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QUEST

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EXCEL CIVILS ACADEMY

EMPOWERING FUTURE LEADERS

Greater Male Connectivity Project: Maldives:

India, UK conduct naval exercise in Bay of Bengal - Exercise Konkan

World's Highest Altitude Movie Theatre open in Ladakh

Paddy-Wheat Monoculture in Punjab

ASSETS FOR MONETISATION

National Monetization Pipeline

India to host conference on International Climate Summit 2020-21

India becomes first Asian nation to launch 'Plastics Pact'

Director's Message

Dear Aspirants,

PM Modi in his 82nd episode of Mann Ki Baat broadcast on 24th October deliberated extensively on the use of Drones in various spheres of life. He said of late, drones are seen in wedding processions or functions shooting photos and videos, preparation of digital land records, exploring uses of drones for transportation, Agriculture, delivery of goods at home, providing help in emergency or monitoring Law and Order situations, huge infrastructure projects and delivery of COVID vaccines in Manipur and Telangana. He further stated that to unlock the full potential of Drone technology, new policy has been formulated to meet the present and future requirements which encouraged foreign and domestic investors to invest in many drone start-ups which is just a beginning and has a great future ahead.

One of the first recorded use of drones was by Austrians in July 1849 after they launched around two hundred pilotless balloons mounted with bombs against the city of Venice. Unmanned Aerial Vehicles(UAVs) or Remotely Piloted Vehicles(RPVs) commonly referred to as 'drones' were subsequently developed by Great Britain and USA during the First World War for target practice but were put to extensive use by the Americans during the Vietnam War to act as decoys in combat, launching missiles against fixed targets and dropping leaflets for Psychological Operations.The Hunter-Killer Drone came to limelight for its extensive use in Afghanistan post September 11, 2001 twin towers attacks in USA by Al Qaeda Terrorists when Taliban were at the helm of affairs. Since then, drone technology is being constantly upgraded primarily as a counter terrorism tool and subsequently its use has been further diversified in various civilian sectors across the globe.

In recent years, the market for drones has grown dramatically with a projected annual reach of 11.5 billion USD by 2024, registering a CAGR of approximately 20%. This is primarily attributable to the technological evolution that caused a significant reduction in the cost, price and size of drones, hence enabling democratisation of aerial observation. This further led to an explosion in the applications of this technology beyond their traditional use for defence purposes, and to widespread non-military commercial use ranging from photography to pizza delivery. Despite innumerable uses and the high level of acceptance of this technology, governments the world over continue to face the challenge of striking the right balance between adoption of drones and ensuring the safety, privacy and security of their citizens.

In March 2021, the Ministry of Civil Aviation (MoCA), Government of India (GoI), published the UAS Rules, 2021. They were perceived by academia, Start-ups, end-users and other stakeholders as being restrictive in nature as they involved considerable paperwork, required permissions for every drone flight and very few "free to fly" green zones were available. Based on the feedback, the Government has decided to repeal the UAS Rules, 2021 and replace the same with the liberalised Drone Rules, 2021. The new rules also set the ball rolling for India to introduce an airspace map designating the entire country's landmass into green, yellow and red zones and publish the same on country's single-window drone platform "Digital Sky".

It also increases the maximum payload carrying capacity for drones from 300 kg to 500 kg and paves the way for development of drone taxis. The drone rules also remove the requirement for a remote pilot licence to fly nano drones and micro drones for non-commercial purposes, a key ask by the industry. Further, drones present in India on or before November 30, 2021, will be provided with a unique identification number through the Digital Sky platform and will be considered as DGCA-approved. The government in introducing these new rules said that the drone sector can offer tremendous benefits to sectors including agriculture, mining, infrastructure, surveillance, emergency response, transportation, geo-spatial mapping, defence and law enforcement. It added that the industry has significant potential to boost employment and create economic growth, especially in India's remote and inaccessible areas, while saying that India has the potential to become a global drone hub by 2030. The rules also envision the creation of drone corridors for cargo deliveries, will facilitate the setting up of an Unmanned Aircraft Systems Promotion Council to promote the adoption and use of drones, and will set up incubators and other facilities for development of the industry.

In line with the new policy framework, Govt. of Telangana, in collaboration with World Economic Forum, Health Net Global and NITI Aayog, became the first State in the country to embark on delivering payloads comprising vaccines with the launch of "Medicine from the Sky" project. This project seeks to deliver medicines, vaccines and units of blood to remote, rural areas by means of drones.

The drone technology has been adopted by many State governments in domains like agriculture, mining, forestry, crowd-management, etc. But there have instances wherein this technology has been misused by anti-social elements to create chaos. For instance, there was a twin-drone attack at the Jammu Air Force Station on June 27, in which two unmanned aerial vehicles (UAVs) travelled from across the border and dropped two 3 kg to 5 kg improvised explosive devices (IEDs) at the air facility, damaging a portion of the building. An offshoot of Lashkar-e-Taiba – The Resistance Front (TRF) – has been found to be involved in the drone attack. To counteract such terror attacks, the National Security Guard (NSG) has deployed anti-drone systems at Srinagar and Jammu air force stations. Drones were also used to drop weapons and narcotics from across the border in Jammu as well as Punjab Sectors on a number of occasions.

The Jammu drone attack has revealed that the next level of warfare is involving unmanned aerial vehicles (UAV).Not just military targets, but drones could also pose a threat to essential civilian infrastructure such as dams, power plants and bridges. Indian Army chief Gen MM Naravane has gone on record to assert how the use of disruptive technologies such as drones is the future of warfare. India currently owns a few Heron Surveillance drones and the Harpy and Harop loitering munition for a variety of purposes. These drones are only used to gather intelligence, but the option to use them for offensive is now on the table. With an eye on future challenges, private Indian companies and public sector units are working on technologies for unmanned warfare that will be the key in military combat in the years to

come. Implementation of drone technology requires an inclusive and collaborative approach that involves aspects like governance, strategic planning, security, regulation and proper awareness. Successful implementation of drone technology requires participation from various stakeholders.

Best wishes

K. Rajendra Kumar IPS (Retd)

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1. NATIONAL

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1.14 Jan Shikshan Sansthan (JSS)

Jan Shikshan Sansthan (JSS) has been instrumental in skill training and introducing avenues of entrepreneurship among the socio-economically backward and educationally disadvantaged groups such as neo-literates, semi-literates, SCs, STs, women and girls, slum dwellers, migrant workers. By bringing them under the aegis of the national skill framework, the agenda of today's event was to align all skilling activities to a common cause of skill development at the district and gram level.

About Jan Shikshan Sansthan (JSS)

- The scheme of JSS was initially launched in 1967 as Shramik Vidyapeeth, a polyvalent or multi-faceted adult education institution.

- Formerly under the Ministry of Human Resources Development, JSS was transferred to the Ministry of Skill Development and Entrepreneurship in 2018

- Recently, the Jan Shikshan Sansthan (JSS) has brought high-speed internet to some of the remotest tribal hamlets deep inside the Nilambur jungle, Kerala

- Objectives of JSS are to improve the occupational skills and technical knowledge of the neo-literates and the trainees and to raise their efficiency and increase productive ability and to provide academic and technical resource support to Zilla Saksharata Samities in taking up vocational and skill development programmes for neo-literates in both urban and rural areas

- The Functions of JSS includes Identify appropriate target areas and target groups by developing socio-economic profiles, Identify and procure the list of neo-literates from Zilla Saksharata Samitis and ensure that at least 25% of the clientele of JSS is neo-literates and Organize training programs for Key Resource Persons, Master Trainers and Trainees in vocational courses and for neo literates.

- The Jan Shikshan Sansthan will concentrate on the socio economically backward and educationally disadvantaged groups of urban/rural population such as men, women and youth, employed, self-employed, neo-literates, prospective workers and their family members as well as unemployed youth. Priority is to be given to adult neo-literates/semi-literates, SC and ST, women/girls, oppressed, migrants, slum/pavement dwellers and working children

- JSS is implemented through NGOs with 100% grants from the Government of India. JSSs are registered under the Societies Registration Act, 1860.The affairs of Jan Shikshan Sansthan are managed by the respective Board of Management approved by the Government of India

National Skills Qualifications Framework (NSQF)

- The NSQF is a quality assurance framework. It is a nationally integrated education and competency-based skill framework that will provide for multiple pathways, horizontal as well as vertical, both within vocational education and vocational training, and among vocational

education, vocational training, general education and technical education, thus linking one level of learning to another higher level

1.15 Bharat Series (BH-series)

- In order to facilitate seamless transfer of vehicles, the Ministry of Road Transport & Highways vide notification dated 26 Aug 2021, has introduced a new registration mark for new vehicles i.e. "Bharat series (BH-series)".

- A vehicle bearing this registration mark shall not require assignment of a new registration mark when the owner of the vehicle shifts from one State to another.

Format of Bharat series (BH-series) Registration Mark –

- o YY BH #### XX
- o YY – Year of first registration
- o BH- Code for Bharat Series
- o ####- 0000 to 9999 (randomized)
- o XX- Alphabets (AA to ZZ)

This vehicle registration facility under "Bharat series (BH-series)" will be available on voluntary basis to Defense personnel, employees of Central Government/ State Government/ Central/ State Public Sector Undertakings and private sector companies/organizations, which have their offices in four or more States/Union territories.

- The motor vehicle tax will be levied for two years or in multiple of two.

- This scheme will facilitate free movement of personal vehicles across States/UTs of India upon relocation to a new State/UT.

- After completion of the fourteenth year, the motor vehicle tax shall be levied annually which shall be half of the amount which was charged earlier for that vehicle.

- According to the notification released by the government, the Central Motor Vehicles (Twentieth Amendment) Rules, 2021 will be implemented from 15 September. The generation of the BH-series vehicle will happen through the portal.

- The motor vehicle tax levied will be eight percent if the cost of the vehicle is up to 10 lakhs. If the cost of the vehicle is between 10-20 lakh, the tax levied would-be 10 percent. For vehicles costing more than 20 lakhs, the tax levied will be 12 percent.

- For diesel vehicles, an extra of two percent charges will be levied. However, for electronic vehicles, the tax would be two percent less. The motor tax will be levied electronically, after the vehicle gets the BH-series registration mark.

1.16 G20 Ministerial Conference on Women's Empowerment

- The Union Minister of Women & Child Development, Smt. SmritiIrani addressed the First ever G20 Ministerial Conference on Women's Empowerment which was held at Santa MargheritaLigure, Italy in a hybrid format. This is the first time that a dedicated event on women's empowerment has been planned in the G20 system, focusing on the quality of women's work, the implementation of policies aimed at increasing women's participation in positions of leadership, the protection of women's rights, and on tackling gender-based violence.
  - o G20 Conference on Women Empowerment acknowledged the common objectives and shared responsibilities to advance the goals of equality and development of women and girls in all spheres including STEM, Financial and Digital Literacy, Environment and Sustainability.
  - o The members of the G20 are: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States, and the European Union.

1.17 e-Shram Portal:

Minister for Labor and Employment formally launched e-Shram portal, a database of unorganized sector workers, and handed it over to the States/UTs.

- The government aims to register 38 crore unorganized workers, such as construction labourers, migrant workforce, street vendors and domestic workers, among others.
- The workers will be issued an e-Shram card containing a 12-digit unique number, which, going ahead will help in including them in social security schemes, officials said.
- Portal will help build a comprehensive National Database of Unorganized Workers (NDUW) in the country. The government had earlier missed deadlines for creating the database, inviting criticism from the Supreme Court.
- The registration of workers on the portal will be coordinated by the Labor Ministry, state governments, trade unions and CSCs, officials said.
- A national toll-free number — 14434 — will also be launched to assist and address the queries of workers seeking registration on the portal.

National Database for Unorganized Workers:

- The National Database for Unorganized Workers will serve as a reference point for the authorities to track and reach out to workers in the informal sector and offer them relief in times of crisis.
- It will contain information about construction workers, gig and platform workers, street vendors, domestic, agriculture and migrant workers, and other similar sub-groups of unorganized workers.
- Every informal sector worker will be registered in the database. Once the database is launched, informal workers will be able to seamlessly avail of benefits and social security schemes as and when the government announces them.

- The database will facilitate the implementation of policies for the unorganized sector. It will help in better monitoring and supervision of government policies and ensure that benefits reach the targeted group of unorganized workers at the grassroots level.
- The finance ministry approved the creation of the database in November 2020. The task of creating the database has been entrusted to the labor and employment ministry, which is collaborating with the National Informatics Centre to develop the portal

Informal workers in India:

- The International Labor Organization, in a report published this year, estimates there are 400 million unorganized workers in India. Informal workers are often deprived of basic minimum wages and social security.
- The pandemic exposed and intensified the vulnerabilities of migrant workers who take up low-paid and low-skilled, temporary jobs and have limited access to social protection, making them prone to layoffs. With a database of informal workers in place, they are expected to benefit from several welfare schemes

What is the mandatory Aadhaar seeding rule? How will workers register?

- The profiles of informal workers registered on the database will be seeded with their 12-digit Aadhaar numbers and bank accounts in order to deliver benefits to them.
- On May 5, the labor ministry made Aadhaar a mandatory identification proof for both organized and unorganized workers in order to avail of benefits.
- Article 142 of the Code on Social Security, 2020, states that employees or unorganized workers must register as beneficiaries to avail of social security benefits and social security services.
- "An employee or unorganized worker or any other person, as the case may be, shall establish his identity or, as the case may be, the identity of his family members or dependents through Aadhaar number," according to Section 142 of the Code.
- Aadhaar is mandatory for receiving welfare aid, whether in kind or cash, for benefits including medical, pension, gratuity, maternity or any other benefit, and for the withdrawal of funds, it said

Why did the Supreme Court intervene?

- The Supreme Court of India pulled up the labor ministry in June for the delay in the creation of the database after informal workers were again left to fend for themselves this year after the second wave of Covid-19.
- The Supreme Court, while hearing a case related to migrants and unorganized workers, said the "apathy and lackadaisical attitude by the ministry of labor and employment is unpardonable."

- The nation's apex court directed the government in June to set up the database by July end and ensure that they receive adequate food and rations. Justices Ashok Bhushan and MR Shah had emphasized the need for registration of workers as a prerequisite to access social protection.
- A Parliamentary Standing Committee on Labor, in its report earlier this month, had also pulled up the labor ministry for the delay. The labor and employment secretary then told the panel it would be completed by August 15.

1.18 Deciding Creamy Layer:

The Supreme Court of India recently held that the economic criterion cannot be the sole basis for deciding the creamy layer from among backward classes for the purpose of excluding it from the purview of providing reservation.

- The SC was hearing a petition challenging two notifications issued by the Haryana government sub-classifying backward classes solely on economic basis while fixing the criteria for creamy layer.

SC Verdict:

- Recalled the ruling in the Indra Sawhney-II case, reported in 2000.
- Haryana's notifications have violated the law declared in the Indra Sawhney judgment by identifying creamy layer only on the basis of income.
- The basis of exclusion of 'creamy layer' cannot be merely economic – the government cannot deny reservation to a person belonging to a backward community solely on the ground that he or she is rich.
- Social advancement, higher employment in government services, etc, play an equal role in deciding whether such a person belonged to the creamy layer and could be denied quota benefits.
- The SC has illustrated that 'creamy layer' would include "persons from backward classes who occupied posts in higher services like IAS, IPS and All India Services had reached a higher level of social advancement and economic status, and therefore, were not entitled to be treated as backward".
- People with sufficient income who were in a position to provide employment to others should also be taken to have reached a higher social status and therefore, should be treated as outside the backward class.
- Persons from backward classes who had higher agricultural holdings or were receiving income from properties, beyond a prescribed limit, do not deserve the benefit of reservation.

Creamy Layer:

- The creamy layer sets a threshold within which OBC reservation benefits are applicable.
- The creamy layer principle was based on the fundamental right to equality.

- Unless it is applied, the genuinely deserving person would not access the reservation.
- The basis of exclusion should not merely be economic, unless the economic advancement is so high that it necessarily means social advancement.
- While the income of a person can be taken as a measure of his social advancement, the limit to be prescribed should not be such as to result in taking away with one hand what is given with the other.
- The income limit must be such as to mean and signify social advancement.

Does The 50% Limit on Reservations in Indra Sawhney Hold Good?

- In 2018, the Maharashtra government passed the Socially and Educationally Backward Classes Act, 2018. This law sought to introduce 16% reservations for Marathas in State services and higher education and took the total reservation to beyond 50%. The petitioners who challenged this law have sought to rely on the 50% rule. The rule requires the percentage of seats reserved to remain below 50%. Meanwhile, the respondents have sought to overturn the rule, or carve out a broad exception to it.

- From 1989-1992, the Government sought to implement the Mandal Commission's recommendation of reservation for Other Backward Classes (OBCs). There was a large amount of political turmoil. In this context, the reservations under Mandal Commission were challenged in Court. The issue was referred to a nine-judge bench of the Supreme Court in Indra Sawhney v Union of India. Among various other issues, the majority in the case held that the 50% rule did apply.

- However, the State of Maharashtra, last month, has questioned the outcome of the judgment. They rely on Article 145(5) of the Constitution which requires that every judgment must have 'the concurrence of a majority'. Based on this, they argued that the nine-judge bench had not delivered a majority and a minority on the 50% rule in particular. Instead, there were at least 3 different articulations of the rule. Either way, the judgments had left a grey area on how the rule should be applied.

- Three judges have been categorical in stating the 50% rule. Justice Thommen said the number of seats reserved 'must at all times remain well below 50%'. According to Justice Kuldip Singh 'under no circumstances' should reservations go beyond 50%. Justice Sahai noted that 'reservation of any manner' cannot cross 50%.

- Justice Jeevan Reddy's judgment was written on behalf of himself and three other judges: Chief Justice Kania, Justice Venkatachaliah and Justice Ahmadi. He held that the 50% rule does apply. However, there might be 'extraordinary situations' where it could be exceeded. He noted particularly communities that were outside the national mainstream and have special circumstances peculiar to them.

- Justice Sawant's judgment cites Ambedkar and says that 'ordinarily' reservations should not exceed 50%. But in particular circumstances, if valid grounds are made out, then it may be permitted. Justice Sawant is often placed in the same group as Justice Jeevan Reddy. However, the respondents in the Maratha Reservation case have pointed out that his understanding of exceptional circumstances might be broader.

- All these judgments have relied on reasons laid out on some important aspects like Ambedkar's speech, efficiency and the need for balance. Some judgments also noted that Article 16(4) only provides for 'adequate' representation and not proportional representation.

- Justice Pandian firmly dissents. He holds that the 50% rule was never binding. It was only 'obiter' (a non-binding remark) in Balaji, the case in which this rule was born. This argument has been adopted by the respondents, as they challenge the correctness of Indra Sawhney.A secondary question the States have raised in the case is whether the rule applies only to reservations in employment (Article 16(4)) or other reservations (Article 15(4)) or both. Justices Thommen and Pandian (dissenting) are the only ones who have mentioned Article 15(4) with respect to the 50% rule. Justice Sawant only notes that Balaji is an Article 15(4) case, without saying much about its application. The rest of the judges in Indra Sawhney restrict their discussion to Article 16(4).

- The court in Jaishri LaxmanraoPatil v State of Maharashtra is now left with the task of interpreting this judgment and the rule. Justice Bhat, during the hearings, has pointed out that a majority of judges need not say the exact same thing. In Kesavananda Bharti v Union of India, 13 judges had written 11 varying judgments. The outcome of that verdict was determined by looking at the 'greatest common factor'. However, whether this approach will be taken for the 50% rule will remain to be seen.

- The State of Jharkhand has also argued that the 50% rule was not a binding precedent in Indra Sawhney either. Since the case did not deal with reservations exceeding 50%, the remarks regarding the rule were not binding for future decisions. They ask why a 'balance' requires such an arbitrarily decided figure as a rule. A discretionary approach should be adopted for each State. However, various cases have applied this rule since Indra Sawhney. Most notably, in M Nagraj v Union of India, a seven-judge bench applied it in the context of reservations in promotions.

- In 2019, Parliament passed the 103rd Constitutional Amendment Act which provides for a 'maximum' of 10% of reservations for economically weaker sections, 'in addition to the existing reservations'. This phrasing once again cast doubt on the 50% rule, since Parliament might have intended to change it. The interpretation and validity of the Amendment is pending before the Court. The outcome of that case is likely to affect, or be affected by, the decision taken by the bench in this case.

- The Court is left with the difficult job of interpreting a complex judgment, and potentially recasting the reservation regime in India. However, while the importance of the case cannot be understated, as a five-judge bench, the most it can do is refer it to a larger bench. The litigious path to upsetting Indra Sawhney is still long.

Constitution (127th Amendment) Bill, 2021

- The Constitution (127th Amendment) Bill, 2021, was passed by the Parliament with Rajya Sabha giving its approval to the bill. The Rajya Sabha approved the bill with the majority of the strength of the house and not less than the two-thirds majority of the members present in the house. Lok Sabha had passed the Constitution (127th Amendment) Bill, 2021, unanimously.

Why is it needed?

1. The latest amendment was necessitated after the Supreme Court in its Maratha reservation ruling upheld the 102nd Constitutional Amendment Act but stated that the President, based on the recommendations of the National Commission for Backward Classes (NCBC), will determine which communities will be included on the state OBC list.

2. The 127th Amendment is required to restore the powers of the State Governments in order to maintain the state list of OBCs which was taken away by the Supreme Court interpretation.

3. This Bill furthers social empowerment. It also reflects our Government's commitment to ensuring dignity, opportunity and justice to the marginalised sections.

4. The government also announced 27% reservation for the Other Backward Classes (OBCs) and 10% quota for the Economically Weaker Sections (EWS) in the All India Quota (AIQ) scheme for undergraduate (UG) and postgraduate (PG) medical/dental courses from 2021-22 onwards

1.19 Drone Rules, 2021:

In March 2021, the Ministry of Civil Aviation (MoCA) published the Unmanned Aircraft Systems (UAS) Rules, 2021. Based on the feedback, the Government has decided to repeal the UAS Rules, 2021 and replace the same with the liberalized Drone Rules, 2021.

Key features of Drone Rules 2021:

- Several approvals abolished: unique authorization number, unique prototype identification number, certificate of manufacturing and airworthiness, certificate of conformance, certificate of maintenance, import clearance, acceptance of existing drones, operator permit, authorization of R&D organization, student remote pilot license, remote pilot instructor authorization, drone port authorization etc.
- Number of forms reduced from 25 to 5. Types of fee reduced from 72 to 4.
- Quantum of fee reduced to nominal levels and delinked with size of drone.
- Digital sky platform shall be developed as a user-friendly single-window system.

- No permission required for operating drones in green zones. Yellow zone reduced from 45 km to 12 km from the airport perimeter.
- No remote pilot license required for micro drones (for non-commercial use) and nano drones.
- Drone promotion council to be set up by Government with participation from academia, startups and other stakeholders to facilitate a growth-oriented regulatory regime.

Significance of these new drone rules

- The liberalized regime for civilian drones mark a clear shift in policy by the government to allow operations of such drones and highlights the government's intent to allow the use of drones while at the same time ensuring security from rogue drones through the anti-rogue drone framework that was announced in 2019. The draft rules for the new policy were announced back in July, just weeks after a drone attack took place at an Indian Air Force base in Jammu.
- The new Drone Rules will tremendously help start-ups and our youth working in this sector. It will open up new possibilities for innovation & business. It will help leverage India's strengths in innovation, technology & engineering to make India a drone hub.

1.20 Adoption (First Amendment) Regulations, 2021:

According to a new clause in the adoption regulations, Indian diplomatic missions abroad will now be in charge of safeguarding adopted children whose parents move overseas with the child within two years of adoption.

- So far, Indian missions have had a role in inter-country adoption of Indian children limited to kids adopted by Non-Resident Indians (NRIs), Overseas Citizens of India or foreign parents.

Adoption (First Amendment) Regulations, 2021:

- It amends the Adoption Regulations, 2017.
- The amendment has been notified in accordance with the relevant sections of the Juvenile Justice (Care and Protection of Children) Act, 2015 (2 of 2016) and it amends Adoption Regulations, 2017.
- Recently passed Juvenile Justice (Care and Protection of Children) Amendment Act, 2021, seeks to strengthen and streamline the provisions for protection and adoption of children.
- It provides that instead of the court, the District Magistrate (including Additional District Magistrate) will issue such adoption orders.
- It has been made by the Central Adoption Resource Authority and has been notified by the Woman and Child Development Ministry.
- It functions as the nodal body for adoption of Indian children and is mandated to monitor and regulate in-country and inter-country adoptions.

Central Adoption Resource Authority

The Central Adoption Resource Authority (CARA) is the nodal authority in India for the adoption of Indian children.

- It is a statutory body functioning under the Ministry of Women and Child Development, GOI.
- It is authorized to regulate and monitor inter-country and in-country adoptions.
- CARA is the designated authority in India for inter-country adoptions according to the provisions of the Hague Convention on Inter-country Adoption, 1993. India ratified the convention in 2003.
- The authority chiefly handles the adoption of orphaned, surrendered and abandoned children through its recognized/associated adoption agencies.
- CARA was founded in 1990. It is a statutory body under the Juvenile Justice Act, 2015.

Adoption in India

Adoption is the process by which an abandoned, surrendered or orphaned child becomes the lawful child of his/her adoptive parents with all the rights, privileges and responsibilities that are associated with a biological child.

The following are the fundamental principles in the adoption of children from India.

1. While processing any adoption placement, the interests of the child would be paramount.
2. Preference shall be given to place the child with adopted parents who are Indian citizens, and preferably in the child's own socio-cultural environment, as far as possible.
3. All adoptions should be registered on the Child Adoption Resource Information and Guidance System and the confidentiality of the same shall be maintained by the CARA.

Apart from CARA, there are other mandated organizations also which handle adoptions in India. They are as follows:

- State Adoption Resource Agency (SARA): Nodal body within the state to monitor & promote adoption and non-institutional care in coordination with CARA.
- Specialized Adoption Agency (SAA): Agencies recognized by the State Government for the placement of children in adoption.
- Authorized Foreign Adoption Agency (AFAA): A foreign social or child welfare agency that is authorized by CARA on the basis of recommendations of a foreign country's adoption authority or govt department for all matters relating to the adoption of an Indian child by a citizen of that country.
- District Child Protection Unit (DCPU): A unit established by the state government at the district level for identifying orphaned, surrendered and abandoned children in the district. It also gets them declared legally free for adoption by the child welfare committees

1.21 125th Birth Anniversary of Srila Bhaktivedanta Swami PrabhupadaJi.

- -Prime Minister Narendra Modi released a special commemorative coin on the occasion of the 125th Birth Anniversary of Srila Bhaktivedanta Swami Prabhu padaJi.
- -Abhay Charanara vinda Bhaktivedanta Swami (1896 – 1977) or Srila Prabhupada, born Abhay Charan De, was an Indian spiritual teacher and the founder-acharya of the International Society for Krishna Consciousness (ISKCON), commonly known as the "Hare Krishna movement".
- -Members of the ISKCON movement view Bhaktiv edanta Swami as a representative and messenger of Krishna Chaitanya. His mission was to propagate throughout the world Gaudiya Vaishnavism, a school of Vaishnavite Hinduism that had been taught to him by his guru, Bhakti siddhanta Sarasvati.
- -His translation of and commentary on the Bhagavad Gita, titled Bhagavad-gītā As It Is, is considered by ISKCON adherents and many Vedic scholars as the finest, bonafide translation of Vaishnava literary works.

1.22 C-295 Aircraft Deal:

The Cabinet Committee on Security (CCS) has cleared procurement of 56 C-295 MW medium transport aircraft for the Indian Air Force under the Make-in-India initiative in the aerospace sector.

- The C-295MW aircraft will be purchased from Airbus Defence and Space S.A., Spain.
- Capacity: The C-295 MW is a transport aircraft of 5-10 tons capacity with contemporary technology.

Features:

- It has a rear ramp door for quick reaction and para-dropping of troops and cargo.
- It will be installed with the indigenous Electronic Warfare Suite.

Replacement:

- It will replace the Indian Air Force's ageing fleet of Avro-748 planes.
- The Avro-748 planes are a British-origin twin-engine turboprop, military transport and freighter with a 6-tonne freight capacity.

Project Execution:

- Airbus Defence and Space and Tata Advanced Systems Limited (TASL) will jointly execute the project to equip the air force with the new transport aircraft under the Make-in-India initiative in the aerospace sector.
- Airbus will supply the first 16 aircraft in fly away condition while the remaining 40 will be assembled in India by TASL.

1.23 The Loin cloth Centenary

Background

- Exactly hundred years ago this day in 1921, Gandhi made a momentous decision to change his attire. From the elaborate Gujarati attire, he decided on a simple dhoti and shawl. This momentous decision was taken by him in Madurai after he brooded over the fact that he has to work for and with the poor people of India and how can he identify with them if he wears clothes that are different from theirs. This thought made him to stuck to this dress code even on his trip abroad and until his very last moment! And he never regretted his decision as he writes:"All the alterations I have made in my course of life have been effected by momentous occasions; and they have been made after such a deep deliberation that I have hardly had to regret them. And I did them, as I could not help doing them. Such a radical alteration — in my dress, — I effected in Madura."

- His desire to identify himself with the poor masses was not a momentary decision. He had been contemplating about it for a long time. On two earlier occasions, he had thought of donning the common man's clothes but it was ultimately in Madurai (Tamil Nadu) where he finally took the plunge of adopting the attire of a poor peasant. He remarked later that it was Madurai that gave him the necessary strength to take a decision on his clothing though, on a couple of occasions earlier, he came closer but could not fully adopt this attire. The Mahatma said Madurai gave him necessary strength to shed his traditional attire for 'loincloth' at last.

- In picturesque words he describes the incident that forced him to shed his formal attire thus, "On the way (from Madras – now Chennai - to Madurai by train) I saw in our compartment crowds that were wholly unconcerned with what had happened. Almost without exception they were bedecked in foreign fineries. I entered into conversation with some of them and pleaded for Khadi. …. They shook their heads as they said, 'We are too poor to buy Khadi and it is so dear.' I realized the substratum of truth behind the remark. I had my vest, cap and full dhoti on. When this uttered only partial truth, the millions of compulsorily naked men, save for their langoti four inches wide and nearly as many feet long, gave through their limbs the naked truth. What effective answer could I give them, if it was not to divest myself of every inch of clothing I decently could and thus to a still greater extent bring my-self in line with ill-clad masses? And this I did the very next morning after the Madura meeting."

The Course of Action

- This thought travelled along with him during his train journey down to Madurai where, on 22nd September 1921, Gandhi once for all decided upon a simple dhoti and a shawl. He was staying in the upstairs portion of a follower's house (Door No. 251) on West Masi Street in Madurai. That was his second visit to that city; later, he visited it thrice. As he came out on that morning to proceed to Ramanathapuram and further down to Tirunelveli, he appeared in a new avatar with a telling fashion statement, if one can call it so! Fittingly, the same house is now occupied by the Khadi Emporium!

- As he proceeded on his travel itinerary from Madurai, he was forced to stop enroute to accept peoples' greetings. And the place where he appeared first in public in his new loincloth attire is now called 'Gandhi Pottal' (open ground). A humble statue of Gandhi stands there just across Alankar Theatre on Kamarajar Road in Madurai.

- However, Gandhiji did not want everyone to follow his simplistic dress style. He wrote in Navajivan: "I do not want either my co-workers or readers to adopt the loincloth. But I do wish that they should thoroughly realise the meaning of the boycott of foreign cloth and put forth their best effort to get it boycotted, and to get khadi manufactured. I do wish that they may understand that swadeshi means everything."

- This kind of drastic change in attire brought him both bouquets and brickbats and also some raised eye-brows. An interesting anecdote is the reluctant invite to afternoon tea at Buckingham Palace by King George V to Gandhi and all Indian delegates to the Round Table Conference; reluctant, because Gandhi's poor man's dress was simply against the court etiquette. But Gandhi was also equally adamant by pre-announcing that he would not re-clothe even to meet the King. His stand was simple that the Indian poor were still naked because of Britain. Later, when asked if he was not wearing enough clothes to meet the King, he is reported to have famously remarked, "The king had enough on for both of us". There could not have been a better riposte.

Gandhi's Message on the Loincloth

'Only a few days are left for us to complete the boycott of foreign cloth enjoined by the All-India Congress Committee. …… Millions are too poor to buy enough khaddar to replace the discarded cloth. To them I repeat my advice given on the Madras Beach. Let them be satisfied with a mere loin-cloth. In our climate we hardly need more to protect our bodies during the warm months of the year. Let there be no prudery about dress. India has never insisted on full covering of the body for the males as a test of culture. I give the advice under a full sense of my responsibility. In order therefore to set the example I propose to discard at least up to the 31st of October my topi (cap) and vest and to content myself with only a loin-cloth and a chaddar (shawl) whenever found necessary for the protection of the body. I adopt the change because I have always hesitated to advise anything I may not myself be prepared to follow, also because am anxious by leading the way to make it easy for those who cannot afford to change on discarding their foreign garments. I consider the renunciation to be also necessary for me as a sign of mourning and a bare head and a bare body is such a sign in my part of the country. That we are in mourning is more and more being borne home to me as the end of the year is approaching and we are still without Swaraj. I wish to state clearly that I do not expect co-workers to renounce the use of vest and topi unless they find it necessary to do so for their own work."

1.24 <u>Teachers</u> Day

Historical Background

- Radhakrishnan was born in Tirutani, Andhra Pradesh into a brahmin family, likely smarta in religious orientation. The implicit acceptance of Sankar's Advaita by the smarta tradition is good evidence to suggest that an advaitic framework was an important, though latent, feature of Radhakrishnan's early philosophical and religious sensibilities. In 1896, Radhakrishnan was sent to school in the nearby pilgrimage centre of Tirupati, a town with a distinctively cosmopolitan flavour. For four years, Radhakrishnan attended the Hermannsburg Evangelical Lutheran Missionary school. It was there that the young Radhakrishnan first encountered non-Hindu missionaries and 19th century Christian theology with its impulse toward personal religious experience.

- Between 1900 and 1904, Radhakrishnan attended Elizabeth Rodman Voorhees College in Vellore, a school run by the American Arcot Mission of the Reformed Church in America. The mandate of the Mission was to preach the gospel, to publish vernacular tracts, and to educate the "heathen" masses. It was here, as Robert Minor points out, that Radhakrishnan was introduced to the Dutch Reform Theology, which emphasized a righteous God, unconditional grace, and election, and which criticized Hinduism as intellectually incoherent and ethically unsound. Thus, Radhakrishnan inherited from his upbringing a tacit acceptance of Sankar's Advaita Vedanta and an awareness of the centrality of devotional practices associated with the smarta tradition.

- It is in these historical and hermeneutic contexts and with these experiences informing his worldview that Radhakrishnan encountered a resurgent Hinduism. In 1904, Radhakrishnan entered Madras Christian College. Firstly, it was here that Radhakrishnan was trained in European philosophy. Radhakrishnan was introduced to the philosophies of Berkeley, Leibniz, Locke, Spinoza, Kant, J.S. Mill, Herbert Spencer, Fichte, Hegel, Aristotle, and Plato among others. Secondly, he encountered intense religious polemic in an academic setting. Upon the completion of his MA degree in 1908, he secured a temporary teaching position at Presidency College in Madras.

- By 1914, Radhakrishnan's reputation as a scholar was beginning to grow. Between 1914 and 1920, Radhakrishnan continued to publish. Radhakrishnan was knighted in 1931, the same year he took up his administrative post as Vice Chancellor at the newly founded, though scarcely constructed, Andhra University at Waltair. In late 1939, Radhakrishnan took up his second Vice Chancellorship at Benares Hindu University (BHU), and served there during the course of the second world war until mid-January 1948.

- Shortly after his resignation from BHU, Radhakrishnan was named chairman of the University Education Commission. The Commission's 1949 Report assessed the state of university education and made recommendations for its improvement in the newly independent India. Though co-

authored by others, Radhakrishnan's hand is felt especially in the chapters on The Aims of University Education and Religious Education. The years following Indian independence mark Radhakrishnan's increasing involvement in Indian political as well as in international affairs. The opportunity for Radhakrishnan to put into practice his own philosophical-political ideals came with his election to the Raja Sabha, in which he served as India's Vice-President (1952-1962) and later as President (1962-1967).

Forming the Link

- He was one of the most renowned writers in contemporary India. He has made significant contributions to a variety of subjects starting from theoretical, theological, moral, instructive, communal, and enlightening subjects. He wrote several articles to many recognised journals which are of great importance. While in office as the President, he was approached by some of his friends and students who requested him to allow them to celebrate his birthday on 5 September. Over that he responded by saying, "Instead of observing my birthday discretely, it would be my pompous privilege if 5th September is scrutinised as Teachers' Day". Such a request coming from the President of India clearly showcased his affection and dedication for teachers. From then onwards, India celebrates Teachers' Day on 5th September. As the common adage goes, the future of a country lies in the hands of its children and teachers, as mentors, can mould students into future leaders who shape the destiny of India. They play an important role in our lives in helping us become successful in career and business. They help us to become good human beings, a better member of society, and an ideal citizen of the country. Teacher's Day is celebrated to acknowledge the challenges, hardships, and special roles that teachers play in our lives.

- On this day, students hold different activities to entertain teachers at schools and colleges. These activities include singing competitions, dance competitions, recitations of poems, mimicry of teachers, lots of games children play with teachers, plan a picnic, offer gifts, and at last, they thank teachers by expressing their gratitude. It is a great occasion for celebrating and enjoying the relationship between teachers and students.

1.25 **National Forest Martyrs Day**

Background

- It is a day to pay tribute to those who sacrificed their lives to protect the wildlife, forests, and jungles in India. After the Ministry of Environment and Forest made the declaration, this day officially came into existence and it was in the year 2013.The ministry selected this date because, on this day in 1730, the Khejarli massacre took place in the country. On the orders of the then king Maharaja Abhay Singh of Rajasthan, the soldiers started cutting trees to provide wood for a new palace. During that time, a woman identified as Amrita Devi offered her head instead of the sacred Khejarli tree. Angry over the act, people in that village rose in protest and offered their lives in

place of the trees. In the heat of the moment the soldiers went berserk, after beheading her, they went on to slaughter over 350 people including Amrita's children. On hearing this massacre, the shocked king instantly ordered his soldiers to stop killing the people and apologised to them who belonged to the Bishnoi community. Along with his apology, he made a declaration stating that no cutting of trees and killing of animals will take place in areas that are around the Bishnoi villages.

The Remembrance

- The Khejarli sacrifice was characterised by total non-violence, or ahimsa, on the part of the Bishnois who stood up to perform what they considered their bounden duty. For them, every plant or animal is a living being just as humans, and hence deserves to be protected. This served them well as it fosters a better relationship between human beings, their environment, their religious beliefs and each other, allowing all to live harmoniously. Today experts call this 'sustainability', and have labelled Bishnois as 'India's first environmentalists. Yet, within their community it is simply understood to be their dharma.Nearly 230 years after it happened, the Khejarli story inspired another environmental movement—the Chipko Andolan (1973) in the Tehri-Garhwal Himalaya. This, in turn, spawned the Jungle BachaoAndolan (1982) in Bihar and Jharkhand, the Appiko Chaluvali (1983) in the Western Ghats of Karnataka, and other similar protests. All these were aimed at preserving and protecting the natural environment and resulted in changing public policies. The 'tree-hugging' tactic of the Chipko Andolan and its messages gained popularity in many countries beyond India's borders, leading to protests in Switzerland, Japan, Malaysia, The Philippines, Indonesia and Thailand.

- Presently, on this special day, several educational societies and institutions in the country organise programs or events through which people are informed about protecting the forests, trees, and environment at large. Every year, many competitions are conducted to ensure more and more children and youth participate. So that, they can be aware of conserving jungles and engage in events concerning the same.

1.26 Antyodaya Diwas

Background

- The 25th of September, 2014 was declared 'AntyodayaDiwas' in honour of Pandit Deendayal Upadhyaya's 98th Birth Anniversary. It was the same day when the Ministry of Rural Development (MoRD) revamped its existing skill development program called Aajeevika Skills as DeenDayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) which emphasized on greater access, coverage and quality. In doing so, the MoRD has used its knowledge gained over 15 years in implementing skill training programs. The spirit of the Antyodaya Mission lies in 'reaching out to the last person'. Ministry of Rural Development is also working towards this motto through reaching to all eligible rural youths of India. Therefore, working towards this motto and to

commemorate AntyodayaDiwas 2020, MoRD is celebrating this day with their skilled and enthusiastic beneficiaries and other stakeholders spread across the country. During this pandemic time, the MoRDhas gone virtual in commemorating this auspicious day with all States/UTs, Project Implementing Agencies, Employers and rural youths from all over the country.

The Person and the Persona

- Pandit Deendayal Upadhyay was born on 25th of September, 1916, at Nagla Chandrabhan village in Mathura district. His full name was Deendayal Upadhyaya, but he was fondly called Deena by the family. He had a very difficult childhood as he lost both his parents at very early age. However, from his early days he was a bright boy good in studies and went on to pass BA in first division from Sanatan Dharma College, Kanpur in 1939.Thereafter, he joined St. John's College, Agra for pursuing master's degree in English Literature, which he could not complete due to personal reasons. Thereafter, he left for Prayag to do his B.T. His love for studies increased manifold after he entered the domain of public service. His special areas of interest were sociology and philosophy, seeds of which were sown during his student days.

- He joined RSS in 1937 and came under the influence of Shri Nana ji Deshmukh and Shri BhauJugade. He entered politics through the Rashtriya Swayamsevak Sangh, became the General Secretary of the Bharatiya Jan Sangh, from its inception 1951 till 1967 and later became the president of Jan Sangh on 29th December 1967. He was a creative writer and a renowned editor. He was a journalist in 'Rashtra Dharma' daily, worked as editor for 'Panchjanya' and wrote a column named 'Political Diary' for the weekly 'the Organiser'. His mantra for the journalism was 'Don't distort the news'. He wrote a number of books including Samrat Chandragupta, Jagatguru Shankaracharya, Political Diary, Integral humanism, Ekatmamanav - vad and an analysis of the Five-Year plans in India. Antyodaya, although a word belonging to the Gandhian lexicon, became integral in the ideas of Deendayal. His vision of 'education for all' and 'har hath kokam, harkhet kopani' was seen culminating in his idea of Economic Democracy. His message was to build a strong and prosperous India on the foundation of its culture which guarantees freedom, equality and justice to all (Dharmarajya), maximum good to all (Sarvodya and Antyodaya) and synthesis, not conflict, as the basis of life (Samanvaya).

2. INTERNATIONAL RELATIONS

2.12 **A Secure Indian Ocean**

Recently, India has proposed to convene an open debate of the UN Security Council (UNSC) on enhancing maritime security.

- The objective of this debate is to highlight effective international maritime cooperation to respond holistically to natural and manmade threats to maritime security.
- It also reflects India's international evolution as a maritime nation.

MAIN POINTS

Importance of Indian Ocean for India:

- Long Maritime Boundary: With a coastline of over 7,500 km, India has a natural interest in enhancing maritime security.
- Securing Sea lanes of Communication: In the Indian Ocean, three major Sea Lanes Of Communication (SLOCS) play a crucial role in the energy security and economic prosperity:
  - SLOC connecting the Red Sea to the Indian Ocean through the Bab al- Mandab (that transports the bulk of Asia's international trade with its major trading partners in Europe and America),
  - SLOC connecting the Persian Gulf to the Indian Ocean through the
  - Strait of Hormuz (transporting the bulk of energy exports to major import destinations like India, ASEAN, and East Asia),
  - SLOC connecting the Indian and Pacific Oceans through the Straits of Malacca (integral to the smooth flow of trade with ASEAN, East Asia,
  - Russia's Far East and the US).
  - The Indian Ocean region transports 75% of the world's maritime trade and 50% of daily global oil consumption.
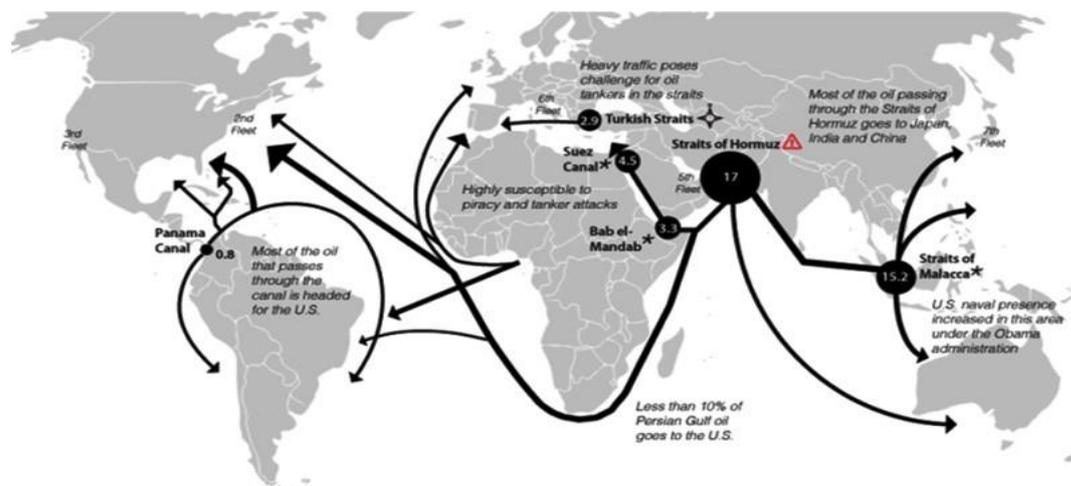
India's Maritime Initiatives:

- Disaster Management: The fallout of the 2004 tsunami, which took a heavy toll on human and natural resources, led to the creation of an Indian Ocean Tsunami Warning and Mitigation System by the UN in 2005.

- Through this, an international network seeks to prevent a recurrence of such devastation.

- Anti-Piracy Operations: Faced with the increased threat from piracy originating off the coast of Somalia since 2007 to shipping in the western Indian Ocean, the Indian Navy participated robustly as part of a UNSC mandated 60-country Contact Group on Piracy off the coast of Somalia.

Security and Growth for All (SAGAR) Policy:

- India's SAGAR policy is an Integrated regional framework, unveiled by Indian Prime Minister during a visit to Mauritius in March 2015. The pillars of SAGAR are:

- India's role as a net security provider in the Indian Ocean region (IOR). India would continue to enhance the maritime security capacities and economic resilience of friendly countries in IOR.

- A more integrated and cooperative focus on the future of the IOR, which would enhance the prospects for the sustainable development of all countries in the region.

- The primary responsibility for peace, stability and prosperity in the IOR would be on those "who live in this region".

- Abiding by the International Law: India accepted a United Nations Convention for the Law of the Sea (UNCLOS) tribunal award on the maritime boundary arbitration between India and Bangladesh.
  - It envisaged contributing a new impulse to effective international economic cooperation among the littoral states of the Bay of Bengal (BIMSTEC).

- Data Sharing: Sharing data on threats to commercial shipping is an important component of enhancing maritime security.
  - In this context, India established an International Fusion Centre (IFC) for the Indian Ocean region in Gurugram in 2018.
  - IFC is jointly administered by the Indian Navy and Indian Coast Guard. IFC serves the objective of generating Maritime Domain Awareness on safety and security issues.

CONCLUSION

- **International Cooperation:** Sustaining international cooperation to enhance maritime security requires two supportive frameworks in the policy and operational areas.

- **Rule-of-law Based Approach:** There is a need to review the operational effectiveness of the UNCLOS.

- Especially regarding the enforcement of its provisions on freedom of navigation, the sustainable exploitation of maritime resources, and the peaceful resolution of disputes.

- **Securing the Sea Lanes of Communication:** Securing SLOCs that traverse the oceans is of central importance to enhancing maritime security.

- Thus, the global debate must focus on ensuring equal and unrestricted access to SLOCs by states while resolving differences through peaceful means.

- **Engaging Private Sector:** There is a need for an increasing role of the private sector in the maritime domain, whether it is in shipping, and sustainable development through the Blue Economy.

- Further, the use of the maritime domain can be leveraged to provide the critical submarine fibre-optic cables supporting the Digital Economy.

- The ability of the UNSC to respond to the debate by endorsing a multiple stakeholder approach to enhancing maritime security would be a significant outcome, setting a paradigm for upholding "multi-dimensional" security in the 21st century.

2.13 Delisting Taliban from Sanctions: UN

- Recently, The United Nations (UN) officials claimed that there are no requests from the UN Security Council Permanent members for the delisting of the Taliban's top leadership from sanctions thus far.

- They also refuted reports that the next meeting of the Taliban Sanctions Committee also known as the resolution 1988 committee, due in September 2021, would lift restrictions on designated terrorists like Sirajuddin Haqqani and Mullah Baradar.

Main Points

Resolution 1988 Committee Meeting:

- India's Permanent Representative to the UN (UNPR) is the Chairman of the committee until December 2021, and is key to deciding the date of the meetings, and scrutinising requests to delist the Taliban leaders.

- The meeting is expected to happen ahead of an important meeting to discuss the renewal of the mandate of the UN Assistance Mission in Afghanistan (UNAMA), which expires in September 2021.

- A decision is likely to be taken on whether to extend the special travel exemptions given to 14 Taliban members to participate in the "peace and reconciliation efforts".

- The meeting could also discuss whether to include other Taliban leaders in the exemptions, giving them permission to travel and access some funds, which are frozen at the moment.

Significance of the Meeting:

- This is the first time the Committees would meet after the Taliban takeover of Kabul, and after the deadline for the US troops to pull-out.
- The stand taken by the UNSC members, particularly the P-5 — US, Russia,
- China, France and UK — would indicate how they intend to approach a future Taliban-led regime in Afghanistan.
- This time around, the UN would have to decide on continuing the accreditation with Ambassador Ghulam Isaczai who was appointed by the 'Islamic Republic of Afghanistan', given the Taliban control of Kabul, and its
- Insistence on changing the country's flag, and name to the 'Islamic Emirate of Afghanistan'.
- In 1996, the last time the Taliban took power in Kabul; the UN had refused to recognise the regime, and had continued the Ambassador nominated by the previous Rabbani government.

Challenges:

- The challenge will be to reconcile the ground reality of a Taliban dominated regime with a new mandate for UNAMA.
- If the UN were to accept the new regime, which seems unlikely at present, it would give the Taliban the mandate to propose the delisting of its own members, as the Afghanistan UNPR is the "focal point" for the Sanctions list.
- Such a proposal would also run counter to the UN Security Council's own statement in August 2021 that firmly said that members "do not support the restoration of the Islamic Emirate".

Importance of Sanctions for India:

- The reports concerning Sirajuddin Haqqani are significant for India as he and the Haqqani group, founded by his father Jalaluddin Haqqani, are wanted for the Indian Embassy bombings in Kabul in 2008 and 2009.
- In November 2012, India was instrumental, as the then-President of the UN Security Council, in ensuring that the Haqqani group was designated as a terror entity.
- India had worked with several countries to ensure the group was banned, both in the UN's 1988 sanctions committee list as well as the US, which designated it a Foreign Terrorist Organisation at the same time.
- Sirajuddin Haqqani, deputy to Taliban chief Haibatullah Akhundzada, is now likely to have considerable influence in the next government in Afghanistan.
- His brother Anas Haqqani, who was arrested in 2014 for financing the group's terror attacks, and was released as part of a hostage swap in 2019 from Bagram prison, is now one of the chief negotiators in government formation talks in Kabul.

Resolution 1988 Committee/Taliban Sanctions Committee

Background:

- In 1999, the UNSC Committee was established pursuant to Resolution 1267 (1999), which imposed a limited air embargo and asset freeze on the Taliban. Over time, measures became a targeted asset freeze, travel ban and arms embargo against designated individuals and entities.

- In June 2011, after the adoption of resolution 1988 (2011), the Committee split into two.

- The 1267 Committee was henceforth known as the Al-Qaida Sanctions

- Committee, mandated to oversee implementation of the measures against individuals and entities associated with Al-Qaida.

- A separate Committee was established pursuant to resolution 1988 (2011) to oversee implementation of the measures against individuals and entities associated with the Taliban.

About:

- The Committee comprises all 15 members of the Security Council and makes its decision by consensus. The current Chair of the Committee, for the period ending 31st December 2021, is India.

- The work of the Committee is supported by the Analytical Support and

- Sanctions Monitoring Team pursuant to resolutions 1526 (2004) and 2253 (2015) concerning ISIL (Da'esh), Al-Qaida and the Taliban and associated individuals and entities.

Mandate:

- Oversee the implementation of the sanctions measures.

- Designate individuals and entities who meet the listing criteria as contained in the relevant resolutions.

- Consider and decide upon notifications and requests for exemptions from the sanctions measures.

- Consider and decide upon requests to remove a name from the 1988 Sanctions List.

- Conduct periodic and specialised reviews of the entries on the 1988 Sanctions List.

- Examine the reports presented by the Monitoring Team.

- Report periodically to the Security Council on the implementation of the sanctions measures.

2.14 Exercise Konkan 2021

Indo-UK Naval Exercise, 'Konkan 2021' was recently held between INS Tabar and HMS Westminster in the English Channel.

The English Channel is located between the Isle of Great Britain's southern coast and France's northern coast and separated from the North Sea on the north by the Strait of Dover.

MAIN POINTS:

About:

The Bilateral Konkan exercise is a naval exercise conducted between India and the United Kingdom. The Konkan series of exercises was started in 2004. Since then, the exercise is hosted in rotation by Both the Navies and has grown in complexity, scale, and intensity.

Other Exercises between India and UK:

- Exercise 'Indradhanush' (Air Force Exercise) Ajeya Warrior (Joint Military Exercise)

INS Tabar:

- It is the third Talwar-class frigate in the Indian Navy, which was commissioned in 2004 in Kaliningrad, Russia.
- This warship can handle air or surface or subsurface missions and defend herself.
- The Talwar class of frigates of the Indian Navy have been built in Russia under an Indo-Russian joint production. The Talwar class guided missile frigates are modified Krivak III class frigates from Russia. Other Frigates are: INS Teg, Tarkash, Trikand, Talwar, Trishul.
- In October 2016, India and Russia signed an Inter-Governmental Agreement (IGA) for four Krivak or Talwar stealth frigates.
- The first two frigates will be built in Yantar Shipyard, in Kaliningrad, Russia. The following two will be built in Goa Shipyard Ltd (GSL).

Major Indian Maritime Exercises

Name of the Exercise	Name of the Country
SLINEX	Sri Lanka
Bongosagar and IN-BN CORPAT	Bangladesh
JIMEX	Japan
Naseem-Al-Bahr	Oman
Indra	Russia
Za'ir-Al-Bahr	Qatar
Samudra Shakti	Indonesia
Indo-Thai CORPAT	Thailand
IMCOR	Malaysia
AUSINDEX	Australia
Malabar Exercise	Japan and the USA

2.15 IBSA Forum

Recently, India organized the IBSA (India, Brazil and South Africa) Tourism Ministers' virtual meeting.

India is the current IBSA Chair.
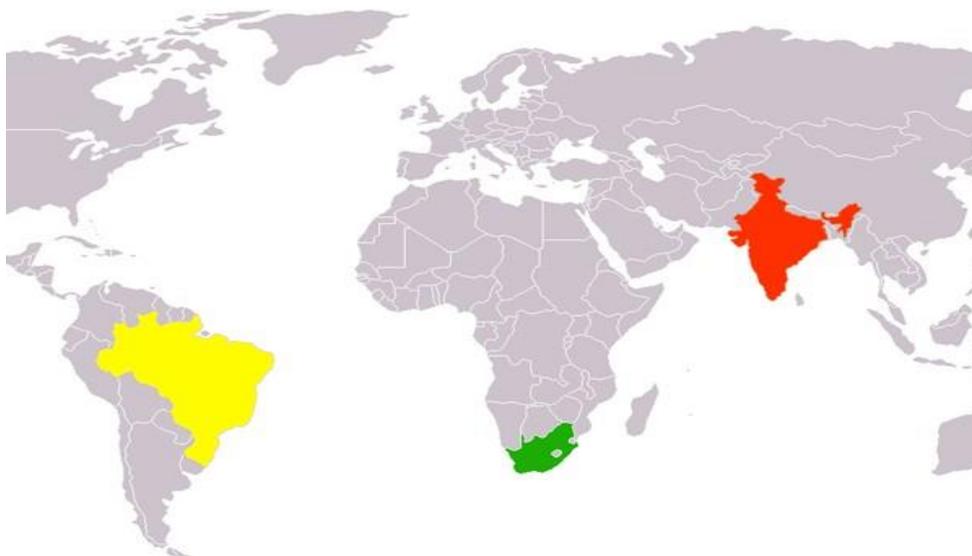
Key Points

About:

- The IBSA is a trilateral, developmental initiative between India, Brazil and South Africa to promote South-South cooperation and exchange.

- The idea of South-South Cooperation (SSC) is not new. Its genesis can be traced back to the decades of efforts by countries and groupings working together to ensure South-South solidarity such as Bandung conference 1955, Non-Aligned Movement 1961, G77 grouping, UNCTAD, the Buenos Aires Plan of Action 1978, and the 2009 Nairobi declaration.

Formation:

- The grouping was formalized and named the IBSA Dialogue Forum when the Foreign Ministers of the three countries met in Brasilia (Brazil) on 6th June 2003 and issued the Brasilia Declaration.

- Headquarters:

- IBSA does not have a headquarters or a permanent executive secretariat. At the highest level, it counts on the Summits of Heads of State and Government.

- So far Five IBSA Leadership Summits have been held. The 5th IBSA

- Summit was held in Pretoria (South Africa) in 2011. The 6th IBSA Summit is to be hosted by India.

Joint Naval Exercise:

- IBSAMAR (IBSA Maritime Exercise) is an important part of IBSA trilateral defence cooperation.

- Six editions of IBSAMAR have been held so far, the latest one being off the coast of South Africa in October, 2018.

IBSA Fund:

- Established in 2004, IBSA Fund (India, Brazil and South Africa Facility for Poverty and Hunger Alleviation) is a unique Fund through which development projects are executed with IBSA funding in fellow developing countries.

- The fund is managed by the United Nations (UN) Office for South-South Cooperation (UNOSSC). Each IBSA member country is required to contribute $1 million per annum to the fund.

Objectives:

- To alleviate poverty and hunger in nations of the South;

- To develop best practices in the fight against poverty and hunger by facilitating the execution of replicable and scalable projects in interested countries of the global south;

- To pioneer and lead by example the South-South cooperation agenda;

- To build new partnerships for development.

IBSA Fellowship Programme:

- It focuses on multilateral institutional frameworks to coordinate, support and enable sustainable development globally; joint research for cooperation and exchange of information in the fields of macro-economy, trade and development; and any other area as may be found of interest within the IBSA framework.

Performance so far:

Relevance in the wake of the emergence of BRICS:

- The grouping faces a fundamental challenge to maintain its relevance in the wake of the emergence of similar groupings such as BRICS (Brazil,
- Russia, India, China and South Africa).
- IBSA has been unable, until now, to hold its sixth summit.

Execution of Human Development Projects:

- Over the years, the fund has contributed $39 million and partnered in 19 countries from global South to implement 26 projects.
- Projects have been funded in countries such as Guinea Bissau, Sierra Leone, Cape Verde, Burundi, Cambodia, Haiti, Palestine, Vietnam and others.
- The fund has also been recognised for its good work in the field and has received UN South-South Partnership award 2006, UN MDG (Millenium
- Development Goals) award 2010, and the South-South and Triangular Cooperation Champions award in 2012.

Opportunities:

In the Emergence of BRICS:

- Working collectively towards ensuring the MERCOSUR -SACU-India Trilateral PTA (Preferential trade Agreement) first, and eventually a Free Trade Area (FTA), will go a long way in ensuring the grouping's relevance. (MERCOSUR for Brazil & SACU for South Africa).
- The Southern Common Market (MERCOSUR for its Spanish initials) is a regional integration process, initially established by Argentina, Brazil, Paraguay, and Uruguay, and subsequently joined by Venezuela and Bolivia.
- The Southern African Customs Union (SACU) consists of Botswana, Lesotho, Namibia, South Africa, and Swaziland.
- The SACU Secretariat is located in Namibia. SACU was established in 1910, making it the world's oldest Customs Union.
- The grouping must work together as a joint lobby in other groupings of which they are members of, such as BRICS and G20.

Reforming Multilateral Institutions:

- Reforming institutions such as the United Nations Security Council (UNSC), IMF etc. is a necessary prerequisite to forge consensus behind the principle of economic development among developing countries.
- India, Brazil and South Africa have serious aspirations to become permanent members of UNSC.

Way Forward

- The forum continues to be a motor for global institutional reforms in the future, striving collectively to establish a rules-based and transparent international trading and finance system.
- By offering a new partnership based model for development cooperation, the forum has taken a giant step towards accelerating the development agenda of the global South.
- The 'people centric' approach is what defines and sets South-South cooperation apart from other partnership models. This particular focus on people-centric social policies is what will help in accelerating the restructuring of international financial architecture and reforming institutions of global governance.

2.16 India- Sri Lanka Relations

- Recently, the Government of Srilanka decided to rebuild a demolished memorial at Jaffna University after the High Commissioner of India's concerns.
- The demolition of a memorial paying tribute to Tamil civilians killed during the civil war between LTTE and the Sri Lankan Army in 2009 has brought attention to unaddressed issues of minority rights of Tamilians in Srilanka again in the India- Srilanka relations.

Key Point

Issues of Tamilians in Srilanka

- **Denial of Citizenship:** The problem of the Sri lankan Tamils began earlier than the 1950s. After independence in 1948 the Sri lankan government felt that The Tamils were not Sri lankan because they had Indian ancestry.

- The majority of the Tamils were denied Sri lankan citizenship due to which most of the Tamils continued to live in poverty in the tea estates of Sri lanka.

- **Linguistic Discrimination**: The conflict between Sinhalese and Tamils in Sri Lanka started in 1956 when Sinhala was made the official language by the country's President and large scale discrimination began against the Tamils.

- **Religious Discrimination:** The discrimination against the Tamil population continued throughout the 1960s as Buddhism was given the primary place in the state and the number of Tamils employed by the state and admitted into institutions of higher learning was greatly restricted.

- **Intensified Movements:** During this period the Tamils responded to their oppression largely through a political and a non-violent protest movement. In the 1970s, however, there was an increased trend towards Tamil separatism and militancy that gave rise to a terrorist organization called LTTE.

- **Liberation Tigers of Tamil Eelam (LTTE):** It was formed in 1976 as the self- styled "national freedom movement of the people of Tamil Eelam" and began a guerilla war on the government and administration.

- It undertook numerous terrorist activities in Sri lanka especially against the Sinhalese and executed the assassination of Rajiv Gandhi (the ex Prime Minister of India).

- After a long strife, and millions of casualties, the civil war with LTTE ended in 2009. India played an important role in helping Sri lankan to uproot terrorism from its homeland.

Concerns for India:

- **Rehabilitation of Refugees:** A large number of Sri lankan Tamils who migrated from Sri lanka during civil war (2009) are seeking refuge in Tamil Nadu. They are not returning in fear of being targeted again. It is a challenge for India to rehabilitate them.

- **Sentiments of Indian Tamils:** A number of protests and criticism is drawn at the end of Indian Government for overlooking the plight of Sri lankan Tamils to maintain good relationship with Srilanka.

- **Strategic interests vs Tamil question:** Often India has to trade off on the question of Tamilian minority rights over strategic issues to protect its economic interests in its neighborhood and to counter Chinese influence in Indian Ocean.

India - Sri Lanka Confidence Building Measures:

- **Currency Swap Agreements:** The Reserve Bank of India (RBI) had signed an agreement for extending a USD 400 million currency swap facility to Sri Lanka to boost the foreign reserves and ensure financial stability of the country, which is badly hit by Covid-19 pandemic.

- **High Level Exchanges:** Political relations between India and Sri Lanka have been marked by high-level exchanges of visits at regular intervals.

- **India's Support against Terrorism:** During the course of the civil war, India supported the right of the Government of Sri Lanka to act against terrorist forces. The Indian Housing Project: It is Government of India's flagship project of developmental assistance to Sri Lanka. Its initial commitment is to build 50,000 houses for those affected by the civil war as well as for the estate workers in the plantation areas.

- **Addressing Fishermen Issue:** Given the proximity of the territorial waters of both countries, especially in the Palk Straits and the Gulf of Mannar, incidents of straying of fishermen are common.

- Both countries have agreed on certain practical arrangements to deal with the issue of bona fide fishermen of either side crossing the International Maritime Boundary Line.

- **Joint Exercises:** India and Sri Lanka conduct joint Military (Mitra Shakti) and Naval exercise (SLINEX).

- **Participation in Groupings:** Sri Lanka is also a member of regional groupings like BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) and SAARC in which India plays a leading role.

- **SAGAR:** Srilanka supports India's concern for the security of Indian ocean with its 'Neighbourhood First' policy and SAGAR (Security and Growth for all in the Region).

- **Line of Credit:** India has extended a $400 million line of credit to Sri Lanka to help strengthen its infrastructure and economy. An additional $50 million to help Sri Lanka combat terrorism.

2.17 India Assumes UNSC Presidency

Recently, India assumed the presidency of the United Nations Security Council (UNSC) for the month of August 2021.

- This will be the country's first presidency during its 2021-22 tenure as a non- permanent member of the Security Council.

- India began its two-year tenure as a non-permanent member of the UNSC in January 2021.

This is India's eighth term on the UNSC.

Main Points

India's UNSC Presidency:

- India will decide the UN body's agenda for the month and coordinate important meetings on a range of issues.

- It is going to organise key events in three major areas of maritime security, peacekeeping and counter-terrorism.

- The Security Council will also have on its agenda several important meetings including Syria, Iraq, Somalia, Yemen, and the Middle East. The Security Council will also be adopting important resolutions on Somalia, Mali, & United Nations Interim Force in Lebanon.

- Prime Minister (PM) Narendra Modi will be the first Indian PM to preside over a meeting of the UNSC.

- The last time an Indian PM was engaged in this effort was the then PM PV Narasimha Rao in 1992 when he attended a UNSC meeting.

Support from France & Russia:

- France has stated that it is dedicated to collaborating with India over strategic problems such as maritime security, peacekeeping, and counter-terrorism.

- Russia welcomed the country gaining the UNSC presidency saying it is very impressed by India's agenda, which embraces critical global concerns.

Challenges for India at UNSC: China Challenge:

- India is entering the UNSC at a time when Beijing is asserting itself at the global stage much more vigorously than ever. It heads at least six UN organisations and has challenged the global rules.

- China's aggressive behaviour in the Indo-Pacific as well as the India- China border has been visible in all of 2020.

- China has tried to raise the issue of Kashmir at the UNSC.

Post Covid World Order:

- As the global economy is in shambles with various countries facing recession and health emergencies.

- Balancing USA and Russia and Unstable West Asia:

- With the situation deteriorating between the US and Russia and increasing tensions between US and Iran, it will be a tough situation to handle for India.

- India needs to uphold rule based world order with due respect to human rights ensuring the national interest.

United Nation Security Council

About:

- The UNs Charter established six main organs of the UN, including the UNSC. Article 23 of the UN Charter concerns the composition of the UNSC.

- The other 5 organs of the UN are—the General Assembly, the Trusteeship Council, the Economic and Social Council, the International Court of Justice, and the Secretariat.
- The UNSC has been given primary responsibility for maintaining international peace and security and may meet whenever peace is threatened. While other organs of the UN make recommendations to member states, only the Security Council has the power to make decisions that member states are then obligated to implement under the Charter.

Headquarter:

The council is headquartered at NewYork.

Members:

- The UNSC is composed of 15 members, 5 permanent and 10 non- permanent.
- Five permanent members: China, France, the Russian Federation, the United Kingdom, and the United States.
- Ten non-permanent members: Elected for two-year terms by the General Assembly.
- Each year, the General Assembly elects five non-permanent members (out of ten in total) for a two-year term. The ten non-permanent seats are distributed on a regional basis.
- The council's presidency is a capacity that rotates every month among its 15 members.

Voting and Discussions at UNSC:

- Each member of the Security Council has one vote. Decisions of the Security Council on matters are made by an affirmative vote of nine members including the concurring votes of the permanent members.
- A "No" vote from one of the five permanent members blocks the passage of the resolution.
- Any member of the UN which is not a member of the Security Council may participate, without vote, in the discussion of any question brought before the Security Council whenever the latter considers that the interests of that member are specially affected.

India as a Permanent Member:

- India has been advocating a permanent seat in UNSC.
- India has the following objective criteria, such as population, territorial size, Gross Domestic Product, economic potential, civilisational legacy, cultural diversity, political system and past and ongoing contributions to UN activities especially to UN peacekeeping operations.

2.18 India-China Hotline

Recently, India and China announced that both have agreed to establish a Hotline.
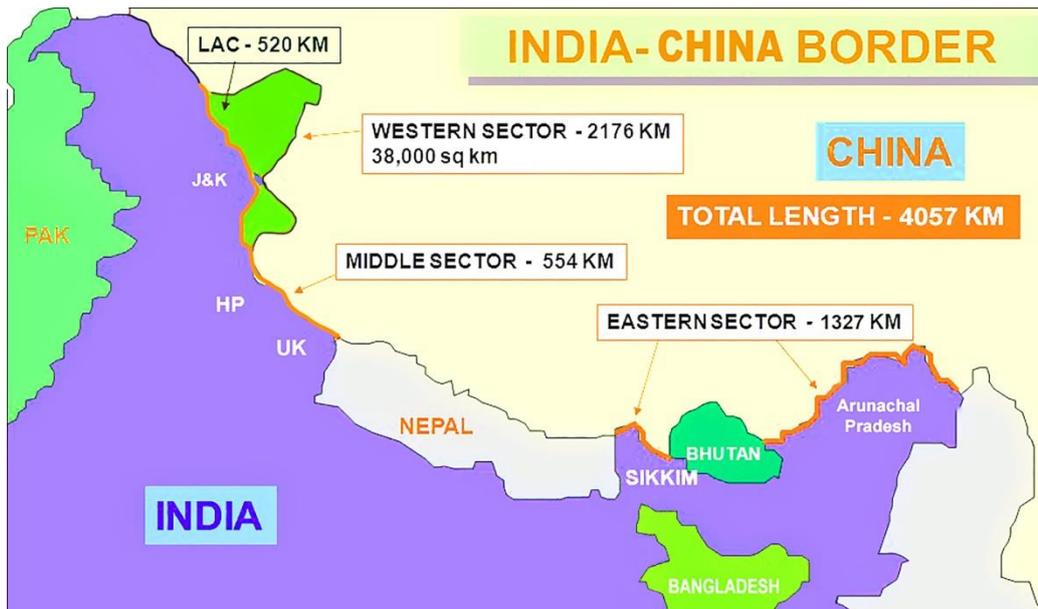
Key Points

Hotline:

- The decision to install a Hotline between the two countries was taken over a telephonic meeting between India's External Affairs Minister and China's Foreign Affairs Minister.

- Hotline is a direct telephone line in constant operational readiness so as to facilitate immediate communication.

- The Hotline will be helpful in timely communication and exchange of views between the two countries.

India's Stand:

- Reiterated the 'three mutuals' (mutual respect, mutual sensitivity and mutual interests) as the approach to the relationship.

- Disengagement, followed by de-escalation, will lead to peace along the Line of Actual Control (LAC), and eventually normalisation of ties.

China's Stand:

- The boundary situation should not be placed at the front and centre of the relationship, but instead at a "proper place" in overall ties.

- The indication was the two sides should return to business as usual while the issue is dealt with.

Recent Developments:

- May 2020: Chinese and Indian forces clashed at Nathu La, Sikkim (India). After the Sikkim scuffles, tensions between the two countries rose in Ladakh, with a multi-place mobilization of troops.

- June 2020: Indian and Chinese armies were engaged in the standoff in Pangong Tso, Galwan Valley, Demchok and Daulat Beg Oldie in eastern Ladakh which became the heart of the recent LAC tensions.

- June 2020: India banned 59 apps originating from China.

- November 2020: India blocked 43 new mobile apps, mostly Chinese.

- The ban has been enforced under Section 69A of the Information Technology Act, 2000.

- February 2021: India and China decided to finally reach an agreement on disengagement at Pangong Lake.

CONCLUSION

- It is imperative for the two sides to cherish the hard-won relaxation, and work together to consolidate the progress, keep up the consultation momentum, further ease the situation, and improve the border management and control mechanisms.

- As two big emerging economies, China and India need to pursue development alongside each other move forward in partnership instead of hindrance, and work together for shared progress rather than erecting walls against each other.

- India and China also need to advance the boundary talks to build up mutual trust and realize peace and tranquility in the border areas.

2.19 India-Sri Lanka Deteriorating Ties

- This article is based upon "Sri Lanka economic crisis poses challenges for India" It talks about deteriorating ties of India and Sri Lanka in recent times, how the latter's economic crisis are worsening it and what India can do to preserve this age-old relationship

- India's development partnership with Colombo has always been demand-driven, with projects covering social infrastructure like education, health, housing, access to clean water and sanitation, besides industrial development.

- India's 'Neighbourhood First' policy towards Sri Lanka also resonated with Sri Lanka's

- 'India First' foreign and security policy in 2020.

- However in recent times, due to Chinese intervention, the ties between the two countries have plummeted. The condition is likely to worsen with Sri Lanka declaring the state of emergency in the country.

- To prevent India from losing significant ties with countries like Sri Lanka, it needs to nurture its international & diplomatic policies and make use of the regional platforms to the fullest.

India and Sri Lanka

- **Economic Ties:** India is Sri Lanka's third largest export destination, after the US and UK. More than 60% of Sri Lanka's exports enjoy the benefits of the India-Sri Lanka Free Trade Agreement. India is also a major investor in Sri Lanka.

- Foreign Direct Investment (FDI) from India amounted to around $ 1.7 billion over the years from 2005 to 2019.

- In July 2020, the RBI signed a currency-swap agreement with the Central Bank of Sri Lanka (CBSL) under the SAARC Currency Swap Framework 2019-22, for withdrawals of up to $400 million.

- **Plummeting Relations:** The political and economic ties began to worsen between the two since February, 2021 when Sri Lanka backed out from a tripartite partnership with India and Japan for its East Container Terminal Project at the Colombo Port, citing domestic issues.

- However, later, the West Coast Terminal was offered under a public private partnership arrangement to Adani Ports and Special Economic Zones Ltd.

- **Sri Lanka's State of Emergency:** Sri Lanka, running out of Forex reserves for essential imports like food, has recently declared a state of economic emergency.

- Sri Lanka depends heavily on imports to meet even its basic food supplies, such as sugar, dairy products, wheat.

- The price of food items has risen in tandem with the depreciating rupee.

- The Tourism sector has also drastically suffered since the terror attacks of 2019, followed by the pandemic and the FDI inflows have halved from $1.2 billion (2019) to $670 million (2020).

- Its public Debt-to-GDP ratio was at 109.7% in 2020 and the external debt-to- GDP ratio stood at 62% in 2020.

Debt-to-GDP Ratio

- It is the metric comparing a country's public debt to its Gross Domestic Product (GDP). It is often expressed as a percentage.

- By comparing what a country owes (debt) with what it produces (GDP), the debt-to- GDP ratio reliably indicates a particular country's ability to pay back its debts.

- A country with a high debt-to-GDP ratio typically has trouble paying off public debts.

Chinese Intervention in the Ties

- **Largest Creditor to Sri Lanka:** China is the largest bilateral creditor to the country. Its loans to the Sri Lankan public sector amount to 15% of the central government's external debt.

- Sri Lanka heavily relies on Chinese credit to address its foreign debt burden.

- **Surpassing Indian Exports**: China's exports to Sri Lanka surpassed those of India in 2020 and stood at $3.8 billion.

- India's exports were at $3.2 billion for the same year.

- **Investment in Infrastructure Projects:** China has invested about $12 billion in Sri Lanka's Infrastructure projects between 2006-19.

- The country also has formal control over Sri Lanka's Hambantota port as a part of a 99-year lease.

- Sri Lanka has decided to establish a Special Economic Zone around the Colombo port city and a new economic commission, to be funded by China.

- The Colombo port handles 60% of India's trans-shipment cargo. Leasing of Hambantota and the Colombo Port City project makes it almost certain for the Chinese navy to have a permanent presence in the Indian Ocean which will be worrisome for India's national security.

- Shifting Interests of Smaller Nations: Sri Lanka's economic crisis may further push it to align its policies with Beijing's interests.

- This comes at a time when India is already on a diplomatic tightrope with Afghanistan and Myanmar.

- Other South Asian nations like Bangladesh, Nepal and the Maldives have also been turning to China to finance large-scale infrastructure projects.

Way Forward

- **Preserving Strategic Interests:** Nurturing the Neighbourhood First policy with Sri Lanka is important for India to preserve its strategic interests in the Indian Ocean region.

- **Taking Advantage of Regional Platforms:** Platforms like the BIMSTEC, SAARC, SAGAR and the IORA could be leveraged to foster cooperation in fields like technology-driven agriculture, marine sector development, IT & communication infrastructure etc.

- Indian foreign policy towards Sri Lanka, as part of its 'Island Diplomacy', will also have to evolve in tune to the emergent realities and threats.

- **Restraining Chinese Expansion:** India will need to continue to work on the Kankesanturai port in Jaffna and the oil tank farm project in Trincomalee to ensure that China does not make any further inroads in Sri Lanka.

- Both countries can also cooperate on enhancing private sector investments to create economic resilience.

- **Leveraging India's Soft Power:** In the technology sector, India can create job opportunities in Sri Lanka by expanding the presence of its IT companies.

- These organisations can create thousands of direct and indirect jobs and boost the island nation's service economy.

2.20 India's Taliban Challenge

- Afghanistan has been plunged into chaos after the Taliban took over in the wake of the pullout of American forces from the country. It not only ensured a swift Taliban advance across Afghanistan but also a peaceful surrender of Kabul.

- Reports from the provinces point to gross human rights abuses by the Taliban. If the new Taliban dispensation demonstrates a better record in Kabul, it might encourage the world to respond positively.

- Nevertheless, the Taliban's entry into Kabul marks the beginning of a new phase in the relationship between Afghanistan and India.

Challenges for India

- **Issue of Indian Security:** The restoration of Taliban rule in Afghanistan presents some very serious potential challenges for Indian security.

- The challenges range from securing its development infrastructures to safely evacuating Indians stranded in troubled Afghanistan.

- **Spread of International Terrorism:** For India, a bigger challenge will be about the Taliban's renewed support for international terrorism and Pakistan's re-direction of jihadi groups that have allegedly fought with the Taliban towards India.

- **Religious Fundamentalism:** Like all radical groups, the Taliban will have trouble balancing its religious ideology with the imperatives of state interests.

- India faces a challenge to deradicalise the region for long lasting peace and stability.

- **New Regional Geopolitical Developments:** There can be new regional geopolitical alignments (such as China-Pakistan-Taliban) which may go against the interests of India.

- Meanwhile, the US withdrawal compels the creation of a new balance of power system in and around Afghanistan.

- Moreover, the US and the West will try to shape the international attitudes towards the new regime.

- **No Contiguity with Taliban:** unlike Pakistan, China and Iran, India has any contiguity with Afghanistan.

- Russia has a security treaty with Tajikistan, for instance, and has deployed more troops there to prevent a destabilising spill over from the turmoil in Afghanistan into Central Asia.

- India has no such security responsibilities and no direct access to Central Asia. This may give reasons to the Taliban to hit back at India through Pakistan in J&K, given that LeT and Jaish are operating in Afghanistan alongside the Taliban.

India's Options

- **Broader Diplomatic Engagement:** India should consider appointing a special envoy dedicated to Afghanistan. The envoy can ensure that Indian views are expressed at every meeting, and broaden engagement with the Taliban.

- **Decoupling of Taliban-Pakistan:**

- Although Pakistan's leverage over the Taliban is real, it may not be absolute.

- The Taliban is bound to seek a measure of autonomy from Pakistan. India will have to wait a while before the current issues between India and the Taliban can be overcome.

- **Balancing the Opportunities in Afghanistan:**

- Structuring the internal balance of power within Afghanistan has always been hard. A deeper Sino-Pak partnership in Afghanistan will inevitably produce countervailing trends.

- However, for a patient, open-minded and active India, there will be no dearth of balancing opportunities in Afghanistan.

- **Leverage Indian Infrastructural Developments:** Indian USD 3 billion assistance to Afghanistan is in concrete projects that serve its population and have earned it their goodwill that will endure.

- The need today is to not stop the development work in Afghanistan and continue the good work.

- Global Cooperation: There is a lot less global acceptance of terrorism today than in it was in the 1990s.

- No major power would like to see Afghanistan re-emerge as a global sanctuary of terror.

- The world has also imposed significant new constraints on Pakistan's support for terror through mechanisms like the Financial Action Task Force.

Conclusion

India, as would be impacted by the consequences of American withdrawal, has to work with Taliban and other regional powers to protect its interests and stabilise Afghanistan. If India remains active and patient too, many opportunities could open up in the new Afghan phase.

2.21 Greater Male Connectivity Project: Maldives:

- Recently, Afcons, an Indian company, has signed a contract for the largest-ever infrastructure project in Maldives which is the Greater Male Connectivity Project (GMCP).

- The project is the result of bilateral consultation between India and the Maldives and has been under discussion since the visit of India's External Affairs Minister to Male in September 2019.

Main Points:

Greater Male Connectivity Project:

- It will consist of a 6.74 km-long bridge and causeway link between Male and nearby islands of Villingli, Gulhifalhu and Thilafushi. It will use renewable energy.

- The project is funded by a grant of USD 100 million and a Line of Credit (LOC) of USD 400 million from India.

- It is not only the biggest project India is doing in the Maldives but also the biggest infrastructure project in the Maldives overall.

Significance:

- It is considered as the economic lifeline for the Maldives and will provide a major boost to connectivity between the four islands accounting for about half of the Maldivian population.

- It will add dynamism to the Maldivian transport and economic activities.

India-Maldives-China:

- The GMCP project would be bigger than the Sinamale Bridge built with Chinese assistance that connects Male with Hulhumale and Hulhule and was completed in 2018.

- Also the Indian aid to Maldives in August 2020 was appreciated and contrasted with the previous expensive commercial loans to Maldives by China which are being termed "debt-trap diplomacy" of China.

- Wherein China intentionally extends excessive credit to another country with the intention of extracting economic or political concessions from the debtor country.

- The India-Maldives relationship suffered a setback when Maldives entered into a Free-Trade Agreement (FTA) with China in 2017.

- However with the election of a new pro-India government in Maldives, the relationships have improved and Maldives is also considering pulling out of the FTA with China.

- At present, India-assisted projects in the region include water and sewerage projects on 34 islands, reclamation projects for the Addl Island, a port on Gulhifalhu, airport redevelopment at Hanimaadhoo, and a hospital and a cricket stadium in Hulhumale.
- India had also announced a 800 million USD Line of Credit to Maldives in December 2018.

Recent Developments:

- **Security Cooperation:** Earlier in August 2021, in the Deputy National Security Adviser-level meeting hosted by Sri Lanka, India, Sri Lanka and the Maldives had agreed to work on "four pillars" of security cooperation.
- **UNGA President:** In June 2021, India welcomed the election of Maldives' Foreign Minister as the President of the 76th session of the United Nations (UN) General Assembly (GA) for 2021-22.
- MoU's: In November 2020, India and the Maldives signed four Memorandums of Understanding (MoUs) related to High Impact Community Development Projects and on Cooperation in Sports and Youth Affairs.
- **Relief Package:** In August 2020, India had committed to Maldives a five- pronged package including air, sea, intra-island and telecommunications to help it deal with the economic impact of the Covid-19 pandemic.
- **Bilateral Bubble:** Maldives is the first South Asian country with which India started a bilateral air bubble during Covid-19 pandemic.
- **Bilateral Visits:** Since September 2018, India and Maldives have seen a number of bilateral visits.
- India's Prime Minister visited Maldives to attend the swearing-in ceremony of President Ibrahim Mohamed Solih.
- Maldives President also visited India in December 2018.
- The Home Minister of Maldives met the Indian Home Minister in February, 2020.
- Maldives and India are members of the South Asian Association for Regional Cooperation (SAARC) and the South Asia Subregional Economic Cooperation (SASEC).

Conclusion:

- This isn't only about an ambitious project involving both India and the Maldives. The terms of the agreement call for the completion of the bridge by 2023.
- For India, Maldives holds strategic importance and showing that it can deliver would help mitigate some concerns that may exist in the Maldives.
- In accordance with the Neighborhood First Policy of the government, India remains a committed development partner for a stable, prosperous and peaceful Maldives.

- Given the economic hardships being faced by Maldives due to Covid-19 pandemic and previous debts, this project and previous packages will definitely warm up the Relationship between both the countries.
- This will also provide a strategic edge to India over China with regards to Maldives.

2.22 **Sanctions Imposed Against Belarus**

- The UK, the US and Canada have issued fresh trade, financial and aviation sanctions on Belarus, in a bid to increase pressure on the country's leader Alexander Lukashenko.

Background:

- Europe's longest-serving ruler, President of Belarus (Lukashenko) took office in 1994 amid the chaos caused by the collapse of the Soviet Union in 1991.

- Often described as Europe's "last dictator", he has tried to preserve elements of Soviet communism.
- He has been in power for 26 years, keeping much of the economy in state hands, and using censorship and police crackdowns against opponents.
- In 2020, after Lukashenko was announced as the winner in elections, protests broke out in the capital, Minsk which were met with a violent security crackdown.
- There has been widespread anger against the government over a stagnant economy and doubts about the fairness of the election.

Sanctions' Targets:

- The idea is to focus on the regime and Lukashenko's associates as precisely as possible and discourage Western companies from doing business with Belarus.
- The latest sanctions restrict exports of surveillance and military technology to Belarus.

- The sanctions partially ban imports of potash fertilizer, petrol and petrol- based products from Belarus.
- In the cases of the EU, U.K. and Canada, the embargo also restricts financial trade such as buying state debt and insuring or reinsuring state-related entities. The EU and US have sanctioned Belarus' tobacco industry, which contributes to the lucrative cigarette smuggling trade.
- More than 90% of cigarettes smuggled into Lithuania came from Belarus in 2019.
- Western countries also blacklisted some Belarusian citizens.

Impacts:

- Targeting Belarus' potash sector was a strategic move insofar as the country is the second largest exporter of the fertilizer behind Canada, covering 21% of the world's potash exports in 2019.
- But, sanctions cover only 15% of all potash exports to the EU.
- Also, Russia represents 49.2% of all Belarusian trade and Belarus can export its sanctioned goods across the Russian border for re-export from there.
- The impact of restrictions on dual-use goods, monitoring and interception goods and technology, and goods used in cigarette manufacturing would be negligible.

Opportunity for Russia:

- Since, Russian President Putin has tense relations with Lukashenko, and the sanctions are an opportunity for Russia to impose its own conditions on Lukashenko's survival in control of a crumbling state, which Russia has financially supported for decades.

Belarus' Stand:

- Accused the U.K., US and Canada of ignoring the will of the Belarusian people and employing the "entire arsenal of 'cold war' methods" in pursuit of regime change.

Way Forward

- The President of Belarus should ensure the formation of a legitimate government that could address the country's vital problems.
- He has to reach out to the Opposition and offer talks to find a peaceful settlement to the crisis.

3. INDIAN ECONOMY

3.12 National Monetization Pipeline

The Union Finance Minister has launched the National Monetization Pipeline for the brownfield infrastructure assets.

What is Asset Monetization?

- Asset Monetization involves the creation of new sources of revenue by unlocking of the value of hitherto unutilized or underutilized public assets.

- Internationally, it is recognized that public assets are a significant resource for all economies.

- Many public sector assets are sub-optimally utilized and could be appropriately monetized to create greater financial leverage and value for the companies and of the equity that the government has invested in them.

- This helps in the accurate estimation of public assets which would help in the better financial management of government/public resources over time.

National Monetization Pipeline (NMP)

- The NMP comprises a four-year pipeline of the Central Government's brownfield infrastructure assets.

- It will serve as a medium-term roadmap for the Asset Monetization initiative of the government, apart from providing visibility for the investors.

- Incidentally, the 2021-22 Union Budget, laid a lot of emphasis on Asset Monetization as a means to raise innovative and alternative financing for infrastructure.

- It has to be noted that the government views asset monetization as a strategy for the augmentation and maintenance of infrastructure, and not just a funding mechanism.

What is the plan?

- NMP is envisaged to serve as a medium-term roadmap for identifying potential monetization-ready projects, across various infrastructure sectors.
- It estimates aggregate monetization potential of Rs 6.0 lakh crores through core assets of the Central Government, over a four-year period, from FY 2022 to FY 2025.

Objectives of the program

- NMP aims for universal access to high-quality and affordable infrastructure to the common citizen of India.
- Asset monetization, based on the philosophy of Creation through Monetization, is aimed at tapping private sector investment for new infrastructure creation.
- This is necessary for creating employment opportunities, thereby enabling high economic growth and seamlessly integrating the rural and semi-urban areas for overall public welfare.
- The strategic objective of the programme is to unlock the value of investments in brownfield public sector assets by tapping institutional and long-term patient capital.

Framework

The framework for core asset monetization has three key imperatives:

Monetization of 'Rights' NOT 'ownership', Assets handed back at the end of transaction life

Brownfield de-risked assets, stable revenue streams

Structured partnerships under defined contractual frameworks with strict KPIs & performance standards
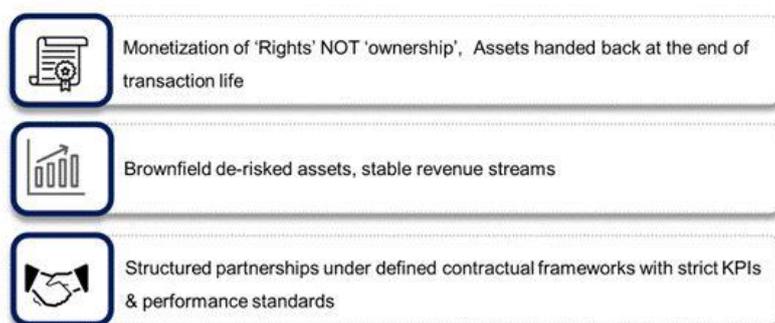
- The pipeline has been prepared based on inputs and consultations from respective line ministries and departments, along with the assessment of total asset base available therein.
- Monetization through disinvestment and monetization of non-core assets have not been included in the NMP.
- Further, currently, only assets of central government line ministries and CPSEs in infrastructure sectors have been included.
- Process of coordination and collation of asset pipeline from states is currently ongoing and the same is envisaged to be included in due course.

Estimated Potential

- The aggregate asset pipeline under NMP over the four-year period, FY 2022-2025, is indicatively valued at Rs 6.0 lakh crore.
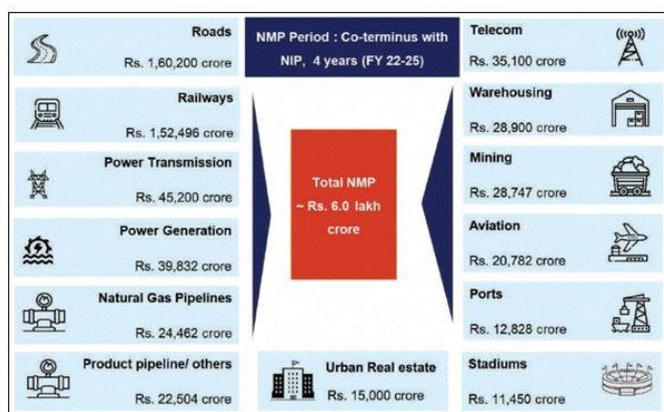
- The estimated value corresponds to ~14% of the proposed outlay for Centre under NIP (Rs 43 lakh crore). This includes more than 12-line ministries and more than 20 asset classes.
- The sectors included are roads, ports, airports, railways, warehousing, gas & product pipeline, power generation and transmission, mining, telecom, stadium, hospitality and housing.
- The top 5 sectors (by estimated value) capture ~83% of the aggregate pipeline value. These top 5 sectors include: Roads (27%) followed by Railways (25%), Power (15%), oil & gas pipelines (8%) and Telecom (6%).

Implementation & Monitoring Mechanism

- As an overall strategy, significant share of the asset base will remain with the government.
- The programme is envisaged to be supported through necessary policy and regulatory interventions by the Government in order to ensure an efficient and effective process of asset monetisation.
- These will include streamlining operational modalities, encouraging investor participation and facilitating commercial efficiency, among others.
- Real time monitoring will be undertaken through a separate dashboard.

3.13 US Fed's Policy - Fears of a 'taper tantrum'

- The manner in which the US Federal Reserve (Fed) is easing the financial market is suggestive of the taper tantrum trends of 2013.
- What is the taper tantrum of 2013?
  - After the 2008 global financial crisis, to increase money supply in the economy, the US Fed introduced Quantitative easing programmes.
  - All of them aimed at increasing lending by commercial banks and spending by consumers.
  - US economy and labour market conditions recovered well after 2010.
  - Eventually, the Fed began considering exit from the easy money policy by the end of 2013.

o So, the Fed followed Tapering i.e a system of slowly reducing the amount of money the Fed puts into the economy.

What was the impact?

- The US Fed's announcement in 2013 led to a sudden sell-off in global stocks and bonds.
- Because, when yields on the ultra-safe US treasuries rise, investors have reduced incentive to invest in riskier assets such as equity. [Click here to know more on bond yield-price relation.]
- US stock market dropped around 4% immediately after the announcement.
- Bond yields surged.
- The impact was felt globally as foreign investors pulled money out of bonds of emerging economies, creating.
- This triggered capital outflows and currency depreciation in many emerging market economies including India.
- The subsequent widening of current account deficit (CAD) eroded the forex reserves that the RBI had built till then.

What is the apprehension now?

- In the wake of the pandemic and its economic implications, U.S. Fed started massive bond-buying programmes in 2020 to infuse liquidity.
- It also pushed down the interest rates, to allow banks to offer cheaper loans, thereby stimulating economic activity.
- Now, with economic recovery, the US Fed is aiming for a gradual reduction of this quantitative easing programme.
- This has led to fears that the move could resemble the "taper tantrum" of 2013.

What is the likely impact?

- Global Investments - Almost half of the global investor funds originate in the US.
- So, the Fed funds rate is critical for global investors due to the asset buying sentiment fuelled by the ultra-low interest rates in the US.
- Once rates begin moving up, investors who have borrowed in dollars to invest in assets globally will sell these assets to pay back the dollar loans.
- This can, in turn,de-stabilise markets.
- India - The biggest impact will be seen in FPI flows.
1. FPI flows shrunk from 2015 to 2018 when the Fed was tightening its monetary policy.
2. In contrast, the net inflow was more than Rs.1,70,000 crore in 2020, linked largely to Fed funds rate being close to zero.
3. Now, again, FPI money is likely to move back to US treasury securities.

- Also, the Indian G-secs and the rupee could witness volatility once the Fed rate hike cycle begins.

- Nevertheless, the impact on Indian equities may be negligent, as seen during the first taper (2013).

- That's because domestic institutional investors such as mutual, insurance and pension funds can step up the buying.

- Also, with retail investors in place, large FPI outflows may not hurt the market much.

- The Fed officials have also said that they were trying to be as transparent as possible about their plans to avoid a repeat of the 2013 event.

3.14 Indemnity Waiver for COVID-19 vaccines

What is the issue?

- Despite DCGI granting Emergency Use Authorisation (EUA) for two vaccines, uncertainty in vaccine availability remains because of the government's indecision in granting indemnity.

What is a EUA?

- It is a mechanism to facilitate the availability and use of medical countermeasures (like vaccines), during public health emergencies.

- It allows the use of unapproved medical products in an emergency to diagnose, treat, or prevent serious or life-threatening diseases or conditions when certain statutory criteria have been met

What is the status of India's vaccine program?

- Drugs Controller General of India granted EUA to COVID-19 vaccines manufactured by Moderna and by Johnson & Johnson.

- In addition, India has an opportunity to receive about 10 crore doses of Pfizer-BioNTech's mRNA-based vaccine by the end of 2021.

- Yet, only 11% of the population has been fully vaccinated and 35.5% has received a single dose.

- Major reason for the underperformance is the insufficient supply of vaccines, which in turn is due to the demand from the manufacturers to grant indemnity.

What is indemnity?

- Vaccines are given EUA after a thorough review of their safety.

- However, there can be rare and serious Adverse Events Following Immunisation (AEFI) like vaccine-induced immune thrombotic thrombocytopenia and Myocarditis.

- Grant of indemnity by the government means that the manufactures cannot be sued in those countries by people who may experience AEFIs.

- However, it does not always mean beneficiaries cannot seek compensation for adverse events at all.

- But the bar to seek compensation is very high.

What is the International Practice?

- U.S - Pfizer and Moderna were granted immunity from liability.

- This protects them, until 2024, from lawsuits arising out of any foreseen and unintentional medical complications as a result of vaccination.

- WHO - In February, the WHO started a "No-Fault compensation program" for 92 low- and middle-income countries.

- This is the only global vaccine injury compensation mechanism and is funded by a small levy on each dose supported by the Gavi COVAX Advance Market Commitment.

- It is available for rare but serious adverse events associated with COVAX-distributed vaccines until June 2022.

What is the situation in India?

- The manufacturers of the three vaccines currently being administered in India (Covishield, Covaxin, and Sputnik V) have not been granted indemnity.

- Pfizer and Moderna have supplied their Covid-19 vaccines only to the countries that granted indemnities.
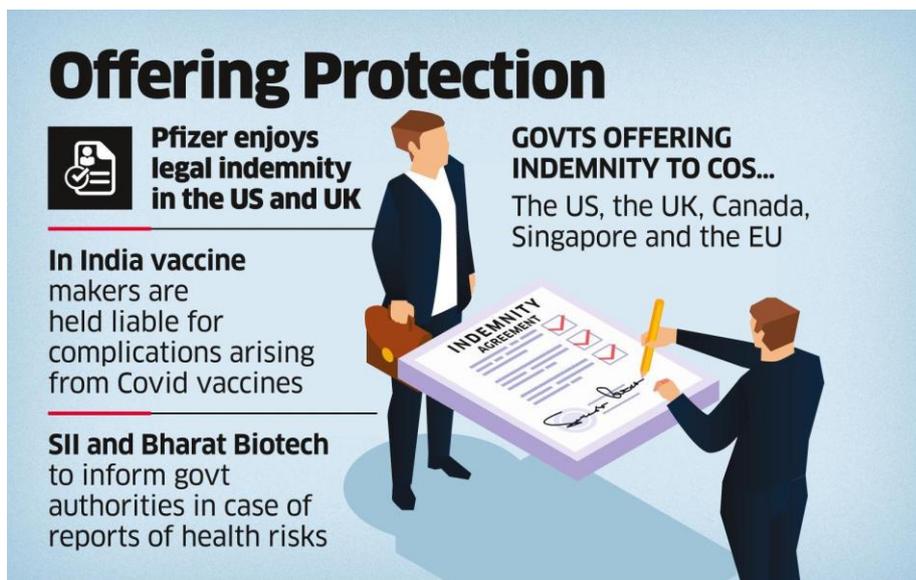
Why is the government hesitant on granting indemnity?

- Accountability - Indian regulations provide for compensation in case of injury or death of a trial subject.

- The idea is to hold the manufacturers accountable.

- Additional Burden - The legal responsibility for any vaccine-related injury in India lies with the manufacturers.

- Therefore, if manufacturers are granted indemnity, this would mean the Government has to provide compensation.

- Misuse - Indemnity might be misused as blanket protection for deliberate acts, fraud or instances of negligence.

- Demand - If some foreign manufacturers are granted indemnity, then manufacturers of the vaccines currently in use are likely to demand similar protections.

What are the existing safety mechanisms?

- Even if indemnity is granted, India has several safety mechanisms.
1. DCGI is empowered to take action against companies violating the Drugs and Cosmetics Act, 1940.
2. Any individual seeking compensation may directly file petitions before consumer courts and High Courts.
3. Recent amendments to the Consumer Protection Act, 1986 disallow individuals but permit the regulatory bodies to initiate class action suits based on complaints.

What should the government do?

- Examine initiatives such as America's Countermeasures Injury Compensation Program in granting indemnity.
- Institutionalize legal safeguards from vaccine injuries supplemented by government funding.
- Utilize this opportunity to reduce vaccine 'licensing to availability gap' and to increase the vaccine availability.

3.15 PLFS Data - Structural Crisis of Employment

What is the issue?

- NSO Periodic Labour Force Survey (PLFS) data for 2019-2020 was released recently.
- While the increase in Workforce Participation Rate (WPR) is taken for good, the underlying reasons suggest at a deeper crisis in the economy.

What are the PLFS and WPR?

- PLFS is India's first computer-based survey launched by the NSSO in 2017.
- The two major objectives:
1. To estimate the key employment and unemployment indicators for the urban areas only in the 'Current Weekly Status' (CWS) quarterly.
2. To estimate the employment and unemployment indicators in both 'Usual Status' (ps+ss) and CWS in both rural and urban areas annually.

What is the WPR data in the recent survey?

Overall

- Usual status (ps+ss) – Increase from 35.3% to 38.2% from 2018-19 to 2019-20, an 8.2% growth.
- Rural areas - Increase from 35.8% to 39.2%, a 9.5% growth
- Urban areas - Increase from 34.1% to 35.9%, a mere 5.3% growth

Labour Force Participation Rates (%)

Worker Population Ratio (%)
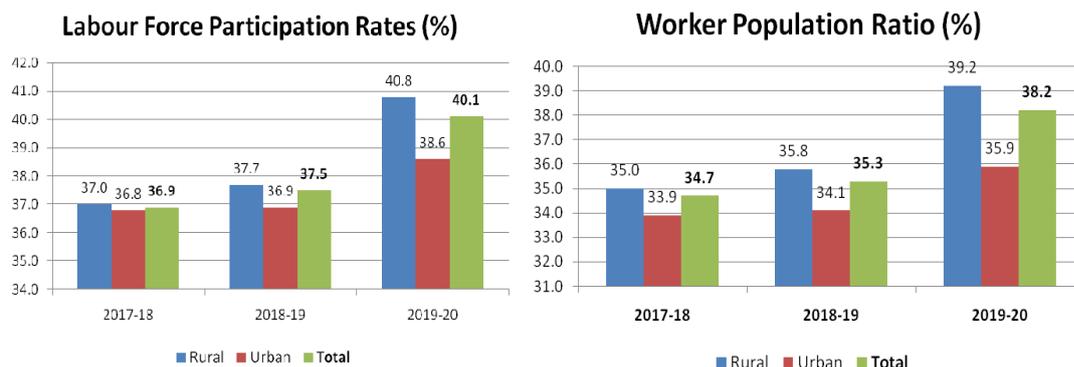
Rural India emerging as the primary location for job creation

Gender-wise

- Rural females – An increase of 26%(19 to 24% share).

- Rural males - An increase of 3.3%(52.1 - 53.8% share).

- Urban females - Increase from 14.8 to 16.8% (a 15.8% growth)

- Urban males - Increase from 52.7 to 54.1% (2.7% growth).

Broader trends

- The female WPR has risen significantly across social groups:

1. Rural female from the Scheduled Tribe - 33.2%; the highest recorded

2. Others - 29.4%; SC - 25.4%; OBC- 24.3%

- Urban areas registered a much lower rise in the WPR compared to rural areas.

- The share of self-employed workers has increased from 52.1% in 2018-19 to 53.5% in 2019-20.

- The rural females witnessed an increase in the self-employed category from 59.6% to 63%.

Unemployment Rates (%)

Rural wages growth (% year-on-year)
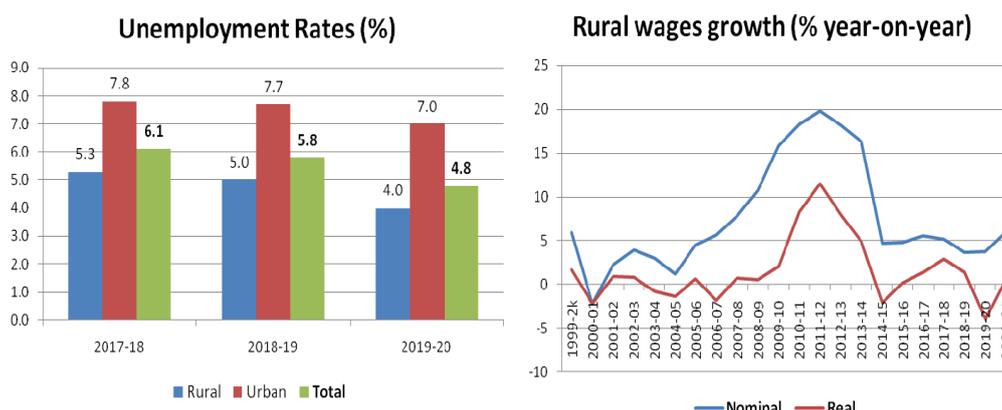
Is the increase in WPR a good sign?

- Generally, yes. Because, a higher WPR is generally an indication of improved well-being of the population.

- But in a poor region with higher WPR, there may not be necessarily an improved economic status and well-being.

- And now, the 3-month nationwide lockdown in March 2020 coincided with the 4th quarter of PLFS 2019-20.
- It was the time when economic activities stalled intermittently, GDP growth dipped, unemployment and income losses were high.

So, what are the true reasons behind?

- Post pandemic decline in good-quality employment led many to opt for low paid work in rural India.
- The general pattern is a shift of workers away from low-productivity sectors such as agriculture.
- India too witnessed a decline in agriculture's share of overall employment since the 1970s that continued until 2017-18.
- But 2019-20 saw a sharp 32 million rise in employment in agriculture; (1st time in 5 decades)
- This reverses the structural transformation of the economy underway since 2004-05.

What are the other reasons and the concerns?

- Decline - Majority of workers turned to self-employment as regular employment declined.
- Unpaid Labour - Increase in the self-employed rural females is principally due to an increase in the share of helpers in the household enterprises.
- Counting them as 'employed' is deceptive, as it is often unpaid labour.
- Loan Account - Overall increase in loan account under the female share of MUDRA Scheme in all 3 categories (Shishu, Kishore and Tarun) in 2019-20.
- A mere increase in the loan account especially in the Shishu category does not necessarily lead to employment creation and sustainable income generation. Counting all as 'employed' is again flawed.
- Wages remained almost constant in 2019-20 over 2018-19 for all - Regular/salaried, Self-employed, Casual workers.

What should be done?

- Taking the increase in the WPR for good might be a misinterpretation.
- The PLFS estimates are instead an early warning of a structural crisis.
- The first three quarters also suggest that a structural retrogression in the economy was underway before the pandemic.
- Only creation of productive and remunerative jobs would course correct this structural change.
- Also, a better indicator for the extent of joblessness in the economy would be the number of hours worked.

3.16 Consultative Document on Regulation of Microfinance

Why in news?

RBI recently released Consultative Document on Regulation of Microfinance that aims to reassess the priorities of the sector

What is microfinance?

- Microfinance is a form of financial service which provides small loans and other financial services to poor and low-income households.
- In India, all loans that are below Rs. 1 lakh are considered as microloans.
- Based on the recommendations of Malegam Committee, RBI introduced a comprehensive regulatory framework for NBFC-MFIs in 2011.

What are the key proposals?

- Gives a common definition i.e Collateral-free lending to households with annual income of Rs 1.25 lakh in rural areas and Rs 2 lakh in urban areas should be considered as microfinance.
- Caps loan repayment (principal and interest) for all outstanding loans of the household at 50% of household income.
- All Regulated Entities to have a board-approved policy for household income assessment.
- No pre-payment penalty.
- Greater flexibility of repayment frequency for all microfinance loans.
- Prescribed criteria for exemption of 'not for profit' microfinance companies.
- Alignment of pricing guidelines for NBFC-MFIs with guidelines for NBFCs.
- Introduction of a standard simplified fact sheet on pricing of microfinance loans for better transparency.
- Display of minimum, maximum and average interest rates charged on microfinance loans on the websites of regulated entities.

What is the significance of the proposal?

- The proposed framework is a great leap forward and reflects bold thinking
- Avoids over-indebtedness and multiple lending
- Addresses the concern of low-income borrowers who often lack the type of collateral often preferred by the lenders

What are the challenges?

- Low-Income Households who typically form the customer base for often have seasonal and volatile incomes
- It is difficult to separate the household's personal expenses from that of their occupational pursuits

How can the challenges be addressed?

- A structured survey-based approach could be used to assess a household's expenses, debt position and income from various sources of occupation

- A template-based approach where various templates for different categories of households (as per location, occupation type, family characteristics, etc.) could be used
- Centralised database can be used to collect and maintain household income data for uniformity in data collection
- Technology can be used to assess the cash flows and repayment capacity of micro-enterprises
- An overarching set of principles to prevent mis-selling by retail lenders is needed

3.17 Paddy-Wheat Monoculture in Punjab

What is the issue?

Questions are being raised on the sustainability of paddy-wheat cultivation, especially in Punjab.

What is the extent of paddy-wheat monoculture in Punjab?

- Paddy-wheat cultivation adds up to 84.6% of the total area planted to all crops in Punjab in 2018-19.
- The real acreage share increase has taken place in paddy from below 7% in 1970-71 to almost 40% in 2018-19.
- The above gains have been at the expense of other crops such as pulses, maize, bajra, oilseeds, cotton, groundnut ,sugarcane ,etc.
- The only crops that have registered some acreage expansions are vegetables (especially potato and pea) and fruits (kinnow).

TABLE 1: CROP-WISE PERCENTAGE SHARE OF TOTAL PLANTED AREA IN PUNJAB

	1960-61	1970-71	1980-81	1990-91	2000-01	2018-19
Wheat	27.3	40.5	41.6	43.6	43.1	44.9
Paddy	4.8	6.9	17.5	26.9	31.3	39.6
Pulses	19.1	7.3	5.0	1.9	0.7	0.4
Cotton	9.4	7.0	9.6	9.3	7.6	5.1
Maize	6.9	9.8	5.6	2.5	2.1	1.4
Oilseeds	3.9	5.2	3.7	1.5	1.1	0.5
Bajra	2.7	3.7	1.0	0.2	0.1	0
Sugarcane	2.8	2.3	1.0	1.3	1.8	1.2
Barley	1.4	1.0	0.9	0.5	0.3	0.1
Vegetables	1.2	0.9	1.1	0.7	1.3	3.3
Fruits	0.6	0.6	0.4	0.8	0.5	1.1
Other crops	17.7	14.8	12.6	10.8	10.1	2.4

Source: Punjab Economic Survey 2019-20

What are the problems of monoculture?

- Increase in vulnerability to pest and disease attacks
- No nitrogen fixation unlike pulses and legumes
- Absence of crop rotation leads to depletion of soil nutrients

- Growing dependence on chemical fertilizers and pesticides
- Decline in water table since paddy is a water-guzzling crop where more than 30 irrigations are needed (5 irrigations for wheat)
- Punjab's groundwater table has been declining by 0.5 meters per annum on an average
- Soil salinity and waterlogging due to excess surface irrigation
- Nutrition insecurity because of lack of crop diversification
- Decrease in biodiversity
- Economically riskier for farmers

DATA WISE

Of the **6,000 plant species** cultivated for food, just nine (sugar cane, maize, rice, wheat, potatoes, soybeans, oil-palm fruit, sugar beet and cassava) account for 66% of total crop production. While **63% of plants, 11% of birds, and 5% of fish and fungi** were in decline. The wild food sources are becoming harder to find.

Reported threats to wild foods species

LACK OF REGULATIONS: 2%
PESTS, DISEASES AND INVASIVE SPECIES: 3%
OTHER: 3%
INFRASTRUCTURE DEVELOPMENT: 3%
CLIMATE CHANGE: 4%
WATER-CYCLE ALTERATION: 4%
AGRICULTURAL INTENSIFICATION AND EXPANSION: 6%
HUNTING AND POACHING: 6%
DEFORESTATION: 7%
OVEREXPLOITATION: 27%
HABITAT ALTERATION AND LOSS: 17%
POLLUTION: 9%
CHANGES IN LAND USE: 9%

Data Source: The state of the world's biodiversity for food and agriculture, FAO commission on genetic resources for food and agriculture, 2019

DownToEarth
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www.downtoearth.org.in

What measures have been taken so far?

- Punjab Preservation of Subsoil Water Act in 2009- bars any nursery-sowing and transplanting of paddy before May 15 and June 15, respectively
- But it pushes harvesting to October-end leaving little time for farmers contributing to stubble burning
- Minimum Support Prices (MSP) given to various crops incentivises crop diversification
- How can the issues of monoculture be addressed?
- Limit Punjab's a non-basmati paddy area and ensure planting of only shorter-duration varieties

- Direct seeding of paddy can reduce the usage of inputs

- Water savings can be induced through metering of electricity

- Assured government price/per-acre incentive support must be provided for crops other than paddy and wheat

- Crop diversification, including rotation and intercropping and the use of diverse forage plants in pastureland must be promoted

- Prospective private buyers should be part of the extension effort

- But change is possible only if the State works closely with the Union Government India

3.18 Q1 GDP Data (2021-22)

Why in news?

Ministry of Statistics and Programme Implementation (MoSPI) released the GDP data for the first quarter of the current financial year (2021-22)

What are available data for Q1?

- Growth - Lockdown due to the pandemic had nearly halted all economic activities in April-June 2020. (GDP had contracted 24.4%).

- But the economy grew at a pace of 20.1% in April-June 2021 compared to April-June 2020.

- GVA grew by 18.8%

- This high growth rate has come despite a brutal 2nd wave of in April-May 2021.
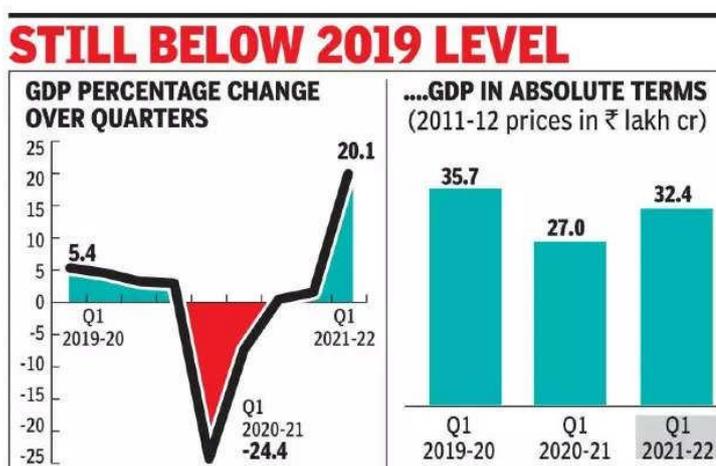
- Characteristics - Certain high frequency indicators such as power generation, fuel consumption and railway freight indicated that rebound has been faster after Covid 2.0 than Covid 1.0.

- However the pace of recovery is still considered slow.

- GDP in absolute terms at Rs 32.38 lakh crore (constant prices) is still 9.2% lower than the GDP in pre-pandemic time.

- Sectors - Manufacturing and construction imparted a significant push to the economy growing at 49.63% and 68.3% respectively.
- But they are yet to reach the levels of the 2019-20.
- Services, especially contact-intensive sectors, however, continued to lag.
- Agriculture, forestry and fishing' and 'electricity, gas, water supply and other utility services are above the levels of the of 2019-20.
- In terms of expenditure, Private Final Consumption Expenditure grew 19.34%, and Gross Fixed Capital Formation jumped 55.26%.
- Private Final Consumption Expenditure - measure of consumer spending
- Gross Fixed Capital Formation - measure of private investment

What are the reasons?

- The sharp increases were largely due to the low base of the first quarter of 2020-21.
- The recovery is likely to deepen with further easing of curbs and faster vaccination.
- How is the growth seen by experts?
- Chief Economic Adviser - GDP data for the 1st quarter reaffirms the government's prediction of an imminent V-shaped recovery made last year.
- Others - The headline number cannot be interpreted as a V-shaped recovery.
- 2019-20 level was in itself seen as a disastrous year for growth.
- And the the fact that the economy has still not recovered to those levels is not good news.
- The 2nd quarter numbers would be the real test of the shape of the recovery.
- What does this call for?
- As the growth is below the RBI's projection of 21.4%, it will maintain status quo on key policy rates
- A full economic recovery would require the support of both fiscal and monetary policies
- From a policy perspective, recovery requires fuller levels of vaccination and improved public confidence

GDP vs GVA

- GDP- GDP is the total monetary value of final goods and services produced in a country in a given period of time
- It measures the value of total output in the economy by tracking the total demand
- GVA - GVA looks at how much value was added (in money terms) in different productive sectors of the economy
- It tracks the total output in the economy by looking at the total supply

- The total output calculated by GDP and GVA should be the same but every economy has a government which imposes taxes and also provides subsidies, thus GDP = (GVA) + (Taxes earned by the government) — (Subsidies provided by the government)

- If the government earned more from taxes than what it spent on subsidies, GDP will be higher than GVA

- If the government provided subsidies in excess of its tax revenues, GVA would be higher than GDP

3.19 Hamletian dilemma of monetary policy

Why in news?

The recent Monetary Policy Commitee (MPC) meeting indicated that there was some divergence of opinion among the MPC members with respect to balancing growth and inflation

What is the dilemma about?

- MPC decided to keep the policy repo rate, reverse repo rate and marginal standing facility (MSF) rate unchanged.

- It also decided to continue with the accommodative monetary policy stance till the economy recovers and CPI inflation rate is contained within the mandated 2-6% band.

- The dissenting view argued that the projected inflation is beyond the target inflation rate set.

- It led to speculations whether RBI has deviated from its mandate of flexible inflation targeting (FIT) and started emphasising growth over inflation.

What are the reasons for the current inflation?

- Supply-side problem - The supply chain of the country have got negatively affected due to lockdowns.

- International prices soar up due to global shortages.

- All these led to rise in prices of products including food prices.

- Industrial production has shown a remarkable growth rate but it was still 13.9% below its May 2019 level.

- The latest quarterly GDP statistics shows that in real terms many industrial and services sub-sectors have not yet reached the pre-Covid production levels.

- What are the counter arguments against the dissenting view?

- If interest rate is raised to control inflation, there can be additional cost pressure on the firms which may lead to further price rise.

- Because of uncertainties associated with pandemic, projections based on past data with the assumption of business-as-usual can go wrong.

- Increase in reverse-repo rate allows the banks to park their additional funds with the RBI leading to lazy banking.

- So, it is perfectly sensible if RBI chooses to focus more on sustaining the nascent but uncertain growth process.

3.20 Beyond the Edible Oil Mission

Why in news?

Recently launched Rs 11,000-crore National Edible Oil Mission-Oil Palm (NEOM-OP) is a bold step to augment domestic edible oil supplies but still much more is needed to boost edible oil production.

How import-dependent is India?

- 60 % of the edible oil consumed in the country is imported and more than half of this is palm oil

- In FY 2020-21, edible oil imports touched $ 11 billion or about Rs 80,000 crore

- Despite these imports, edible oil inflation in July 2021 was 32.5 %
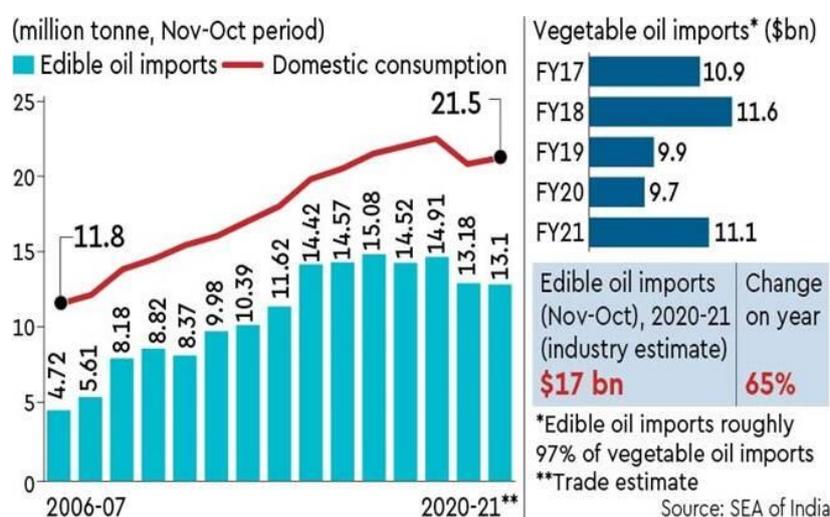
What are the government initiatives taken in this regard?

- National Edible Oil Mission-Oil Palm (NEOM-OP).

- Oil Palm Area Expansion under RastriyaKrishiVikasYojana.

- Increasing the MSP of rapeseed-mustard up by 8.6 % recently.

- Creation of buffer stock for oilseeds.

- Cluster demonstration of oilseed crops.

Why is the recent oil palm mission so significant?

- Productivity - Oil palm is the only crop that can give up to four tonnes of oil productivity per hectare under good farm practices.

- Area Expansion - The National Re-assessment Committee (2020) has identified 28 lakh hectares suitable for oil palm cultivation but actual area under oil palm cultivation, as of 2020, is only 3.5 lakh hectares.

- Thus a huge potential of area expansion is waiting to be tapped especially in North East, Andhra Pradesh and Telangana

- The government plans to boost cultivation of oil palm to 10 lakh hectares by 2025-26.
- **Reduction in imports -** Comprehensive assistance package is offered to attract farmers and industries to boost edible oil production in a globally competitive manner thereby reducing the import bill.
- **Pricing formula -** There will be no MSP, but the price for farmers would be fixed at 14.3 % of average landed CPO price of the past five years, adjusted with the wholesale price index.

What is needed beyond the mission?

- Import duty needs to be in sync with rational domestic price policy as recommended by Commission for Agricultural Costs and Prices (CACP)
- Revisit the existing incentive structure that unduly favours rice, wheat and sugarcane through heavy subsidisation of power, fertilisers and MSP.
- Devise a crop-neutral incentive structure where cropping patterns are aligned with demand patterns

Quick Facts

India's edible oil economy

- India is the world's largest importer of edible oil with a share of 20.7 per cent, followed by EU and China.
- 60% of edible oil requirement is met through imports and the share of palm oil is about 60% of the import bill.
- India is the second-largest edible oil consuming country.

Palm oil

- Palm oil is currently the world's most consumed vegetable oil.
- Top consumers are India, China, and the European Union (EU).
- It is used extensively in the production of detergents, plastics, cosmetics, and biofuels

3.21 El Salvador's gamble on Bitcoin

Why in news?

The world's largest cryptocurrency, Bitcoin crashed from the highs of $53,000 amid El Salvador's rollout of Bitcoin as a legal tender.

What are cryptocurrencies?

- Cryptocurrency is a digital or virtual currency designed to work as a medium of exchange.
- It uses cryptography to secure and verify transactions as well as to control the creation of new units of a particular cryptocurrency.
- Examples of cryptocurrencies include Bitcoin, Litecoin, Ethereum, Ripple,etc.

What is the recent development in El Salvador?

- El Salvador became the 1st country to accept Bitcoin as the legal tender besides US dollar

- Businesses will be required to accept Bitcoin for exchange of goods and services, except the ones who are technologically incapable.
- But Bitcoin crashed the day El Salvador accepted it as a legal tender.
- Technical glitches on El Salvador's official digital wallet, Chivo was also reported.
- The downtrend has swept the entire market off its feet affecting other leading altcoins such as Ethereum, Cardano and Dogecoin.

What are the reasons for the crash?

- The market was running strong over the last eight weeks and became overvalued that sent the market plunging
- Volatility of the crypto market.
- US Federal Reserve's readiness to harden its easy monetary policy might lead to reduced interest rates
- This could eventually decrease the liquidity in the system, making investors cautious of risky assets like cryptocurrencies
- Reported instances of order failures.
- Cryptocurrencies lack intrinsic value that is required for survival of any commodity

What is India's view on cryptocurrencies?

- In a 2018 circular, the RBI had banned banks from dealing with virtual currency exchanges and individual holders.
- But the Supreme Court lifted the ban in 2020 stating that the circular didn't pass the 'test of proportionality'.

3.22 Production Linked Incentive Scheme for Textile Sector

Why in news?

The Union Cabinet approved a Production-Linked Incentive (PLI) scheme for the textile sector worth Rs 10,683 crore.

What is the scheme about?

- Aim - To attract fresh investment of Rs 19,000 crore and an additional turnover of Rs 3 lakh crore in the textile sector.
- Duration of the scheme – 5 years
- Segments covered - High value Man-Made Fibre (MMF) fabrics (viscose, polyester, and acrylic), garments and technical textiles.
- Technical textiles are engineered products with a definite functionality which are manufactured using natural as well as man-made fibres.

- They have enhanced properties such as higher tenacity, excellent insulation, improved thermal resistance, etc.
- The incentives have been categorised into two investment levels.
1. Any person (firm / company) willing to invest minimum Rs. 300 Crore in Plant, Machinery, Equipment and Civil Works (excluding land and administrative building cost shall be eligible to apply for the first part of the scheme
2. In the second part any person firm / company) willing to invest minimum Rs. 100 Crore shall be eligible to apply
- Priority - investment in Aspirational Districts, Tier 3, Tier 4 towns, and rural areas.

Why is the scheme so significant?

- Help Indian companies to emerge as Global Champions.
- Create additional employment of over 7.5 lakh people directly and several lakhs more for supporting activities since textile sector is capital intensive.
- Pave way for participation of women in large numbers.
- Result in fresh investment.
- Prioritise backward areas.
- Positively impact especially States like Gujarat, UP, Maharashtra, Tamil Nadu, Punjab, AP, Telangana, Odisha etc.
- MMF has contributed less than 30% of the country's $35.6 billion in overall sectoral exports in 2017-18.
- So the scheme is significant to bolster support for the MMF segment
- Technical textile accounts for approximately 13% of India's total textile and apparel market and contributes to India's GDP at 0.7%.

What are the government initiatives to boost technical textiles market?

- **National Technical Textiles Mission,2020 -** to position India as a global leader in technical textiles by focussing on R&D, skill development, market development and export promotion of technical textiles.
- Government of India allows 100% FDI under automatic route
- **Technotex India -** a flagship event organised by Ministry of Textiles, in collaboration with FICCI comprising of exhibitions, conferences and seminars with participation of global stakeholders
- Harmonized System of Nomenclature (HSN) Codes for Technical Textile - to monitor the data of import and export, provide financial support and other incentives to manufacturers.
- **Scheme for Integrated Textile Park (SITP), 2005 -** To boost entrepreneurship by providing financial support and state-of-the-art infrastructure.

- **Technology Mission on Technical Textiles-** entailed the creation of eight Centres of Excellence to provide infrastructure support.
- Amended Technology Upgradation Fund Scheme (ATUFS), 2016 - to improve exports and indirectly promote investments in the textile machinery.

4. ENVIRONMENT

4.38 India Decides to Ratify the Kigali Amendment

- Recently, the Union Government approved the ratification of the Kigali Amendment to the Montreal Protocol on phasing down climate-damaging refrigerant Hydro fluorocarbons (HFCs).
- It comes close on the heels of similar decisions by the United States and China, the world's largest producers and consumers of HFCs. 122 countries had ratified the Kigali Amendment by the end of July 2021.

DEAL TO CURB USE OF HFCs

197 Parties (196 countries plus EU) agreed to the deal in Kigali, Rwanda

WHY IT WAS NEEDED
→ HFCs, climate-damaging refrigerants, are used in air-conditioning, refrigeration, foams and aerosols as replacement for many ozone-depleting substances (ODS)
→ ODS are being phased out under the Montreal Protocol (MP) of 1987
→ Phasing out ODS is important to protect the stratospheric ozone layer
→ Stratospheric ozone layer filters out harmful ultraviolet radiation, which is associated with increased prevalence of skin cancer and cataracts
→ HFC is not ODS, but its global warming potential is thousands of times that of carbon dioxide
→ So, the global community wanted the use of HFCs also to be curbed under MP
→ Agreement in Kigali is meant to amend the MP to bring the HFCs' phase-down within its ambit

WHAT IS AGREED
→ Agreed to an amendment to include HFCs' phase-down under MP (Unlike Paris Agreement, MP is legally binding)
→ It entered into force from Jan 1, 2019
→ Creates three categories of countries with different schedules and timetables for reduction

1. Developed countries led by the US, Japan and West European nations.
2. Developing countries like China, South Africa, Brazil among others.
3. Developing countries like India, Iran, Iraq, Pakistan among others.

HFCs' PHASE DOWN SCHEDULES

Category	Baseline	Freezing	Max % reduction
1	2011-13	2019	85% by 2036
2	2020-22	2024	80% by 2045
3	2024-26	2028	85% by 2047

→ Freezing year is the year when use of HFCs will peak before being rapidly scaled down and finally phased out altogether
→ Baseline years are the years for which the average production/consumption quantity of HFCs is taken as the upper limit—so it serves as a level

MAIN POINTS

About:

- The United States, China and India are in separate groups of countries, with different time schedules to phase out their HFCs and replace them with climate- friendly alternatives.

- India has to reduce its HFC use by 80% by the year 2047, while China and the United States have to achieve the same target by the year 2045 and 2034 respectively.

- India will complete its phasedown of HFCs in four steps from 2032 onwards with a cumulative reduction of 10% in 2032, 20% in 2037, 30% in 2042 and 80% in 2047.

- Amendments to the existing legislation framework, the Ozone Depleting Substances (Regulation and Control) Rules to allow appropriate control of the production and consumption of hydro fluorocarbons to ensure compliance with the Kigali Amendment will be done by mid-2024.

Background:

- The 1989 Montreal Protocol is not a climate agreement. It is instead aimed at protecting the earth from Ozone-Depleting Substances (ODSs) like the Chloro Fluoro Carbons (CFCs), that were earlier used in the air-conditioning and refrigerant industry.

- The widespread use of CFCs had caused a hole in the Ozone layer of the atmosphere, which allowed some harmful radiation to reach the earth. These radiations were considered potential health hazards.

- The Montreal Protocol led to the replacement of CFCs with Hydro fluorocarbons (HFCs) which do not destroy the Ozone layer.

- But they were later found to be extremely potent in causing Global Warming. So, the HFCs solved one problem, but were contributing in a major way to another.

- But these could not be eliminated under the original provisions of Montreal Protocol which was meant to phase-out ODSs only.

- The Kigali Amendment enabled the Montreal Protocol to mandate the elimination of HFCs as well.

- In October 2016, with the United States' leadership, 197 countries adopted an amendment to phase down HFCs under the Montreal Protocol in Kigali, Rwanda.

Kigali Amendment to Montreal Protocol:

- The Kigali Amendment aims for the phase-down of hydro fluorocarbons (HFCs) by cutting their production and consumption.

- The goal is to achieve over 80% reduction in HFC consumption by 2047. Given their zero impact on the depletion of the ozone layer, HFCs are currently used as replacements of hydro chlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs) in air conditioning, refrigeration and foam insulation, however they are powerful greenhouse gases.

Under the amendment:

- Developed countries will reduce HFC consumption beginning in 2019. Most developing countries will freeze consumption in 2024.
- Some developing countries including India with unique circumstances will freeze consumption in 2028.
- The plan also provides financing to certain countries, to help them transition to climate-friendly alternatives.
- With the Kigali Amendment, the Montreal Protocol has become an even more powerful instrument against global warming.

Significance:

- This important instrument is crucial to achieving the target of restraining the increase in global temperatures to 2 degree Celsius from pre-industrial times.
- As pointed out by a recent report of the Intergovernmental Panel on Climate Change (IPCC), the average temperature of the planet has already risen by about 1.1 degree Celsius.
- The collective action is expected to prevent emissions of upto 105 million tonnes of carbon dioxide equivalent of greenhouse gases helping to avoid up to 0.5 degree Celsius of global temperature rise by 2100, while continuing to protect the ozone layer.
- Because HFCs were not ozone-depleting, they were not controlled substances under the Montreal Protocol. They were part of the problematic greenhouse gases whose emissions are sought to be curtailed through climate change instruments such as the Kyoto Protocol of 1997 and the 2015 Paris

Agreement.

- But the Montreal Protocol has been a far more effective and successful agreement than the climate change instruments. It has already resulted in the phase-out of 98.6% of ozone-depleting substances. The remaining 1.4% are the HCFCs that are in the process of being transitioned.

Significance for India:

- India became a party to the Montreal Protocol on Substances that Deplete the Ozone Layer in June 1992 and since then has ratified the amendments to the Montreal Protocol. India has successfully met the phase-out targets of all the Ozone Depleting Substances as per the Montreal Protocol Schedule.
- India is one of the first countries in the world to launch a cooling action plan in 2019. This comprehensive plan is aimed at reducing cooling demand, enabling refrigerant transition, enhancing energy efficiency and better technology options with a 20-year time horizon.

- The signing of the Kigali Amendment is a cue for the markets to make a faster transition from HFCs to cleaner gases.

- It would boost domestic manufacturing and employment generation goals. The ratification would signify that India is ready to compete in the market for low-Global Warming Potential GWP (climate-friendly) refrigerants, which will spur domestic innovation and attract international investments.

- The decision would pave the way for India to achieve its climate change mitigation goals and cooling commitments. India is among a small group of countries on track to meet its climate commitments under the Paris Agreement.

4.39 BRAHMAPUTRA ISSUE:

- The Brahmaputra,also known as the Yarlung Tsangpo in Tibet, the Siang/Dihang River in Arunachal Pradesh, and Luit, Dilao in Assam, originates in the Manasarovar Lake region, near the Mount Kailash, flows through South Tibet, India, and Bangladesh.

- The construction of Dams over Brahmaputra River in Tibet region has raised concerns among Indian side. It has been a long-standing part of the grand South-North Water Transfer project conceptualised as early as in the 1950s by Mao Zedong.
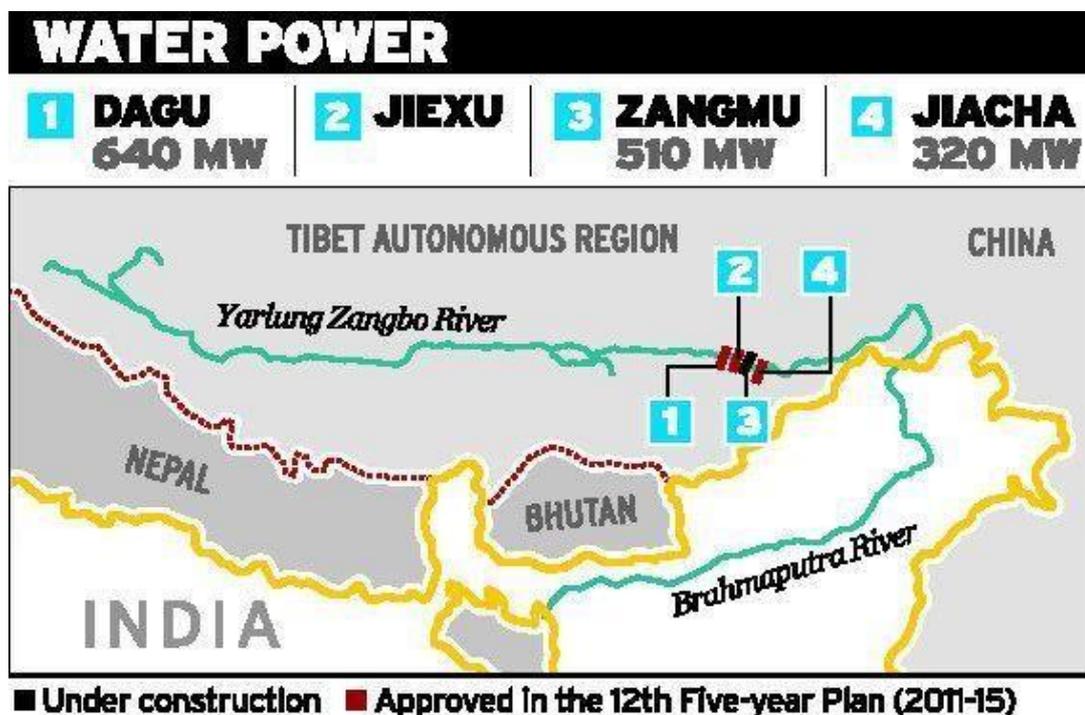
Both the countries are among the highest populated, together constituting 37% of world's population.

Important points from Historical interactions:

1. The Brahmaputra agreement between China and India is a suboptimal arrangement within broader bilateral relations. China has thus far agreed to share hydrological data on the Yarlung Tsangpo/Brahmaputra (YTB) during the monsoon season. Further cooperation on water,

however, is in a state of a deadlock. The agreement, at best, is a piecemeal discount offered by China.

2. Discussions over the YTB have often been overshadowed by the border dispute.

3. Departing from the past, China's approach to trans-boundary water sharing is shifting towards multilateral arrangements. Eg. In 2015, China signed the Lancang-Mekong Cooperation (LMC) framework.

4. China is cooperating more with Bangladesh on water issues. China charges approximately $125,000 for the data it provides to India; at the same time, it sends similar data to Bangladesh for free. China could well be aiming to encircle India to reach a deal on the sharing of YTB that favours China's objective of economic expansionism.

5. Indian approach to the YTB issue is influenced by developmental imperatives and domestic politics. India's own water diversion plans – the national river interlinking project – Bangladesh and Pakistan have criticised India for being hypocritical in its approach with China. India tends to play the lower riparian card to gain sympathy from its domestic political constituencies, especially of Assam and Arunachal Pradesh.

Environmental concerns:

6. Flooding in states like Assam and Bangladesh affecting flora and fauna in prominent national parks like Kaziranga which is home to some of the critically endangered species.

7. Himalayan belt is prone to frequent earthquakes.

Brahma Chellany: Northward rerouting of the Brahmaputra waters (known as Yarlung Tsangpo in Tibet) from the Tibetan borders through constructions of dams would lead to drying up of river downstream in Assam and Bangladesh.

Nilanjan Ghosh: Water flows in arid Tibet are much lower than in the Indian side. Most of water to Brahmaputra comes from Indian monsoon and tributaries of Indian rivers so even with Zangmu Dam there isn't much water for China to divert.

India's Plans:

1. It needs to clearly envision the desired end goal and strategic outcomes for dealing with impending water conflicts.

2. It needs to de-emphasise China's role for the time being and restrengthen its relationship with Bangladesh. It needs to push the impending Teesta river agreement and restore its image as a responsible upper riparian.

3. India needs to mirror its strength and firmness in negotiations with China on water rights, as it did in the case of the Doklam stand-off and in opposing the Belt and Road Initiative, rather than projecting itself as a victim.

Both the countries must work towards not just preserving the environment and restoring ecological balance but also to sustainably use the water resources for its abundant population.

4.40 Combating Bioterrorism

The Covid-19 pandemic has exposed the vulnerability of several world powers in the event of use of biological weapons against them by rogue states and terrorist groups.

The United States, Britain and the Soviet Union were involved in developing complex biological weapons programs after World War II and several nations continue to do so currently as well.

MAIN POINTS

Bioterrorism or Biological Attack:

It is the intentional release of viruses, bacteria, or other germs that can sicken or kill people, livestock or crops.

Biological Weapons:

o   They use microorganisms and natural toxins to produce disease in humans, animals, or plants.

o   Biological weapons can be derived from: Bacteria, Viruses, Rickettsia, Biological toxins and Fungi.

o   These agents can be deployed as biological weapons when paired with a delivery system, such as a missile or aerosol device.

o   Bacillus anthracis, the bacteria that causes anthrax, is one of the most likely agents to be used in a biological attack.

o   The most destructive bioterrorism scenario is the airborne dispersion of pathogens over a major population region.

o   Tropical agricultural pathogens or pests can be used as anticrop agents to hamper the food security worldwide.

•   It is a substantial threat because small amounts of biotic agents can be effortlessly hidden, transported and discharged into vulnerable populations.

•   It can impact and expose military and civilian susceptibilities to biological weapons and to the complexity of offering ample safeguards.

•   Bio weapons experts believe that currently bioterrorists probably lack the biotechnological capability to produce-super pathogens or super pests.

Covid-19: Bioweapon or Not

•   Novel-coronavirus is alleged to have originated in bats.

•   Some intelligence agencies initially proclaimed that coronavirus occurred naturally but later on, they claimed that the pandemic might have begun from the Wuhan lab in China after the researchers were probably able to figure out how bat coronaviruses could mutate to attack humans.

•   However, there is no proof that the pandemic virus was engineered or manipulated, yet.

- In the Indian context, with the existence of hostile neighbours like Pakistan and China, the threat of biological warfare becomes important and cannot be ruled out entirely.
- The European Union (EU), Russia and China are finding ways to deter bioterrorism and biowarfare. The aim is to make it harder for terrorists to obtain the resources for designing biological weapons.

These efforts should include:

Intelligence Sharing & Rapid Detection

- Global intelligence agencies should operate together and share credible intelligence.
- Combining human resources, laboratory resources and information supervision in novel, legal and satisfactory ways that allow for timely detection and categorization of hazards.
- Rapid detection and surveillance are important for an efficient response to a bioterror strike.

Pathogen Analysis

- Speedy, uniform techniques that allow for the discovery of an extensive range of pathogens used as biological weapons in a measurable fashion. Pathogens are a usual part of the environment and can complicate detection attempts.

Strengthening the Biological and Toxin Weapons Convention

- The Biological and Toxin Weapons Convention (BTWC) of 1972 prohibits signatory nations to develop, produce, stockpile or otherwise, acquire or retain:
- Microbial or other biological agents or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes. Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.
- However, there is no exact authentication method that can ensure compliance with the BTWC. Therefore, efforts must be made to strengthen the BTWC so that it helps to uncover and successfully prevent biological weapons programs.
- India ratified and pledged to abide by its obligations in 2015.

Biodefense Systems

- Upgrading and installing biodefense systems in major urban conglomerates to protect against deadly disease outbreaks initiated by bioterrorism.
- During the Cold War, Soviet Union had set up several Biodefense systems across the country.
- Developing and stockpiling vaccines and antimicrobial medicines that can be used to defend the people against infections triggered by biological weapons.
- Coaching first responders on how to deal with a biological weapons attack. Refining diagnostic laboratory capability and epidemiological capabilities.

CONCLUSION

- The studies conducted to assess the actual efficiency of counter bioterrorism measures are insufficient which needs to be changed.

- It becomes important that engaged and methodical efforts in studying the efficiency of counter bioterrorism measures are applied in a meticulous way.

- It should be taken into account that the implementation of some specific counter bioterrorism practices can possibly have consequences with respect to human rights, institutional liberties, fundamental democratic values and the Rule of Law.

4.41 Ministry of Jal Shakti launches 'SUJALAM' Campaign

- Ministry of Jal Shakti has launched a '100 days campaign' named SUJALAM to create more and more Open Defecation Free (ODF) Plus villages by undertaking wastewater management at the village level.

- The Campaign would help in the management of the wastewater and in turn, would help to revive the water bodies through the creation of 1 million Soak-pits and also other Greywater management activities. The campaign started on August 25, 2021, is part of the 'Azadi Ka Amrit Mahotsav' celebrations.

The three focus areas of the SUJALAM campaign are:

- Construction of 1 million soak pits;

- Retrofitting of toilets and

- Access to toilets for new households.

4.42 World's Highest Altitude Movie Theatre open in Ladakh

- The world's highest movie theatre has recently been inaugurated in Ladakh, which got its first-ever mobile digital movie theatre in the Paldan area of Leh, at an altitude of 11,562 feet. The inflatable theatre can operate in -28 degrees Celcius.

- The initiative aims to bring cinema watching experience to most remotest areas of India. It must be noted that four such theatres will be established in Leh in the coming period.

4.43 Assam decides to remove Rajiv Gandhi's name from Orang national park

- The Assam cabinet has decided to remove the name of former Prime Minister Rajiv Gandhi from the Orang National Park. Since the name Orang is associated with the sentiments of the Adivasi and tea-tribe community, the cabinet has decided to rename the Rajiv Gandhi Orang National Park as Orang National Park.

- Located on the North Bank of Brahmaputra, Orang National Park spread over 78.80 sq km is the oldest forest reserve in the state. It was named a wildlife sanctuary in 1985 and declared a national park in 1999.

4.44 World Coconut Day: 02 September

- World Coconut Day is observed on September 02 every year since 2009. It is observed for promoting this tropical fruit and bringing awareness regarding its health benefits.

- The theme of World Coconut Day 2021 is 'Building a Safe Inclusive Resilient and Sustainable Coconut Community Amid COVID-19 Pandemic & Beyond'.

- The WCD also commemorates the formation of the Asian Pacific Coconut Community (APCC), which aims to promote, coordinate and harmonize all activities of the coconut industry.

4.45 Ladakh announces snow leopard as state animal, black-necked crane as state bird

- The Union Territory of Ladakh has declared snow leopard (Panther unica) as the new state animal and black-necked crane (Grus nicricollis) as the new state bird.
- The notification in this regard was released by Shri Radha Krishna Mathur, Lieutenant Governor of Union Territory of Ladakh on August 31, 2021.
- The decision was taken keeping in view bifurcation of Jammu & Kashmir and Ladakh into separate administrative divisions in 2019. In the erstwhile state of Jammu and Kashmir, the black-necked crane and Kashmir stag (Hangul) were the state bird and animal respectively.

4.46 India to host conference on International Climate Summit 2020-21

- India is all set to host a key conference as part of the International Climate Summit (ICS) 2020-21 to build a dialogue for India's transition to clean energy. Policymakers, regulators, industry leaders, experts, and scientists from across the globe are going to be a part of the climate summit.

- Director of CSIR, National Chemical Laboratory, Dr Ashish Lele has underlined the importance of the conference for the future mitigation strategies of climate change. The need to adopt these strategies and the problems arose due to dependence on conventional fuels.

4.47 India becomes first Asian nation to launch 'Plastics Pact'

- India has become the first country in Asia to launch a Plastics Pact, a new platform to promote a circular system for plastics.

- The India Plastic Pact platform was launched on September 03, 2021, by the British High Commissioner to India, Alexander Ellis, at the 16th Sustainability Summit hosted by the Confederation of Indian Industry (CII).

- The new platform 'India Plastic Pact' is a joint effort of the World-Wide Fund for Nature-India (WWF India) and the Confederation of Indian Industry (CII), and envisions to create a world where plastic is valued and does not pollute the environment.

- The Pact targets the businesses to transition towards a circular economy for plastics by 2030.

- The initiative is supported by UK Research & Innovation (UKRI) and WRAP, a global NGO based in the UK, and endorsed by the British High Commission in India

4.48 GoI launches AYUSH AAPKE DWAR campaign to distribute medicinal saplings

- As a part of the Azadi Ka Amrit Mahotsav celebration, the Ministry of AYUSH has launched a campaign titled 'AYUSH AAPKE DWAR', which aims to distribute medicinal plant saplings to 75 lakh households in one year.

- The campaign was inaugurated by the Union Minister of AYUSH Sarbananda Sonowal from Mumbai, during which he distributed medicinal plant saplings to citizens. Subsequently, the campaign was launched from more than 45 locations across the country.

- The medicinal plants being distributed include Tejpatta, Stevia, Ashoka, Giloy, Ashwagandha, Lemongrass, Tulsi, Sarpagandha and Amla. Under this campaign, it is proposed to undertake the cultivation of medicinal plants across 75,000 hectares in one year.

4.49 India's first dugong conservation reserve to come up in Tamil Nadu

- Tamil Nadu state government has announced to set up India's first dugong conservation reserve at the northern part of the Palk Bay. Dugong are commonly known as sea cows.

- According to Wildlife Institute of India (WII) estimates, only 200-250 Dugongs are left in the wild, of which 150 are found in the Palk Bay and Gulf of Mannar in Tamil Nadu.

- The reserve will span the northern part of the Palk Bay from Adiramapattinam to Amapattinam. The reserve will cover an area of more than 500 sq km.

- Marine biologists and conservationists have long demanded a reserve as the population of dugongs, as known as sea cows, in Indian waters has been dropping to dangerous levels.

- According to Wildlife Institute of India (WII) estimates, only 200-250 Dugongs are left in the wild, of which 150 are found in the Palk Bay and Gulf of Mannar in Tamil Nadu, among the last surviving natural habitats for dugongs in the world.

4.50 International Day of Clean Air for blue skies

- The International Day of Clean Air for blue skies is observed globally on September 07 to promote and facilitate actions to improve air quality.

- It is an UN-recognised day that aims to raise public awareness at all levels (individual, community, corporate and government) that clean air is important for health, productivity, the economy and the environment.

- The 2021 theme for the International Day of Clean Air for blue skies is "Healthy Air, Healthy Planet" which emphasizes the health aspects of air pollution, especially considering the COVID-19 pandemic.

- The United Nations General Assembly adopted the Resolution to hold an International Day of Clean Air for blue skies on December 19, 2019, during its 74th session and invited the United Nations Environment Programme (UNEP).

- The inaugural edition of the International Day of Clean Air for blue skies was held in 2020.

4.51 Indian biologist Shailendra Singh wins global award in turtle conservation

- Indian biologist Shailendra Singh has been awarded the Behler Turtle Conservation Award for bringing three critically endangered turtle conservation species back from the brink of extinction.

- Shailendra Singh was named to lead the Turtle Survival Alliance (TSA)/ Wildlife Conservation Society (WCS) India turtle programme.

- The award has been bestowed by several global bodies involved in turtle conservation such as Turtle Survival Alliance, IUCN/SSC Tortoise and Freshwater Turtle Specialist Group, Turtle Conservancy, and Turtle Conservation Fund.

- The Behler Turtle Conservation Award was established in 2006 to recognise outstanding achievements, contributions and leadership excellence in international turtle conservation and biology.

4.52 Union Minister Bhupender Yadav inaugurates PRANA portal

- Union Minister of Environment, Forest, and Climate Change, Bhupender Yadav launched a portal named PRANA, for the regulation of air pollution in 132 cities across the country.

- PRANA stands for Portal for Regulation of Air pollution in Non-Attainment cities. The portal (prana.cpcb.gov.in) will support tracking of physical as well as the financial status of city air action plan implementation and disseminate information on air quality to the public.

- The cities which come under the National Clean Air Programme (NCAP) will be covered. Apart from this, the Union Minister also dedicated the first functional smog tower of India, installed in Anand Vihar in New Delhi to the country.

4.53 India's tallest air purifier tower installed in Chandigarh

- India's tallest air purification tower has been inaugurated in the Union Territory of Chandigarh. The tower has been installed at the initiative of the Chandigarh Pollution Control Committee (CPCC) at Transport Chowk, Sector 26, by Pious Air Pvt Limited.

- This is the highest air purifier tower of the country and covers an area of around a 500-metre radius and is 24-metre-high. The purification tower will clean 3.88 crore cubic ft of air from the surrounding environment.

4.54 Himalayan Day 2021: 09 September

- The National Mission for Clean Ganga organized Himalayan Diwas on September 09, 2021, in association with Naula Foundation.

- This year's theme is 'Contribution of Himalayas and our responsibilities'. The event was part of the ongoing celebration of 'Azadi ka Amrit Mahotsav'.

- Himalaya Diwas is celebrated every year on 9th September in the state of Uttarakhand. It is celebrated with the aim to conserve the Himalayan ecosystem and region. It was officially declared as Himalaya Day in 2015 by the then Chief Minister.

4.55 World's largest plant capturing carbon from air opens in Iceland

- The world's largest plant designed to capture carbon dioxide out of the air began its operations in Iceland. The plant is named Orca, which means 'Energy' in Icelandic word. It will suck out up to 4,000 tons of CO_2 per year.

- The carbon dioxide captured directly from the air will be deposited underground at a depth of 1,000 metres, where it would be turned into rock.

- The facility has been developed by Icelandic carbon storage firm Carbfix, in partnership with Swiss start-up Climeworks AG, which specialises in capturing carbon dioxide directly from the air.

- The technology launched may become a major tool in the fight against climate change.

4.56 Odisha's Kendrapara district: Only place to have all 3 Crocodile Species

- Kendrapara district of Odisha, that is crisscrossed by rivers, creeks and water inlets, has become the only district in India where all three species of crocodiles viz., salt-water, gharial and mugger are found.

- District has also claimed fame for its successful conservation programme launched for salt-water or estuarine crocodiles at the Bhitarkanika National Park.

- The national park comprises of 1,768 estuarine crocodiles and is home to 70 per cent of India's estuarine crocodiles.

- Now, with the sighting of Mugger and Gharial Crocodiles, all three species of Crocodiles are found in the river systems of Kendrapara District.

- Gharial hatchling was rescued from Paika river which is a tributary of Mahanadi on August 29, 2021.

- In 2016, a 14-feet-long mugger was sighted.

- **Bhitarkanika river systems**

- Bhitarkanika river systems are home to saltwater crocodiles. On the other hand; Mahanadi River, Brahmani rivers and their tributaries are inhabited by muggers and gharials. Sighting of the crocodiles is significant because conservation of these species (Muggers and Gharials) has not been as successful as that of the estuarine crocodiles.

- **Bhitarkanika National Park**

- This larger national park is located in the northeast Kendrapara district of Odisha. It obtained the status of a Ramsar site in 2002. The area the second Ramsar site of Odisha after the Chilika Lake. The Park is surrounded by Bhitarkanika Wildlife Sanctuary, Gahirmatha Beach, Marine Sanctuary, separating swamp region as well as mangroves from the Bay of Bengal. Park is home to saltwater crocodile king cobra, Indian python, black ibis, darters and other species of flora and fauna.

4.57 'Latham's Snipe' Migratory Bird

- Latham's Snipe shorebird fly non-stop from Japan to Australia twice in a year. The bird takes five days to cover the distance of thousands of kilometres of ocean for their survival.

Highlights

- The migratory shorebird is similar in size to a blackbird.

- It completes the gruelling migration to warmer climes and prepare itself for its return flight and next breeding season.

Latham's snipe

The bird is also known as Japanese Snipe and is scientifically called as Gallinago hardwickii. It is a medium-sized, long-billed, migratory snipe in the East Asian–Australasian Flyway. It is 29–33 cm in length with a wingspan of 50–54 cm. It is 150–230 g in weight.

Features of the bird

The bird is identified as a Gallinago snipe by its cryptically-patterned black, brown, buff and white plumage. However, it is not easy to distinguish from Swinhoe's and pin-tailed snipe.

Habitat

The bird mainly breeds in Hokkaido in northern Japan and in small proportion in Honshu (eastern Russian mainland). Historically, it used to breed in Sakhalin and the Kurile Islands. Breeding habitat of the bird in Asia include alpine moorland, rough pasture, young tree plantations, grasslands and cultivated areas.

Migration

They migrate and spend most of their non-breeding season in eastern Australia, where it is the common Gallinago snipe. It has also been recorded on migration in Taiwan, New Guinea and the Philippines. It is a rare straggler to New Zealand.

Status of the bird

This bird is the Least Concern species. In Australia it was earlier hunted as a gamebird but it is now protected. The bird is listed as "rare" under South Australia's National Parks and Wildlife Act 1972.

4.58 India's proposal to mandate using green hydrogen in fertilizer and refining

In line with the Government's commitment of replacing grey hydrogen with green hydrogen, India is proposing to mandate the use of green hydrogen in fertilizer and refining.

Highlights

- This proposal was put forward by Power Minister R K Singh while holding talks with U.S. Special Presidential Envoy for Climate, Mr John Kerry.

- He noted, India and US can work together in the fields of innovations for power and technology.

- According to the Minister, India has achieved a milestone of crossing 100 GW in Installed Solar and Wind Capacity. Total installed renewable capacity is 147 MW, by adding the Hydro capacity.

National Hydrogen Energy Mission

National Hydrogen Energy Mission was launched to enable cost competitive green hydrogen production. India will be also be conducting competitive bids for green hydrogen in three to four months in order to make road for viable usage of hydrogen as a fuel. India is also looking at bids for 4000 MW of electrolyser's capacity.

About Hydrogen

Hydrogen is one among the abundant elements on earth that can be used as a cleaner alternative fuel option. Hydrogen is of following types:

1. Green Hydrogen: It is produced by electrolysis of water by using renewable energy like Solar, Wind. It has the potential to lower the carbon footprint.

2. Brown Hydrogen: It is produced by using coal where emissions are released in the air.

3. Grey Hydrogen: It is produced from natural gas where associated emissions are released in the air.

4. Blue Hydrogen: It is produced from natural gas and emissions are captured by using carbon capture and storage

4.59 NITI Aayog- WRI launched Forum for Decarbonising Transport

- This forum was launched virtually as part of NDC-Transport Initiative for Asia (NDC-TIA) project.

- It aims to decrease the peak level of Greenhouse Gas emissions (transport sector) in Asia which is rising because of problems like air pollution and congestion.

- It was launched in line with below 2-degree pathway.

CO2 emission in India

India comprises of a massive and diverse transport sector. It is is also the third most CO_2 emitting sector. According to data of IEA 2020 and Ministry of Environment Forest & Climate Change 2018, within the transport sector, road transport contributes more than 90% of the total CO_2 emissions.

Steps taken by GOI

Government of India is working for decarbonisation of road transport sector with the help of various policy and initiatives. Primary focus of the government is on adoption of electric vehicles (EVs) in India. NITI Aayog has been promoting EVs and sustainable mobility with the help of National Mission on Transformative Mobility & Battery Storage.

How EVs can be streamlined in India?

In order to leverage and streamline EVs across India, there is a need is to create a favourable ecosystem for stakeholders including Central & state Governments, financial institutions, state-designated agencies, OEMs, businesses, research & technical institutes and private bodies. These stakeholders should coordinate with each other to enable investment, ensure fair adoption in industry and encourage adoption. Thus, this forum was launched for NITI aayog & WRI to work in close coordination with the stakeholders in order to formulate strategies and develop appropriate business models to boost electric mobility across India.

4.60 Stockholm World Water Week 2021

Stockholm World Water Week (SWWW) was held online from August 23 to 27, 2021 by the Stockholm International Water Institute (SIWI).

Key Points

- Surat Municipal Corporation (SMC) was the only civic body from India that was invited at the panel discussion on the topic "Zero Liquid Discharge Cities".
- According to City municipal commissioner, Banchhanidhi Pani, by 2030 city would be able to reusing 100% of sewage water after treatment.

Theme of the SWWW 2021

The Stockholm World Water Week was held under the theme: 'Building Resilience Faster'.

Why only SMC was invited?

Only SMC was invited to discuss at SWWW because, Surat's achievement in treating sewage water and reusing it has been recognized by world's top institute in water governance. Surat treats about 1,400 MLD sewage water out of which 320 MLD (33%) is reused.

About World Water Week

WWW is a leading annual event that is organised to held discussions on global water issues. It is organized by SIWI since 1991. The weeklong event is attended by some 4,000 participants from 135 countries.

How WWW is held?

- Under the WWW, many sessions are convened by leading international organizations on different topics related to water, ranging from food security & health to energy, agriculture, biodiversity, and climate crisis.
- It also includes prestigious international competition called 'Stockholm Junior Water Prize' and award ceremony for Stockholm Water Prize.

Water+ city

Surat city was recently awarded a 'Water+ certification' under the Swachh Bharat Mission (SBM). It was the first city from Gujarat to get recognition. It was awarded by the ministry of housing and urban Affairs (MoHUA) in the field of adopting best practices in waste water management.

4.61 World's largest plant to suck CO2 from air starts in Iceland

World's largest plant that has been designed to suck carbon dioxide (CO_2) from air and turn it into rock was started recently in Iceland.

- This plant has been named as Orca, after the Icelandic word "orka", meaning energy.
- The plant comprises of four units. Each of the units are made up of two metal boxes. They are similar to the containers used for maritime transport, in appearance.

Who constructed the plant?

Orca plant has been constructed by Switzerland's Clime works and Iceland's Carbfix.

Plant's capacity

When the plant will operate at its full capacity, it will draw 4,000 tonnes of carbon dioxide (CO_2) from air every year. As per US Environmental Protection Agency (EPA), this amount is equal to the emissions from about 870 cars.

How CO2 will be collected?

In order to collect the CO_2, Orca plant uses fans to draw air into the collector comprising of filter material inside. Once the filter material is filled with carbon dioxide, collector is closed and temperature is raised to release the carbon dioxide from the material. Following this process, highly concentrated gas can be collected. Collected CO_2 is mixed with water and are injected at a depth of 1,000 metres into nearby basalt rock where it is petrified.

Significance of the plant

As per the proponents of carbon capture and storage (CCS), these technologies can become a major tool towards the fight against climate change.

What are the concerns?

This technology is still prohibitively expensive and will take decades to operate at larger scale.

4.62 India-Denmark launch 'Centre of Excellence on Offshore Wind'

Union Minister for Power and New & Renewable Energy, R. K. Singh met Minister for Climate, Energy & Utilities of Denmark, Dan Jorgensen in New Delhi on September 9, 2021.

Highlights

- During the meeting, it was highlighted that energy transition towards green is an important part of India's policy.
- India has set a target of 450 Giga Watt of Renewable Energy capacity by 2030.
- Currently, India's whole renewable energy portfolio is at 146 GW.
- Minister noted that, among G-20 countries, only India's actions are in consonance with the Paris Climate agreement with respect to global rise in temperature.
- India is also looking towards making Ladakh, Andaman Nicobar Island and Lakshadweep Island green in energy and transport.
- Both the ministers jointly launched 'Centre of Excellence on Offshore Wind' under the Green Strategic Partnership.

Green Strategic Partnership

India and Denmark launched the Green Strategic Partnership in the year 2020 to deliver the sustainable solutions in India. For this, Ministry of Commerce & Industry signed a Memorandum of Understanding (MoU) for Intellectual Property (IP) Cooperation with Denmark. Green Strategic Partnership focuses on expanding green growth, economic ties and cooperation on global challenges like climate change.

What is green growth?

Green growth is the path of economic growth which uses natural resources in a sustainable manner.

Key points of Green Strategic Partnership

• Under the partnership, Danish companies with niche technologies and expertise offered to help India to meet its air pollution control targets.

• It also provided mechanism to deal with the Covid-19 pandemic and cooperation in water efficiency & water loss.

4.63 **Tamil Nadu-Denmark plan energy island in Gulf of Mannar**

State of Tamil Nadu and Denmark have planned to create an energy island in Gulf of Mannar that lies between the west coast of Sri Lanka and south-eastern tip of India.

Key points

• This plan was made as Tamil Nadu is looking to expand its footprint in the green energy sector.

• To achieve this target, Denmark is likely to invest $5-10 billion in the renewable energy sector in the state. It also includes investment for an energy island in the Gulf of Mannar.

• With this investment, island would be able to produce 4-10 GW of energy.

Background

A delegation of experts from Denmark met Chief Minister of Tamil Nadu, M K Stalin on September 8, 2021 to discuss the plan. If the plan materialises, it will be India's first offshore floating Wind Park.

Tangedco Solar power projects

Tamil Nadu and Denmark made their plan for the investments, days after the Tamil Nadu Generation and Distribution Corporation (Tangedco) announced to launch 20,000 Mw of solar power projects with adequate battery storage, 2,000 Mw of gas-basedpower units and 3,000 Mw of pumped storage hydroelectric projects. These projects will require loans of about Rs 1.32 trillion.

Denmark's investment in Tamil Nadu

Value of Danish investment in Tamil Nadu in the period of January 2003 to January 2021 is estimated at $ 751.72 million. Some of the Danish companies operating in Tamil Nadu include Maersk, Vestas, Cubic, Danfoss, Grundfos, and FLSmidth.

India-Danish cooperation

Around 200 Danish companies are operating in other parts of India, including Ramboll, A.P. Moller Maersk, and Novo-Nordisk. In the last decade, Denmark has invested more than $1 billion in India. Indian companies operating in Denmark include Tata Consultancy Services, ITC Infotech, Infosys Technologies and L&T Infotech

4.64 **IUCN: 37% of sharks and rays threatened with extinction**

According to a new red list by IUCN, world's sharks and rays have been witnessing declines in their populations since 2014 and are now threatened with extinction.

- New red list was released by IUCN at global conference with the aim of protecting dwindling species.

- It notes that, there are signs of hope as fishing quotas have allowed several tuna species to be put on their path to recovery.

- About 37% of sharks and rays across the world are considered endangered as of 2021. In 2014, this amounted to 33%.

- This upward trend was the result of overfishing, loss of habitat and climate change,

- Oceanic shark populations have also decreased by 71% since 1970.

Can we recover their population?

IUCN highlighted that, progress can be made towards reviving tuna populations and other species, if states and other actors take right actions.

IUCN Red List Unit

The red list by IUCN reassesses hundreds of species each year. Out of 138,000 species that were tracked, more than 38,000 are threatened with extinction. Many of the planet's ecosystems are mainly strained by global warming, deforestation, pollution, habitat degradation and other threats.

Declining bird population

More than half of the bird of prey species are reducing in population worldwide. 18 species are critically endangered. Warming temperatures and melting ice will reduce the emperor penguin colonies by 70 % by 2050 and 98% by 2100.

International Union for Conservation of Nature (IUCN)

IUCN is an international organization that works in the field of nature conservation and sustainable use of natural resources. It is involved in data gathering and analysis, field projects research, advocacy, field projects, and education. It was established in 1948.

4.65 Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes (1970-2019)

Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes (1970-2019) was released on September 1, 2021.

- According to the atlas, developed nations incurred the bulk of $3.6tn in economic losses because of severe weather events in past five decades.

- High death tolls in poorer countries have been partly reduced by better evacuation.

- According to scientists of UN's world meteorological organisation, in past 50 years, number of weather-related disasters had increased fivefold across the globe.

- In this period, death toll of 115 people and more than $200m was lost every day. The death toll was the result of climate change, more extreme weather and improved reporting.

- In this period, total losses amounted to $3.6tn and 2m deaths.

- For instance, estimated cost of Hurricane Ida, fifth-largest hurricane to make landfall in US, could be about $80bn.

- Three out of 10 world's costliest disasters occurred in 2017 alone namely- hurricanes Harvey (cost-$96.9bn), Maria (cost-$69.4bn) and Irma (cost-$58.2bn).

Wider economic cost

As per catastrophe and risk modelling group AIR, wider economic cost comprises of an estimated hit to insurers of between $17bn and $25bn. This will cover the damage from wind & storm surge and it will pay out to repair cars, residential property, commercial as well as industrial property. However, it does not include insurance claims that will come from the heavy rains and flooding caused by Ida.

What has led to increase in frequency of extreme weather events?

Frequency and severity of extreme weather events, including wildfires, across southern Europe, Siberia & the US and flooding in northern Europe, has increased due to global warming.

4.66 **World's first 'Plant based' Smart Air-Purifier "Ubreathe Life"**

World's first Plant-based smart air-purifiers called "Ubreathe Life" by the scientists of Indian Institutes of Technology, Ropar & Kanpur, and Faculty of Management Studies of Delhi University.

Highlights

- Ubreathe Life amplifies the air purification process in indoor spaces like schools, hospitals, offices, and homes.

- This product is being developed by Urban Air Laboratory which is a start-up company of IIT Ropar.

- Product is being claimed as world's first, state-of-the-art 'Smart Bio-Filter', which can make breathing fresh.

- It has been incubated at IIT Ropar.

- IIT Ropar is a designated iHub – AWaDH (Agriculture and Water Technology Development Hub) by the Department of Science and Technology of government.

How Ubreathe Life works?

The Ubreathe Life technology works by air-purifying natural leafy plant. In it, air of the room interacts with leaves and goes towards soil-root zone where maximum pollutants are purified. Technology used in this product is called as 'Urban Munnar Effect' and patent-pending "Breathing Roots". These technologies amplify the phytoremediation process of the plants.

Phytoremediation Process

It is the process by which plants effectively remove pollutants from the air.

Features of Ubreathe Life

This technology effectively improves indoor air quality by removing particulate, gaseous and biological contaminants. It also increases the oxygen levels in indoor space with the help of specific plants, UV disinfection and a stack of pre-filter, charcoal filter and HEPA (high-efficiency particulate air) filter. It also comprises of a centrifugal fan which creates a suction pressure inside the purifier and releases purified air.

4.67 UNEP: Leaded petrol eradicated from the world

According to United Nations Environment Programme (UNEP), use of leaded petrol has been eradicated from the globe.

- UNEP highlighted, this milestone will prevent more than 1.2 million premature deaths and save over USD 2.4 trillion annually for world economies.
- This milestone was achieved century after doctors first issued warnings regarding the toxic effects of leaded petrol, Algeria (last country to use the fuel) exhausted the supplies in July 2021.
- It is a big milestone for global health and environment as well.
- UNEP also warned that, use of fossil fuel must still be drastically reduced, in general, to do away with the frightening effects of climate change.

Background

During 1970s, almost all the gasoline that used to be sold worldwide contained lead. The UNEP launched its campaign called "Partnership for Clean Fuels and Vehicles (PCFV)" for eradication of 'leaded petrol' in 2002. Major economies including United States, China and India had already stopped using fuel in 2002. But, the situation in lower-income countries was critical. Concerns regarding the leaded petrol were first raised in 1924.

Impact of leaded petrol

1. Use of leaded petrol in transport sector is responsible for about quarter of energy-related global greenhouse gas emissions. It is set to grow to one third by the year 2050.
2. Leaded petrol causes major health problems like heart disease, stroke and cancer.
3. Leaded petrol also impacts the development of human brain.

Significance of eradication

Eradication of leaded petrol is expected to support realization of multiple Sustainable Development Goals (SDG) like good health & well-being, clean water, clean energy, sustainable cities, climate action and life on land.

4.68 Chhattisgarh launches 'Millet Mission'

Chhattisgarh government launched the "Millet Mission" on September 14, 2021 with the objective of making the state a millet hub of India.

- On the occasion of launch of the mission, Chief Minister Bhupesh Baghel noted that state will soon become the millet hub of India.

- He also highlighted that, "Like minor forest produce, the state wants to make small grain crops its strength.

- To implement this mission, an MoU was signed between Indian Institute of Millet Research, Hyderabad and collectors of 14 Chhattisgarh districts under "Millet Mission".

Aim of the Millet Mission

Millet Mission initiative was launched with the aim of giving the farmers right price for small cereal crops and to provide them input assistance, procurement arrangements and processing. This mission also seeks to ensure that the farmers get benefit from the expertise of experts.

Districts covered under millet mission

The districts in the state of Chhattisgarh that have been included under the mission include: Bastar, Kanker, Kondagaon, Sukma, Dantewada, Bijapur, Narayanpur, Balrampur, Rajnandgaon, Kawardha, Jashpur, Gaurela-Pendra-Marwahi, Koriya and Surajpur.

About the MoU

Under the MoU, Indian Institute of Millet Research, Hyderabad will provide support and guidance in order to increase the productivity of Kodo, Kutki and Ragi. It will also provide technical know-how and ensure the availability of high-quality seeds. Institute will also help in establishment of seed bank in Chhattisgarh. Apart from this, arrangements will be made to train the farmers of Chhattisgarh through Krishi Vigyan Kendra in a bid to spread the scientific technology developed at national level with respect to the millet production by IIMR Hyderabad at the field level.

4.69 September 16: World Ozone Day

World Ozone Day or the International Day for preservation of Ozone Layer was observed on September 16, 2021 across the world.

This day is celebrated every year and is dedicated to a cause which might not be visibly relevant but is important for the protection of the ozone layer.

History

- World Ozone Day was proclaimed by United Nations General Assembly in 1994, after signing of the Montreal Protocol.

- Montreal Protocol on Substances depleting the ozone layer was signed by almost every country in 1987.

Significance of the day

This day is significant in the light of depleting Ozone Layer. Ozone is the fragile layer of gas that protects people from harmful cosmic rays. But people have itself became a threat to the natural paradigm of the Earth. Thus, this day is celebrated with the objective of curbing all human-led ozone-depleting substances.

Theme of the Day

Theme of the day in year 2021 is "Montreal Protocol – Keeping us, our food, and vaccines cool". This theme is selected to highlight the long-term results of 35-year-old Montreal protocol, which is the first ever protocol to be ratified by all the 197 members of the United Nations.

India's efforts

Ministry of Environment, Forest, and Climate Change initiated "India Cooling Action Plan (ICAP)" in 2019. This action plan aims to provide an integrated vision towards reducing refrigerant transition, curbing cooling demand and enhancing energy efficiency. The ICAP aligns with the international theme of the day in 2021.

About Montreal Protocol

It was a deal for countries to curb the existence of all ozone-depleting substances like chlorofluorocarbon aerosols, halons, etc. that are widely used for cooling and refrigeration purposes. The usage of these harmful substances had resulted in a hole in the ozone layers in Antarctica. This hole was discovered in 1970 and led to acute global warming in past 20 years.

4.70 IPCC report: Sea level rise is certain

Intergovernmental Panel on Climate Change (IPCC) recently published the Assessment Report from Working Group I titled "Climate Change 2021: The Physical Science Basis". The report call for is a clear climate action.

- IPCC report provides one of the most expansive scientific reviews on science and impacts of climate change.
- It discussed five different shared socio-economic pathways for future with different levels of greenhouse gas (GHG) emissions.
- It illustrated following scenarios-

1. Very low and low GHG emissions– Here, emissions decline to net zero around the middle of the century. Beyond this, emissions are net negative.

2. Intermediate GHG emissions- Emissions are double the current level by 2100.

3. High and very high emissions– Here, emissions are double the current levels by 2050.

- In the intermediate scenario, Average warming is likely to exceed 2°C near mid-century.
- Average global temperature is currently 1.09°C higher than pre-industrial levels while the CO_2 concentration in the atmosphere is 410 ppm as compared to 285 ppm in 1850.

Concerns of rising sea level

- About 700 million people across the world live along the coast and the plans to expand coastal cities still continue.
- Thus, understanding of the risks involved from climate change and rising sea level is crucial in 21st and 22nd centuries.

- Sea level will continue to rise even after emissions are no longer increasing, because oceans respond slowly to warming.
- Global mean sea level (GMSL) increased by 0.2m in between 1901 and 2018.
- Average rate of sea level rise was 1.3 mm/year in between 1901-1971 and increased to 3.7 mm/year in the year 2006-2018.

How Sea level increases?

Sea level rises due to the expansion of warm ocean waters, melting of ice sheets in Greenland & Antarctica and melting of glaciers on land.

4.71 WHO revises Air Quality norms

The World Health Organisation (WHO) has revised its global air quality guidelines and recommended more stringent standards for key pollutants.

- WHO set the new standards in the first update of its air quality guidelines since 2005.
- PM 2.5 norms for 24 hours average has been changed to 15 micro-g/m3 against 25 micro-g/m3 in 2005.
- While the PM 2.5 norms for annual average has been changed to 5 micro-g/m3 against the 10 micro-g/m3 in 2005.

Where does India stand?

- At the current relaxed standards, most of the Indian cities fail to meet these levels. Annual PM 2.5 average in India is at 40 micro-g/m3 against the annual limit of 10 micro-g/m3 (2005) by WHO. As a result, India needs to revise its air quality standards to make them more stringent.

Steps taken by India

Under the National Clean Air Programme (NCAP), India is committed to minimise 20-30 per cent of air pollution in cities. To check the stubble-burning, Bio-decomposer will be used on 6 lakh acres land in UP, 1 lakh acres land in Haryana and 7,413 acres land in Punjab. Use of bio-decomposers is part of the action plan of preventing and controlling stubble burning in Delhi-NCR region.

About NCAP

NCAP was launched in January 2019 by the MoEFCC. It is the first-ever effort in India to frame a national framework for the management of air quality with a time-bound reduction target. This action plan seeks to reduce the concentration of coarse and fine particles by at least 20% in the next five years (base year 2017). This plan comprises of 102 non-attainment cities in 23 states and Union territories. These cities were identified by the Central Pollution Control Board (CPCB) by analysing their ambient air quality data between 2011 and 2015.

4.72 COP 26: India pushing for Green Tech Transfer

- COP 26 to the UN Climate Change Conference (UNFCCC) is scheduled to held in November 2021 in Glasgow.

- Green Technology transfer is viewed as a key to secure an ambitious outcome to upcoming climate negotiations.

- **India's efforts towards climate change**

- India has been asserting regularly that the developed countries should fulfil their promise of $100-billion aid made in 2009.

- India has been reminding developed nations regarding their responsibility of mitigation and providing financial support to developing countries.

- Recently, India received 'Blue Flag' tag for 2 Indian beaches, Kovalam (TN) and Eden (Puducherry), by the Foundation for Environment Education. It is another milestone in India's journey towards green India.

Meeting with UN Secretary General

- During the meeting with UN Secretary General, Antonio Guterres, Indian Environment Minister noted that, COP 26 should focus on climate finance in scale, scope & speed and transfer of green technologies at low cost.

- Indian Minister also underlined the need of upholding the principles of UNFCCC process for any successful outcome in climate change negotiations.

- During the meeting, crucial climate actions on finance, mitigation and adaptation are required to tackle the climate crisis were also discussed.

United Nations Framework Convention on Climate Change (UNFCCC)

UNFCCC was established as an international environmental treaty to combat the "human interference with the climate system". It was established in part by stabilizing the greenhouse gas concentrations in atmosphere. The treaty was signed by 154 states at the United Nations Conference on Environment and Development (UNCED) or the Earth Summit in 1992. Its headquarter is in Bonn.

4.73 Two more Indian beaches gets International Blue Flag certification

- Blue flag certification is an international eco-level tag.

- With the addition of two beaches, the total number of such beaches in India have reached to 10.

- Two beaches that received the certification in 2021 are Kovalam in Tamil Nadu and Eden in Puducherry.

- Blue Flag recertification was also done for eight nominated beaches namely, Shivrajpur in Gujarat, Ghoghla in Diu, Kasarkod & Padubidri in Karnataka, Kappad-Kerala, Rushikonda in Andhra Pradesh, Golden in Odisha and Radhanagar in Andaman & Nicobar. All these beaches were awarded this certificate in the year 2021.

Blue Flag certification

Beaches with Blue Flag certification are considered as the cleanest beaches across the world. It is one of the world's most recognised voluntary eco-labels that are awarded to beaches, marinas, as well as sustainable boating tourism operators. Blue flag certification programme was launched in 1985 in France.

What are the Criteria for Certification?

To certify a beach with blue flag certification, a series of stringent environmental, educational, and accessibility & safety criteria is checked. There are 33 such criteria that are required to be met in a bid to qualify for a Blue Flag certification. Criteria include water meeting certain quality standards, being disabled- friendly, having waste disposal facilities, having first aid equipment etc. Some of these criteria are voluntary and some are compulsory.

Who gives this certification?

The Blue Flag Certification Programme for beaches and marinas is run by the international, non-governmental & non-profit organisation called "Foundation for Environmental Education (FEE)".

4.74 **36th International Coastal Clean-up Day- Highlights**

- The day was celebrated by the Eastern Naval Command (ENC) at Visakhapatnam.
- As part of the day, ENC carried the Coastal Clean-up Drive at Yarada Beach, Bheemili Beach and other sea fronts in the premises of Naval units of Visakhapatnam.
- About 500 Naval personnel, Defence Civilians and their families overtook the clean-up drive by complying to the COVID19 protocols.

Aim of the drive

The clean-up drive was launched with the aim of creating awareness among people to keep beaches clean, safeguarding our environment and inculcating the habit of respecting the coastlines which ultimately nurtures the marine biodiversity.

International Coastal Clean-up Day

The day is traditionally held on the third Saturday of September. In 2021, this day is being observed on September 18th.

Theme of the day

International Coastal Clean-Up Day 2021 is being celebrated under the theme: "Keep trash in the bin and not in the ocean".

History of the day

The International Coastal Clean-up started by the Ocean Conservancy, in 1986. During that time, communities rallied together with a common goal of collecting and documenting the trash lying on their coastline. Since then, International Coastal Clean-up Community encourages people across the world to remove trash and debris from waterways, beaches & other water bodies, on the third Saturday

of September, each year. People are also encouraged to identify the sources of litter, to bring in behavioural changes that cause pollution and to raise awareness regarding the marine debris problem.

5. SCIENCE & TECHNOLOGY

5.14 Significant findings by Chandrayaan-2:

ISRO released a wealth of new information that has been gathered by the scientific payloads to date, which has further added to the understanding about the Moon, Sun and the mysteries of their environment.

The Orbiter, carried eight scientific orbiter payloads including:

- o Chandrayaan-2 Large Area Soft X-ray Spectrometer (CLASS)
- o Solar X-ray Monitor (XSM)
- o Chandra's Atmospheric Compositional Explorer 2 (CHACE 2)
- o Dual Frequency Synthetic Aperture Radar (DFSAR)
- o Imaging Infra-Red Spectrometer (IIRS)
- o Terrain Mapping Camera (TMC 2)
- o Orbiter High-Resolution Camera (OHRC)
- o Dual-Frequency Radio Science (DFRS)

The instruments mentioned above are hosted by the Indian Space Agency to carry out broad tasks including studying the elemental composition of the Moon's surface and assessing its environment, evaluating the presence of a variety of minerals, and mapping the lunar terrain. A wealth of information has been produced by these instruments onboard the orbiter that sheds light on the

environment of the lunar surface and offers invaluable insights that are the treasure for the future mission.

Significant Information Gathered so far:

- **Water on Moon:** The presence of water on the Moon has already been discovered back in 2008 by Chandrayaan-1. But the instrument onboard the first mission to the moon was not sensitive enough to detect the difference between hydroxyl radical (OH) and the water molecule (H_2O, which also has OH). This time, Chandrayaan-2 had a far more sensitive instrument named the Imaging Infra-Red Spectrometer (IIRS) onboard which detected OH and H_2O molecules separately and further found unique characteristics about both.
  - In a path-breaking discovery, IIRS made the most precise observation about the presence of water molecules on the lunar surface to date. Earlier, water was known to be present mainly in the polar regions of the Moon. But, Chandrayaan-2 unravels the mystery of water by finding signatures at all latitudes on the surface of the moon. Besides, in a first of its kind discovery, a microwave imaging instrument, the Dual Frequency Synthetic Aperture Radar, has detected potential water ice at the permanently shadowed regions in Lunar Poles.

- **Presence of precious elements:** Thanks to a better detector, apart from major elements like magnesium, aluminium, silicon, calcium, titanium, iron etc., the Chandra's Large Area Soft X-ray Spectrometer (CLASS) examined and detected minor elements – chromium and manganese for the first time. How would the discovery of elements help? Well, the findings pave the path for adding knowledge about the magmatic evolution of the Moon, its nebular conditions and much more.

- **Study of the Sun:** Besides gathering information about the Lunar surface, one of the scientific payloads has collected information about Solar flares. Called Solar X-ray Monitor (XSM), has witnessed a huge amount of microflares outside the active regions of the Sun for the first time. ISRO believes that this discovery will lead to a better understanding of the mechanism behind the heating of the solar corona, which has been the centre of attraction and a problem for many decades.

Significance of the findings: How does it all help?

The exploration of the moon and to the moon is not limited to today! Scientists are in a quest to understand the lunar surface to pave the path for future Moon missions. Hence, the information gathered from the Orbiter built upon the existing database about Moon. The future scope of the work depends on four key aspects:

– Volatile Mapping of the Lunar Surface

– Subsurface Properties

– Presence of Water in various forms across the Lunar Surface

– Presence of various Elements on the Moon

- The information about the Permanently Shadowed Surface of the Lunar will aid scientists to zero in on future landing sites, further helping in manned missions. Collaborations with various other Space Agencies will use such data, including Japan Aerospace Exploration Agency (JAXA)-ISRO collaboration which is due in 2023-24 to obtain knowledge of lunar water resources. Artemis Mission of NASA also plans to enable human landing on the Lunar surface by 2024 will take the help of ISRO's data.

- Therefore, the mission that never ended made observations that will aid in future lunar explorations and the Orbiter, thus, presented a more composite image of the Moon in front of us.

5.15 MRSAM Barak-8 missile system:

- The Indian Air Force gears to induct the Medium Range Surface to Air Missiles (MRSAMs), Barak-8 missile system in Jaisalmer. The land-based air defence system is based on the Israeli Barak 8 SAM system which uses the mobile multimode radar similar to the one employed for the Israeli Iron Dome.

- Defence Research and Development Organization (DRDO) partnered with Israel Aerospace Industries (IAI) to jointly enhance the Barak-1 system which was already in service with both countries. Initially, the weapon was developed as a shipborne air defence missile system that was meant for the navy only, but later, it evolved into a system for land forces.

Barak-8 missile: A strategically vital technology

- The Barak-8 weapon that is being compared by Iron Dome, is a Surface-to-Air Missile Defence System providing a 360° protection against various airborne threats. Exploring the technological

depth, Barak-8 or LRSAM is equipped with the capability to target enemy aircraft at a 50-70 km range.

- The weapon can engage multiple targets simultaneously, day and night, in all weather conditions. Barak-8 is employed with advanced phased-array radar, flexible command system, two-way data link, and mobile launchers. A multifaceted system, Barak-8 can provide protection against any Unmanned Aerial Vehicles (UAVs), helicopters and aircraft, anti-ship missiles, ballistic missiles, cruise missiles and fighter jets.

Different Variants of the Barak-8 system:

Barak-8 system consists of three different variants:

- **LRSAM:** The first variant is known as Barak-8 AMD or LRSAM. A naval Air Defence System, it was originally designed for the Navy of Israel and currently it is being used by other countries including India.

- **MRSAM:** Medium-range, land-based missile system, the second variant comes with various equipment including a tracking radar, flexible command and control system and mobile launcher systems.

- **Barak MX:** The third variant is equipped with such technology that makes it optimal for both Naval and land missions.

  - It is pertinent to note that the Barak-8 Missile System has been made under the 'Make In India' initiative, and it will give a major boost for the Make In India initiative in Defence System. A contract of around $777 million for seven ships was inked with the state-owned Bharat Electronics Limited back in 2018.

5.16 Fighting mosquitos using CRISPR:

- Leveraging advancements in CRISPR-based genetic engineering, researchers have created a system that restrains populations of mosquitoes that infect millions each year with debilitating diseases.

- The new technique is called "precision-guided sterile insect technique" (pgSIT).
- The "precision-guided sterile insect technique" (pgSIT), alters genes linked to male fertility—creating sterile offspring—and female flight in Aedesaegypti, the mosquito species responsible for spreading diseases including dengue fever, chikungunya and Zika.
- The pgSIT uses CRISPR to sterilise male mosquitoes and render female mosquitoes (which spread disease) flightless. The system is self-limiting and is not predicted to persist or spread in the environment.
- The scientists say pgSIT eggs can be shipped to a location threatened by mosquito-borne disease or developed at an on-site facility that could produce the eggs for nearby deployment. Once the pgSIT eggs are released in the wild, sterile pgSIT males will emerge and eventually mate with females, driving down the wild population as needed.

5.17 North Korea tests its first strategic cruise missiles:

North Koreans have tested a long-range cruise missile which is of strategic relevance for a particular region. DPRK "technically already had cruise missiles – albeit a shorter range anti-ship system – the Kumsong-3 (KN-SS-N-2 Stormpetrel) based on the Soviet Kh-35.

What are cruise missiles:

Cruise missiles "are fast-moving, guided bombs that soar at a very low trajectory, parallel to the ground. They are distinct from regular (non-cruise) missiles primarily because they go really far" and all such missiles have an internal guidance system.

Most cruise missiles use a small, solid- propellant rocket booster, which allows them to gain enough altitude and speed for the onboardsustainer engine to take over.

Some analysts say these types of missiles are also slightly difficult to detect and in this case, it is still not clear where the DPRK has managed to attach a nuclear warhead on them.

UN sanctions?

These cruise missiles don't come under UNSC sanctions that were placed on the DPRK in an attempt to curb its nuclear development programme. It is also more indication that despite the enforcement of these sanctions, the country has been consistently developing its nuclear programme, much to the consternation of its neighbours- South Korea, Japan, China- and the US.

5.18 Importance of Rare Earth Metals in defence:

- Rare earth elements are a collection of 17 minerals that are essential for advanced technologies, and most importantly, military weapon systems. Most of the REEs are not as rare as the group's name implies. They were called rare because they are spread very evenly all over the Earth and not concentrated in one place.

- Promethium is the only REE that is scarcer than silver, gold, and platinum. The other two least abundant rare-earth elements (thulium and lutetium) are nearly 200 times more common than gold.

Defense Uses of Rare Earth Elements

- Lanthanum   night-vision goggles
- Neodymium   laser range-finders, guidance systems, communications, laser weapons
- Europium   fluorescents and phosphors in lamps and monitors
- Erbium   amplifiers in fibre-optic data transmission
- Samarium   permanent magnets that are stable at high temperatures used for: Fin actuators, to   control flight patterns in missile guidance and control systems, Disk drive motors installed in aircraft and tanks, Radar and sonar systems, Satellite communications
- Samarium   precision-guided weapons
- Samarium   "white noise" production in stealth technology

5.19 HAL, Rolls Royce join hands to take Made-in-India 'Adour Engine' spares to the world:

- Taking India's vision of 'Make-in-India' for the world, Defence PSU Hindustan Aeronautics Limited (HAL) has entered into an agreement with Rolls-Royce to manufacture "Adour Engine" parts for Rolls-Royce's international defence customer base.

- Notably, different variants of the Adour engine power the Indian Air Force's (IAF) Jaguar fighters and a fleet of Hawk advanced jet trainers (AJT). Interestingly, the Indian Air Force operates the world's largest serving fleets of both these aircraft, which are equipped with HAL manufactured & supported Adour engine variants under the license of Rolls-Royce.

Deciphering Adour Engine:

- Adour is a twin-spool, counter-rotating turbofan engine whose defence segment is a market pioneer in aero engines for defence transport and patrol aircraft. The Jet engine meets the dual requirements of both ground attack and advanced training, for either land-based or carrier operations with strong positions in combat and helicopter applications.

- The turbofan engine can deliver thrust in the range of 5,000 to 8,000 lb, which enables the operator increased thrust, increased life leading to reduced life cycle costs, and greater performance. The evolution of Adour engines has resulted in the continuous introduction of new technology in each engine variant. For example, the Adour Mk 951 features a Full Authority Digital Engine Control (FADEC).

- India's Jaguar aircraft is powered by two Adour MK 804 / MK 811 Engines. With two-stage low pressure and five-stage high-pressure axial flow Compressors, the Adour engine is driven by separate, single-stage high pressure and low-pressure turbines.

5.20 'Radiation Detection Equipment' in a bid to boost national security:

- Giving a major fillip to India's security ecosystem, the Union government has decided to install Radiation Detection Equipment (RDE) at all eight Integrated Check Posts (ICPs) on the nation's borders with Pakistan, Bangladesh, Myanmar, and Nepal, to detect smuggling of radioactive materials.

- India has about 8 Integrated Check Posts adjacent to neighbouring countries from where our import and export work is done by vehicles. The names of those borders are Attari – Pakistan border; Petrapole, Dawki, Agartala and Sutarkani – Bangladesh Border; Moreh – Myanmar border, and Raxaul & Jogbani – Nepal Border.

- Acting swiftly, the government has already issued a tender for installing RDE at all the eight ICPs on the borders. As per the Request for Proposal (RPE) document, the radiation equipment will be installed within three months of an order being placed. This could mean an early 2022 deadline.

Why RDE is a game changer in the security landscape of India

- The Integrated Check Posts (ICPs) at the borders regulate the entry and exit of passengers and goods. To regulate the security of cargo movement across ICPs, Security agencies at the ICPs use Radiation Detection Equipment (RDE), which monitors trucks and their cargo. These machines are so large in size that trucks and trailers can easily pass through it. Further, RDE is capable of raising separate gamma and neutron radiation alarms and generating video frames of target objects.

- The RDE also easily distinguishes between "special nuclear material and naturally occurring radiation in fertilizer or ceramics as well as high-energy gamma isotopes which are an attribute of recycled uranium.

- Simply put, as soon as the RDE starts, nothing illegal can come inside India from the border of any neighboring country adjacent to India. Meaning that, from a needle to a bomb without permission can not come inside the country.

- To date, the first RDI has been successfully deployed along the Indo-Pak Attari border, and the remaining seven integrated check posts are going to be installed soon.

5.21 Mu variant of Covid-19:

- On August 30, the World Health Organization (WHO) added a new variant of SARS-CoV-2, the coronavirus that causes Covid-19, to its list of 'Variants of Interest' (VOI).

- The lineage B.1.621 variant, named 'Mu' after the twelfth letter of the Greek alphabet, was first detected in the South American country of Colombia in January 2021.

What is a Variant of Interest (and one of 'Concern')?

- All viruses mutate or undergo certain changes over time, helping them to spread easily, escape our vaccines, medicines and survive.

- The other four VOIs, named according to the simplified scheme of nomenclature announced by the WHO on May 31 this year, are:

- Eta (lineage B.1.525, documented in multiple countries from December 2020);

- Iota (lineage B.1.526, first documented in the United States in November 2020);

- Kappa (lineage B.1.617.1, first documented in India in October 2020); and

- Lambda (lineage C.37, the so-called Peru variant, which was first documented in that country in December 2020).

- WHO places a SARS-CoV-2 variant in the VOI list if it is seen to have certain "genetic changes that are predicted or known to affect virus characteristics such as transmissibility, disease severity, immune escape, diagnostic or therapeutic escape".

- To be added to the VOI list, a variant must also be "identified to cause significant community transmission or multiple Covid-19 clusters in multiple countries", and suggest "an emerging risk to global public health".

Currently, four variants of the corona virus are designated as variants of concern. They are:

- Alpha (lineage B.1.1.7, the so-called 'UK variant'), which was first detected in the United Kingdom in September 2020, and is now present in at least 193 countries around the world;

- Beta (lineage B.1.351, the so-called 'South Africa variant'), the first samples of which were detected in South Africa in May 2020, and which has so far been reported from 141 countries;

- Gamma (lineage P.1, the so-called 'Brazil variant'), which was first detected in Brazil in November 2020, and which has been reported in 91 countries;

- Delta (lineage B.1.617.2), the variant that was first reported in India in October 2020 and is now present in at least 170 countries. The highly transmissible Delta variant is now the dominant strain of the virus in India, and was responsible for the devastating second wave of Covid-19 in April-May this year.

5.22 India scores 46th rank in the Global Innovation Index 2021:

- Innovation has been at the forefront of our battle against the unprecedented crisis created by the pandemic, and will be pivotal in driving the country's resilience and self-reliance, as enshrined in the Prime Ministers' clarion call on Atma Nirbhar Bharat.

- India has climbed 2 spots and has been ranked 46th by the World Intellectual Property Organization in the Global Innovation Index 2021 rankings. India has been on a rising trajectory, over the past several years in the Global Innovation Index (GII), from a rank of 81 in 2015 to46in 2021.

- The NITI Aayog has been working tirelessly to ensure the optimization of the national efforts for bringing policy led innovation in different areas such as electric vehicles, biotechnology, nano technology, space, alternative energy sources, etc.

- The India Innovation Index, the latest edition of which was released last year by the NITI Aayog, has been widely accepted as a major step in the direction of decentralization of innovation across all the states of India. A constant thrust in monitoring and evaluating India's position in the global rankings has been provided by the NITI Aayog, including in the GII.

- The GII is the fulcrum for the governments – across the world – to assess the social and the economic changes in their respective countries. Over the years, the GII has established itself as a policy tool for various governments and helped them to reflect upon the existing status quo.

- The Confederation of Indian Industry (CII) has also been leading from the front as a torchbearer of lndia's journey towards an innovation driven economy. This year, theNITIAayog,in partnership with the CII and the World Intellectual Property Organisation (WIPO), is hosting, virtually,the India Launch of the GII and the Global Innovation Conclave during September 21-22,2021.

5.23 **New Species of Hybodont Shark From Jurassics discovered in Jaisalmer:**

- In a rare discovery, teeth of new species of hybodontshark of Jurassic age have been reported for the first time from Jaisalmer by a team from Geological Survey of India(GSI). hybodont sharks have been reported for the first time from the Jurassic rocks (approximately, between 160 and 168 million-years-old) of the Jaisalmer region of Rajasthan.
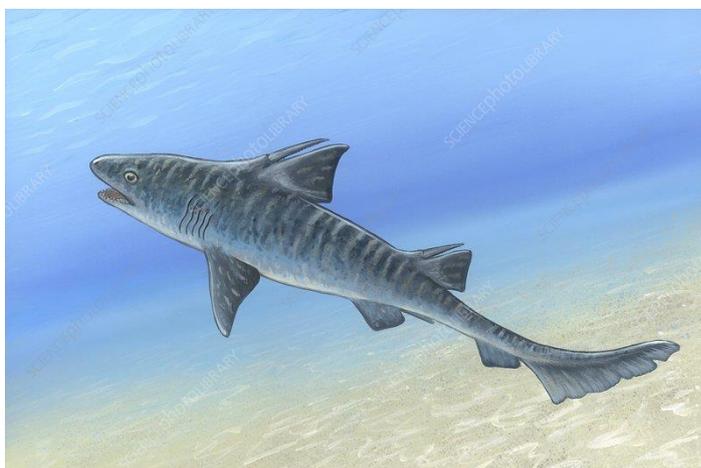
- Hybodonts, an extinct group of sharks, was a dominant group of fishes in both marine and fluvial environments during the Triassic and early Jurassic time. However, hybodontsharksstarted to decline in marine environments from the Middle Jurassic onwards until they formed a relatively minor component of open-marine shark assemblages. Hybodonts finally became extinct at the end of the Cretaceous time 65 million years ago.

- Significantly, the newly discovered crushing teeth from Jaisalmer represent a new species named by the research team as Strophodusjaisalmerensis. The genus Strophodus has been identified for the first time from the Indian subcontinent and is only the third such record from Asia, the other two being from Japan and Thailand. The new species has recently been included in the Shark references.com, an international platform operating in association with International Union for Conservation of Nature (IUCN), Species Survival Commission (SSC), and Germany.

This discovery marks an important milestone in the study of Jurassic vertebrate fossils in the Jaisalmer region of Rajasthan, and it opens a new window for further research in the domain of vertebrate fossils.

5.24 Anti-Tank Guided Missile Helina:

- The Defence Research and Development Laboratory (DRDL) Hyderabad, a laboratory of the Defence Research and Development Organisation (DRDO) has completed all trials of the indigenously made Nag Anti-Tank Guided Missile (ATGM), Helina.

- It will soon be inducted into the Indian defence arsenal.

Nag Anti-Tank Guided Missile (ATGM), Helina

- HELINA is a Helicopter based NAG which is a third-generation fire and forget class anti-tank guided missile (ATGM) system mounted on the Advanced Light Helicopter (ALH). The system can hit a target with a minimum range of 500 m and a maximum range of 7 km. The missile is guided by an Infrared Imaging Seeker (IIR), which makes it one of the most advanced Anti-Tank Weapons in the world.

- The missile system has all-weather day and night capability. It can penetrate through the conventional armor and can also destroy the explosive reactive armor. The missile can engage targets both in direct hit mode as well as top attack mode. The Indian Air Force has asked for the feasibility of integrating the Helina on the soon-to-be inducted Light Combat Helicopter (LCH) which will add to the current weapon arsenal of the Indian Air Force.

5.25 ISRO to develop VTVL(Vertical Takeoff and Vertical Landing) capabilities:

- India is inspiring to move a notch up in order to revolutionize its access to space. Since the successful vertical take-off and vertical landing (VTVL) of Space X's Falcon 9 rocket, the Indian Space Agency is aiming to enable the vertical landing of its rocket, further to facilitate reusability.

- Aligning with this, the Indian Space Research Organisation (ISRO) is conducting experiments and mini projects focusing on the VTVL capabilities.

- According to the senior officials from ISRO, the possibility of VTVL (vertical take-off and vertical landing) is being potentially explored about the heavy-lift rocket – GSLV MkIII. This rocket, chosen to launch Chandrayaan-2, is powered by three-stage heavy-lift engines – solid fuel, liquid fuel, and cryogenic fuel.

- Presently, ISRO's rockets are expendable, which indicates that the rocket stages separate from the vehicle and subsequently fall into the sea after their stipulated burn time. Reusability is in direct proportion to Vertical takeoff and Vertical landing (VTVL) for rockets. Reusability involves

retrieving stages of the rockets at sea or on land and further, refurbishing, servicing, testing, and qualifying them before flying again.

Revolutionizing Space Cost-Effectively:

- "If one can figure out how to effectively reuse rockets just like airplanes, the cost of access to space will be reduced by as much as a factor of a hundred. A fully reusable vehicle has never been done before. That really is the fundamental breakthrough needed to revolutionize access to space," Elon Musk.

- Reusable Rocket Development will drastically lower the costs of launch which in turn will lower the barrier of access to the exploration of Space. In regards to cost-cutting measures, ISRO is aiming to recover the first and second stages (S200 solid-fuel rocket boosters, and L-110 liquid-fuel stage respectively) which would offer a lot of cost advantage.

5.26 Electricity from water droplets:

- Researchers from IIT Delhi have recently designed and fabricated a device that can produce electricity from water drops, raindrops, water streams, and ocean waves using Tribo electric Effect and Electrostatic Induction. The device is known as 'Liquid-solid Interface Tribo electric Nanogenerator', which generates power and further stores the energy in batteries for consumption.
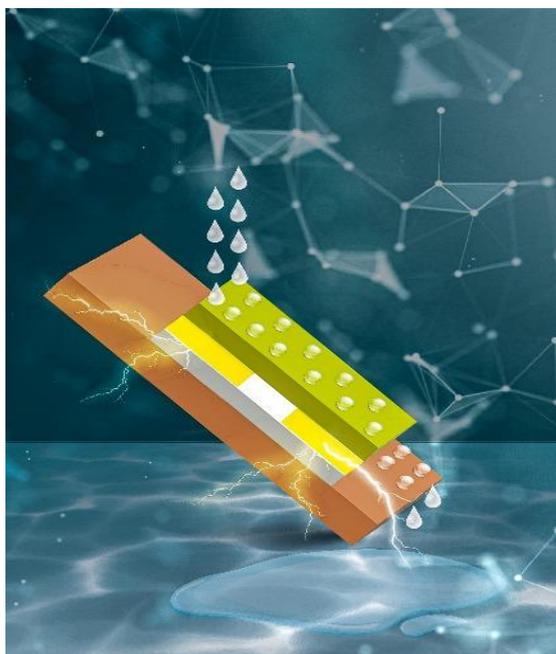
How does the device work?

- The device works on the phenomena of Tribo electric Effect and Electrostatic Induction. The two concepts might be hard to understand, but in simple words, both postulates work on a simple concept of converting mechanical energy into useful electric power. For Example, when we rub a balloon on our head and slowly take it away from the head, the hair is attracted towards the balloon. So this real-life situation is also known as the Triboelectric Effect and uses Electrostatic Induction.

- "Triboelectric effect is a known phenomenon for a long time, and in this effect, charges are generated when two surfaces are in friction. The best example we see is sparkling lights when we move the blankets/jackets. It is only lately that it has been extensively investigated as a practical alternative for energy harvesting," said Prof.Neeraj Khare, Physics Department, IIT Delhi.

- Similarly, the researchers used specially designed nanocomposite polymers and contact electrodes in the device to generate electricity. The incorporation of the nanostructures into a polymer matrix enhanced the film's surface roughness, polarizability, and hydrophobicity, and other characteristics. As the properties of the film were enhanced, the flexible film was used to fabricate the device where raindrops can just slide down and can generate electricity.

- Further, the artificially created rough surface allows the device to generate more charge from the droplet, and the super hydrophobic properties of the solid surface allow the water droplet to roll on the surface without getting stuck to the surface.

Impact of the device

The device with the above mechanism can generate a few Milliwatt (mW) powers, which is sufficient to power small electronic devices like healthcare sensors, digital thermometers, watches, radio frequency transmitters, pedometers. When compared to conventional methods like the use of the piezoelectric effect, the 'Liquid-solid Interface Triboelectric Nanogenerator' can generate significantly more electricity in an effective manner.

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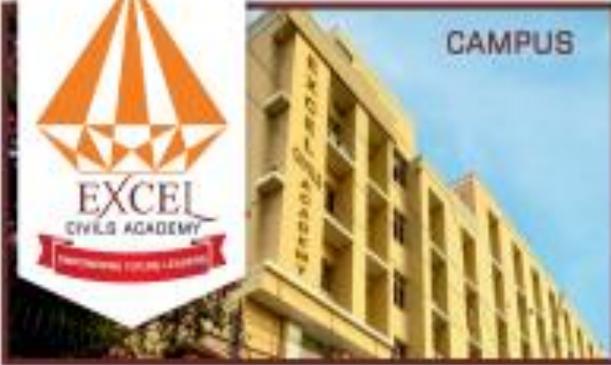
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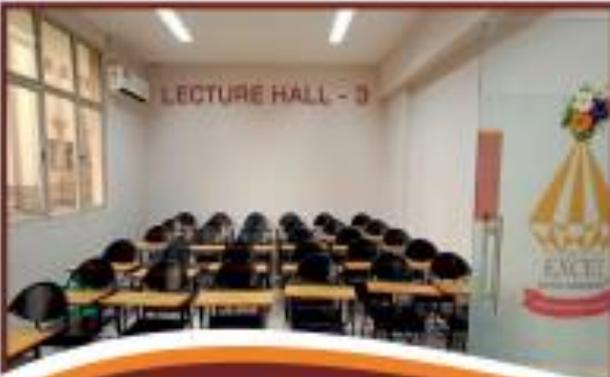
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