that poor people should not pay the price for the state's failure in conducting the 2021 Census.
11.	**The perils of undoing the framework of reservation** ▪ From last two decades, **India** has witnessed growth without proper **employment** and **increased economic insecurity**. ▪ **All India Debt & Investment Survey** (AIDIS-2019) survey of 2021 shows the trend of increasing **caste inequality** for wealth in India. ▪ **AIDIS** collects information of- land, livestock, buildings, agricultural machinery, transport equipment, shares, deposits and amount receivable by the household. ▪ About **55% wealth** in top **quintile** is controlled by **upper castes** followed by **36%** OBCs, **5% SCs** and **3% tribals**. ▪ Due to such inequalities, **103rd Constitutional Amendment Act** had introduced **10% reservation** for the **economically weaker sections** (EWS) in education and employment among those groups that **do not come under any community-based reservation.** ▪ The decision was based on the principle that each individual regardless of **caste** and **ethnicity** should get their share of **welfare entitlement**. ▪ However, concerns have been raised on whether such benefits should be given to a specific community based on their economic backwardness. ▪ Such **caste neutral policy** can **reverse** positive changes brought by **caste-based** reservation so far.



Concerns over the EWS ruling

- **Disadvantage** experienced by some groups are unique to them and their **deprivations** require **specific resolutions**.
  - Thus, reservation should not solely be based on economic criteria like in EWS.
- **Group-based differences** in **economic** and **social** conditions are **inherited** and not due to difference in **ambition**, **ability** and **effort**.
  - These inherited inequalities- **economic, cultural and social capital** are passed to **successive** generations.
  - This leads to **intergenerational inequality** of **wealth** prominently among **caste**.



How does wealth inequality is inherited in India?

Inequality on caste- basis was rising in India between 1990 and 2020 particularly in the early 2000s.

This was severe in the case of wealth, followed by income and consumption inequality.

Gini index of wealth inequality has rose from 0.62 in 1992, 0.63 in 2002 and 0.67 in 2012 to 0.68 in 2019.

It is in contrast with available consumption of 0.37 and income of 0.54 in 2012.

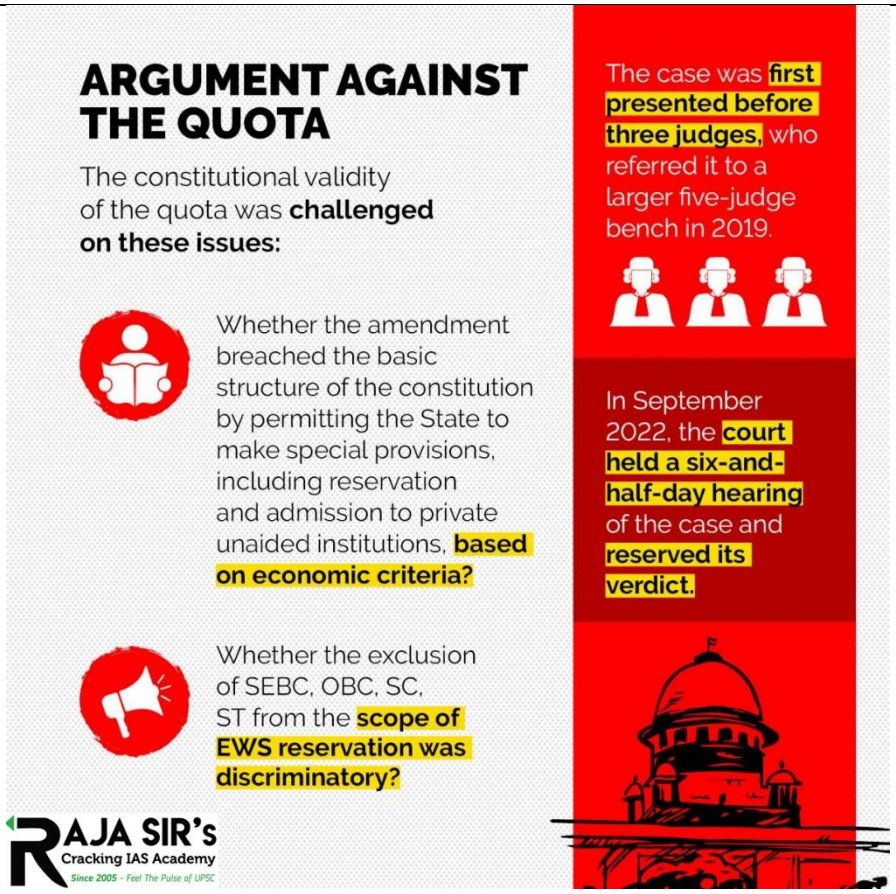
Gini index-is a measure of income inequality ranging from 0(perfect equality) to 1(perfect inequality).

Average per capita of wealth among upper castes was ₹8,03,977 in 2019 against ₹4,09,792 for OBCs, ₹2,28,388 for Dalits and ₹2,32,349 for tribals.

On average, the upper castes own more wealth than thrice of Dalits and twice of OBCs.

They hold 45% of the total wealth of country followed by OBCs holding 40%, Dalits 10% and Adivasis 5%.

	It is not income or saving behaviours of individuals that have generated wealth inequality but it is due to historical institutional exclusion of certain caste groups. If we disaggregate wealth, then land and building constitute large part of it- 60% and 22%. Respectively, which is then followed by 7% financial assets. Land and buildings are mostly inherited. The land inequality started from British colonial era. Colonial intervention assigned land ownership to some castes at expense of others. This was continued in post-colonial India. India's land reform did not alter this legacy. The real estate boom post 1990s helped owners of land and buildings to consolidate their wealth as land value increased due to speculation. According to World Inequality Report 2022- Ratio of private wealth to national income increased from 290% in 1980 to 555% in 2020. This was fastest increase in the world. This was because India has zero taxation on wealth and inheritance. Challenges in current policies Caste-neutral policy such as EWS ruling promotes inequality. Such policies cannot address the historical legacies of inequalities. They are insufficient to decrease magnitude of caste gap in wealth. Reservations are singular policy instrument to address caste-based inequality in India. Despite achievements in improving access to education, jobs and enhanced earnings, it failed to address structural inequalities. Improvement in education and access to jobs through EWS quota alone will not decrease gap of generational wealth. Reversing existing framework of reservation by substituting caste with economic criteria will reverse gain made so far and will increase structural inequality.



Global experience

- Loss of **social** and **cultural status** has caused anxieties among **middle classes** are increasing in many countries where **affirmative action** has taken place.
- In **United States** gains brought by **affirmative action** for **Black Americans** had received **'White backlash'** or **'White rage'**.
  - It is similar to **anti-reservation** action by introducing the **EWS quota** in India.
  - It is not able to withstand differences in **histories** of **caste** and **race**- both are **durable institutions** of inequality.
  - Legacies of these **institutions** will raise demand for **neutral** policies like **caste-neutral** policy in India.

Summing up

Emergence of opinion for a **social policy** based on **universal basis of deprivation** on the basis of **economic backwardness** will increase already

	existing inequalities. This degree of **inequality** in any society is a political choice. A just society requires creating a **level-playing field** that alters legacy of **inherited wealth and caste** that block life opportunities and choices.
12.	**Making Democratic Decentralisation Work in India** **Democratic decentralisation** is often founded upon the notion it empowers **local political bodies** to create **institutions that are more accountable to local citizens** and **more appropriate to local needs and preferences.** The passing of the **73rd and 74th Constitutional Amendments** was a crucial step in this direction **identifying Panchayati Raj Institutions (PRIs) and Urban Local Bodies (ULBs)** as **agents of self-governance** and giving them the responsibility for preparing plans for promoting **economic development and social justice.** Next year, India will celebrate the **30th anniversary of the enactment of these constitutional amendments.** A lot remains to be done to have truly decentralised local bodies in the country. ▪ Democratic Decentralisation is the **process of devolving the functions and resources** of the state from the **Centre and State to the elected representatives at the lower levels** so as to facilitate greater direct participation of citizens in governance. ▪ The**73rd and 74th Amendments,** by constitutionally establishing **Panchayati Raj Institutions (PRIs) in India,** mandated the establishment of **panchayats and municipalities** as elected local governments. ▪ The**11th Schedule of the Constitution** contains the powers, authority and responsibilities of Panchayats. ▪ The**12th Schedule of the Constitution** contains the powers, authority and responsibilities of Municipalities. <u>Impact of Democratic Decentralisation on Governance</u> ▪ **Enhances Transparency:** It also enhances the transparency of government, and the flow of information between government and citizens (in both directions). ▪ **Transparency** increases because a **much larger number of people than before can see how the government works,** and what is happening within the policy and political processes.

- **Responsible Government**: When democratic decentralisation works well, it makes the **government more responsive.** The **speed and quantity of responses** (actions, projects) from the government increase.
- **Political and Civil Pluralism:** Civil society is galvanised by local governance, and the more people join, the more active and competitive the governance will become. This strengthens **political and civic pluralism.**
- **Alleviate Poverty:** Decentralised systems can help to **reduce poverty** that arises from **inequalities between regions or localities** because it tends to **provide all arenas with equitable representation and resources.**

Challenges Related to Decentralisation in India

- **Infrastructural Loopholes**: Many **Gram Panchayats (GPs)** lack a building of their own and share spaces with **schools, anganwadi, and other entities.**
  - While some have their own building, they lack basic facilities such as **toilets, drinking water, and electricity.**
  - Although **Panchayats have internet connections,** they are not always functional. Panchayat officials have to visit **Block Development offices** for any **data entry purposes**, which delays the work.
- **Lack of Sufficient Financial Resources:** Both **rural local bodies (RLBs) and urban local bodies (ULBs)** across the country are under **financial stress**. Urban local governments and panchayats rely heavily on **grants-in-aid** from state consolidated funds.
  - Taxes collected by the **urban bodies are not sufficient to cover the expenses** of the services provided. Also, unlike the **Centre and the States, no distinction is made between revenue expenditure and capital expenditure** at the local government level.
- **Lack of Accurate Data on Finance:** The **State Finance Commissions(SFCs)** are **not presented with accurate and updated data** on the finances of the local bodies.
  - No rigorous fiscal analysis is possible without disaggregated fiscal data for the PRIs and ULBs.

- In the absence of data, in a significant number of cases, **recommendations by SFCs tend to be the ad-hoc opinion** of the chairperson, which is not grounded in data.

- **Downgraded Role of Local Government:** Local governments are merely acting as an **implementation machinery** rather than an **active policy-making body for local development.**
- **Corruption and Criminalisation of Politics:** Many times, **decentralisation has simply empowered local elites to capture more public resources** at the expense of the poor, and **political power at the local level assists criminals in legitimising their activities.**
- **Ceremonial Status to Mayor:** The **2nd Administrative Reform Commission** noted the **Mayor in the Urban Local Government in most states enjoys primarily a ceremonial status.**
  - In most cases, the **Municipal Commissioner, appointed by the State Government, has all the powers** and the **elected Mayor ends up performing the role of the subordinate.**
- **Irregular Elections:** Elections in **PRIs (Panchayati Raj Institutions)** are still irregular. Recently, several states conducted local bodies elections just because the **Union Finance Commission recommended grants** only for the **"duly constituted local governments".**
- **Rule of Proxy: One-third of seats** in local government bodies–in panchayats and municipalities are **reserved for women.** However, **male candidates use their wives as pawns** and dictate from behind, which leads to the perennial problem of **Rule by Proxy.**

Looking ahead

- **Organisational Strengthening:** It is imperative that the **organisational structures of local governments be strengthened** with sufficient manpower. Efforts should be made to hire support and technical staff so that panchayats can function smoothly.
  - The **2nd ARC** had also recommended that there **should be a clear-cut demarcation of functions** of each tier of the government.

	▪ **Fiscal Prudence:** For the **ULB to be independent and financially secure,** fiscal decentralisation is very crucial. It should be **accompanied by fiscal accountability** that can provide a long-term solution. ▪ **Audit committees** may be constituted by the State Governments at the **district level to exercise oversight of the integrity of financial information**, adequacy of internal controls, compliance with the applicable laws and **ethical conduct of all persons involved in local bodies.** ▪ **Local E-Governance:** Urban local bodies and Panchayats should be provided with **suitable digital infrastructures to maximise e-participation** of citizens and include **various social categories and in decision-making** and **following bottom-up approach in policy-making in real sense** through the use of new technologies. ▪ **Grievance Redressal Mechanism:** ULBs and Panchayats can establish a technology-enabled platform to register complaints, **which will make city governments responsive to the needs of citizens.** ▪ Through this mechanism, **citizens should also be allowed to provide feedback and close complaints.** ▪ Addressing these structural and architectural problems of urban governance will ensure effective service delivery in cities, **improving the quality of life for its citizens.** ▪ **Sustainable Decentralisation**: For **sustainable decentralisation**, transparency and accountability in the governance process is necessary, and for transparency there needs to be active citizen participation. ▪ To ensure this, **ULBs can create functional, decentralised platforms such as area sabhas and ward committees,** which facilitate discussion and deliberation between **elected representatives and citizens.**
13.	**Financially starving local bodies** ▪ Decentralization can encourage **competition among state governments** to produce the most benefit for the society. ▪ However, current intergovernmental competition in India is **destroying** basic tenets of decentralisation.

- In many states, there has been **no local body** for long period of time.

- Next year, India will celebrate **30th anniversary** of enactment of **73rd** and **74th** constitutional amendments.
  - However, **Elections** in PRIs (**Panchayati Raj Institutions**) are still **irregular**.
  - 73rd constitutional amendment act states about establishment of Panchayati Raj system in rural areas.
  - 74th constitutional amendment act states about establishment of Municipality system in urban areas.
- Several states conducted local bodies (LBs) elections just because **Union Finance Commission** recommended grants for only "**duly constituted local governments**".

Issues faced by local government

- There is inadequate **devolution** of powers between **State government** and **local government**.
- There is also a challenge of Proxy vote which goes against the very concept of a secret ballot as one has to disclose his or her preference to another individual, who in turn has to vote on his or her behalf.
  - There is no guarantee that the proxy will vote for the candidate preferred by the voter, thereby vitiating the object of free and fair elections.
- Both **rural local bodies** (RLBs) and **urban local bodies** (ULBs) across the country are under **lack of financial resources**.
  - **RLBs** are exclusively dependent on grants from **State Finance Commissions** (SFCs) or **Union Finance Commission** (UFC).
    - They are **rarely** able to **generate** their **own revenue**.
- It is responsibility of SFCs to devolve resources between **State** and **local body**.
  - But, SFCs in some states are either **defunct** or **attention** is **not given** to SFCs' reports.
- SFCs should **recommend measures** for local bodies to raise their **own tax** and **non-tax revenues**.

Issues with SFCs

1. No establishment of SFCs properly:

- **Article 243I** of Constitution warrants **States**-

- To constitute **SFCs** to review **financial position** of **RLBs** and **ULBs**.
- Make suggestions to **Governor** about-
  - **Distribution** of taxes between State and LBs.
  - **Determination** of taxes, duties, etc., which may be assigned to or appropriated by LBs.
  - **Grant in aid** to LBs by the State.

- As per constitution, States should have constituted their **first** SFC by **April 1, 1994**, and subsequent FCs after expiration of every **five** years.
- By now, Most States should have constituted at least their **5th FC**.
  - However, some States have not even constituted their **third** and **fourth** SFCs.
- Several states **do not adhere to Constitution** unless asked by **courts**.

2. Lack of proper resources and Infrastructure:

- SFCs are **non-permanent** bodies.
- **Lack** of proper **office space** is one of the reasons to seek **extension** for **submitting** SFC's report.
  - For example, **4th SFC** of **Haryana** should have submitted its report by April 30, 2011.
  - But SFC sought **extension** and **submitted** its report by June 30, 2014, due to **lack** of **infrastructural facilities**.
  - SFC's report include financial position of local bodies and recommendations to improve the condition.

3. Lack of data

- SFCs are not presented with **accurate** and **updated data** on the **finances** of local bodies.
- In the absence of data, **recommendations** by SFCs are **ad-hoc opinion** of the **chairperson** of SFC formed without any relation to data.
- **No rigorous fiscal analysis** is possible without disaggregated fiscal data for the PRIs and ULBs.

4. Action taken report (ATR)

- Under **Article 243I (4)-** Once the SFC **submits** its report, States are **constitutionally bound** to lay the report that explains the action taken before **state legislature**.

- There are cases where states failed in placing ATR before the legislature or took several years to do so.
- For example, **2nd SFC reports** of **Karnataka** and **Maharashtra** and **3rd SFC reports** of **Gujarat** were neither considered nor placed in the State legislature for many years.
    - Action taken report by **Kerala government** was **not** submitted after placing **2nd SFC report in state legislature**.

5. Failure to accept recommendations given by SFCs

- In Union Finance Commission, Union Government accepts **nearly all recommendations.**
    - But State Government **rejects even basic requests of SFCs**.
- Even when recommendations are accepted, States **fail to implement them.**
- **Example:** Bihar government failed to release **Devolution** and **Grant** of **FY 2015-16**.

Finances at the Union level are under the democratic scrutiny. However, some states contravene the Constitutional provisions to finance local government repeatedly without facing any repercussions. States should **devolve** more **powers** and **resources** to local bodies. **Intergovernmental competition** should trigger better responses to local government to make progress possible from **grassroot level**.

Aiyar Report on PR to empower Gram Sabhas

- **Gram Sabha** should be empowered to **monitor** and **make** decisions on all **social sector schemes** — Central and State.
    - **Example- Mahatma Gandhi National Rural Employment Guarantee Act** (MGNREGA) 2005 scheme and BRGF (Backward Regions Grant Fund) model are implemented by PRIs.
- **Central Government** should draft **model Gram Sabha law** to motivate **State legislation**.
- Freeze rotation of **reserved seats** for two or three terms to **incentivise good work** and **facilitate** capacity building of panchayat leadership.
- Incentivise PRIs for **transparency** and **accountability** and State Government to **devolve** some **power** and **finance**.
- **Reorient** outlook of **bureaucracy** at lower level towards **panchayat**.

- **Strengthen collateral** and **institutional** measures like **electronic tagging** of funds, setting up of a **National Commission** for Panchayat Raj

14. **The Science of volcanic eruptions**

- Mauna Loa, the world's largest active volcano, erupted after 38 years on 27 November 2022, spewing ash and debris, and covering the night sky of Hawaii's Big Island in an incandescent red hue.
- Aerial images showed molten lava flowing out of the volcano, whose name translates to "long mountain" in the native Hawaiian language. Mitch Roth, mayor of Hawaii County, was quoted as saying by NPR that the eruption does not appear to be threatening any downslope communities.

Why do volcanoes erupt?

- The deeper one goes under the surface of the Earth towards its core, the hotter it gets. The geothermal gradient, the amount that the Earth's temperature increases with depth, indicates heat flowing from the Earth's warm interior to its surface. At a certain depth, the heat is such that it melts rocks and creates what geologists call 'magma'.
- Magma is lighter than solid rock and hence it rises, collecting in magma chambers. Chambers which have the potential to cause volcanic eruptions are found at a relatively shallow depth, between six to ten km

under the surface. As magma builds up in these chambers, it forces its way up through cracks and fissures in Earth's crust. This is what we call a volcanic eruption. The magma that surfaces on the Earth's crust is referred to as lava.

Why are some volcanic eruptions explosive and some not?

- While the typical image of a volcano is that of a fountain of lava spouting high in the air from the mouth of the volcano, eruptions vary in intensity and explosiveness, depending on the composition of the magma.
- In simple terms, runny magma makes for less explosive volcanic eruptions that typically are less dangerous. Since the magma is runny, gasses are able to escape, leading to a steady but relatively gentle flow of lava out of the mouth of the volcano. The eruption at Mauna Loa is of this kind. Since the lava flows out at a slow pace, people typically have enough time to move out of the way. Geologists are also able to predict the flow of the lava depending on the incline and exact consistency it has.
- If magma is thick and sticky, it makes it harder for gasses to escape on a consistent basis. This leads to a build-up of pressure until a breaking point is reached. At this time, the gasses escape violently, all at once, causing an explosion. Lava blasts into the air, breaking apart into pieces called tephra. These can be extremely dangerous, ranging from the size of tiny particles to massive boulders.
- This sort of eruption can be deadly: as thick clouds of tephra race down the side of the volcano, they destroy everything in their path. Ash erupted into the sky and fell back to Earth like powdery snow. If thick enough, blankets of ash can suffocate plants, animals, and humans. Further, when the hot volcanic materials mix with nearby sources of water, they can create mudflows that have been known to bury entire communities alive. Mount Vesuvius, which obliterated the city of Pompeii, is an example of an explosive volcano.
- The Volcanic Explosivity Index (VEI)is a scale used to measure the explosivity of a volcano. It has a range of 1 to 8 with a higher VEI indicating more explosivity. While the VEI of the current eruption at Mauna Loa is not known yet, the previous eruption in 1984 was deemed to have a VEI of 0. The highest VEI ever recorded in Mauna Loa has been 2 (in 1854 and 1868).

Some famous volcanoes

- Any volcano that has erupted within the Holocene period(in the last 11,650 years) is considered to be "active" by scientists. "Dormant" volcanoes are those active volcanoes which are not in the process of erupting currently, but have the potential to do so in the future. Mauna Loa was a dormant volcano for the last 38 years. "Extinct" volcanoes are ones which scientists predict will never face any further volcanic activity. Ben Nevis, the tallest mountain in the UK, is an extinct volcano.

	Here are some famous volcanoes in the world. **Krakatoa, Indonesia** • One of the most catastrophic volcanic eruptions ever occurred in Krakatoa in 1883 (VEI 6). The volcano released huge plumes of steam and ash. The explosions were so brutal they were heard 3,100km away in Perth, Western Australia. According to the Dutch colonial authorities, Krakatoa's eruption and the consequent tsunamis caused 36,417 deaths, though modern estimates peg the number to be much higher. **Mount Vesuvius, Italy** • In 79 CE, Mount Vesuvius erupted (VEI 5), in one of the deadliest eruptions in European history, killing as many as 16,000 and destroying the town of Pompeii. According to scientists, the explosion released 100,000 times the thermal energy that was released with the atomic bombings at Hiroshima and Nagasaki. It is said to have instantly boiled the blood of all those who were too close to it. The explosion was described by Greek writer Pliny the Younger, who was present nearby, as being "sometimes bright and sometimes dark and spotted… more or less impregnated with earth and cinders." **Mount Fuji, Japan** • A defining image of Japan, Mount Fuji towers over the countryside with its snow-capped peaks and barren surface. It last erupted in 1707-1708 (VEI 5) and had a devastating effect on the local population. The tephra release led to significant agricultural decline, leading to widespread starvation in the Edo (now Tokyo) area. Although this eruption itself did not directly kill a lot of people, its subsequent impact proved deadly. **Eyjafjallajökull, Iceland** • Sometimes referred to as E15, it is one of the many volcanic features of Iceland. In 2010, a relatively small eruption (VEI 4) managed to bring air traffic in Europe to a complete standstill. 20 countries closed their airspace, impacting approximately 10 million travellers. **Kīlauea, Hawaii** • Adjacent to the Mauna Loa, this is one of the most active volcanoes on the planet. It has been erupting intermittently since recorded history, with its eruption lasting from 1983 to 2018 being the longest continuous eruption ever recorded. It is a major tourist attraction, with the earliest hotel built at the edge of the volcano in the 1840s.
15.	**Civil Service Values & Ethics In Public Administration**

"It is not merely bigger government that ultimately matters: what is significant is that morality in administration alone could ensure better government. One would not doubt that the morality in administration is sustained by patience, honesty, loyalty, cheerfulness, courtesy and like traits."

– Paul H. Appleby

PUBLIC ADMINISTRATION:

- The word "Administration" originated from Latin word "administrationem", Ad+Ministrare. It literally means to serve, to help, to cooperate Public administration means, to serve the public. It basically deals with functions performed by Bureaucracy.
- Bureaucracy was a French word which was originated from two words, Bureau means Desk or office and Cratie as rules or government power which literally called as Rules by govt. A bureaucrat is an official who implements such rules and performs functions of the Bureaucracy.
- Public administration as a discipline gained so much importance and relevant to the modern society. It plays crucial role in policy formulation, implantation and monitoring. But in India public administration suffering from colonial attitudes and traditional bureaucratic attitudes such as rigid hierarchy, too much importance to rules & regulations, means but not end important etc.
- Therefore, traditional bureaucratic paradigm needs to be changed and reformed and suited to the contemporary context of Indian bureaucracy.

MAX WEBER's LEGAL-RATIONALITY MODEL OF BUREAUCRACY

- Weber's Theory of Bureaucracy is one of the pioneer studies in organisational models. Max Weber's concept of bureaucracy is closely related to his ideas on "legitimacy of authority".
- Since Weber believed that authority could be exercised as long as it is legitimate, he divided the authority in to three types based on sources of legitimacy for each authority. They are:
- Traditional authority – Hereditary, monarchy
- Charismatic authority – Powerful leadership and his followers
- Legal-rational authority

LEGAL-RATIONAL AUTHORITY:

- For Weber, this model of authority is best suited for any democratic form of government. The model of legal-rational bureaucracy described by Weber has the following features:

- Official business is conducted on a continuous, regulated basis
- An administrative agency functions in accordance with stipulated rules and is characterised by three interrelated attributes:
- the powers and functions of each official is defined in terms of impersonal criteria

- the official is given matching authority to carry out his responsibility
- the means of compulsion at his disposal are strictly limited and the conditions under which their employment is legitimate are clearly defined
- Every official and every office is part of the hierarchy of authority. Higher officials or offices perform supervision and the lower officers and officials have the right to appeal.
- Officials do not own the resources necessary for rendering the duties, but they are accountable for use of official resources. Official business and private affairs, official revenue and private income are strictly separated
- Offices cannot be appropriated by the incumbents as private property
- Administration is conducted on the basis of written documents

FEATURES OF OFFICIALS:

- Weber also discussed in detail, as a part of his model of bureaucracy, the features of officials. They are:

- The staff members are personally free, observing only the impersonal duties of their offices
- They are appointed to an official position on the basis of the contract
- An official exercises authority delegated to him in accordance with impersonal rules, and his loyalty is expressed through faithful execution of his official duties
- His appointment and job placements depend upon his professional qualifications
- His administrative work is full time occupation
- His work is rewarded by regular salary and by prospects of career advancement
- There is a clear-cut hierarchy of officials
- He is subjected to a unified control and disciplinary system

BUREAUCRATIC MORALITY:

- Max Weber felt that bureaucracy should be designed according to a rational principle. According to him, bureaucrats should be guided by rules and regulations which should override moral and ethical norms of personal conscience.
- If he given chance to skip rules and regulations he might resort to misuse of power while awarding contracts. A bureaucrat acts as a facilitator only. Hence, the bureaucrats should not use his discretion in public administration and their actions should be guided by standard operating procedures (SoP) set by political executives.
- However, from Indian perspective, the Weberian model of bureaucracy won't help in achieving rapid socio-economic change. Weber's theory is suitable for developed countries like France, Germany. However, developing countries like India need to undertake various socio-economic challenges like Poverty, Malnutrition, Caste inequality etc.

	and for this, what's imperative is values/ethics in administration such as empathy, equity, compassion, integrity, non-partisanship, impartiality, etc. • For example, poor old man without a valid document may not get his pension under the Weberian model of bureaucracy, on the other hand, there'll be special provisions like positive discrimination to help the vulnerable sections of society under the "Development Bureaucracy." • Personal conscience is indispensable in personal life as well as bureaucracy. However, as Weber said, certain limitations must be laid on discretion of bureaucracy so that they do not misuse their power and could avoid ethical erosion and conflict of interest. • We cannot think of the implementation of all the welfare and developmental programmes without the help of bureaucracy. The voluntary organisations and other forms of people's organisations can only supplement the bureaucracy, but they cannot substitute the bureaucracy. • In the context of developing countries, people look to the bureaucracy for their day-to-day requirements. Hence, the bureaucracy of Weberian type continues to find its relevance even today. • Bureaucracy is the backbone of Indian administrative system. Its complexion is changing with the change in the socio-cultural and economic scenario. • It must reinvent itself in the light of changing norms of neutrality and commitment, accent on NPM, Good Governance and New Public Service. • TRADITIONAL BUREAUCRACY • CONTEMPORARY BUREAUCRACY • Based on Weberian Model of Bureaucracy • Based on developmental model of Bureaucracy • Hierarchy, rules & regulations, Specialisation are the characteristic features • Cooperation, Public service values and moral values, Distributive justice are the characteristic features • Bureaucratic morality overrides personal conscience and ethical values • Personal conscience, ethical values like empathy, compassion towards weaker section of people, integrity, honesty, accountability and transparency plays equal role along with rules and regulations • Centralisation of power • Decentralisation of power and delegated legislation

- Some of the problems of this model are Red-tapism, corruption, Opaqueness, Political interference, gradual erosion of public service values etc

- Right to Information, Good governance as well as New Public Management, Digitalisation and transparency so gradual reduction of political interference, Enhancing public service values

ADMINISTRATIVE ETHICS:

- "In the happiness of his subjects lies the happiness of the king" – Kautilya.
- Public administration is a profession that offers and unusually array of opportunities to make moral or immoral decisions, to make ethical or unethical choices, to do good or evil things to people. Ethics provide a framework for accountability between the public and administration. Ethics and values have key role in smooth functioning of public administration system.

SIGNIFICANCE/IMPORTANCE OF ETHICS IN PUBLIC ADMINISTRATION:

- Public resource utilization: ethical use of resources ensures the efficient and effective development of society without corruption. It makes the one holding public office accountable for his/her actions.
- The ethical standards of Impartiality and objectivity bring merit into organization. thereby, increasing predictability, which improves economic efficiency.
- Outcomes for society are better when the decisions of public office holders are made fairly and on merit and not influenced by personal and private interests. Commitment and dedication to work improves the administration.
- Public trust and assurance: every section of public irrespective of race, religion, caste must be treated equitably and ethics ensures just and fair administration.
- Social capital: a just and ethical administration will have credibility and ensures citizen participation in administration. The trust thus generated makes the administration easier and synergetic.
- Curb corruption: Improving efficiency and break the unholy nexus between the administration and the anti-social elements.
- Adding the component of compassion to day to day works makes a lot of difference to the lives of vulnerable sections.
- The administration becomes responsive to the needs and aspirations of the public. For instance, creation of a separate public market for road side vendors before their evacuation in west Bengal.

- Ethical administration also helps in building rapport in international relations and economy.
- To provide guidelines and rules which can harmonize the relationship between civil servants and political executive. Thus, promoting the non-partisanship and impartiality in civil servants.
- To inculcate high moral standards in public servants and their ensure translation into actions.
- Absence of ethics results in authoritarianism, suppression of minority rights, high corruption and impoverishment of the poor and the vulnerable. Historically it has only been disastrous whether it is the colonial administration or the authoritarian governments like that of Hitler/Stalin.

- VALUES IN ADMINISTRATIVE ETHICS:

- The salient 'values' envisaged in the draft 'Public Service Bill' are:

- Allegiance to the various ideals enshrined in the Preamble of the Constitution
- Apolitical functioning
- Good governance for betterment of the people to be the primary goal of civil service
- Duty to act objectively and impartially
- Accountability and transparency in decision-making
- Maintenance of highest ethical standards
- Merit to be the criteria in selection of civil servants consistent, however, with the cultural, ethnic and other diversities of the nation
- Ensuring economy and avoidance of wastage in expenditure
- Provision of healthy and congenial work environment

- NOLAN COMMITTEE (1994) on Standards in Public Life:

- Selflessness – Holders of public office should act solely in terms of the public interest.
- Objectivity – Holders of public office must act and take decisions impartially, fairly and on merit, using the best evidence and without discrimination or bias.
- Accountability – Holders of public office are accountable to the public for their decisions and actions and must submit themselves to the scrutiny necessary to ensure this.
- Openness – Holders of public office should act and take decisions in an open and transparent manner. Information should not be withheld from the public unless there are clear and lawful reasons for so doing.
- Honesty – Holders of public office should be truthful.
- Leadership – Holders of public office should exhibit these principles in their own behaviour. They should actively promote and robustly

	support the principles and be willing to challenge poor behaviour wherever it occurs. • Dedication – The quality of remaining committed to public cause and citizen welfare even in face of hardships, threat and temptation. • Empathy and compassion– Empathy is about being able to accurately hear out and understand the thoughts, feelings and concerns of others, even when these are not made explicit. Compassion goes beyond empath and arouse an active desire to alleviate the suffering of others. • Tolerance– It is a permissible attitude towards others especially when they have an opinion or view point opposite to one's own opinion. • Integrity– Holders of public office must avoid placing themselves under any obligation to people or organisations that might try inappropriately to influence them in their work.
16.	**Earth's Oxygen might have originated from this unexpected source** • A study published in the journal Nature Geoscience has now said that Earth's early oxygen has come from a tectonic source via the movement and destruction of the Earth's crust. • The study noted that as far back as the Neoarchean era 2.8 to 2.5 billion years ago — oxygen was almost absent. Twenty-one per cent of the atmosphere consists of this life-giving element, the study states. Here are snippets from the study to understand where Oxygen originated from • The Archean Earth • The Archean eon represents one third of our planet's history, from 2.5 billion years ago to four billion years ago. A significant aspect of the Earth during this period was the tectonic activity. • On modern Earth, the dominant tectonic activity is called plate tectonics, where oceanic crust — the outermost layer of the Earth under the oceans — sinks into the Earth's mantle (the area between the Earth's crust and its core) at points of convergence called subduction zones. • One feature of modern subduction zones is their association with oxidized magmas. These magmas are formed when oxidized sediments and bottom waters — cold, dense water near the ocean floor — are introduced into the Earth's mantle. This produces magmas with high oxygen and water contents. • The identification of such magmas in Neoarchean magmatic rocks could provide evidence that subduction and plate tectonics occurred 2.7 billion years ago. • The experiment • We collected samples of 2750- to 2670-million-year-old granitoid rocks from across the Abitibi-Wawa sub province of the Superior Province —

the largest preserved Archean continent stretching over 2000 km from Winnipeg, Manitoba to far-eastern Quebec. This allowed us to investigate the level of oxidation of magmas generated across the Neoarchean era.

- Measuring the oxidation-state of these magmatic rocks — formed through the cooling and crystallization of magma or lava — is challenging. Post-crystallization events may have modified these rocks through later deformation, burial or heating.
- So, we decided to look at the mineral apatite which is present in the zircon crystals in these rocks. Zircon crystals can withstand the intense temperatures and pressures of the post-crystallization events. They retain clues about the environments in which they were originally formed and provide precise ages for the rocks themselves.
- Small apatite crystals that are less than 30 microns wide — the size of a human skin cell — are trapped in the zircon crystals. They contain sulphur. By measuring the amount of sulphur in apatite, we can establish whether the apatite grew from an oxidized magma.
- We were able to successfully measure the oxygen fugacity of the original Archean magma — which is essentially the amount of free oxygen in it — using a specialized technique called X-ray Absorption Near Edge Structure Spectroscopy (S-XANES) at the Advanced Photon Source synchrotron at Argonne National Laboratory in Illinois.

Creating oxygen from water?

- We found that the magma sulphur content, which was initially around zero, increased to 2000 parts per million around 2705 million years. This indicated the magmas had become more sulphur-rich. Additionally, the predominance of S6+ — a type of sulphur ion — in the apatite suggested that the sulphur was from an oxidized source, matching the data from the host zircon crystals.
- These new findings indicate that oxidized magmas did form in the Neoarchean era 2.7 billion years ago. The data show that the lack of dissolved oxygen in the Archean ocean reservoirs did not prevent the formation of sulphur-rich, oxidized magmas in the subduction zones. The oxygen in these magmas must have come from another source, and was ultimately released into the atmosphere during volcanic eruptions.
- We found that the occurrence of these oxidized magmas correlates with major gold mineralization events in the Superior Province and Yilgarn Craton (Western Australia), demonstrating a connection between these oxygen-rich sources and global world-class ore deposit formation.
- The implications of these oxidized magmas go beyond the understanding of early Earth geodynamics. Previously, it was thought unlikely that Archean magmas could be oxidized, when the ocean water and ocean floor rocks or sediments were not.
- While the exact mechanism is unclear, the occurrence of these magmas suggests that the process of subduction, where ocean water is taken

	hundreds of kilometres into our planet, generates free oxygen. This then oxidizes the overlying mantle. • Our study shows that Archean subduction could have been a vital, unforeseen factor in the oxygenation of the Earth, the early whiffs of oxygen 2.7 billion years ago and also the Great Oxidation Event, which marked an increase in atmospheric oxygen by two per cent 2.45 to 2.32 billion years ago. • As far as we know, the Earth is the only place in the solar system — past or present — with plate tectonics and active subduction. This suggests that this study could partly explain the lack of oxygen and, ultimately, life on the other rocky planets in the future as well.
17.	**Indian astronomers play key role in rare Black Hole discovery** ▪ A **Himalayan telescope in Ladakh** and a group of Indian astronomers have alerted the world about the **death screams of a dying star**, which was torn apart by a **supermassive Black Hole** at a distance of **12.5 billion light years away** - more than halfway across the Universe. ▪ Though the **rare cosmic event** that generated the **most powerful flash** from the farthest ever detected – **it is more than 1,000 trillion times more luminous** than **the Sun** – was observed by a **network of telescopes in four continents** and from space, it was the **GROWTH-India telescope at Hanle** that gave the first heads-up on the unusual nature of the flash to the astronomy community around the world within days of it being spotted. ▪ The story began with **California-based Zwicky Transient Facility** detecting a **new source of a bright flash in the sky** in the second week of February. Named **AT2022cmc**, it brightened rapidly and **was fading fast**. ▪ "We immediately jumped into action and started obtaining daily observations with the **GROWTH-India Telescope**", said Harsh Kumar, a PhD student at IIT Bombay. "Our data showed that the object was fading at a unique, unexpected rate that set it apart from dozens of other sources we study daily". ▪ This led to a string of **follow-up observations** by **more than 20 telescopes** around the world and in the sky including **India's GMRT** and **Astrosat observatory**.

- The **astronomers observed the last tango of a dying star**, which was being gobbled by a **supermassive black hole**, giving them ideas on what happens when a dying star flies too close to a **supermassive Black Hole**.
- "It doesn't end well for the star", said **Varun Bhalerao**, an astrophysicist at **IIT Bombay** and a team member. "**The star gets violently pulled apart by the black hole's gravitational tidal forces**. The shreds of the star form a **spinning disc** around the black hole, and are eventually consumed by it. Such events are called **Tidal Disruption Events**, or **TDEs**."
- Before AT2022cmc, the only two previously known **jetted TDEs** were discovered through **gamma-ray space missions**, which detect the **highest-energy forms of radiation** produced by such jets. The last such discovery was a decade ago.
- Since the **Big Bang happened 13.8 billion years ago**, what scientists observed happened in a young universe. "It is hard to estimate the details of the star that died (it became bright only because it was already torn apart), but it was probably a normal star, perhaps similar to even the mass of the Sun. Also, it did something weird," Bhalerao told DH.
- A part of the stellar material was released as "**relativistic jets**" - beams of matter travelling close to the speed of light -directed towards the Earth.
- "Our alerts led other astronomers to carry out follow-up observations," said G C Anupama, former dean of the Indian Institute of Astrophysics, Bengaluru. Two Pune-based groups from IUCAA and NCRA were also a part of the study.
- **India's uGMRT and Astrosat**, as well as the **VLA** and **Hubble Space Telescopes**, were among the instruments that were used to study the celestial event. The results appeared in two research papers in Nature and Nature Astronomy.
- "The **GROWTH India data** showed us that the source was special. Without such data we would probably not have undertaken these observations which revealed the extreme nature of this object," said Igor Andreoni, University of Maryland astronomer and one of the lead authors of the study.

18.	**What is Uttarakhand's bill on horizontal reservation for women?** ▪ The **Uttarakhand Assembly** on 30 November 2022 passed a Bill **to provide 30 per cent horizontal reservation** to local women in state government services. This comes weeks after the **Supreme Court lifted an Uttarakhand High Court stay** on a **2006 order of the government**, providing the same benefit. ▪ The **Uttarakhand Public Services (Horizontal Reservation for Women) Bill, 2022** has now been sent for the Governor's signature. **What does Bill say?** ▪ In the Bill's statement of objects and reasons, the government says that **due to Uttarakhand's geographical structure**, people living in **remote areas lead a difficult life**, **especially the women**. Because of this, their **standard of living is below the women of other states**. Also, women have very little representation in the state's public services. ▪ The Bill proposes **to plug these gaps** by providing women **with 30 per cent horizontal reservation** in public services and posts, in addition to the existing quotas applicable in the state. The **beneficiaries need to be women** with a domicile certificate of Uttarakhand. ▪ The reservation will be **applicable for posts in local authorities**, Uttarakhand co-operative committees in which the holding of the state government is not less than 51 per cent of share capital, board or corporation or legal body established by any central or Uttarakhand State Act which is under the ownership or control of the state government, and **any educational institution under the ownership** and **control of the state government** or which receives grants in aid from the state government. ▪ If **enough women are not available to fill the reserved seats**, they will be filled with qualified male candidates in the order of proficiency. **What is horizontal reservation?** ▪ **In December 2020**, the **Supreme Court clarified the position of the law** on the interplay of **vertical and horizontal reservations**. A decision by a two-judge Bench in the case of **Saurav Yadav versus State of Uttar Pradesh** dealt with issues arising from the way different

classes of reservation were to be applied in the selection process to fill posts of constables in the state.

- In simple terms, while a **vertical reservation applies separately for each of the groups** specified under the law, **the horizontal quota is always applied separately to each vertical category**, and **not across the board**.
- **Reservation for Scheduled Castes, Scheduled Tribes, and Other Backward Classes** is referred to as vertical reservation. **Horizontal reservation** refers to the **equal opportunity provided to other categories of beneficiaries** such as **women**, **veterans**, the **transgender** community, and individuals with disabilities, cutting through the vertical categories.
- For example, if **women have 50 per cent horizontal quota**, then half of the selected candidates will have to necessarily be women in **each vertical quota category** — i.e., half of all selected SC candidates will have to be women, half of the unreserved or general category will have to be women, and so on.

How did the issue end up in court?

- In July 2006, **Uttarakhand issued a government order** to **provide 30 per cent horizontal reservation to women domiciled** in the state, irrespective of their caste, creed, place of birth, place of origin, and social status.
- The order was in operation till this year before being challenged in the Uttarakhand High Court by Pavitra Chauhan, Ananya Attri and others. These were women from outside the state belonging to the unreserved category who had appeared for the state civil examination. They pleaded that despite securing higher marks in the preliminary tests than the cut-off for women candidates with state domicile, they were denied the chance to appear for the main examination.
- They challenged the GOs on the ground that **they provide horizontal reservation in the examination** conducted for the **Uttarakhand Combined Service** and **Senior Service of the State Public Service Commission** on the basis of **women's domicile status**. The Uttarakhand High Court stayed the order and said the quota should be construed as a **horizontal reservation for women** irrespective of their domicile or place of residence.

	▪ The matter then went to the apex court. Challenging the High Court, the state's standing counsel pleaded that the state's terrain and climate forced its youth to migrate elsewhere in search of livelihood, leaving the responsibility to run the household and raise children on women. The standing counsel defended the decision **to provide quota in public employment** to such women, and in November, a bench of Justices S Abdul Nazeer and V Ramasubramanian lifted the HC stay.
19.	**Excess imports, sluggish exports — makes India's current account deficit more challenging.** ▪ Current account balance is essentially the difference between what a country pays and what it is paid in exchange for goods and services. A country is said to be facing a current account deficit when its import bill is higher than its export bill, and is said to be in surplus when its exports exceed imports. ▪ According to Reserve Bank of India's (RBI) data on Balance of Payments, CAD climbed to Rs 1.8 lakh crore by the quarter ending June 2022 — the highest in the past decade in absolute terms, and comparable only to the third quarter of FY 2012-13 when it had surged to Rs 1.7 lakh crore or 6.75 per cent of India's GDP in that quarter. ▪ This time though, the deficit is higher in absolute terms, nearly half in terms of percentage of GDP. **Trade deficit & China** ▪ A good look at the current account — inflow and outflow of goods, services and remittances earned or paid by a country — shows that a majority of India's deficit can be attributed to a negative balance in the merchandise account. India usually runs a surplus in services and remittances, but incurs a deficit in trade of merchandise or tangible goods. ▪ In the first three months of FY 2022-23, India's trade deficit — excess of imports over exports of merchandise — was about USD 68 billion. This deficit was somewhat mitigated by export of services which reported a surplus of USD 31 billion, besides secondary incomes amounting to USD 22.9 billion, comprising mostly remittances from abroad.

- Data from the Ministry of Commerce and Industry shows that by the second quarter of FY 2022-23, India's trade deficit almost doubled, compared to the same quarter in the previous year.
- In the first two quarters of FY 2021-22, India reported a trade deficit of USD 76 billion, which jumped to USD 148 billion in the first two quarters of FY 2022-23.
- This was because India's imports rose by 38.5 per cent and exports by only 17 per cent in the first two quarters of the current fiscal year. At the same time, the surplus earned by services rose only by 19 per cent (from USD 51.4 billion to USD 61.3 billion) — not enough to compensate for the extra dollars spent in footing the bill for merchandise imports.
- A large chunk of this deficit can be attributed to trade with China, which experts find concerning.
- "A disaggregated view of India's trade shows that the deficit from China contributed almost 40 per cent of the overall merchandise trade deficit in 2021-22," said Radhika Pandey, a senior fellow at the Delhi-based National Institute of Public Finance and Policy. "Dependence on a single country for a large part of imports is a cause of concern. The deficit owing to trade with China shot up from USD 38 billion in 2020-21 to USD 73 billion in 2021-22."

<u>Surging Current Account Deficit: Need to increase Exports</u>

- India has reached **USD 418 billion dollars** of **manufacturing exports** in the **fiscal year 2022 (FY22)**with rapid growth over the last **2 years**. Despite having the fifth-largest economy in the world, contributing to 3.1% of the GDP, India's export contribution to **global trade is still only 1.6% that includes a variety of factors like rising protectionism and deglobalisation, lack of basic infrastructure** and low market penetration in high-income countries.
- Therefore, it calls India to look forward towards **expediting Free Trade Agreements, lowering tariffs** and **addressing supply-side bottlenecks** would help in addressing export challenges.

Major Sectors that Contribute to Indian Exports

- **Petroleum Products:** It contributed in a major way to India's exports, amidst **crude oil prices rising due to the pandemic** and made worse by geopolitical tensions due to the **Russia- Ukraine war.**

- India exports **USD 55.5 bn worth of petroleum products**, a massive rise of 150% over last year.

- **Engineering Goods:** They registered a **50% growth in exports**, at **USD 101 bn in FY22.** Currently, **all pumps, tools, carbides, air compressors, engines, and generators manufacturing MNC companies** in India are trading at all-time highs and shifting more production units to India.
- **Jewellery:** Made up **USD 35.3 billion of India's exports** in With the reduction of **import duty on cut and polished diamonds** in this year's budget, **this is only going to rise.**
- **Agriculture Products:** Agricultural exports were **buoyed by the government's push to meet global demand for food amid the pandemic.** India exports rice worth **USD 9.65 bn**, the highest among agricultural commodities.
- **Textile and Apparels:** India's textile and apparel exports (including handicrafts) stood at **USD 44.4 billion in FY22, a 41% increase on a YoY basis.**
  - Government's schemes like **Scheme for Integrated Textile Parks (SITP)** and **Mega Integrated Textile Region and Apparel (MITRA) Park scheme** are giving a strong boost to this sector.
- **Pharmaceuticals and Drugs:** India is the **third-largest producer of medicines by volume** and the biggest supplier of generic drugs.
  - India supplies over **50% of Africa's requirement for generics,** around **40% of generic demand in the US and 25% of all medicine in the UK.**

Challenges Related to Indian Export Growth

- **Rising Protectionism and Deglobalisation:** Countries around the globe are moving towards **protectionist trade policies** due to **disrupted global political order (Russia-Ukraine War)** and weaponization of supply chain, that is in way shrinking India's export capacities.
- **Lack of Basic Infrastructure: India's manufacturing sector lacks sufficient** manufacturing hubs; internet facilities and **transportation are costly when compared to developed nations** which is a huge deterrence to Industries.
  - **Uninterrupted power supply** is another challenge.

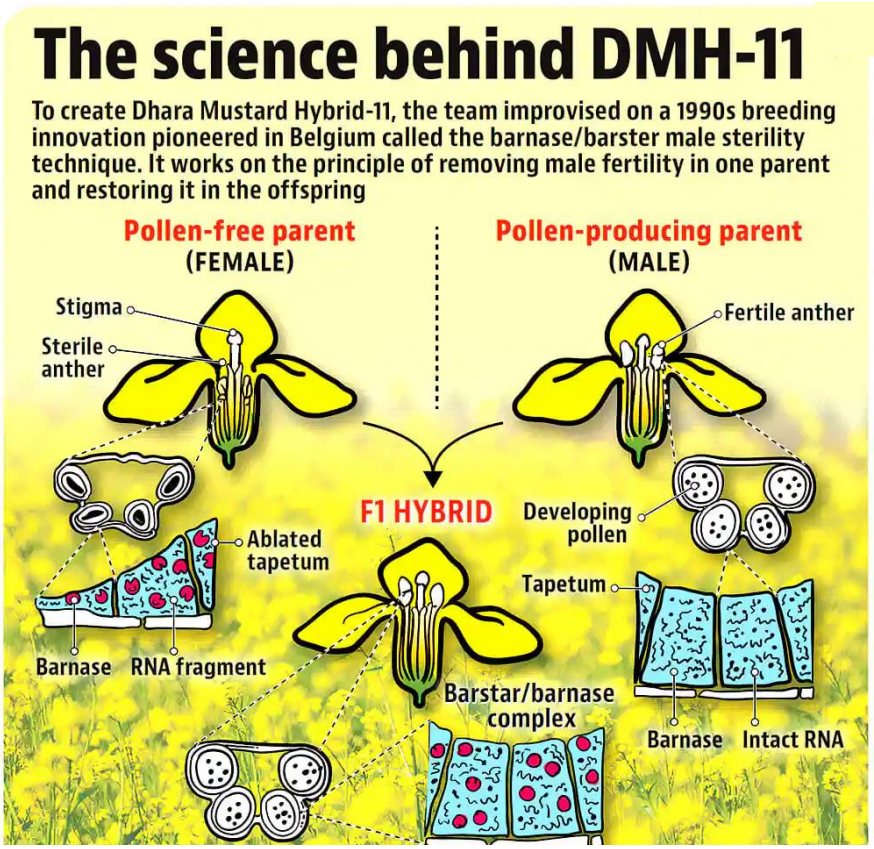
- **Lack of Innovation Due to Low Spending On R&D:** Currently, India **spends about 0.7% of GDP on research and development.** This prevents the manufacturing sector from **evolving, innovating and growing.**
- **Specialisation versus Diversification:** Indian exports are characterised by **high diversification combined with low specialisation**, implying that India's exports are spread thin over many products and partners, resulting in **lack of competitiveness compared to other countries.**

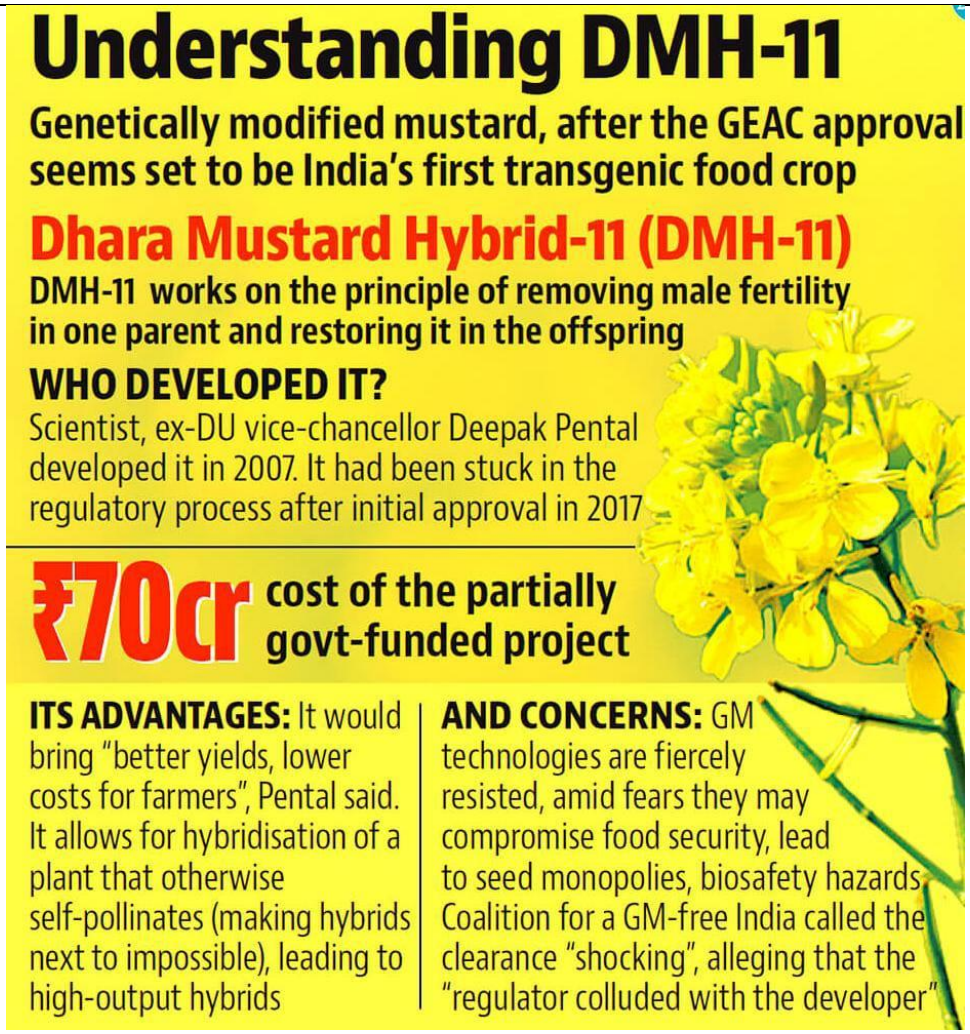
Looking ahead

- **Exploring Joint Development Programmes:** Amidst a wave of **deglobalisation and slowing growth, exports cannot be the sole engine of growth**. India can also explore **joint development programmes with other countries** in sectors like **space, semiconductor, solar energy** to improve **India's medium-term growth prospects.**
- **Dedicated Export Corridors:** The economic policy should also strive to promote **export dynamism** and **product specialisation alongside product diversification through Dedicated Export Corridors** to offer the best of the best service across the globe and propel the Indian economy to the path of long term sustained economic growth.
- **Promoting Acquisitions Abroad:** Indian entrepreneurs can be incentivised to sign **joint venture undertakings** abroad for building up an **export potential for their products especially** in developing countries where there is a favourable **political climate and a demand for Indian products.**
- **Front lining MSME Sector:** MSMEs account for **29% of GDP and 40% of international trade,** making them key players in achieving ambitious export targets.
  - It is important for India to link **Special Economic Zones with the MSME sector** and incentivize small businesses.
- **Filling Up Infrastructural Gaps:** A robust infrastructure network - **warehouses, ports, testing labs, certification centres, etc.** will help Indian exporters compete in the global market.
  - It also needs to adopt **modern trade practices that can be implemented through the digitisation of export processes.** This will save both time and cost.

20.	**The GM mustard debate** ▪ The debate over the use of **genetically modified crops** is raging again, with familiar **arguments and objections** being made. Recently, the government had cleared the **'environmental release' of a genetically modified (GM) variety of mustard, DMH-11**, developed by the **Centre for Genetic Manipulation of Crop Plants (CGMCP)** at Delhi University. **'Environmental release'**, involving **seed production** and **field testing**, is the **final step** before the crop can be cultivated by farmers. ▪ The government decision was met with expected opposition from activists who oppose **any use of GM technology in agriculture**. Predictably, the matter has reached the courts. **On previous occasions**, this has ended with the decision being put on indefinite hold. ▪ **Previous attempt** ▪ In fact, **DMH-11**had reached quite close to being approved for **environmental release in 2017** as well, but then had to be stopped under pressure from activists and NGOs. The decision to revisit this issue has come in **the wake of steadily rising import bills on edible oils**. The availability of mustard, **commonly used affordable cooking oil**, has emerged, more than ever before, as a **food security issue**. Increased yields of mustard can reduce the dependence on other countries for a critical food item, as well as **save foreign currency worth tens of billions of dollars every year**. ▪ In fact, the government is **treating mustard as a special case among all the GM crops awaiting approval**. It has maintained that approving the mustard variety would not mean opening the floodgates for all other transgenic crops. In the case of mustard, **there is a compelling economic and food security argument**, which puts it in a separate category. There has been no movement, for example, on **Bt brinjal**, which, like DMH-11, has passed all the safety tests and regulatory processes, but whose release has been on **hold since 2010**. ▪ Activists, however, not just dispute the **ability of GM mustard to increase yield**, but question **biosafety data** and claim that **it will**

harm human and soil health, cause **environmental damage**, and **threaten the existence of other species**, like **honeybees**. These arguments are in line with the opposition to genetically modified crops in general.





Concerns around the crop

- The **opposition to GM crops** broadly rests on the '**precautionary principle**', which argues that in **the absence of scientific consensus** and **adequate information**, new innovations likely to have severe adverse impacts on human or environmental health must be treated with extreme caution.
- The principle is criticised, even though it is invoked fairly regularly in a variety of circumstances. The sole reliance on this principle for **decision-making** is often seen as a **hurdle to scientific progress**, or a **justification for inaction**. GM crops have been under cultivation for three decades now, in different parts of the world, and there is little evidence to suggest that the apocalyptic dangers that are often talked about have appeared anywhere.

- **Over 25 countries grow genetically modified crops**, including **developed nations** like the **United States and Canada,** middle income countries like **Brazil and South Africa**, and **India's neighbours like Pakistan, Myanmar and Bangladesh**. Even in India, **Bt cotton**, the **only GM crop to have been allowed in the country**, has been under cultivation for the last 20 years. None of the grave apprehensions that were raised when Bt cotton was being approved have come true.
- In fact, a substantial portion of imported edible oils, as well as some other crops, are of **genetically modified varieties**. Many Indians have, thus, already consumed genetically modified food without any harm.
- It is true that a **scientific consensus on the use of GM technology in agriculture** is still elusive. But it is difficult to have **complete consensus on any emerging area of science.** After three decades of use, the weight of scientific opinion seems overwhelmingly **in favour of GM technology.** In fact, while **endorsing DMH-11**, the National Academy of Agricultural Sciences, the main academic association of agricultural scientists, had said that most of the opposition to GM crops was based on **distortions of scientific data.**
- "The broad conclusion is that almost **all the negative reports on GM mustard**, appearing on websites, newspapers, and letters to the ministers and PMO are fallacious, **wilfully distort scientific data** and have been made with the sole intention of scuttling the use of technology which could be of great interest and value to the country," the NAAS had said in 2017 after **DMH-11 was put on hold**.
- Scientists also **lament the fact** that the uncertainties inherent in any new technology are exaggerated to either call for a **complete ban on GM**, or fresh round of safety tests.
- "There is a constant shifting of goalposts. A certain requirement is asked to be met, and when that is done, **new demands are put forward**. This is an **endless cycle**. The fact is that **GM mustard**, and **GM technology in general**, has been put through the most robust scientific scrutiny possible. It is being used in several countries, including India where **GM cotton is being cultivated for two decades now**," Vibha Dhawan, director general of Delhi-based The

	Energy and Resources Institute, and herself an agriculture biotechnologist, said. ▪ "We see very **absolutist positions** being taken on GM technology by those who oppose it. **Every small potential risk** is cited to argue against its use. We have to understand that nothing is risk-free. All the available scientific evidence suggests that **genetically modified crops are safe for human consumption**. But we hear arguments that the harmful impacts can manifest in the second, or fourth or fifth generation of consumers. There can be no answer to this," she said. ▪ The **opposition to GM crops** so far has overcome the broad political agreement on the subject. Both the Congress as well as BJP at the Centre have tried to push for these crops. On the state level, there is less consensus, with many state governments expressing reservations over this technology.
21.	**Where did the Earth's oxygen come from? New study hints at an unexpected source** ▪ A study published in the **journal Nature Geoscience** has now said that **Earth's early oxygen has come from a tectonic source** via the **movement and destruction** of the **Earth's crust**. ▪ The study noted that as far back as the **Neoarchean era 2.8 to 2.5 billion years ago** — oxygen was almost absent. **Twenty-one per cent of the atmosphere** consists of this **life-giving element**, the study states. Here are snippets from the study to understand where Oxygen originated from **The Archean Earth** ▪ The **Archean eon represents one third of our planet's history**, from **2.5 billion years ago** to **four billion years ago**. A significant aspect of the Earth during this period was the **tectonic activity**. ▪ On modern Earth, the **dominant tectonic activity is called plate tectonics**, where **oceanic crust** — the **outermost layer of the Earth under the oceans** — sinks into the Earth's mantle (the area between the Earth's crust and its core) at points of convergence called **subduction zones**. ▪ One feature of **modern subduction zones** is their association with **oxidized magmas**. These magmas are formed when **oxidized**

sediments and bottom waters — cold, dense water near the ocean floor — are introduced into the Earth's mantle. This produces magmas with high oxygen and water contents.

- The identification of such magmas in **Neoarchean magmatic rocks** could provide evidence that subduction and **plate tectonics occurred 2.7 billion years ago**.

The experiment

- We collected samples of **2750- to 2670-million-year-old granitoid rocks** from across the **Abitibi-Wawa sub province** of the Superior Province — the largest preserved Archean continent **stretching over 2000 km** from Winnipeg, Manitoba to far-eastern Quebec. This allowed us to investigate **the level of oxidation of magmas** generated across the **Neoarchean era**.
- Measuring the **oxidation-state of these magmatic rocks** — formed through the cooling and crystallization of magma or lava — is challenging. **Post-crystallization events** may have modified these rocks through later deformation, burial or heating.
- So, we decided to look at the **mineral apatite** which is present in the **zircon crystals** in these rocks. Zircon crystals can withstand the intense temperatures and pressures of the **post-crystallization events**. They retain clues about the environments in which they were originally formed and provide precise ages for the rocks themselves.
- **Small apatite crystals** that are **less than 30 microns wide** — the size of a human skin cell — are trapped in the zircon crystals. They contain sulphur. By measuring the **amount of sulphur in apatite**, we can establish whether the apatite grew from an oxidized magma.
- We were able to successfully measure the **oxygen fugacity of the original Archean magma** — which is essentially the amount of **free oxygen** in it — using a specialized technique called **X-ray Absorption Near Edge Structure Spectroscopy (S-XANES)** at the Advanced Photon Source synchrotron at Argonne National Laboratory in Illinois.

Creating oxygen from water?

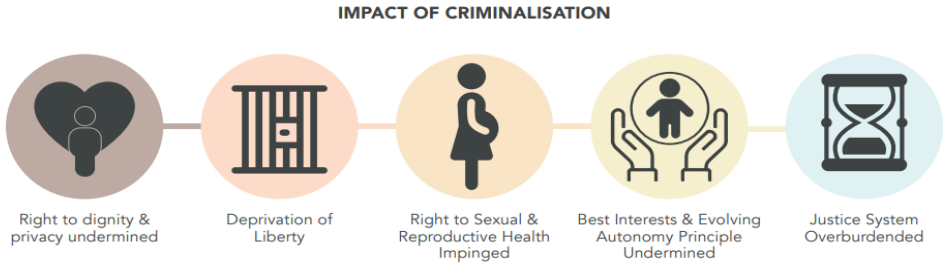
- We found that the **magma sulphur content**, which was initially around zero, increased to **2000 parts per million around 2705 million years**. This indicated the magmas had become more sulphur-rich. Additionally, the predominance of S6+ — a type of sulphur ion —

	in the apatite suggested that the **sulphur was from an oxidized source**, matching the data from the host zircon crystals. ▪ These new findings indicate that **oxidized magmas did form in the Neoarchean era 2.7 billion years ago**. The data show that the lack of dissolved oxygen in the Archean ocean reservoirs did not prevent the **formation of sulphur-rich**, **oxidized magmas** in the subduction zones. The oxygen in these magmas must have come from another source, and was ultimately released into the atmosphere during **volcanic eruptions**. ▪ We found that the occurrence of these **oxidized magmas correlates with major gold mineralization events** in the **Superior Province and Yilgarn Craton** (Western Australia), demonstrating a connection between these oxygen-rich sources and global world-class ore deposit formation. ▪ The implications of these **oxidized magmas** go beyond the understanding of early Earth geodynamics. Previously, it was thought unlikely that **Archean magmas** could be oxidized, when the ocean water and ocean floor rocks or sediments were not. ▪ While the exact mechanism is unclear, the occurrence of these magmas suggests that the **process of subduction**, where ocean water is taken hundreds of kilometres into our planet, generates free oxygen. This then oxidizes the overlying mantle. ▪ Our study shows that **Archean subduction could have been a vital**, unforeseen factor in the oxygenation of the Earth, the early whiffs of oxygen 2.7 billion years ago and also the **Great Oxidation Event**, which marked an increase in atmospheric oxygen by two per cent 2.45 to 2.32 billion years ago. ▪ As far as we know, **the Earth is the only place in the solar system** — past or present — with **plate tectonics and active subduction**. This suggests that this study could partly explain the lack of oxygen and, ultimately, life on the other rocky planets in the future as well.
22.	**POCSO not meant to criminalise consensual relationships** ▪ India enacted the **Protection of Children from Sexual Offences Act (POCSO Act)** in 2012 to plug the **legislative gaps** concerning sexual violence against children under the age of 18.

- However, the act does not recognise consensual sexual behaviour of older adolescents above 16 years.
  - This in gross oversight of their **normative sexual behaviour and bodily integrity and autonomy.**
- Thus, there is need to reform the POCSO act in order to maintain the balance between the **protection from exploitative sexual activities and right to dignity and privacy.**

Protection of Children from Sexual Offences (POCSO) Act 2012

- It deals with the **sexual assault, pornography, sexual harassment** against children below 18 years.
  - It also defines "penetrative sexual assault", "sexual assault" and "sexual harassment".
- If it is committed by public servant, police officer, staff at remand home, protection or observation home, jail, hospital or educational institution or by member of arm forces then it will be **considered graver.**
- It criminalises all sexual activity for those **under the age of 18**, regardless of whether consent is factually present between the two minors in a particular case.
- It safeguards child and incorporates **child friendly process at every stage** such as reporting, reporting of evidence, investigation, and speedy trial.
  - **Section 39:** Requires state governments to prepare guidelines for NGOs, professional experts or person to assist child in pre-trial and trial stage.
- **Section 44**: Empowers **National commission for child rights (NCPCR)** and state government to implement provisions of this act as prescribe.



Challenges of POCSO Act

Lack of recognition of consensual sexual behaviour of older adolescents

- As per National Family Health Survey-5, **39%** of women in the age group of 25-49 years had their **first sexual intercourse before the age of 18 years.**
- Many High Courts have recognised that adolescent relationships are **normal and criminalisation of such acts affects both parties**.
  - **Vijayalakshmi case (2021):** Madras High Court said that "adolescent romance is an important developmental marker for adolescents' self-identity, functioning and capacity for intimacy".
- However, POCSO act **ignores the possibility of consensual sexual activity** among or with older adolescents above 16 years.
- A Recent study by Enfold Proactive Health Trust shown that between the age of 16 to 18 **almost half of the cases (46.6%)** under POSCO are **'Romantic Cases'**.
  - Romantic cases can be broadly defined as victim, her family or any prosecutorial witness admitted the romantic relationship or the court concluded it was romantic.
    - It also found out that **87% of romantic cases girl** admitted being in romantic relationship with accuse during investigation or evidence stage or both.
- Romantic cases constitute **24.3%** of total cases registered and disposed between 2016 to 2020 in special courts of **Maharashtra, West Bengal, and Assam.**

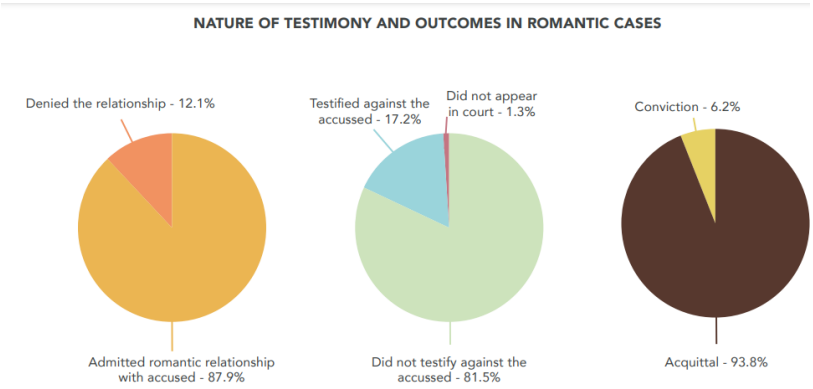
Undermines the bodily integrity and dignity of adolescents

- By equating consensual and non-exploitative sexual acts with rape and penetrative sexual assault, the law undermines the **bodily integrity and dignity of adolescents**.
- It casts adolescent **girls as victim** rendering them voiceless.
  - They're institutionalised in children's home when they refuse to go back to home or to parents.
- Adolescent boys are treated as in **conflict with the law** even tried as adults.
  - Such treatment violates sexual development, sexual development, bodily integrity and autonomy, and violates their **right to life, privacy, and dignity**.
- Act provisions also impedes adolescents' right to barrier-free access to sexual and reproductive health services and information under

the **Rashtriya Kishor Swasthya Karyakram (National Adolescent Health Programme).**

Adverse impact on justice delivery:

- Investigation of consensual and non-exploitative sexual acts results in **wastage of time and resources.**
  - The median time between the lodging of the FIR and the disposal of such romantic cases was 1.4 years in Assam and 2.3 years each in Maharashtra and West Bengal.
- As per Crime in India, 2021, **92.6%** of cases under the POCSO Act were **pending disposal.**
  - Most of these pending cases are related to **Consensual acts.**



Other challenges

- Mandatory reporting obligation under the Act and fear of partner being reported to police forces girls **towards unsafe abortions.**
- Often misused by parents to curtain sexual expression of a girl to **safeguard family honour.**
- A criminal investigation and inquiry for the violation of the act could have an **adverse impact on the adolescents' development, education, self-esteem, social reputation, and family life.**
  - Long-term consequences of a conviction for statutory rape are **incarceration and inclusion in the sex offender's registry.**

Suggestions

- Need for an amendment in POCSO act **decriminalising consensual acts** involving adolescents **above 16** years.
  - Amendment should also ensure their protection by criminalising non-consensual acts, against their will, or where

	consent obtained through fear of death or hurt, intoxication or accused in a position authority. ▪ Comprehensive **sexual education** needed to fulfil knowledge gap. ▪ Spreading awareness about **health and dignity**. ▪ It is required to build **skills and attitudes** to enable to make informed decisions and navigate through interpersonal relationships. ▪ Efforts are also needed in direction towards imparting **knowledge, skill and attitude** to vulnerable groups like children with disabilities or those out of group. It is important to safeguard the children below 18 from sexual abuse but also making sure about their own right to life with dignity and bodily privacy. Thus, creating a child friendly environment and making them aware about health, dignity and sexual education is need of today.
23.	**The High Cost of Cancer Drugs and What We Can Do About It?** ▪ According to recent estimates, globally cancer cases will **increase from 19.3** **million to 28.4 million by 2040.** ▪ In, India tobacco use accounts for **almost 50%** of all cancers. ▪ High incidence of tobacco related cancer was found in the **north eastern region.** ▪ In this context, it is important to keep check on **availability of prevention and affordable treatment options.** **High cost of Cancer treatment** **Cost of cancer care** ▪ Cancer care facilities in private is **thrice costlier than the public facilities**. ▪ About 40% of cancer hospitalization cases are financed mainly through **borrowings, sale of assets and contributions from friends and relatives.** ▪ As per WHO, cost associated with medical care and intervention and supportive care is more unaffordable in developing countries. **Example: Cost of breast cancer treatment**

- In case of **standard treatment** for breast cancer: The cost is equivalent to about **10 years of average annual wages in India** and South Africa and 1.7 years in US.
- In case of **other medical** (such as radiotherapy) and supportive care: The cost of medicine is **completely unaffordable.**
    - For the treatment of breast cancer, one of the three drugs, Ribociclib, Palbociclib and Abemaciclib is required for lifetime.
        - Current monthly cost for patient in India for such drug is between 47,000 to 95,000 INR.

Reason for such high prices

1. **High R&D Cost**

- Pharmaceutical companies argue that they spend over $3 billion in bringing a new molecule to the market.
    - WHO report mentioned that spending on R&D may bear **little or no relationship** to how pharmaceutical companies set **cancer medicine prices.**

2. **Intellectual Property Rights (IPR)**

- IPR allows companies to sustain their high profit margins, which results into high prices.
    - **Example**: Pfizer's holds rights of Palbociclib till 2023, while Novartis's Ribociclib and Elly Lilly's rights on Abemaciclib will end between 2027 and 2029.
    - Till then, **no Indian company can manufacture these medicines.**

Recommendation for reduction in cancer treatment

Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana (AB-PM-JAY)

- PM-JAY beneficiaries' get yearly 5 lakh health cover for secondary and tertiary health care.
- It should be expanded to **include diagnostic tests and other services for cancer care.**

Reduction in margins

- **National Pharmaceutical Pricing Authority** (NPPA) fixes, revises and monitors the prices of scheduled drugs under **National List of Essential Medicines (NLEM).**
- Government should reduce profit margins from 16% as it is high or provide subsidy.

	▪ Also 10% annual increment allowed in the prices of non-scheduled drugs should be reduced to 5%. **Granting Compulsory Licenses** ▪ Under **Section 84 and 92 of Patents Act,** government should grant compulsory license (CLs) to Indian companies for domestic production of high-priced medicines. ▪ It overrides patent rights and enables domestic manufacturing of generic alternatives of patented high price medicines. ▪ Government can invoke **Section 100** which empowers any entity to use patented invention without authorisation of patent holder. **Other Recommendation** ▪ Focusing on complaint against tobacco consumption. ▪ Formulate strategies to **stop the teenage population** from getting **addicted to tobacco.** ▪ Raise **awareness about cervical cancer**. ▪ Include **Human Papilloma Virus (HPV)** vaccine against cervical cancer in governments vaccination programme. Cancer cases will increase from 19.3 million to 28.4 million by 2040. Thus, it is important to provide cancer care and medication in affordable price otherwise it impacts on the life of a patient which violates the 'Right to life with dignity' under Article 21 of the constitution.
24.	**New tech can create more jobs** ▪ India is implementing big way of **emerging technologies** such as 5G, artificial intelligence, autonomous systems, blockchain, cloud and quantum computing, digital mechanisms etc. to improve the living conditions of its people. ▪ However, several international agencies highlight **reduction in job opportunities** due to **innovative technologies that can replace human labour.** <u>Positive Impact of new technologies</u> **Financial Sector** ▪ Application of new tech will formalize the economy so it will be easier for government to track **financial activity till the last mile**. ▪ This record will help to finance existing **unorganised manufacturing and traditional sector** at nominal rate.

- It will help to reduce their **cost of production** and deliver their products at a competitive rate.
- It will **enhance their income**, the multiplier effect of which will lead to more employment opportunities.

Manufacturing Sector

- Using **advance robotics** auto manufacturing can be done easily.
  - Although still it will require professional, **skilled and semi-skilled labour** in India.

Telecom Sector

- It has wide range of new opportunities for new tech including its **5G services** across the country.
  - It will generate significant employment for the youth as per the projection of **Telecom Sector Skill Council**.

Agriculture Sector

- Using **Artificial Intelligence (AI) and Internet of Things (IoT),** farmers can improve their yield and reduce asymmetries.
  - It will result in **increasing their income.**

Travel and Tourism Sector

- It can be enhanced using **blockchain technology** coupled with innovative digital strategies and apps.
  - It can create positive disruption for allied sectors such as **medical and virgin tourist destinations.**

Other sectors

- **Cloud computing** in Information and Communication Technology (ICT) offers flexibility for greater collaboration with work teams, better control of documents, work from anywhere environment leading to increase in productivity, and innovation offering positive externalities and employment across the sector.
- **Legal sector** is witnessing application of disruptive technologies giving employment opportunities for ICT and data analytics professionals.
- **Micro-technologies**, especially in digital banking, connectivity and transport services may improve labour productivity.

<u>Startup ecosystem in India</u>

- It is world's **third largest** startup ecosystem.
- It has more than **60,000** startups across **642** districts.
- It has generated **65 unicorns** across various industries.
  - **Unicorn:** A startup company with value over 1 billion USD.

- These startups are **specialized in emerging technologies** such as in fintech, e-commerce, supply chain logistics, internet and software services and ed-tech.
- It provides scope for **entrepreneurial ventures** and **self-employment**.
- Indirectly it will result in to employment generation in the country.
    - It may witness substantive shift from **wage employment to self-employment** adding to the formal sector.

Challenges

Construction Sector

- It may **not witness adoption of advanced technologies** as it may not be able to compete with the cheap labour available

Agriculture Sector

- Most of the labour force in India is in agriculture traditionally and new tech will disrupt their wages.

Unskilled Workforce

- To acquire employment in new tech requires specific skilled person.
- In India mostly people are working in unorganised sector are unskilled or **not familiar with the technology.**

Unemployment in transition phase

- During the shift from traditional to new tech jobs in between many people will lose their employment due to not having proper guidance.

Suggestions

- There is need for government to carry out **upskilling programs** for **skill development**.
- Proper management of **work force transition** is required.
- It is required that currently employed go under training or **re-training** to get comfortable with new technologies.
- It is also required to develop skills such as **empathy, imagination or creativity**, which will underpin jobs in more **social sectors**.

In India, new technological developments will bring challenges, but they also present an opportunity for us to upskill our workforce in order to emerge as a foreign investment destination and grow Indian startups for economic growth.

25. **Goa Liberation Day 2022: History and significance**

- **President Draupadi Murmu** tweeted her **greetings to the nation** on 19 December, **marking Goa Liberation Day**. The day is celebrated annually **to mark the success of 'Operation Vijay'** undertaken **by the Indian armed forces** to **defeat Portuguese colonial forces** and liberate Goa in 1961.
- "On **Goa Liberation Day**, I convey my greetings to all fellow citizens, especially the people of Goa. We pay homage to the freedom fighters who fought for liberation of Goa from colonial rule. **We salute our armed forces for their valour**. My best wishes to the people of the state," Murmu tweeted.

What is the history of Goa's colonisation by European powers?

- The **Portuguese colonial presence in Goa began in 1510**, when **Afonso de Albuquerque defeated the ruling Bijapur king** with the help of a local ally, Timayya, and subsequently established a **permanent settlement in Velha Goa** (or Old Goa).
- Over the following centuries, the **Portuguese fought frequent battles** with the **Marathas** and the **Deccan sultanates**. During the **Napoleonic Wars**, Goa was briefly occupied by the British between 1812 and 1815. In 1843, the capital was moved to **Panjim from Velha Goa**.
- **Goa was Portugal's most prized possession in India** and the **biggest territory in Estado da India Portuguesa** or the Portuguese empire in India. **Portuguese colonial rule** also saw the advent and growth of Christianity in Goa. Over time, the Portuguese lost most of the territories in the Estado but retained Goa until well after India itself had thrown off the yoke of the British Raj.

What was the movement for Goa's independence?

- By the **turn of the twentieth century**, Goa had started to witness an **upsurge of nationalist sentiment** opposed to Portugal's colonial rule, in sync with the anti-British nationalist movement in the rest of India. Leaders such Tristão de Bragança Cunha, celebrated as the **father of Goan nationalism**, founded the Goa National Congress at the Calcutta session of the **Indian National Congress in 1928**.
- **In 1946**, the socialist leader **Ram Manohar Lohia** led a historic rally in Goa that gave a call for **civil liberties and freedom**, and eventual

integration with India, which became a **watershed moment in Goa's freedom struggle**.

- On the other hand, the **Azad Gomantak Dal**, co-founded by **Prabhakar Sinari**, was willing to try more aggressive methods. But a variety of factors prevented Goan independence from happening immediately.
- "The **trauma of Partition** and the **massive rupture** that followed, coupled with the war with Pakistan, **kept the Government of India from opening another front** in which the **international community could get involved**. Besides, it was Gandhi's opinion that a lot of groundwork was still needed in Goa to raise the consciousness of the people, and the **diverse political voices emerging** within should be brought under a common umbrella first," Prof Rahul Tripathi of the Department of Political Science in Goa University, wrote in The Indian Express earlier.

How was independence achieved?

- **Post-1947**, **Portugal refused to negotiate with independent India** on the transfer of sovereignty of their Indian enclaves. Prime Minister Jawaharlal Nehru was keen that Goa should be integrated by diplomatic means. After Portugal became part of the US-led Western military alliance NATO (North Atlantic Treaty Organisation) in 1949, **Goa too became part of the anti-Soviet alliance by extension**. Fearing a collective Western response to a possible attack on Goa, the Indian government continued to lay stress on diplomacy.
- In his **1955 Independence Day speech**, Nehru was critical of the **satyagraha movement in Goa**. However, the Indian government reacted sharply to an incident of firing on satyagrahis, and snapped ties with Portugal. Scholars have pointed out that as **India aggressively championed** the **Non-Aligned Movement**, **decolonisation**, and **anti-imperialism** as pillars of its policy, the continuation of colonial rule in Portugal became increasingly unsustainable.

What was 'Operation Vijay'?

- The Indian government finally declared that **Goa should join India "either with full peace or with full use of force"**. 18 and 19 December 1961 saw a **full-fledged military operation termed 'Operation Vijay'**, which was carried out with little resistance and an

	instrument of surrender was signed, leading to **Goa's annexation by India**.
26.	**DNA Technology Regulation Bill: Concerns on data privacy, dependence, and bias** ▪ The DNA Technology (Use and Application) Regulation Bill, 2019 was introduced in Lok Sabha by the Minister of Science and Technology, Harsh Vardhan on JULY 8, 2019. The sole purpose of the bill was to create a legislative base for the use of revolutionary DNA technology for various forensic as well as investigative purposes in India. The bill provides for the establishment of a DNA Regulatory Board, DNA data Banks on National and regional level, DNA laboratories and protection of information and penalties in case of violation of confidential information. ▪ DNA which stands for "Deoxyribonucleic Acid", is a data center of the building blocks of our body, the tiniest cells. It is a complex chain of molecules where all the specific information for the formation of particular cells are stored. These molecules inside cells contain the genetic information for the growth and function of an organism. The genetic information is carried by DNA, from generation one to the next. DNA has a double helix like structure, made up of nucleotides. DNA is a nucleic acid, composed of a deoxyribose sugar, a phosphate group and a nitrogen base. Deoxyribose sugar with a phosphate group links the nucleotides together and forms each strand of DNA. Here nitrogenous bases are a group of Adenine (A), Thymine (T), Guanine (G) & Cytosine which resembles a twisted ladder. DNA was first discovered by the Swiss biologist Johannes Friedrich Miescher in 1869. DNA fingerprinting, Mutation, Gene therapy, Replication processes are some important functions of DNA technology. <u>Features of DNA Technology Regulation Bill 2019</u> The 9 chapters bill was introduced to allow Law enforcement agencies and investigative bodies to collect DNA samples, for DNA profiling, and making DNA data banks specifically used for identification of persons and not for any other uses. Let's know about the key features of the bill. ▪ *DNA Regulatory Board*

As per the bill, a 12 member National DNA Regulatory body, headed by the Secretary of Biological department, is to be formed to advise, supervise and permit the establishment of DNA data Banks, DNA laboratories. Setting regulations, privacy protocols for DNA data and ensuring their proper execution, allowing the access of DNA data for investigation purposes are the main functions of the regulatory board.

- *DNA Data Banks*

National DNA data Bank and Regional DNA data Banks are proposed to be formed by the bill. DNA profiles from DNA laboratories and regional data banks will be stored in the National DNA data bank. Data banks are required to create 5 indices to store DNA profiles; 1. A crime scene index, 2. A suspect's or undertrial's index, 3. An offender's index, 4. A missing person's index, 5. An unknown deceased person's index. Global Shield Initiative COP 27:

- *Protection of Information*

The board ensures the security and confidentiality of DNA profiles stored in the National DNA Data bank or DNA laboratories. The advanced security measures would be taken care of by the board for this purpose.

- *Offenses and Penalties*

The bill has listed certain matters in which the investigation should be done by DNA testing. It also mentions penalties like fine up to Rs. 2 lakh and imprisonment of 5 years in case of using DNA samples without official permit, unlawful access of DNA data bank, destruction, alterations, contamination or tampering with biological evidence etc.

- *Need For The DNA Regulation Bill, 2019*

Although DNA based evidence started to be admitted internationally in the 1990s, in India, there is no specific legislation for use of DNA data as evidence. Even in the Indian Evidence act 1872 and Code of Criminal Procedure, 1973, there is a lack of such provisions. The 2019 bill intends to provide for the regulations of use and application of DNA Technology to fulfil the purposes of establishing identity of certain types of persons including the victims, offender's, suspect's, undertrials, missing etc.

- *DNA Technique in Judicial Arena*

The Malimath committee report, 2003 suggested that forensic evidence should also be given weightage while balancing the scale of evidence. Also, the Orissa High Court's case of Thogorani Alias K. Damyanti 2004 has held the, "DNA evidence is now a predominant forensic technique for identifying criminals when biological tissues are left at the scene of crime. Such testing

not only helps to convict but also serves to exonerate." DNA Regulation bill 2019, isn't converted into law as it's still under consideration due to certain privacy threats.

Concerns Relating DNA Bill 2019

Issues with the bill can be understood in the following points.

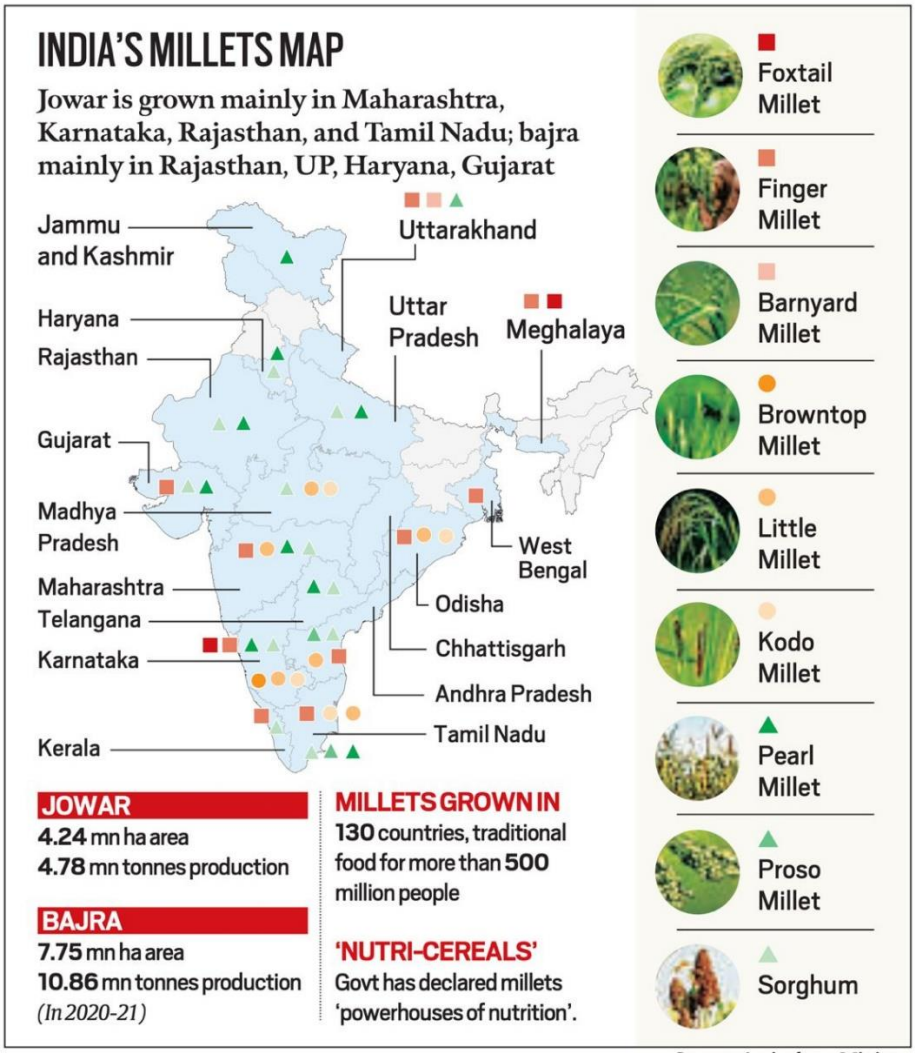
- The Standing Committee of Parliament states, "the risk with a National data Bank of crime scene DNA profile is that it will likely include virtually everything since DNA left at the crime scene before and after the crime by several persons who may have nothing to do with the crime being investigated."
- Another major concern is the violation of privacy. By using DNA data, important information viz. disease, allergies, genetic behavior, and even Advent diseases could be detected, misuse of which, certainly is a matter of concern.
- Also, as the nature of work is technical the bill has neglected the training part of these persons who will operate such DNA Data Banks.
- Another major concern is of consent under clause 21 stating that no bodily substances shall be taken from the person who is arrested for an offense without his consent in the writing for taking the same, however there are some exceptions too in some cases.
- The DNA Bill does not possess standard data safety protocols per say the rule 3 of Information Technology rules 2011. All these points need to be considered, to fulfil the legislative objectives of the DNA Data Regulation bill, 2019.

Suggestions

- **Individual privacy** – use of DNA Technology Bill should not depend on launching a personal data protection bill and, in its absence, should create further clarifications on privacy guidelines.
- **Reliability** – In addition, to make DNA profiling more reliable, the account must be enhanced with specific guidelines to address the use of DNA technology in combination with other tools used in the justice system to avoid a future miscarriage of justice.
- **Role of stakeholders** – The document needs to define how different stakeholders will apply the legislation in the aforementioned areas.
- **Role of judiciary** – The Bill highlights the need for court approval in civil matters, consent of individuals in criminal investigations, and identifying missing persons.

	▪ **Consent**– the Bill still needs to outline the necessary consent requirements for use in civil cases, taking agency away from those who may be involved in civil disputes. ▪ **Accountability** – With regard to video evidence, FRT, linkages of forensic data to surveillance systems need immediate oversight as lack of accountability can add to existing concerns on privacy. ▪ **Holistic evidence** – DNA evidence can place suspects at the location of the crime; this, in isolation, is not enough to mandate their conviction. Thus, other evidence, such as geotagged evidence, mobile records etc., will be needed to approach the case holistically. ▪ In addition, the combination of digital and biological data digitised and maintained on a database further induces privacy concerns. **Looking ahead** ▪ Thus, if combined with existing data biases in law enforcement, the DNA profiling bill can contribute to data that can be misused for caste-based or community profiling in the country, especially in cases where minority groups are disproportionately criminalised. ▪ The eventual extension of DNA profiling in other cases beyond sexual assault can be included as part of changes.
27.	**2023: the Year of Millets** ▪ ***2023 has been declared as the "International Year of Millets"*** by the ***United Nations***, after a ***proposal from India in 2019***. On 20 December 2022, ***to raise awareness on millets*** and prepare for 2023, Prime Minister Narendra Modi, along with fellow parliamentarians across party lines, enjoyed a ***sumptuous lunch*** where millets were front and centre. ▪ The menu for the feast, as shared by ANI, included ***Bajra soup***, ***Ragi dosa*** and ***roti***, Foxtail millet ***Bisibelebath*** and ***Joladha roti*** among other items. For dessert, Ragi halwa, Jowar halwa and Bajra kheer were three of the offerings. What are millets, India's indigenous foodgrains? ▪ The ***term millet*** is used to describe ***small-grained cereals*** like ***sorghum (jowar)***, ***pearl millet (bajra)***, ***foxtail millet (kangni/ Italian millet)***, ***little millet (kutki)***, ***kodo millet***, ***finger millet (ragi/ mandua)***, ***proso millet (cheena/ common***

	millet), ***barnyard millet (sawa/ sanwa/ jhangora)***, and ***brown top millet (korale)***. ▪ ***Millets*** were among the ***first crops to be domesticated***. There is evidence for ***consumption of millets*** in the ***Indus-Sarasvati civilisation (3,300 to 1300 BCE)***. Several varieties that are now grown around the world were ***first cultivated in India***. ***West Africa***, ***China***, and ***Japan*** are ***also home to indigenous varieties of the crop***. ▪ ***Millets are now grown in more than 130 countries***, and are the ***traditional food*** for more than half a billion people in ***Asia and Africa***. Globally, ***sorghum (jowar)*** is the ***biggest millet crop***. The ***major producers of jowar*** are the ***United States***, ***China***, ***Australia***, ***India***, ***Argentina***, ***Nigeria***, and ***Sudan***. ***Bajra is another major millet crop***; India and some African countries are major producers. ▪ ***In India***, ***millets are mainly a kharif crop***. During 2018-19, three millet crops — ***bajra (3.67%)***, ***jowar (2.13%)***, and ***ragi (0.48%)*** — accounted for ***about 7 per cent of the gross cropped area*** in the country, Agriculture Ministry data show.



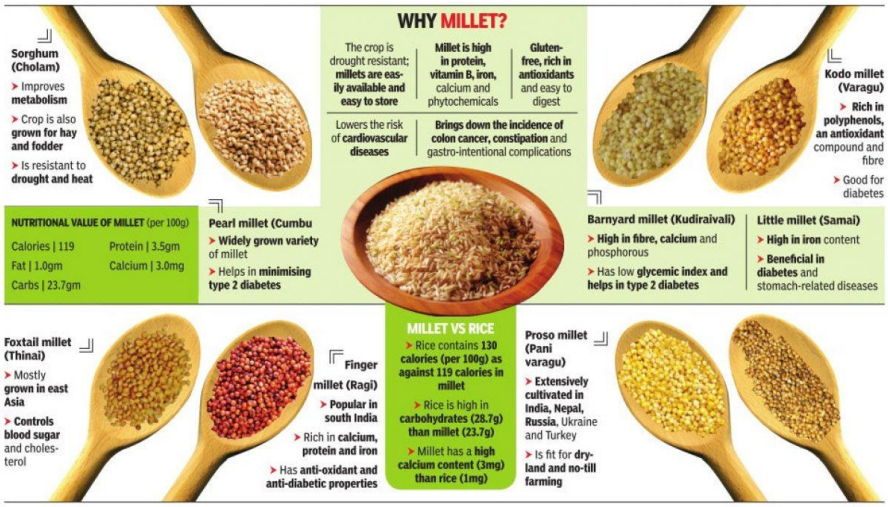
Where are millets produced (and consumed)?

- ***Jowar*** is mainly grown in ***Maharashtra, Karnataka, Rajasthan, Tamil Nadu, Andhra Pradesh, Uttar Pradesh, Telangana, and Madhya Pradesh***. In 2020-21, the area under jowar stood at 4.24 million hectares, while production was 4.78 million tonnes. ***Maharashtra accounted for the largest area (1.94 Mn ha)*** and production (1.76 million tonnes) of jowar during 2020-21.
- ***Bajra*** is mainly grown in ***Rajasthan, Uttar Pradesh, Haryana, Gujarat, Madhya Pradesh, Maharashtra and Karnataka***. Of the total 7.75 Mn ha under bajra in 2020-21, the ***highest (4.32 Mn ha) was in Rajasthan***. The state also produced the most bajra in the country (4.53 million tonnes of the total 10.86 million tonnes) in 2020-21.

- The ***consumption of millets*** was reported mainly from these states: ***Gujarat (jowar and bajra)***, ***Karnataka (jowar and ragi)***, ***Maharashtra (jowar and bajra)***, ***Rajasthan (bajra)***, and ***Uttarakhand (ragi)***.

Why are millets "good"?

- ***Millets are eco-friendly crops*** – they require ***much less water than rice and wheat***, and ***can be grown in rainfed areas without additional irrigation***. According to a 2019 study, "***wheat and rice have the lowest green water footprints*** but the ***highest blue water footprints***, while millets were exactly opposite." ***Green water footprint*** refers to ***water from precipitation*** whereas ***blue water refers to water from land sources***. Thus, millets require the least amount of irrigation to be grown.
- They are also ***highly nutritious***. On 10 April 2018, the Agriculture Ministry declared certain varieties of millets as "***Nutri Cereals***" for the purposes of production, consumption, and trade. These include ***Jowar, bajra, ragi/ mandua***, the minor millets — kangani/ kakun, cheena, kodo, sawa/ sanwa/ jhangora, and kutki — and the two pseudo millets, buckwheat (kuttu) and amaranth (chaulai).
- The ***Story of Millets*** published by the ***Karnataka State Department of Agriculture*** in association with ***ICAR-Indian Institute of Millets Research, Hyderabad***, says, "***Millets contain 7-12% protein***, ***2-5% fat***, ***65-75% carbohydrates*** and ***15-20% dietary fibre***... Small millets are more nutritious compared to fine cereals. They contain higher protein, fat and fibre content."



	2023: the Year of Millets ▪ On 3 March 2021, the ***United Nations General Assembly (UNGA) adopted a resolution*** to ***declare 2023 as the International Year of Millets***. The proposal, ***moved by India***, was ***supported by 72 countries***. Several events and activities, including conferences and field activities, and the ***issuing of stamps and coins***, are expected as part of the celebrations aimed at spreading awareness about millets, ***inspiring stakeholders*** to improve production and quality, and attracting investments.
28.	**What are JDAMs?** ▪ **An American weapon** first dropped by **stealth bombers over Kosovo in 1999** and then **during combat in the post-9/11 wars** will soon be used by Ukrainian pilots flying **Russian-made jets** to kill Russian soldiers. ▪ The weapon, called the **Joint Direct Attack Munition**, consists of a **kit** that turns a cheap **unguided bomb into a highly accurate**, **GPS-guided weapon**. It is usually referred to as **JDAM**. The Biden administration announced recently that **the weapons would be part of a new $1.85 billion military aid package**, giving Ukraine a precision-guided bombing capability, it has never had. ▪ **When dropped from higher altitudes**, the bomb **can travel about 15 miles** to its target before exploding. ▪ With the **right kind of equipment**, Ukrainian jets **could carry multiple JDAMs** on a single mission, just like **U.S. and NATO warplanes** do. **What are these weapons?** ▪ Technically speaking, **JDAM refers to a kit** that is bolted onto the U.S. military's general purpose **Mark-80-series bomb** and turns it into a **GPS-guided weapon**. ▪ The **Mark-80 warhead**, which was developed soon after **World War II**, was designed to be easily fitted with a **variety of tail fins** and fuses for use in a range of situations. Over decades, different attachments have been fielded - for **low-level bombing**, and to turn them into **land and sea mines**, and finally into various types of guided weapons.

- It typically comes in **three sizes** ranging **from 500 to 2,000 pounds**. However, which model or models will be provided to Ukraine is unclear.
- Since their **first combat use in the late 1990s**, JDAMs have been improved and **new capabilities** have been added. They can work with a variety of fuses that control whether **they explode above the ground**, on the surface or after burrowing into the ground. One updated kit adds a pair of wings that open after the bomb is dropped, **allowing it to fly more than 40 miles to a target**.
- They are also **relatively inexpensive**, in the **Pentagon's math**. A Navy fact sheet updated in 2021 put the **basic JDAM kit's average price** at just over $24,000 apiece.

Where did they come from?

- **JDAM was born out of the frustration that pilots** and Air Force leaders had with a different kind of guided bomb during **Operation Desert Storm in 1991**.
- First used in small numbers toward the **end of the Vietnam War**, that bomb was called the **Paveway II**. At the time, the idea was considered revolutionary: **An expensive kit fixed to the nose and tail of a Mark-80** could make the otherwise **unguided bomb maneuverable** along the path of a laser shone from the ground or from a plane above. But in Iraq, sandstorms and smoke often disrupted the path of the **laser beams**, causing the bomb to miss its target.
- Months after that war ended, the **Air Force** decided that **military pilots needed a kit** that would not cost more than **Paveway II** and could guide bombs in all weather conditions. A **new constellation of GPS satellites** offered a solution, continuously beaming radio signals that could guide bombs night and day, rain or shine.
- **Air Force leaders accelerated work on a similar device** to produce what ultimately became JDAMs, which are now **made by Boeing** at a factory in St. Charles, Missouri.

Why did the U.S. wait to give these bombs to Ukraine?

- Unlike some **U.S.-provided weapons**, the issue is **not the length of training or the cost of maintenance.** A few **fundamental hardware and software problems** had to be solved: JDAM kits were not designed to be used with **Ukraine's Russian-made bombs**, and the country's Russian warplanes cannot carry American-made bombs, nor can

Russian flight computers communicate electronically with American guided munitions.

- Since **Poland**, a **former satellite of the Soviet Union, joined NATO**, some of its Russian **MiG-29 warplanes** have been converted to carry Western munitions, but that required replacing their **Soviet-designed computer systems** and some wiring with Western-made gear. A faster approach was needed for Ukraine.
- **The Pentagon has said little about how it made that work.**

What is the problem that needed to be solved?

- It took some MacGyvering, but the problem here was not unlike the one shown in the movie "**Apollo 13,**" when NASA engineers had **to fit different parts together** in order to save the lives of astronauts in space - figuring out how to "**put a square peg in a round hole**," as the story went. This year, engineers had to essentially do that, and much more, **to make JDAMs work on Russian jets** with the minimal modifications.
- The **standard bombs** used by the **United States and Russia** are very different in design, as are the devices used to attach them to warplanes and drop them over targets.
- **American-made bombs** have **two small steel lugs** that secure them to racks designed to hold them snugly at high speeds and to quickly push them clear of the plane's fuselage when a pilot presses a button to drop. By comparison, **many Russian bombs have only one suspension lug**, and the racks that drop them are incompatible with U.S.-made weapons.
- The **U.S. military solved the hardest part of this problem months ago**, when Ukrainian pilots first started shooting the American-made **high-speed anti-radiation missile, or HARM**. An adapter was created to connect a device called a **pylon** and other parts that hold the weapon to the jet.
- At **Ramstein Air Base in Germany**, a U.S. Air Force and Air National Guard team called **Grey Wolf** provides support to the Ukrainian air force, including on tactics and techniques, a military spokesperson said.

Is there more to it?

Yes, quite a bit.

	▪ **Carrying the bomb** securely is one thing, but **there are other problems.** The electrical signal generated when a pilot presses the button to drop that bomb has to be converted to one that **American-made devices recognize.** And before being dropped, a **JDAM needs data on the aircraft's position and velocity** as well as the target's location fed into it electronically while the plane is in flight. **Newer types of American bomb racks** and pylons offer solutions. **One "smart" pylon used with the HARM missile** is now in service with Ukraine's air force. ▪ The final piece is to transfer data from the cockpit to the pylon once all other conversions and adapters have been figured out, said Mike Pietrucha, a retired Air Force colonel who spent decades flying as a weapons officer on **F-4G** and **F-15E fighters.** ▪ More than a decade ago, he said, the U**.S. military developed a system** to adapt an **American-made GPS-aided weapon** on a foreign aircraft using a laptop with a GPS device that connected to the smart pylon via Bluetooth. ▪ "Today, the same function could probably be accomplished using a tablet with a GPS attachment, and perhaps **commercial flight software**," he added. "From there, the pylon would transfer the data to the bomb itself." **How many have been built?** ▪ Boeing says on its website that **it has made more than 500,000 JDAM kits** for the United States and allied countries. ▪ How many are headed to Ukraine has not been made public, although it is likely that **500-pound JDAMs will be provided to start with.** It marks a significant increase in Ukraine's precision-guided munition capabilities. ▪ "It's very important," said Andriy Zagorodnyuk, a former Ukrainian defense minister who advises the government.
29.	**Focus on Africa, the heart of the Global South** ▪ After the independence, India chooses to be neutral and lead **Non-Aligned Movement (NAM)** to represent the voice of **developing countries or global south** at various international institution.

- Africa is sum of **54 countries** and most of them are developing or least develop.

- India will be hosting two major summits in 2023 where it has opportunity to represent the South at **G20 and Shanghai Cooperation Organisation (SCO).**
  - However, to truly represent the South, it is essential for India to **grasp the mood and changes in Africa**, especially in its external partnerships.

Washington summit

- Recently, **2nd Us-Africa summit** was held in Washington.
- It was between **49 African countries, African union (AU) chair and President of USA**.

USA's announcement towards Africa during the summit

- It deliberated on ways to mitigate the **impact of COVID-19** and future pandemics, respond to the climate crisis, promote food security and deepen diasporic ties.
- US announced **support for AU to join G20 as a permanent member.**
  - It can be implemented immediately with cooperation with India.
- US said it **fully support reforming UN security council (UNSC)** to include permanent representation of Africa.
  - However, this support is vague as it is unclear when or if UNSC reform will happen.
- It announced **investments worth $21 billion** to International Monetary Fund to provide access to necessary financing for low-and middle-income countries.
  - To boost **security capacity with African partners,** it will run pilot programme worth **$10 million**.
  - US planned to invest **$55 billion in Africa** over the next three years.

China's Prescence in Africa

- China has emerged as **largest trading partner of Africa ahead of USA.**
  - U.S.-Africa trade (2021): $44.9 billion
  - China-Africa trade (2021): $254 billion
- It is **fourth largest investor** in African continent.
  - U.S. investment in Sub-Saharan Africa (2020): **$30.31 billion**,
  - China's investment in Africa (2020): **$43.4 billion**.

Forum on China-Africa Cooperation (FOCAC)

- It was established in **2000**.
- It is composed of **ministers and leaders of Africa and China**.
- Its summits are organised in **every three years** on alternative basis between China and any African capital.
- China has full-fledge inner ministerial mechanism to ensure timely **implementation of FOCAC decisions.**
- Last meeting was at **Dakar** (Capital of Senegal) **in 2021**.
    - It expressed support for the Chinese agenda: **One-China Principle, the Global Development Initiative, the Belt and Road Initiative**, and the vision of a community with a shared future.
    - It also applauded the decision by the 2018 FOCAC summit in Beijing to build **"a China-Africa community"** that strives for "win-win cooperation."

India–Africa Relations

Historic Ties

- India's equity in Africa is older than China and US.
- India-Africa both share **civilisation and historic links**, anti-colonial sentiments political and emotional, diasporic goodwill, and embedded feeling of **south-south cooperation**.

India-Africa Trade Relation

- India is **fourth largest trading partner** of Africa.
    - It has now reached **US$ 89.5 billion in 2021-2022** compared with **US$ 56 billion the previous year.**
- India mostly export **Petroleum products** followed by pharmaceutical products, vehicles, and cereals.

Indian Investments in Africa

- It is **US$73.9 billion** between period of **April 1996 to March 2022**.
- Its **top destinations**: Mauritius, Mozambique, Sudan, Egypt and South Africa.

Suggestions to improve India-Africa relations

African representation in G20

- India is a **host to G20** in 2023.
- India should **ensure that African union becomes the permanent member** of G20.
    - Aim: To reflect firmly **Africa's Agenda 2063** for development.

India–Africa Forum Summit (IAFS)

- Forth IAFS should be held in **2024**.
- **Third summit** was held in **2015.**
- It is necessary to hold IAFS constantly to ensure good relations with African countries.

International Solar Alliance

- It can be utilized to **fund green projects** to develop **clean energy infrastructure in Africa**.
  - Idea is to find innovative ways to sustainably harness its existing resources to meet its growing demand for energy.
- Africa only accounts for **3.8 percent of global greenhouse gas emissions**, in contrast to **China's 23 percent**, the **United States' 19 percent**, and the **European Union's 13 percent**.

Digital penetration

- India has expertise in **digitization of country** through various initiatives.
  - **Example:** Digital India, Bharat Net, Pradhan Mantri Jan Dhan Yojana, India Stack etc.
- It can be useful with a targeted approach towards **skills development**, if these Indian initiatives are implemented properly in African countries.
  - It will benefit their economies greatly and could also help young Africans become **more employable**.

African healthcare needs

- In the areas where India has experience and remedies, it could adapt them to African Healthcare needs.
- It is an opportunity for Indian private investors to invest in development of **secondary and tertiary hospitals and labs.**
- For this purpose, India-Africa Health Fund worth **US$10 million** in IAFS in 2015 needs to be utilized properly.

India-US cooperation in Africa

- To fund **sustainable projects in Africa** and **countering China's** growing presence in Africa, both nations should cooperate in Africa.

India and African countries share the same historic colonial rule and path to 21st century. So, it is an opportunity for India in 2023 to enhance its ties with African countries through various multination institution

30. **A Debate on Criminalising Marital Rape**

- The term marital rape (also referred to as spousal rape) refers to unwanted intercourse by a man on his wife obtained by force, threat of force or physical violence or when she is unable to give consent. The words unwanted intercourse refers to all sorts of penetration (whether anal, vaginal or oral) perpetrated **against her will or without her consent**.

Status of marital rape in India

- In India, the definition of rape under section 375 of **Indian Penal Code** does not include marital rape as a criminal offence.
- **Exception 2 to Section 375**: This section provides that **sexual intercourse by a man with his own wife**(provided that wife is over the age of 18) would **not amount to the offence of rape**. This is based on the premise that all sex within marriage is consensual (**perpetual consent**). This exemption allows a marital right to a husband who can with **legal sanction exercise his right to consensual or non-consensual sex** with his wife
- Marital Rape is only covered under the **definition of domestic violence** which is defined under the Protection of Women from Domestic Violence Act, 2005. The Domestic Violence Act is **a civil law** and it **only provides for civil remedies** to the wife. Under **Section 376-A** in the IPC, 1860, rape of judicially separated wife was criminalized. Nonetheless, the **Justice Verma committee** constituted in 2012 strongly recommended that the exception under the IPC be removed.

Cases associated with marital rape

- **Exception two of Section 375** is also under challenge before the Gujarat High Court on the grounds that it undermines consent of a woman based on her marital status.
- Similarly, the Karnataka HC has recently **allowed the framing of marital rape charges** against a man despite the exemption in law.
- ***Nimeshbhai Bharatbhai Desai vs State of Gujarat (2017)*case**: In this case, the Gujarat High Court elaborately dealt with the issue of marital rape. The Court stated that "making marital rape an offense will remove the destructive attitudes that promote the marital rape". However, due to the non-recognition of marital rape as a crime,

the Court held that the husband is liable only for outraging her modesty and unnatural sex.

- ***Independent Thought v. Union of India (2017)*case**: In this case, the **SC has criminalised sexual intercourse with a minor wife** aged between 15 and 18 years. But the SC refused to delve into the question of marital rape of adult women while examining an exception to Section 375.

Marital rape should be criminalized, because

- **First**, marital rape abuses, humiliates, degrades and violates the dignity of woman thereby **undermining their bodily integrity** and violating **Article 21**e Right to Life.
- **Second**, it is against the **right to equality** (Article 14) to apply different criminal provisions on women based on their marital status. Also, if the husband is accused of gang-rape of his wife, then he will not be punished thereby undermining equal treatment of between all accused persons.
- **Third**, it is a severe form of sexual violence that is punishable in many civilized society as a symbol of **gender justice**.
- **Fourth**, decriminalizing marital rape simply means **concretizing the patriarchal mindset in the society**, under which husbands believe that wife is their property and they can do anything with them.
- **Fifth**, the civil remedies for marital rape include protection orders, judicial separation and monetary compensation. Thus, the 2005 Act only provides a recourse to the woman to remove themselves from the violent and dangerous situation and **does not do anything to deter the violent behavior of husbands**.
- **Sixth**, giving immunity to marital rape **erodes women's power** to negotiate contraception, to protect themselves against sexually transmissible disease and to seek an environment of safety.
- **Seventh**, it has a deep psychological impact on the victim women. According to one study, women victims of marital rape are twice as likely to experience depression.

Challenges associated with criminalization of marital rape

- **First**, some experts believe that the **institution of marriage is sacrosanct in society** which needs to be upheld at all costs and all procreative sex within marriage is legitimate.

	▪ **Second**, it will further increase the **threat to a woman's life** by her husband and her in-laws. Any attempt to go against them may lead to further atrocities and an attempt on her life. ▪ **Third**, dissatisfied, angry, vengeful wives might charge their innocent husbands with **false cases** of marital rape. Further, it will be **difficult for husbands to prove their innocence**. ▪ **Fourth,** there are issues as these crimes are committed in a space where there are no eyewitnesses. But this is the same for other crimes of Rape and POCSO. <u>Looking ahead</u> ▪ **First**, Even though the Court has delivered a split verdict, its intervention moves the needle in favour of doing away with the marital rape exemption in law. One of the Judges' opinion takes the conversation forward on the subject, and sets the stage for a larger constitutional intervention before the Supreme Court. ▪ Article 142 grants exceptional powers to SC. Under this, SC has the equivalent power of a lawmaker. So, **in failure of Parliamentary legislation, the Courts can strike down the exception to Section 375**. ▪ **Second**, the laws alone cannot be used to fight marital rape issues, **societal change is pivotal**. Societal change is important, as there is a need to challenge not just the issue of patriarchy, but the very notion of perpetual consent under marriage. The principle of equality and non-discrimination is important, and it is enshrined in our Constitution. This should permeate through each law of the country including Section 375 of the Indian Penal Code. It is high time that India realizes that a marriage license cannot be a substitute for a woman's consent.
31.	**India's FTA imperative** ▪ While the **Covid-19 pandemic has made the world realise the importance of secure and reliable supply chains,** there have been concerns regarding economic self-interest and slowdown in global trade. ▪ Recovering from the pandemic, **India has undertaken a slew of measures to facilitate trade** with the aim of manufacturing

for **export** and positioning itself as a global supply chain hub **(PLIs, Gati Shakti master plan, faceless and paperless cargo clearance, etc.).**

- However, realigning its policies to seek **global market access** by partnering with like-minded countries through **Free Trade Agreement (FTA)s is most crucial towards this aim.**

Free Trade Agreement (FTA)

- **Free Trade Agreements (FTAs)**are agreements between two or more countries to reduce or eliminate tariffs and other trade barriers on a wide range of goods and services.
- India has **entered into a number of FTAs** with other countries in order to expand its trade and boost its economic growth.

Benefits of Realignment Towards FTAs

- **FTA aids integration with the global value chain** as a reliable supply hub, which is important in the post-pandemic world where businesses look for safe and cost-efficient trading routes.
- They also **provide deeper market access for Indian value-added exports** for the consuming markets of the West.
- They ensure the **removal of existing non-tariff barriers to goods and services exports** with fair and reciprocal trade terms.
- And finally, they are important to **leverage better opportunities vis-à-vis regional competitors** who already have preferential access.

Challenges w.r.t. India's FTAs

- **Market Access:** One of the main challenges in **India's FTAs is the lack of market access for its products in other countries.**
  - Many Indian products face **high tariffs and other barriers** to entry in other countries, which makes it **difficult for Indian businesses to compete in those markets.**
- **Intellectual Property Rights:** Another challenge is the **protection of intellectual property rights (IPR) in other countries.**
  - India has a large number of **small and medium enterprises (SMEs)**that rely on the protection of their IPR in order to compete in international markets. However, **many countries have stronger protections for IPR**, which can make it difficult for Indian businesses to sell their products in those markets.
- **Trade Deficit:** India has a trade deficit with many of its trading partners, **which means it imports more goods and services from**

	those countries than it exports. This can be a challenge for India's economy, as it relies on exports to drive growth. ▪ India has accounted for a trade deficit of **USD 16 billion in 2020-21 with ASEAN countries**. At the same time, the trade deficit with Japan remained USD **5 billion in 20-21.** ▪ **Impact on Agricultural Sector:** The **agricultural sector is a key part of India's economy,** and many farmers in India rely on exports to make a living. ▪ However, India's FTAs with other countries have often led to an increase in imports of agricultural products, **which can be a challenge for Indian farmers.** ▪ **Lack of Transparency**: Most FTAs are **negotiated behind closed doors** without much information on the objectives and processes involved. ▪ Moreover, there are **no institutional mechanisms to scrutinise the actions** of the executive during and after the FTA has been signed. <u>Looking ahead</u> ▪ **Scrutiny of FTAs: Legislative oversight of FTAs** should be handled by the **Committee on Commerce,** by discussing different aspects of agreements and negotiations, in a way **maintaining executive accountability to the legislature.** ▪ **Boosting Domestic Production** India needs to strengthen its domestic manufacturing base in **value-added products like engineering goods, electronic products, drugs and pharmaceuticals, textiles,** and agriculture machinery, that could be used to boost exports. ▪ **Developing a Comprehensive FTA Strategy:** India should develop a **comprehensive strategy for its FTA negotiations**, including clear goals and objectives, and a plan for how to achieve them. ▪ This should involve consultation with key stakeholders, such as **businesses, trade unions, and civil society groups.** ▪ **Reviewing and Updating Existing FTAs:** India should regularly review its existing FTAs to ensure that they are still providing benefits to the country and its trading partners.

	▪ This may involve **negotiating updates or amendments to the agreements** to address changing economic conditions or other factors. ▪ **Linking FTAs with India's Act East and Neighbourhood Policy:** India should consider negotiating **regional FTAs with countries in its immediate region,** such as those in **South Asia or Southeast Asia.** ▪ This could help to increase trade within the region, boost economic development in the area **through increased connectivity and economic diplomacy.**