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1. Akhil Bharatiya Shiksha Samagam and ULLAS Initiative

Recently the Indian Prime Minister has inaugurated the 'All India Education Summit' program. This two-day event has been organized on the third anniversary of the National Education Policy (NEP), 2020.

On this occasion, the Union Minister for Education and Skill Development and Entrepreneurship has launched the mobile application of ULLAS: New India Literacy Program (or ULLAS App).

Key features of All India Education Conference:
- Under this scheme, the schools will modify the students in a way that they become engaged, productive, and contributing citizens for building an equitable, inclusive, and plural society as envisaged under the National Education Policy (NEP).
- The Prime Minister also released books on education and skill courses, which are translated into 12 Indian languages, to help students study in their mother tongue and enhance their learning.

ULLAS: New India Literacy Program
- The logo and slogan of Ullas : New India Literacy Program" symbolize the enthusiasm of the campaign and the light of knowledge spreading across the country.
- The ULLAS (Understanding Lifelong Learning for All in Society: ULLAS) mobile application is a significant milestone in harnessing the potential of technology to make foundational literacy widely accessible.
- This user-friendly app is available on both Android and IOS and will act as a digital gateway for learners to connect to various learning resources through DIKSHA portal of NCERT.
- ULLAS app can be used for self-registration or for registration of learners and volunteers by surveyors.
- ULLAS will focus on promoting several important life skills such as functional literacy, vocational skills and financial literacy, legal literacy, digital literacy and empowerment of citizens to engage in the task of nation building.
- It will also foster a culture of continuous learning and knowledge sharing in various communities across the country. ULLAS (Understanding Lifelong Learning for All in Society) initiative to revolutionize education and literacy across the country by bridging

the gap between basic literacy and critical life skills and fostering a learning ecosystem accessible to everyone is ready.

- The program equips citizens aged 15 years and above with basic education, digital and financial literacy and important life skills who have lost the opportunity to attend school. It is being implemented through volunteerism.
- According to government data, more than 12 lakh students are out of school in the year 2022-23, of which boys are more than girls.

2. Report on 'India's Soft Power and Cultural Diplomacy: Prospects & Limitations'

Recently, the Parliamentary Standing Committee on Foreign Affairs has submitted its report on the work done by the government regarding 'India's soft power and cultural diplomacy'.

'Soft power' is the ability of a country, through which it can persuade other countries to fulfill its wish without the use of force or pressure.

A country's soft power lies in its attractiveness, and this attractiveness stems from three sources: its culture, its political values, and its foreign policies.

India channels the following resources under its soft power policy. These resources include Indian art and literature, Indian cuisine, yoga and traditional medicine, Indian cinema and sports, Indian democracy and its constitution, etc.

Challenges:

- There is ambiguity in the assignments given to the Indian Council for Cultural Relations (ICCR). Sufficient budget is not allotted to the council and related institutions on time.
- There is a lack of coordination among many institutions, and their roles also conflict.
- There is a lack of skilled and dedicated workforce to work in the field of 'soft power'.

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Committee Recommendations:

- ICCR should make proper budget allocation. A coordination mechanism should be established between the Ministry of External Affairs and the ICCR and other relevant ministries.
- The report asked the government to prepare a policy document on India's uses of soft power.
- According to the report, a formal study of existing international best practices in the use of soft power should be taken up on a priority basis.
- A multi-pronged approach should be adopted for religious and medical tourism through infrastructure and skilled expertise.
- A study group should be set up to evaluate the working of ICCR vis-à-vis foreign counterparts like British Council, American Center etc.

Indian Council for Cultural Relations (ICCR)

- ICCR was established in the year 1950 with the objective of promoting Indian culture and its values abroad, and to strengthen cultural exchanges between India and other countries.
- The Indian Council for Cultural Relations is an autonomous organization of the Government of India under the Ministry of External Affairs.

Functions of ICCR:

- ICCR organizes cultural festivals, performances, exhibitions and lectures in India and abroad.
- Acts as a medium of cooperation with international organizations, cultural institutions and foreign governments to promote cultural exchange.

3. Pradhan Mantri Gram Sadak Yojana (PMGSY)

Recently the Parliamentary Standing Committee has released its report on Pradhan Mantri Gram Sadak Yojana (PMGSY).

'Pradhan Mantri Gram Sadak Yojana' is a centrally sponsored scheme, which was started in the year 2000. The scheme objective is to provide all-weather road connectivity to all eligible unconnected habitations in rural areas of the states.

It aims to provide all-weather road connectivity to unconnected habitations. The following population norms have been prescribed for such settlements-

- The plains should have a population of 500 persons as per the 2001 census;
- Special Category States/Union Territories (North East States, Jammu and Kashmir, Himachal Pradesh and Uttarakhand) should have a population of 250 persons or more.
- It includes desert areas, tribal areas (5th Schedule of the Constitution), and selected tribal and backward areas.

Present Status: 96.24% and 97.01% of the projects sanctioned under PMGSY – I (2000) and PMGSY-II (2013) respectively have been completed.

Challenges:
Poor road construction material, getting the work done through sub-contractors, as well as problems related to logistics or delays due to non-release of funds on time, etc.

Key Recommendations of the report:
- Nodal agencies, both at the Central and State levels, need to adopt a collaborative approach.
- This scheme should be linked with MNREGA.
- Border Roads Organization (BRO) should adopt innovative measures for road construction in Left Wing Extremism affected areas.
- Strict compliance to the provision of onsite road quality testing laboratories should be ensured.

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- ⏱ After construction of roads, adequate funds should be released to ensure their maintenance. It should be ensured that unutilized funds are spent as early as possible.
- ⏱ The feasibility of accepting Panchayats as a reference point/unit should be considered.

4. Constitution (Jammu and Kashmir) Scheduled Tribes Order (Amendment) Bill, 2023

The Constitution (Jammu and Kashmir) Scheduled Tribes Order (Amendment) Bill, 2023 has been introduced in Lok Sabha on July 26, 2023.

The Bill amends the Constitution (Jammu and Kashmir) Scheduled Tribes Order, 1989, so as to create separate lists for Scheduled Tribes in the Union Territories of Jammu and Kashmir and Ladakh.

Inclusion of certain communities in the list of Jammu and Kashmir: The Bill adds four communities to the list of Scheduled Tribes in Jammu and Kashmir. These are Gadda Brahmin, Koli, Padari tribe and Pahari ethnic groups.

Present situation:
- ⏱ The major Scheduled Tribe communities in Jammu and Kashmir are Gujjars and Bakarwals, who live mainly in the districts of Rajouri, Poonch, Reasi, Kishtwar, Anantnag, Bandipora, Ganderbal and Kupwara.
- ⏱ Most of them, especially the Bakerwals, are nomadic – they move to higher places with their livestock in the summer, and return before the onset of winter.
- ⏱ They were given ST status in 1991 along with two smaller groups of Gaddis and Sippis. They are the third largest group in Jammu and Kashmir after Kashmiris and Dogras.
- ⏱ It has provided these four communities with the right of 10% reservation in government jobs and admission in educational institutions. Also in 2019, they were given 10% quota in Lok Sabha and Vidhansabha seats in Jammu and Kashmir.

Procedure for inclusion in Scheduled Tribe list:
- ⏱ The concerned state government recommends tribes for inclusion in the ST list to the 'Ministry of Tribal Affairs', which reviews and sends them to the Registrar General of India for approval.

- The approval of the 'National Commission for Scheduled Tribes' (NCST) is taken before the list is sent to the cabinet for a final decision.
- The final decision depends on the President issuing a notification specifying the changes under his powers under Article 342.

Article – 342:
- The President may with respect to any State or Union territory, and where it is a State, after consultation with the Governor thereof, by public notification, specify the tribes or tribal communities or parts of or groups within tribes or tribal communities which shall for the purposes of this Constitution be deemed to be Scheduled Tribes in relation to that State or Union territory.
- The inclusion of any community in the Scheduled Tribes becomes effective only when the President gives his assent to the Bill amending the Constitution (Scheduled Tribes) Order, 1950, then the Bill has to be passed by both the Lok Sabha and the Rajya Sabha.

National Commission for Scheduled Tribes (NCST)
The National Commission for Scheduled Tribes (NCST) was established by amending Article 338 of the Constitution of India and by inserting a new Article 338A in the Constitution by the Constitution (89th Amendment) Act, 2003, hence it is a constitutional body.

5. Lokmanya Tilak National Award

Recently Prime Minister Shri Narendra Modi was honored with Lokmanya Tilak National Award in Pune, Maharashtra.

The Prime Minister has donated the prize money to the Namami Gange project.

About Lokmanya Tilak National Award

- The award was instituted by the Tilak Smarak Mandir Trust in 1983 to honor the legacy of Lokmanya Tilak.
- It is presented every year on August 1, the death anniversary of Lokmanya Tilak.
- It is awarded to those people who have worked for the progress and development of the nation and whose contribution can only be seen as remarkable and extraordinary.

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- The Prime Minister became the 41st recipient of this award. It has earlier been presented to luminaries like Dr. Shankar Dayal Sharma, Shri Pranab Mukherjee, Shri Atal Bihari Vajpayee, Smt. Indira Gandhi, Dr. Manmohan Singh, Shri NR Narayana Murthy, E. Sreedharan.

Bal Gangadhar Tilak

- Bal Gangadhar Tilak was an Indian social reformer and freedom fighter. He was one of the principal architects of modern India and probably the strongest advocate of Swaraj or self-rule for India.
- His famous declaration "Swaraj is my birthright, and I shall have it" served as an inspiration to future revolutionaries during India's freedom struggle.
- The British government called him the "Father of the Indian Unrest", and his followers gave him the title of 'Lokmanya', which means one who is revered by the people.
- Lokmanya Tilak started the Deccan Educational Society with college batchmates, Vishnu Shastri Chiplunkar and Gopal Ganesh Agarkar, with the aim of inspiring nationalist education among Indian students.
- Parallel to his teaching activities, Tilak established two newspapers, the 'Kesari' in Marathi and the 'Maratha' in English.
- Gangadhar Tilak joined the Indian National Congress in 1890. His article inspired the Chapekar brothers and they carried out the assassination on June 22, 1897, of Commissioner Rand Ayerst and Lt.
- As a result, Tilak was imprisoned for 18 months for abetting the murder. During 1908-1914, Bal Gangadhar Tilak had to undergo six years of rigorous imprisonment in Mandalay Jail in Burma.
- He openly supported the revolutionaries Khudiram Bose and Prafulla Chaki's 1908 attempt to assassinate Douglas Kingsford, the Chief Presidency Magistrate. During the years of imprisonment he continued to write and the most prominent among them was Gita Rahasya.
- Tilak founded the All India Home Rule League in 1916 along with Joseph Baptista, Annie Besant and Muhammad Ali Jinnah. Tilak proposed grand celebrations on 'Ganesh Chaturthi' and 'Shivaji Jayanti'. Bal Gangadhar Tilak never became the President of the Indian National Congress.

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6. Detection of diseases easier with cell-free DNA (cfDNA)

Recently researchers around the world are considering cell-free DNA: cfDNA as a useful tool to understand human diseases and to use the knowledge to improve diagnosis, monitoring and prognosis.

Cell-free DNA: cfDNA

- Most of the DNA in the genome of the human body is packaged in a very systematic manner inside cells with the help of specific proteins, which protect it from degradation.
- But some pieces of DNA are 'released' from their containers, and are present outside the cell, in body fluids.
- These short fragments of nucleic acid are known as cell-free DNA (cfDNA).
- cfDNA is released from cells mainly through apoptosis and necrosis and possibly also by active secretion.
- When a cell is dying and the nucleic acid is being degraded, then only the condition of cfDNA` arises. The half-life of cfDNA ranges from 16 minutes to 2.5 hours.
- The amount, size and source of cfDNA can also vary within a range. Furthermore, cfDNA release can occur with a variety of processes, including processes essential for normal development, some processes related to cancer development, and processes associated with many other diseases.

Uses of cfDNA:
Fetal examination –
- One of the most widely used applications of cfDNA is to examine the fetus for specific chromosomal abnormalities. This is known as non-invasive prenatal testing.
- The availability of affordable genome-sequencing systems will allow clinicians to sequence cfDNA fragments corresponding to fetal DNA.

Cancer Screening
- Another emerging use of cfDNA is in the early detection, diagnosis and treatment of cancer.
- cfDNA has many other uses as well. It can also be used to find out why a body is rejecting a transplanted organ.

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🕐 There have already been some reports suggesting that cfDNA may be used to treat Alzheimer's disease, neuronal tumors, stroke, traumatic brain injury, and may even be used as a biomarker for metabolic disorders such as type 2 diabetes and non-alcoholic fatty liver disease.

7. Report on the working of 'MGNREGA' released by the Standing Committee of Parliament

Recently, the Parliamentary Standing Committee on Rural Development and Panchayati Raj has issued a report on the working of 'MNREGA'.

The Mahatma Gandhi National Rural Employment Guarantee Act ie MNREGA was introduced by the Government of India in the year 2005 as the National Rural Employment Guarantee Act, 2005 (NREGA).

In the year 2010, the name of NREGA was changed to MGNREGA. It is one of the largest job guarantee programs in the world.

The primary objective of the scheme is to guarantee 100 days of employment in every financial year to adult members of any rural household willing to do unskilled manual work related to public work.

There are 15.4 crore active workers under MNREGA by the year 2022-23. During drought/natural calamity, working days can be increased to 150 days in notified rural areas.

Key points of the report

Major Challenges of MNREGA
🕐 The problem of disruption of work due to shortfall in fund allocation in MNREGA.
🕐 Delay in payment of wages and release of funds for material demoralizing the needy beneficiaries.
🕐 Smartphone and internet connectivity have become essential for the new attendance system introduced through the mobile app 'National Mobile Monitoring System'.

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- Workers also face language barriers in the mobile app system, so have to seek the help of another person.
- There exists a disparity in the wages being paid under MGNREGA in different States/UTs.

Recommendations of the committee:
- The Department of Rural Development (DoRD) should assess the ground situation with respect to the demand for employment under MGNREGA. Also, the demand for allocation of requisite funds should be coordinated with the Ministry of Finance.
- Timely release of the Centre's share in wages and material must be ensured through effective measures and better coordination with the States.
- The implementation of the Attendance App needs to be reviewed holistically keeping in view the ground reality and challenges faced by the MGNREGA workers.
- A uniform wage rate should be notified throughout the country and it should be linked to a suitable price index.

8. Report on decarbonization targets of transport sector of G-20 countries

Recently NITI Aayog has released a report titled "Towards Decarbonizing Transport 2023: A Stocktake on Sectoral Ambitions in G-20".

This report analyzes the current status of achieving ambitious targets related to decarbonisation and climate action in the transport sector of the G-20 countries.

Decarbonization refers to the removal of carbon dioxide (CO_2) emitted from various activities in the atmosphere or the reduction of CO_2 emissions into the atmosphere.

Key points of the report:

- India has set a target of net zero emissions by 2070. Despite this, no overall emissions or energy targets have yet been adopted for the transport sector in India.
- Emissions from the transport-sector in India could increase by 65 percent by 2030 and 197 percent by 2050 compared to 2020 levels.
- In the transport sector, rail transport has the largest emissions after road transport.

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Challenges:

- More investment is needed to use new technologies and build charging infrastructure;
- There is a lack of enthusiasm among consumers to adopt low-carbon based transport modes such as electric vehicles etc.

Initiatives taken for decarbonization of transport sector:

- Bharat Stage VI emission norms have been implemented;
- NITI Aayog launches platform for decarbonisation of transport sector in India;
- Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme has been launched under the National Electric Mobility Mission plan etc.

Recommendation:

- Certified low carbon emission systems should be rapidly expanded.
- Investment in more energy-efficient modes of transport should be increased.

9. Digital India RISC-V (DIR-V) program

Recently Union Minister of State for Electronics and IT Shri Rajeev Chandrasekhar has addressed the Digital India RISC-V (DIR-V) seminar organized by IIT Madras in Chennai through virtual medium.

The event was organized by the Ministry of Electronics and Information Technology, IIT Madras and IIT-Madras Innovative Technologies Foundation.

In his address, he emphasized on the government's vision for DIR-V and said that it currently aims to create a strong ecosystem for RISC-V through effective public-private partnership and collaboration with higher educational institutions like IIT Madras.

About RISC-V:

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- RISC stands for 'Reduced Instruction Set Computer' and 'V' stands for fifth generation.
- RISC-V Foundation was established in the year 2015 and IIT Madras was one of its founding members.

- RISC-V instruction set architecture (ISA) enables a new era of processor innovation through liberal standard interoperability. Its purpose is to provide new open-layer, extensible software and hardware for the framework that will support computer design and innovation for the next 50 years.
- Professor Kamakoti developed India's first indigenously designed microprocessor 'Shakti' based on RISC-V ISA.
- The Government of India started the DIR-V (Digital India RISC-V) microprocessor program in the year 2022, with the basic objective of preparing microprocessors for the future worldwide by the month of December 2023.

10. Trade and Economic Engagement Plan for India, Latin American and Caribbean Countries

Recently, the External Affairs Minister also suggested a four-pillar plan for deeper trade and economic engagement.

The plan aims to double India and Latin American and Caribbean (LAC) bilateral trade to $100 billion by 2027.

The scheme is based on the following pillars –

1. Diversifying supply chains.
2. **Sharing of resources:** While LAC countries can help meet India's growing demand for oil, gas and strategic minerals, Indian goods and services can meet the needs of the middle class in LAC countries.
3. **Sharing of development experiences:** These include digital capabilities, health care solutions, agricultural practices, etc.
4. **Addressing Global Challenges:** These challenges include climate change, concerns of the Global South and reform of multilateral fora.

LAC includes about 44 countries including Mexico. This group covers a wide range from the Bahamas and Mexico to Argentina and Chile.

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Significance of India – LAC Relations:

- They have high potential for bilateral trade and investment,
- Good relations between India and these countries are important for promoting South-South cooperation,
- At the strategic level, the LAC area can be an important source of supply of minerals like copper, lithium etc. for India.

Steps taken by India

- Preferential trade agreements (PTAs) have been made with the Southern Common Market (MERCOSUR) and Chile.
- Lines of Credit have been extended to several countries along the LAC under India's development partnership initiative.
- In 1997, the FOCUS Latin America and the Caribbean (FOCUS LAC) program was launched. It has been expanded from time to time.

11. The Anusandhan National Research Foundation Bill, 2023

Recently, the Ministry of Science and Technology has introduced The Anusandhan National Research Foundation Bill, 2023 in the Lok Sabha.

The passage of this bill will pave the way for the setting up of the National Research Foundation (NRF).

The foundation will encourage research and development (R&D) in the country and promote a culture of research and innovation in universities, colleges, research institutes and R&D laboratories across the country.

A look at the key provisions of the bill:
- NRF will be set up as an apex body to provide strategic direction to scientific research in the country in line with the recommendations of the National Education Policy (NEP).
- NRF will have a budget of Rs 50,000 crore for a period of five years (2023-28).

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- The Department of Science and Technology (DST) will be the administrative department of the NRF.
- The NRF will be governed by a Governing Board. The Board will consist of eminent researchers and professionals from different subject areas.
- The Prime Minister will be the ex-officio chairman of this board. Union Science and Technology Minister and Union Education Minister will be its ex-officio vice-chairman.
- The bill would also repeal the Science and Engineering Research Board (SERB). It will be merged with NRF.
- The functioning of the NRF shall be administered by an Executive Council. The Council will be headed by the Principal Scientific Adviser to the Government of India.

Significance of the Bill
- This will encourage spending by industry on R&D.
- Create collaboration between industry, academia and government departments.
- Will encourage research in natural sciences, humanities, social sciences and arts to develop creativity.

Science and Engineering Research Board (SERB)
- It is a statutory body under the Department of Science and Technology, established by the "Science and Engineering Research Board, 2008".
- Its main function is to promote basic research in science and engineering. Also, financial assistance is to be provided for this work. A regular faculty/researcher in an academic/research institution can apply for the grant for research work.
- The Board also pays special attention to young scientists below the age of 35 years (which can also be relaxed). This board awards JC Bose National Fellowship and Ramanujan Fellowship.

12. Einstein Cross

Recently, astronomers have discovered a rare view of the "Einstein Cross", predicted by Albert Einstein in 1915.

In this case, a foreground elliptical galaxy about 6 billion light-years away from Earth has distorted and split a beam of light from a background galaxy about 11 billion light-years away.

The result is a pattern of four blue spots surrounding the orange glow of the foreground galaxy.

The background light probably originates from a quasar, a young galaxy with a supermassive black hole at its core that emits intense radiation.

Einstein cross

- The Einstein cross is a special case of gravitational lensing. And gravitational lensing is a phenomenon.
- Under this, light shining from a greater distance is bent and pulled towards itself by the gravity of an object (such as a galaxy or a quasar) coming between its source and the observer. Because of this, distant galaxies appear brighter.
- In the case of the Einstein cross, the curvature of space-time around the object in front splits the light coming from behind it into four parts, like the points of a cross.
- Another case of gravitational lensing are Einstein rings. It occurs when two galaxies are behind each other in an almost perfectly straight line.
- Einstein's theory of general relativity explains how massive objects bend space-time, and the strong gravity of the foreground galaxy bent the light from the quasars, creating the Einstein cross pattern.
- The greater the mass of an object, the greater the distortion it creates in space-time. Therefore, a star distorts space-time more than a planet and a black hole distorts it far more than a star.
- Sun, Earth and all other bodies produce the same curvature around them, due to which small bodies are attracted towards them. Extremely massive celestial objects also bend the path of light passing through them and act as gravitational lenses.

13. Devika: North India's First River Rejuvenation Project

Recently Union Minister Jitendra Singh said that 'North India's first River Rejuvenation Project Devika' is going to be completed by August 2023.

Built on the lines of 'Namami Gange' at a cost of over Rs 190 crore, the project was launched by Prime Minister Narendra Modi. The objective of this initiative is to protect the cleanliness and health of the holy river Devika.

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The project received an investment of over Rs 190 crore, with the allocation being shared in the ratio of 90:10 between the Center and the Union Territory.

Key objective of the project:

- Its primary objective is to ensure efficient disposal of liquid waste, prevent pollution and maintain the purity of the river.
- Also drawing attention to liquid waste management and establishing a network of pipes and manholes connecting the houses.
- Apart from liquid waste, the project also includes an important aspect of solid waste management. It involves the collection, disposal and management of solid waste generated by local communities.
- Proper management of solid waste is essential to prevent environmental degradation and maintain the overall environmental health of the river and its surroundings.

Background:

- The work to revive the river Devika began in March 2019 and was to be completed in two years, but the deadline was extended due to the outbreak of the COVID-19 pandemic.
- This project has been included in the National River Conservation Project (NRCP) of the Government of India.
- As part of the Kayakalp project, liquid waste management work is being carried out by the Urban Environmental Engineering Department (UEED) by creating a network of pipes and manholes.

Devika River:

- The Devika river, considered the sister of the holy river Ganga, originates from a hillock near the Sudhamhadev temple in the Udhampur district of Jammu and Kashmir and joins the Ravi river flowing towards western Punjab (now in Pakistan).
- The river holds religious significance as Hindus worship it as the sister of the river Ganga.
- It is believed that the Devika River is a manifestation of Goddess Parvati herself to bring benefits to the people of the Mader country covering the areas between the Ravi and Chenab rivers.

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14. Amrit Bharat Station Scheme

Recently the Prime Minister has laid the foundation stone for the redevelopment of 508 railway stations under the Amrit Bharat Station Scheme (ABSS).

Under this scheme, state-of-the-art public transport and world-class facilities will be provided at railway stations.

It may be noted that the Amrit Bharat Station Scheme (ABSS) was launched by the Ministry of Railways in February 2023 with the aim of modernizing and expanding railway stations across India.

Objective of the Scheme:

- Improvement of facilities beyond the minimum essential facilities; construction of roof plazas and city centers within stations; Commissioning of new facilities and upgradation of existing facilities.
- It is based on master planning for a long period. Also, the implementation of the master plan will be as per the needs of the railway station.
- The stations will be developed as 'City Centres' based on an integrated approach for holistic urban development centered around the station.

Initiatives taken by Indian Railways for Modernization:

- **Train Modernization:** Trains will be modernized with initiatives such as indigenously developed Vande Bharat trains, Vistadome coaches, smart coaches with state-of-the-art facilities, increased speed of goods trains.
- **Theme-inspired design:** Stations will be designed based on specific themes, integrating local landmarks and cultural elements. For example, the Jaipur station design will incorporate elements such as the iconic Hawa Mahal in Rajasthan, and the Amber Fort.
- **Signaling and protection systems:** These include new features like Real Time Information System (RTIS) for tracking, Linke Hoffman Busch (LHB) coaches, indigenously developed Train Collision Avoidance System – Kavach, Electronic Interlocking System.
- **Green Building Norms:** Initiatives such as setting up of Dedicated Freight Corridors (DFCs), electrification of all railway tracks and making Railways a zero carbon emission

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organization by 2030 will be achieved.

Other Initiatives:
All unmanned level crossings on broad gauge will be eliminated, Wi-Fi services will be provided at stations, one station one product scheme will be introduced etc.

15. 'Neerakshi' – Autonomous Underwater Vehicle for mine detection

Recently India has launched the first of its kind Autonomous Underwater Vehicle (AUV) in Kolkata named 'Neerakshi' designed for mine detection.

'Neerakshi' has been developed by Kolkata-based warship builder Garden Reach Shipbuilders and Engineers (GRSE) Ltd and MSME unit AEP.

Specification:
- The 2.1 m long cylindrical AUV, which weighs around 45 kg, can perform various tasks such as mine detection, disposal and underwater survey.
- Neerakshi platform is a prototype. It can stay underwater for up to four hours, and it can go to a depth of 300 metres.

Significance:
- The process is on to increase the endurance of the AUVs to 200 to 300 per cent, and then they can be deployed in coastal waters to ensure the security of the coast.
- The platform is meant for deployment either from the mother ship or ashore for coastal security.

16. 'SATAT' scheme on Compressed Bio Gas (CBG)

Recently a Standing Committee of Parliament has submitted a report on review of implementation of Compressed Biogas (CBG) based Sustainable (SATAT) initiative.

The Sustainable Alternatives for Affordable Transportation (SATAT) initiative envisages setting up 5000 innovative Compressed Biogas (CBG) plants.

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It aims to produce 15 million metric tonnes (MMT) of CBG per year by 2023–24. The SATAT initiative was launched by the Ministry of Petroleum and Natural Gas in 2018.

Key Points of the Report

- CBG projects are not being implemented at the desired rate. So far only 40 CBG plants have been set up.
- There is a need to provide financial assistance for development of pipeline infrastructure to connect CBG projects to City Gas Distribution (CGD) network.
- There is a need to set up a Fossil Fuel Infrastructure Fund and a Credit Guarantee Fund to improve access to credit for CBG projects.
- Public sector enterprises in the oil and gas sector should be motivated to invest in innovative CBG projects.
- A strong mechanism should be developed for coordination with other ministries and agencies.

Compressed Biogas (CBG)
An enhanced form of biogas: contains more than 90 percent methane and up to 4 percent carbon dioxide. Also, other gases like hydrogen sulphide, oxygen and nitrogen are also present.

Benefits of CBG:
It can generate additional revenue source for farmers, reduce import of natural gas and crude oil, help in mitigating the effects of fluctuating crude oil/gas prices etc.

17. 'Maya' operating system (MAYA OP) will replace Windows: Ministry of Defense

Recently, the Ministry of Defense of India has decided to install an operating system called "Maya" instead of the Microsoft operating system in all computers connected to the Internet.

The decision has been taken in the wake of increasing cyber and malware attacks on defense as well as critical infrastructure across the country.

In the past, there has been an increase in the number of malware and ransomware attacks in the country including critical infrastructure. There have been several attempts earlier in the Ministry of Defense to replace the Windows OS with an indigenously developed OS.

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Maya Operating System:

- 'Maya OS' is a new operating system developed by the Ministry of Defense of India to protect its systems from cyber attacks.
- It is based on the open-source Ubuntu platform, which means it uses free and publicly available software.
- 'Maya OS' aims to provide a robust protection against cyber threats by providing an interface and functionality similar to 'Windows OS', allowing users to easily adapt to the new system.
- Maya OS is equipped with a feature called Chakravyuh, which is an end point anti-malware and antivirus software. It creates a virtual security wall between users and the Internet, preventing hackers from accessing sensitive data.
- Currently, Maya OS is being installed only in the systems of the Ministry of Defense and not on the computers connected to the network of the three services.

18. Parliamentary Panel Urges Inclusion Of Drug Awareness

Recently, the Parliamentary Standing Committee on Social Justice and Empowerment has submitted a report on 'Drug Abuse Among Youth – Problems and Solutions'.

Key observations of the committee:

- In States/UTs like Punjab, Haryana, Delhi, Uttar Pradesh, Odisha and Maharashtra, about 37 crore people in the age group of 10-17 years and 18-75 years are consuming various drugs and alcohol.
- The services of District De-addiction Centers (DDAC) are not available everywhere.
- There has been a reduction in the financial allocation on anti-drug education and awareness generation programme. India is situated among some of the largest producing countries of narcotics/narcotics.
- These countries are classified into Golden Crescent (Pakistan, Afghanistan and Iran) and Golden Triangle (Thailand, Myanmar, Vietnam and Laos).
- There is delay in imparting training to master trainers under Nav-Chetana programme. Navchetna program aims to develop life skills for school children and provide education against drug abuse.

Recommendations of the committee:

- There should be regular meetings and reviews of the Apex Committee of the Narcotics Coordination Centre.
- An effective evaluation mechanism should be put in place for the National Action Plan on Drug Demand Reduction (NAPDRR).
- Awareness should be created among people by including chapters on drug addiction, its ill-effects and de-addiction measures in the educational curriculum.
- Inter-ministerial coordination should be promoted to address the supply side and demand side issues of drug abuse.
- Periodic surveys should be conducted by the National Drug Dependence Treatment Centers (NDDTC) to stay updated on the status of drug abuse.

19. Parliament passes Coastal Aquaculture Authority (Amendment) Bill, 2023

Recently, the Lok Sabha has passed the Coastal Aquaculture Authority (Amendment) Bill, 2023. The Bill seeks to amend the Coastal Aquaculture Authority (CAA) Act, 2005.

The Coastal Aquaculture Authority was established by the CAA Act of 2005. It was established to regulate activities related to coastal aquaculture.

The CAA Act, 2005 exempted coastal aquaculture from the "prohibition clause" under the Coastal Regulatory Zone (CRZ) Notification 1991.

It may be noted that in 2022, the National Green Tribunal ruled that Section 27 of the CAA Act 2005 does not give complete exemption to coastal aquaculture from the CRZ notifications issued in 2011 and 2019.

Coastal aquaculture refers to the cultivation of shrimp, oysters, fish or other aquatic organisms in salt-rich or brackish water.

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Key provisions of the Amendment Bill:

- Coastal aquaculture and related activities are permitted under CRZ. Thus, these activities will continue to be regulated by the CAA Act only.
- It permits nucleus breeding and seaweed culture in creeks/backwaters in the 'No Development Zone' within the CRZ.

Additional functions assigned to CAA:

- setting standards for the use of inputs and effluents from aquaculture units;
- Entrusted with the prohibition of the use in coastal aquaculture of pharmacologically active substances, antimicrobial agents or other materials harmful to human health, etc.
- The Member Secretary of the Authority will be appointed by the Central Government. It will act as the Chief Executive Officer of CAA.
- Various acts have been decriminalized under the Act. Also, in case of offenses only a fine of up to Rs 1 lakh can be imposed.

Coastal Regulation Zone (CRZ)

- The CRZ notification has been issued by the Central Government under the Environment Protection Act, 1986.
- Its purpose is to regulate different activities in the coastal zone.
- The Union Ministry of Environment, Forest and Climate Change is its nodal ministry.

20. India Becomes the World's Largest Producer of Sugar

Recently, In the financial year 2021-2022, India had overtaken Brazil to become the world's largest sugar producing country.

In the year 2021-2022, a total of 35.9 million tonnes of sugar was produced in India, while 32 million tonnes of sugar was produced in Brazil. Uttar Pradesh and Maharashtra are the major sugar producing states of India.

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To support sugarcane producing farmers, the Central Government provides Fair and Remunerative Price (FRP) and the State Governments issue State Advisory Price.

Benefits of increasing production of sugar:

- This creates employment opportunities.
- Foreign exchange of about Rs 40,000 crore has been received from sugar exports.
- Will help in achieving the target of 20% ethanol-blended petrol by the year 2025.
- The Ethanol Blended Petrol (EBP) program was launched in 2003.

Issues related to increasing production:

- Groundwater is being over-exploited for sugarcane cultivation, especially in drought-prone areas (such as the Marathwada region of Maharashtra).
- About 2 lakh liters of ground water is consumed in irrigation for sugarcane crop required to produce 100 kg of sugar.
- Soil acidification can be responsible for pollution in fresh water ecosystems, loss of biodiversity, etc.

Necessary Measures: Diversification in cultivation of crops; Promotion of drip irrigation, rain water harvesting, waste water treatment etc.

Other related facts:

- According to the Central Ground Water Board (CGWB), 61.1 percent of the wells monitored during 2012 to 2021 have recorded a rise in groundwater level.
- Water is a State subject, therefore effective rain water harvesting/ recharging of ground water to increase the water table in the country comes under the purview of the States.

21. The Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Bill, 2023

Recently, the "Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Tenure) Bill, 2023" has been introduced in the Rajya Sabha by the Union Law Minister.

The Election Commission is a three-member body, consisting of a Chief Election Commissioner (CEC) and 2 other Election Commissioners (EC).

It may be noted that in March 2023, the Supreme Court ruled that the appointment of the Chief Election Commissioner, and other election commissioners, would be made by a selection panel consisting of the Prime Minister, the Leader of the Opposition in the Lok Sabha, and the Chief Justice of India.

The Supreme Court's order underlined that its guidelines would remain in force until Parliament enacted a law in accordance with Article 324(2) of the Constitution.

It may be noted that till this decision of the Supreme Court, the Chief Election Commissioner and other Election Commissioners were appointed by the President after the recommendations of the government.

Provisions in the new bill:

- **Selection Committee:** A selection committee consisting of the Prime Minister, the Leader of the Opposition in the Lok Sabha and a Union Cabinet Minister nominated by the Prime Minister will appoint the CEC and other ECs. When the Leader of the Opposition in the Lok Sabha is not recognized by the Lok Sabha, the leader of the largest opposition party shall be deemed to be the Leader of the Opposition in the Lok Sabha.
- **Search Committee:** A Search Committee headed by the Cabinet Secretary will prepare a panel of five persons who may be considered for appointment by the Selection Committee. The Search Committee shall consist of two other members not below the rank of Secretary to the Government having knowledge and experience in matters relating to elections.
- At present, the Law Minister sends some names to the Prime Minister. The President then appoints the CEC and other ECs on the advice of the Prime Minister.
- **Eligibility:** Persons holding or holding posts equivalent to the rank of Secretary to the Central Government shall be eligible for appointment to the post of CEC and other ECs.
- **Pay and Allowances:** The pay, allowances and other service conditions of the CEC and other ECs will be the same as those of the Cabinet Secretary. Earlier, as per the 1991 Act, his salary was equal to that of a Supreme Court judge.

22. Parliament passed the Coastal Aquaculture Authority (Amendment) Bill, 2023

Recently the Coastal Aquaculture Authorities (Amendment) Bill, 2023 has been passed by both the Houses of the Parliament.

Through this bill, amendments have been made in the Coastal Aquaculture Authority Act, 2005.

Provisions in the Amendment Bill:
- The Government of India wishes to emphasize that coastal aquaculture and allied activities are permitted activities within the CRZ under the CRZ (Coastal Regulation Zones) Notifications.
- The Amendment Bill provides that registration granted under the Coastal Aquaculture Authorities Act will be valid and will be treated as valid permission under CRZ notification, thereby eliminating the need for millions of small marginal aquaculture farmers to obtain CRZ clearance from multiple agencies.
- Specific exemption has been granted under the CAA Act, through this amendment for the establishment of aquaculture units like hatcheries, Brood stock multiplication centres (BMC) and Nucleus Breeding Centres (NBC) within the No Development Zone (NDZ) [200m from the HTL] of Coastal Regulation Zone (CRZ).
- The original Act provided for imprisonment of up to 3 years for undertaking coastal aquaculture without registration.
- The Amendment Bill provides that in accordance with the principle of de-criminalisation of civil offences, appropriate citizen friendly mechanisms such as fines shall be adopted for this offence.
- The Amendment Bill provides for a broad-based term "coastal aquaculture" to comprehensively cover all activities of coastal aquaculture within the purview of this Act and removes the ambiguity existing in the Principal Act between the form and other areas of coastal aquaculture.
- In 2005, the coastal aquaculture activity was primarily shrimp farming. Now new forms of eco-friendly coastal aquaculture like cage culture, sea weed culture, by-wall culture, marine ornamental fish culture, pearl oyster culture etc. have come up which can be done in coastal areas and mostly within CRZ.

- Several administrative matters which were unclear, such as the powers of the Member Secretary of the Coastal Aquaculture Authority (CAA) and normal functioning of the Authority in the absence of the Chairperson, have been suitably addressed under the amended Act for administrative efficiency and accountability.
- The amendment expressly empowers the Authority to appoint committees which may include experts, stakeholders and public representatives for efficient discharge of duties and execution of functions under the Act.
- The amendment bill provides for setting or adopting standards for emission or discharge of effluents from coastal aquaculture units.

Coastal Aquaculture Authority (CAA)
- Coastal Aquaculture Authority (CAA) works under the Union Ministry of Fisheries, Animal Husbandry and Dairying.
- The head office of the Coastal Aquaculture Authority is located at Chennai (Tamil Nadu).

23. Health Facilities for Tribal Women Report

Recently, the Parliamentary Committee on Empowerment of Women has presented a report on 'Health Facilities for Tribal Women'.

According to the National Family Health Survey (NFHS)-5 (2019-2020) data, tribal women suffer from malnutrition, high infant mortality rate (41.6%) and communicable diseases like malaria, tuberculosis (TB).

Key observations by the committee:
- There is an absence of a separate database on tribal health conditions like Maternal Mortality Rate (MMR).
- MMR is the number of maternal deaths per 100,000 live births in a given period.
- The prevalence of sickle cell disease (SCD) is high in tribal communities due to lack of effective treatment.
- Early marriage of tribal women leads to early pregnancy and other common health problems.
- There is a lack of antenatal and postnatal care facilities.

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Recommendations:

- The Ministry of Tribal Affairs should collaborate with the Union Ministry of Health and Family Welfare (MoHFW) to prepare a central health database for tribes.
- Also separate classifications should be done in this data for girls, women of different age groups etc.
- The health portal should be linked to different government databases like nutrition tracker.
- Financial assistance should be provided for the treatment of SCD. Also, its special branch should be established in hospitals.
- A special action plan should be prepared for the continuation of tribal girls in school.
- In addition, alternative education programs should be developed for 'out of school' girls.

Other related facts:

- The Ministry of Railways has launched the Tribal Pride Corridor. It is aimed at strengthening rail infrastructure and boosting rail connectivity in tribal dominated areas.
- This initiative has been taken keeping in mind the economic viability, connectivity to tribal and remote areas, alternative routes and socio-economic factors.

24. SuSwagatam portal for e-passes to enter Supreme Court

Recently Chief Justice of India (CJI) Justice Dr. Dhananjay Yashwant Chandrachud announced the launch of 'SuSwagatam' portal.

It is an online platform that provides the facility of issuing e-passes for entry into the apex court.

About Portal:
- 'SuSwagatam' is a user-friendly web application, which enables advocates, visitors and trainees to register online and request e-passes for various purposes including attending court hearings and holding meetings with advocates.
- The 'Suswagatam' portal was launched as a pilot project from July 25, 2023.
- More than 10,000 e-passes have been issued through the portal on a pilot basis till 9th August.

- The 'Su' in the welcome stands for the Supreme Court.
- Users can choose from different validity periods like daily, weekly, monthly or quarterly depending on their requirements and police clearance certificates.

SUPREME COURT OF INDIA
- The Constitution of India provides for the establishment of the Supreme Court in India (Article 124).
- The Supreme Court of India came into existence on 28 January 1950.
- The Supreme Court of India formerly known as the Federal Court of India was established in 1937 under the Government of India Act 1935.

25. RBI announces AI-powered UPI payment features

Recently Reserve Bank of India (RBI) has introduced several features to further digital payments through Unified Payments Interface (UPI).

UPI integrates multiple bank accounts (partner banks) into a single mobile application and provides access to certain fixed banking services. It has been developed by National Payments Corporation of India.

Key Features of UPI:
- Through this, both person-to-person (P2P) and person-to-merchant (P2M) payments can be made.
- It provides the facility of instant transfer of funds, bill-sharing facility etc.

New features introduced:
- **Conversational Payments:** RBI enables users on UPI to engage in dialogue with AI-powered systems (audio interaction with AI bots) to initiate and complete secure transactions. This innovative mode aims to enhance ease of use and expand the reach of UPI. The use of UPI-Lite is being promoted by increasing the per transaction limit from Rs.200 to Rs.500 for low value digital payments.
- **Offline transactions with NFC:** RBI proposes to enable offline transactions using Near Field Communication (NFC) technology.
- **Increase in transaction limit for small value payments:** The transaction limit for small value offline digital payments will be increased to ₹ The overall limit of ₹2,000 will

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remain in place to mitigate the risks. This adjustment facilitates faster, more reliable and contactless payments for everyday small value transactions.

- ⏱ **Scale-up of UPI-Lite:** The UPI-Lite wallet launched by RBI with an aim to optimize processing resources for banks now processes over 10 million transactions per month, thereby increasing the reliability of transactions.

UPI-Lite:

UPI-Lite is an on-device wallet service. It enables low value transactions in real time without using the core banking system of the remitter bank.

26. Russia's Luna-25 Mission

According to the latest information, both Russia's Luna-25 Mission and India's Chandrayaan-3 are expected to reach the Moon on 23 August 2023.

Landing on the moon would not impede India's Chandrayaan-3, which was launched on July 14, 2023, as the two missions had different landing areas and there was enough space on the Moon for everyone.

In this way, both India and Russia will become the first countries to land on the South Pole of the Moon, before which no lander has successfully gone here.

Chandrayaan-3

- ⏱ It is to be noted that Chandrayaan-3 does not have an orbiter like Chandrayaan-2, it has been launched on July 14, 2023.
- ⏱ The mission includes advanced technologies in the lander, such as laser and RF-based altimeters, laser Doppler velocimeter, etc.

Objectives of Chandrayaan-3:

Its objective is to perform scientific experiments in place and in orbit on the lunar surface, demonstrating a safe and soft landing on the lunar surface.

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Luna-25

- It will reach the south pole of the Moon on 23 August 2023. It was launched by Russia on 10 August 2023
- Luna-25 is a four-legged lander weighing 800 kg. Russia had earlier landed Luna-24 on the moon in 1976. This lander will work on the lunar surface for one year.

Objectives of Luna-25:

- It will search for water on the moon and analyze samples of lunar soil. Along with this, soft-landing technology has to be developed.
- Researching the internal structure of the Moon, and discovering other essential things including water are its other major goals.

27. The State of Elementary Education in Rural India Report

Recently a report on the status of education in rural India has been released.

The report has been prepared by the Development Intelligence Unit (DIU), an initiative of the Transforming Rural India Foundation (TRIF) and Sambodhi Pvt Ltd.

Key findings of report:

- **Aspirations:** 78% of parents in rural India aspire to take their daughters to graduation and beyond.
- School dropout: 35% of girls drop out during primary schooling. In the case of boys, this number is 25%.

Reasons for drop out:

- Schools with higher classes (i.e. secondary and senior secondary) are not close to home.
- Lack of ability to bear the cost of school education.
- **For girls:** Being busy with household chores and taking care of siblings at home.
- **For boys:** Engaged in work to meet the income requirements of the family and lack of interest in studies.

- ⏱ **Access to smart phones**: Students studying in classes 8 and above have more access to smartphones (58.32%).

Recommendation: Community ownership of schools and community/parent involvement can address the current trust deficit in school education.

Government Initiatives for Education: Holistic Education, Mid Day Meal, Right to Education Act, Kasturba Gandhi Balika Vidyalaya and PM Poshan Yojana etc.

28. Malabar drill to be held off Australia for the first time (Malabar exercise 2023)

From August 11 to 21, 2023, 'Malabar exercise 2023' is being organized in Sydney.

It is being hosted by the Royal Australian Navy (RAN).

Indian Navy's frontline indigenous warships INS Sahyadri and INS Kolkata, ships from the US Navy (USN), Japan Maritime Self Defense Force (JMSDF) and Royal Australian Navy (RAN) are participating in the exercise.

Malabar Exercise

- ⏱ The Malabar series of maritime exercises began in 1992 as a bilateral exercise between the Indian Navy and the US Navy.
- ⏱ It is an exercise to bring together the four major navies of the world in the Indo-Pacific region.
- ⏱ In 2020 only the Royal Australian Navy (RAN) participated.

INS Sahyadri: INS Sahyadri is the third ship of the indigenously designed and built Project-17 class multi-role stealth frigate.
INS Kolkata: INS Kolkata is the first ship of the indigenously designed and built Project – 15A class destroyers.

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29. India launches 'Graphene-Aurora program' to bolster Graphene Engineering

Recently the Ministry of Electronics and Information Technology (Meity) has launched the **'Graphene-Aurora program'** in an event at the Maker Village 'Konchi' in Kerala. The proposed project aims to boost the production of graphene, a valuable allotrope of carbon, which will open a new chapter of innovation in the country's technology sector.

The program will be implemented by Digital University Kerala with joint funding from the Ministry of Electronics and Information Technology (MeitY) and the Government of Kerala and industry partners.

As a joint effort of the central and state governments, a graphene-manufacturing unit of excellence will soon be launched at Maker village in Kalamassery.

Launching the 'Graphene-Aurora programme' at an event in Maker Village Kochi, Kerala, electronics and IT secretary Alkesh Kumar Sharma announced that a section 8 company (not for profit) called 'India Graphene Engineering and Innovation Centre (I-GEIC)' will be set up and the initial operations will start from the recently opened facility of Government of Kerala at Digital Science Park in Trivandrum.

Maker Village

- Maker Village is the largest electronic hardware incubator and ESDM facility in the country.
- Maker Village is a pioneering startup initiative of the Ministry of Electronics and Information Technology, Government of India in association with the Indian Institute of Information Technology.

What is Graphene?

Graphene is a single layer of carbon atoms arranged in a hexagonal lattice, forming a two-dimensional structure. It is known for its remarkable properties including exceptional strength, electrical conductivity and thermal conductivity.

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Uses of Graphene:

- The unique characteristics of graphene make it a versatile material with a variety of potential applications in various industries.
- It is used in electronics to make faster and more efficient devices,
- To strengthen composites in materials science,
- Used to enhance battery performance in energy storage, and for drug delivery and biosensors in the medical fields, among other uses.

30. Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA) scheme

With the reference of a report 14 States and Union Territories are yet to sign a crucial Memorandum of Understanding (MoU) with the Union Education Ministry.

The MoU mandates the implementation of the National Education Policy in order to avail funds worth almost ₹13,000 crore for the next three years.

These funds will be disbursed under the Centre's flagship scheme for State-run higher education – Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA).

Reasons for states not joining PM-USHA:

- Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA) ie PM-USHA is the flagship scheme of the Central Government for state-run higher education.
- The scheme mandates the implementation of the new National Education Policy (NEP) to receive funds of about ₹13,000 crore for the next 3 years.
- Along with this, the states will have to arrange 40% of the funds themselves. States argue that they do not have the funds to bring changes related to NEP.
- Apart from the adoption of NEP 2020, the MoU also includes, inter alia, the commitment of the states on adopting the National Credit Framework for Four Year Undergraduate Program and Guidelines for Choice Based Credit System.
- The scheme aims at improving quality through curriculum and program changes, teacher training, physical and digital infrastructure, accreditation and enhancing employability, and ensuring equity, access and inclusion.

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(PM-USHA) Scheme

- The scheme 'Rashtriya Uchchatar Shiksha Abhiyan (RUSA)' has been renamed as 'Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA)' in June 2023 under the National Education Policy.
- Rashtriya Uchchatar Shiksha Abhiyan (RUSA), is a centrally sponsored scheme which was launched in 2013. The second phase of the scheme was launched in 2018.
- Its objective was to provide strategic funding to higher education institutions across the country.
- A provision of 12929.16 crore outlay has been made between 2023-24 and 2025-26 under the PM-USHA scheme. Out of which the central share is 8120.97 crores and the state share is 4808.19 crores.

Objective of the Scheme:

- To enhance quality in higher education institutions, ensure compliance with norms and accreditation standards, promote governance and academic reforms, and encourage research and innovation.
- PM-USHA aims to transform higher education, ensure quality and equity, and promote innovation, research and employability in line with the National Education Policy.
- The MoU is being signed to show the strong will of the States and UTs to participate in the PM-USHA scheme and will help in better implementation of the scheme.

31. 75 Endemic Birds of India Report

Recently a report titled "75 Endemic Birds of India" has been published by the Zoological Survey of India (ZSI).

It has been told in the report that about 5% of the bird species found in the country are endemic i.e. they are not found in any other part of the world.

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TELEGRAM GROUP : https://t.me/gradientUPSCAPSC

Key takeaways from the report:

- India is habitat for 1,353 bird species, which is about 12.40% of the global bird diversity. Of these 1,353 bird species, 78 (5%) are endemic to the country.
- Out of 78 endemic species, the following 3 species have not been recorded in the last few decades.
- It houses the first Manipur bush quail (Perdicula manipurensis), which was last seen in 1907.
- The other is the Himalayan quail (Ophrysia superciliosa), last seen in 1876.
- Third Jordanian Courser (Rhinoptilus bitorquatus), last seen in 2009.
- According to this report, 75 bird species belong to 11 different orders, 31 families and 55 genera, and display remarkable distribution patterns. According to the report, the highest number of endemic species have been recorded in the Western Ghats. About 28 bird species have been recorded here.
- Some of the interesting species recorded in this bio-geographical hotspot of the country are – Malabar gray hornbill (Osiceros griseus); Malabar parrot (Citacula columboides); Ashambu laughing thrush (Montesincla meridionalis); and the white-bellied Sholakili (Sholicola albiventris) etc.
- Of the 78 endemic species, 25 are classified as 'Threatened' by the IUCN.
- Three species (the bugun Liocichla or Liocichla bugunorum; the Himalayan quail or Ophrisia superciliosa; the Jordanian courser or Rhinoptilus bitorquatus) are listed as 'Critically Endangered'.

Zoological Survey of India-ZSI

- The Zoological Survey of India (ZSI) is an organization under the Ministry of Environment and Forests.
- The Zoological Survey of India (ZSI) was established on July 1, 1916 in the erstwhile 'British Indian Empire' with the objective of promoting pioneering survey, exploration and research to provide information on various aspects of animal life.
- It originated in 1875 with the establishment of the Zoological Section at the Indian Museum in Calcutta.
- It is headquartered in Kolkata and currently has 16 regional stations located at different geographical locations in the country.

32. Inclusive Conservation Initiative (ICI)

Recently 'Global Environment Facility (GEF)' and Conservation International have released report on 'Inclusive Conservation Initiatives' (ICI).

Key points of report:

- Indigenous peoples account for 40% of the terrestrial protected area and 37% of the ecologically intact land area.
- Land management by indigenous peoples has equal or greater success in reducing deforestation than government efforts.
- Less than 1% of climate change mitigation and adaptation funding goes to Indigenous and local communities (IPLC).
- In the COP-26 of UNFCCC held in the year 2021, a funding of US$ 1.7 billion was resolved for IPLC. Only 7 percent of this has reached the IPLC directly.

Inclusive Conservation Initiative (ICI)

It was supported by GEF in 2022. Its objective is to support high biodiversity landscapes, marine landscapes and territorial areas and non-replaceable ecosystems to ensure and enhance their management by IPLC.

Four major components:

- local action to deliver environmental benefits on a global scale,
- Capacity Building of Global IPLC,
- IPLC's leadership in international environmental policy, and
- Inclusive conservation knowledge for action.

Other initiatives for inclusive conservation:
The Global Biodiversity Framework Fund proposed by the GEF has been established.

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Initiatives of India:

- The Community Reserve has been established and the Sacred Grove has been recognized under the Wildlife (Protection) Act, 2002.
- The forest rights of the forest dwellers have been recognized under the Forest Rights Act, 2006.
- Conservation International is a non-profit organization based in Virginia, USA. It works to protect nature.
- It has laid down some stringent criteria for conferring the status of Biodiversity Hotspot.

Global Environment Facility (GEF):

- It was established at the Rio Earth Summit in 1992, with its headquarters in Washington, D.C. (in the United States).
- It is a financial mechanism dedicated to combating biodiversity loss, climate change, pollution and the adverse effects on the health of land and oceans.
- It serves as the financial mechanism for 5 conventions – the Convention on Biological Diversity (CBD), the UNFCCC, the Stockholm Convention on Persistent Organic Pollutants, the United Nations Convention to Combat Desertification (UNCCD) and the Minamata Convention on Mercury.
- At present it has 185 member countries, and India is also a member of it.

33. Announcement of schemes on 77th Independence Day

Recently several schemes have been announced by the Prime Minister for skilled workers, women self-help groups and urban poor among others.

He announced the plans from the ramparts of the Red Fort on the occasion of 77th Independence Day.

The Prime Minister began his speech on the occasion of 77th Independence Day by stating India's position as the largest democracy globally.

Important Schemes:

PM Vishwakarma Scheme

- It will be launched on the occasion of Vishwakarma Jayanti. The objective of the scheme is to benefit persons skilled in traditional craftsmanship, especially from the Other Backward Classes (OBC) community.
- Weavers, goldsmiths, blacksmiths, washermen, barbers and such families will be empowered with the 'Vishwakarma Yojana' starting with an allocation of around Rs 13-15 thousand crores.
- The scheme will include various elements such as financial assistance, modern and green technology training, brand promotion, market connectivity, digital payments and social security.
- The initiative is in line with other successful government schemes like Jan Dhan Yojana, PM SVANidhi and Ujjwala.
- In this, it wants to provide 15,000 drones and necessary training to artisans and strengthen the agri-tech sector including women self-help groups.

Lakhpati Didi:

- The government is planning skill development training for 2 crore women under the 'Lakhpati Didi' scheme, with an aim to encourage them to start micro-enterprises.
- Under this, skill training will be provided to women so that they can earn at least Rs 1 lakh annually.
- 15,000 women self-help groups will be given loans and training to operate and repair drones.
- Drone services will be available for agricultural work. This is likely to accelerate the adoption of drone technology in agriculture, and lead to substantial job creation and agribusiness opportunities in rural areas.

Housing Scheme:

- Prime Minister Narendra Modi announced a new scheme to help the urban poor build houses in cities.
- Under this program, they will get relief in loans and interest rates taken from banks to build their houses.

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- This will benefit those families who live in cities but are living in rented houses, slums, chawls and unauthorized colonies.
- If this class wants to build their own house, the government will help them with interest rate relief and loans from banks, which will help them save lakhs of rupees.

Pradhan Mantri Awas Yojana Urban (PMAY-U)

- To address the housing shortage for the urban poor, the government already has a scheme called the Pradhan Mantri Awas Yojana Urban (PMAY-U).
- It is a flagship mission of the government, implemented by the Ministry of Housing and Urban Affairs (MoHUA).
- It was launched in June 2015 to provide suitable all-weather housing units to eligible beneficiaries in all urban areas.
- All houses constructed or acquired or purchased under the mission have basic amenities like kitchen, water supply, electricity and toilets. The mission has been extended till 31 December 2024.

34. Sulabh International founder Bindeshwar Pathak passes away

Recently, renowned social reformer and founder of Sulabh International Social Service Organization Bindeshwar Pathak passed away due to a heart attack.

Born in the year 1943, Dr. Bindeshwar Pathak was a resident of village Rampur Baghel in Vaishali district of Bihar.

Efforts towards cleanliness:

- He is credited with bringing the revolutionary Sulabh Complex Public Toilet System to India.
- He contributed significantly in reducing the practice of open defecation and manual scavenging. Mr Pathak was closely associated with his non-profit organization and "kept working till the end".
- Born and educated in Bihar, Mr. Pathak founded the Sulabh International Social Service Organization in 1970 to introduce public toilet systems in India.

- It works to promote human rights, environmental sanitation, waste management and reforms through education.
- In the year 1968, he designed the disposable compost toilet, which could be made from materials found around the house at low cost.
- Over time, he started the Sulabh Movement in 1970, and dedicated his life to eradicating the practice of manual scavenging and spreading awareness on cleanliness.
- Pathak supported sanitation by building over 10,000 public toilets across the country.

Award:
- Pathak was awarded the Padma Bhushan in 1991 for social work and later became the ambassador of the government's Swachh Bharat Mission.
- Received the International St. Francis Award for Environment in the year 1992. In 2009 he received the Stockholm Water Prize by the Royal Swedish Academy of Sciences.
- The organization was awarded the Gandhi Peace Prize for 2016 jointly with Akshaya Patra Foundation.
- Due to the efforts of Dr. Bindeshwar Pathak, the United Nations recognized 19 November 2013 as World Toilet Day.

35. Georgia's RICO Law

Recently the former President of the United States of America Donald Trump has been charged under the "Georgia RICO" (Racketeer Influenced and Corrupt Organizations- RICO) Act.

Georgia's RICO Act is an anti-mafia law similar to India's MCOCA.

Trump charged under RICO
Trump has been charged with 40 crimes, including forgery, making false statements and conspiracy. A conviction for racketeering in Georgia carries a sentence of 20 years in prison.

RICO Law –

- The Georgia RICO Act is an anti-racketeering law based on the US federal RICO Act of 1970.
- Both federal and state laws were created to target organized crime, the mafia, and criminal syndicates.

- Now this law has extended beyond the mafia. From embezzlement to corruption, it has started being used in many illegal activities.

Maharashtra Control of Organized Crime Act (MCOCA)

- Its full name is Maharashtra Control of Organized Crime Act, 1999.
- MCOCA accused do not get bail easily. Imposing MCOCA on a criminal is also not easy.
- To impose MCOCA on a criminal, approval has to be obtained from an ACP (Assistant Commissioner of Police) or an officer of the same rank.
- MCOCA will be invoked only if the person has been involved in at least 2 organized crimes in the last 10 years and at least 2 people are involved in that crime. The trial of this case goes on in a special court called MCOCA.

Objectives of the MACOCA Act:
- Its purpose was to eliminate organized crime.
- Organized crime – activities such as underworld related crimes, forgery, extortion, attempted murder, money laundering, etc.

36. First Mile Connectivity (FMC) project

Recently, the Ministry of Coal has been continuously working on the development of National Coal Logistics Plan to realize India's vision.

This includes First Mile Connectivity project (FMC) through railway sidings near coal mines.

The Ministry of Coal has prepared a plan for improving the coal transportation and loading system by machines under the First Mile Connectivity projects.

First-mile connectivity refers to the transportation of coal from pithead to dispatch points. The concept of first mile connectivity is a unique step towards bringing about a complete change in the direction of sustainable development and environmental protection.

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Benefits of First Mile Connectivity (FMC) Project:

- First Mile Connectivity eliminates the process of transporting coal by road to mining areas using conveyors or roads to the nearest railway siding.
- Transport of coal through road to the nearest railway siding increases the number of trucks on the road.
- It reduces the effects like air pollution, truck congestion on the road and road damage, thereby helping in creating a cleaner and healthier environment.
- First Mile Connectivity (FMC) contributes to the conservation of natural resources and green cover. Its adoption makes coal mining more economically viable in the long run.
- Implementing technology-driven processes not only increases productivity, but also lowers operating costs. This benefits the coal sector. This reduces the side effects of climate change, and improves air quality.

37. BRO Begins Construction Of Likaru-Migla-Fukche Road

Recently the Border Roads Organization (BRO) has started the construction of the world's highest motorable road, Likaru-Migla-Fukche Road, near Hanle in Eastern Ladakh.

The 64-km road will connect Likaru with Fukche, which is located three kilometers from the Line of Actual Control (LAC) in eastern Ladakh.

The new highest motorable pass will set a new world record for having a motorable road at an altitude of 19,400 feet.

Currently, Umlingla Pass at an altitude of 19,024 feet is the highest motorable pass in the world, which was to be constructed by BRO in the year 2021.

Umlingla Pass is a 52 km long road that connects Chishumale to Demchok. This road is right next to the LAC, and is also an area of conflict between India and China.

The proposed road between Likaru-Migla-Fukche will provide an axis connecting Hanle to the CDFD road at Fukche. This strategically important road will pass through Migla, which is at an

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altitude of 19400 feet. A budget of about Rs 520 crore has been earmarked for this ambitious project.

Border Roads Organization (BRO):

- ⏱ BRO was conceived and established in the year 1960 by Pandit Jawaharlal Nehru to coordinate the rapid development of road construction in the north and north-eastern border areas of the country.
- ⏱ It works under the Ministry of Defence.

Achievements of Border Roads Organisation:

- ⏱ It has brought a wide variety of levels of construction and development work, including airfields, construction projects, defense works and tunneling, and is very popular with the public.
- ⏱ Over six decades, BRO has built over 61,000 km of roads, over 900 bridges, four tunnels and 19 airfields in challenging conditions along India's borders as well as in friendly countries including Bhutan, Myanmar, Afghanistan and Tajikistan.
- ⏱ BRO completed 103 infrastructure projects in the year 2022-23, which is the highest number of works done by the organization in a year.
- ⏱ These include the construction of the Shyok Bridge in eastern Ladakh and the load class 70 steel arch Siom Bridge on the Along-Yinkiong road in Arunachal Pradesh.

38. Cauvery River Water Dispute

Recently, Tamil Nadu has approached the Supreme Court on Karnataka's refusal to release water from the Kaveri river immediately. The Kaveri water sharing dispute between Kerala, Karnataka, Tamil Nadu and Puducherry dates back to a 1924 agreement.

As per the agreement, Tamil Nadu and Puducherry will get 75 per cent of the surplus water, with Karnataka getting 23 per cent and Kerala the rest. In 1974, Karnataka expressed dissatisfaction that the agreement limited its ability to develop agricultural activities in the Kaveri river basin. After this he started building reservoirs on the river Kaveri.

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This move by Karnataka posed a challenge to Tamil Nadu (dependent on Kaveri water) especially in the face of agricultural land spread in the delta region. In the year 1990, the Cauvery Water Disputes Tribunal (CWDT) was constituted. It gave its final decision in 2007.

According to a 2018 Supreme Court decision, Karnataka will get 284.75 thousand million cubic feet (tmcft) of Kaveri river water and Tamil Nadu will get 404.25 tmcft, Kerala 30 tmcft and Puducherry 7 tmcft.

Constitutional provisions related to water:

- **State List:** Entry 17 (Water supply, irrigation and canals, water drainage etc.).
- **Union List:** Entry 56 (Regulation and development of inter-state rivers and river valleys).
- **Article 262:** Adjudication of disputes related to water of interstate rivers.
- Parliament has passed the Inter-State Water Disputes Act, 1956 in exercise of the power conferred by Article 262.

River Kaveri

- It originates from the Tala Kaveri located in the Brahmagiri Hills of the Western Ghats in Karnataka. It is also often called the Ganges of the South.
- **Tributaries:** Harangi, Hemavati, Kabini, Shimsha, Arkavati, Amaravati etc.

39. Aditya – L1 Mission

India's first solar mission, Aditya-L1, will be launched in late August or early September, according to the Indian Space Research Organization (ISRO).

Sun probe has reached Sriharikota space port for the launch of "Aditya – L1 mission".

Key Points:

- It will be launched from Polar Satellite Launch Vehicle (PSLV)-XL.
- Its main objectives are to study the solar upper atmospheric (chromosphere and corona) dynamics and to understand the physics of the solar corona and its thermal mechanism.

- The Aditya-L1 mission will be launched into the L1 orbit (which is the first Lagrangian point of the Sun-Earth system) approximately 1.5 million km from Earth.
- Aditya-L1 in L1 orbit will be able to see the Sun continuously. Aditya-L1 is the first Indian space mission to observe the Sun and the Solar Corona.

Payload:

- Aditya-L1 carries a total of seven payloads, of which the primary payload is the Visible Emission Line Coronagraph (VELC).
- VELC is a solar coronagraph capable of simultaneous imaging, spectroscopy and spectro-polarimetry.

Significance: No other solar coronagraph in space has the ability to image the solar corona as close to the solar disk as VELC can. This may depict it as close as 1.05 times the solar radius.

Objectives of Aditya L1 Mission:

- It will study the Sun's corona, solar emissions, solar winds, solar flares and coronal mass ejections (CMEs), and
- It will take pictures of the Sun round the clock.

Other Solar Missions:

- NASA's Parker Solar Probe
- European Space Agency's Solar and Heliospheric Observatory,
- China's Kuafu – 1 Solar Probe etc.

40. PM-eBus Sewa Scheme

Recently the Union Cabinet has approved a bus scheme "PM-eBus Sewa" for expansion of city bus operations on Public-Private Partnership (PPP) model.

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Under this, 10,000 e-buses will be run. The estimated cost of the scheme will be Rs 57,613 crore, out of which Rs 20,000 crore support will be provided by the central government. The scheme will support bus operations for 10 years.

Benefit:

- ☼ **Reaching the Unreached:** The scheme will cover cities with a population of three lakh and above as per 2011 census, including all capitals of Union Territories, North Eastern region and hill states.
- ☼ Under this scheme priority will be given to those cities where no well organized bus service is available.
- ☼ **Direct Employment Generation:** Under this scheme, around 10,000 buses will be run in city bus operations, which will generate 45,000 to 55,000 direct jobs.

Two sections of the scheme:

- ☼ Expansion of city bus services under the first segment (169 cities): City bus operations will be expanded with 10,000 e-buses on Public-Private Partnership (PPP) model through the approved bus scheme. The infrastructure attached to it will help for the development of depot infrastructure. In addition, it will be possible to build behind-the-meter electrical infrastructure (substations, etc.) for e-buses.
- ☼ Green Urban Mobility Initiative (GUMI) under the second segment (181 cities): The plan envisages green initiatives such as bus priority, infrastructure, multimodal interchange facilities, NCMC-based automatic fare collection system, charging infrastructure, etc. Under the plan, states or cities would be responsible for operating these bus services and paying bus operators.

41. INS Vindhyagiri Launched

Recently President Draupadi Murmu has launched Nilgiri class warship 'INS Vindhyagiri'. On this occasion Vindhyagiri has been immersed in the Hooghly river.

INS Vindhyagiri has been constructed under Project 17A (Alpha), and is built by the Indian Navy at Garden Reach Shipbuilders and Engineers (GRSE), Kolkata.

INS Vindhyagiri is the sixth ship of the Project 17A programme.

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The launch of Vindhyagiri is another milestone in the shipyard's illustrious journey, reflecting its commitment to building quality warships.

Project 17A:

- The Project 17A frigates are a successor to the Project 17 (Shivalik class) frigates, with improved stealth features, advanced weapons, sensors and platform management systems.
- Seven Project 17A frigates are under various stages of construction at MDL and GRSE.
- The design of the Advanced Stealth Frigates also showcases the Warship Design Bureau's prowess in designing technologically advanced warships for the Indian Navy.
- In keeping with the government's vision of 'Atmanirbhar Bharat', more than 75 per cent of Project 17A orders have been awarded to indigenous firms including MSMEs.
- The Project 17A ships have been designed in-house by the Indian Navy's Warship Design Bureau, the lead organization for all warship design activities.

42. Minamata Convention on mercury completes six years

The Minamata Convention on Mercury was adopted in Geneva in 2013. It is the world's first legally binding treaty to protect human health and the environment from the adverse effects of mercury.

The convention is named after the Japanese city (Minamata) that became the epicenter of Minamata disease in the 1950s.

Minamata disease is a neurological disease caused by severe mercury poisoning. This treaty came into force in 2017. Currently, it has 144 parties and 128 signatories.

India signed the convention in 2014 and ratified it in 2018. However, this ratification was done with the flexibility to allow continued use of mercury-based products and processes involving mercury compounds until 2025.

Requirements in Minamata Convention:

- Strive to reduce and, where possible, eliminate the use and release of mercury in artisanal and small-scale gold mining.
- To control the emission of mercury into the air from coal fired power plants and industrial boilers etc.

- Phase out or reduce the use of mercury in products such as batteries, switches, lights, cosmetics, insecticides, dental amalgam (used to fill cavities).
- To overcome the problems existing in the supply and trade of mercury;
- ensuring safe storage and disposal of mercury;
- To prepare strategies to solve the problem of contaminated mercury sites.

Mercury:
- Mercury is a naturally occurring element. It is found in air, water and soil.
- It can have toxic effects on the nervous system, thyroid, liver, lungs, immune system, eyes, gums and skin.
- It is recognized by the World Health Organization (WHO) as one of the top ten chemicals of major 'public health concern'.

43. National Multidimensional Poverty Index (NMPI)

Recently, on the occasion of Independence Day, the Prime Minister said in his address that 135 million people in India have come above the poverty line.

He has given this figure on the basis of the findings of the 'National Multidimensional Poverty Index' (NMPI).

According to NMPI, the poverty level in India has dropped from 25 per cent to less than 15 per cent in the period from 2015-16 to 2019-21.

It may be noted that the National Multidimensional Poverty Index is issued by NITI Aayog. This index measures deprivation based on the following three dimensions – health and nutrition, education and standard of living – and 12 parameters.

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Estimates of poverty in India:

- The official measurement of poverty line in India is done on the basis of consumption expenditure (in rupees).
- The poverty line in India has been determined by different committees headed by DT Lakdawala (1993), Suresh Tendulkar (2009) and C Rangarajan (2014).
- According to the Rangarajan Committee, a person spending Rs 32 per day in rural India and Rs 47 in urban India should be considered in the poverty line.
- The National Sample Survey Office (NSSO) conducts the Consumption Expenditure Survey (CES). It is organized once every five years.

Related Issues: The last official poverty figures in India were released in 2011. The CES data for 2017-18 was excluded from the records due to ambiguity in the data.

44. India-Australia 'Mutual Recognition Arrangement' (MRA)

Recently the Union Cabinet has approved the 'Mutual Recognition Arrangement (MRA)' of Authorized Economic Operators (AEO) between India and Australia.

The objective of Mutual Recognition Arrangement (MRA) of Authorized Economic Operators is to provide mutual benefit to the exporters of both the countries in clearance of goods by the Customs authorities.

Key facts:

- The objective of this arrangement is to provide mutual benefit to recognized and credible exporters of both the signatory countries in clearance of goods by the customs authorities of the importing country.
- The arrangement is a key component of the World Customs Organization's SAFE Framework of Standards, which aims to make global trade safe and convenient by strengthening last-mile security of supply chains while providing high facilitation for trade globally.
- This arrangement will benefit Indian exporters exporting to Australia and thus boost trade relations between the two countries.

- The mutual recognition of the Australian Trusted Business Operator Program in Australia and the Authorized Economic Operator Program in India will come into effect from the date of signature by the authorized representatives of both countries.
- The text of the proposed Mutual Recognition Arrangement has been finalized with the consent of the Customs Administrations of the two countries.
- Indian Customs has signed two MRAs with the Customs Administration of South Korea and Hong Kong. Additionally, MRAs with the United States and Taiwan are in the final stages of being concluded.

WCO's SAFE Framework

It was adopted by the WCO Council in 2005. It aims to strengthen the security of international supply chains and facilitate the movement of legitimate goods.

Significance:

- It has ushered in a new approach to end-to-end management of goods moving across borders.
- This underlines the importance of a close partnership between customs and trade.

World Customs Organization (WCO)

- It is an independent intergovernmental body. It was established in 1952 as the Customs Co-operation Council (CCC). Its headquarter is located in Brussels, Belgium.
- Its objective is to enhance the effectiveness and efficiency of customs administration. Presently 185 countries are its members.

45. Incremental Cash Reserve Ratio (ICRR) and its impact

Recently the Reserve Bank of India (RBI) has asked banks to maintain an Incremental Cash Reserve Ratio (ICRR) of 10% on the increase in their deposits between May 19 and July 28.

What is ICRR?

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- Before reading further on Incremental Cash Reserve Ratio (ICRR), we must first understand Cash Reserve Ratio (CRR).

- Banks have to keep liquid cash with the RBI equal to a certain proportion of their deposits and some other liabilities.
- It is a weapon available with the RBI to control cash in the economy and can also act as a buffer in periods of bank stress.
- At present, banks are required to maintain 4.5 per cent of their Net Demand and Time Liabilities (NDTL) as CRR with the RBI.
- RBI has the option of applying ICRR in addition to CRR in periods of excess cash in the system and the central bank is now exercising it. This means that banks will now have to deposit more liquid cash with the RBI.
- The RBI in its monetary policy has said that from August 12, 2023, all scheduled banks will have to maintain an additional cash reserve ratio equal to 10 per cent of the increase in their NDTL between May 19, 2023 and July 28, 2023.
- The RBI had announced the demonetisation of Rs 2,000 notes, due to which enough cash has accumulated in the banks. RBI intends to absorb some of this excess cash from the system. The main objective of RBI behind this move is to control inflation through this measure.
- As liquidity runs out, banks will have less money to lend, which will reduce demand for goods and services, which will in turn lower prices.
- A decrease in the money supply in the economy can lead to higher short-term interest rates. This is another measure to reduce inflation.

Inflation:
- Inflation When there is an imbalance between demand and supply, the prices of goods and services rise. This rise in prices is called inflation.
- Excessive inflation is harmful for the economy, whereas an inflation rate of 2 to 3% is good for the economy.
- Inflation is mainly caused by two factors, the demand factor and the price rise factor. Inflation leads to recession in some sectors of the economy.
- Inflation is measured in three ways: – Wholesale Price Index, Consumer Price Index and National Income Deviation Method.

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46. India's first 3D-printed post office unveiled in Bengaluru

Recently, Union Minister Ashwini Vaishnav has inaugurated India's first 3D-printed post office in Cambridge Layout, Bengaluru.

The post office was constructed in just 43 days ahead of schedule by multinational company Larsen & Toubro Limited with technical support from IIT Madras and guidance of Professor Manu Santhanam.

3D Printing:

- 3D printing, also known as additive manufacturing, is a process that uses computer-generated designs to create three-dimensional objects layer by layer.
- It is an additive process in which layers of materials such as plastics, composites or bio-materials are created to produce objects of varying shape, size, hardness and colour.
- 3-D printing was invented by Chuck Hull in the 1980s.
- To do 3D printing, one needs a personal computer connected to a 3D printer. All they have to do is design a 3D model of the required item on computer-aided design (CAD) software and press 'print'. The 3D printer does the rest.
- 3D printers build up the desired object using a layering method, which is the complete opposite of subtractive manufacturing processes.
- 3D printers build from the bottom up by depositing layer by layer until the object looks exactly as envisioned.

Examples of 3D Printing:

- 3D printing is being used in various industries such as healthcare, automobile and aerospace. Relativity Space, an aerospace manufacturing company, launched a test rocket made entirely of 3D-printed parts that measured 100 feet in length and 7.5 feet in width.
- At the peak of the COVID-19 pandemic in 2020, the healthcare industry used 3D printers to make much-needed medical equipment such as swabs, face shields and masks, as well as parts to repair their ventilators.

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Benefits of 3D Printing:

- **Economical:** 3D printing is able to streamline the manufacturing process of complex parts due to software programming which makes it an economical option in some industries. In addition, since 3D printing does not require a mold, it saves cost.
- **Fast:** 3D printing is ideal for rapid prototyping of products as it can be done at home in a short amount of time. Through CAD, products can be easily modified while manufacturing costs remain the same.
- **Environment friendly:** Since this technology minimizes the amount of wastage of the material used, the process is inherently environment friendly.

Disadvantages of 3D Printing:

- **Can't Provide Enough Strength:** Building an object layer by layer can affect the durability and strength of the object.
- **Accuracy issues:** Although CAD is often an accessible and accurate way to design, it can contain errors. The accuracy of 3D printing depends on the printer used and the techniques used.

47. A genetically altered pig kidney transplanted into a human

Recently, a genetically engineered pig kidney was transplanted into a brain dead person, and it is still working well after 32 days.
This is the longest record of functioning of a gene-edited pig kidney in a human. It is a successful effort towards alternative and continuous availability of organs for organ transplant also.

This achievement shows that a pig kidney can perform the functions of a human kidney for at least 32 days without being rejected by the body, with only a single genetic modification and without experimental medicine or device.

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Xenotransplantation

- Xenotransplantation involves transplanting or infusing living cells, tissues or organs from an animal into a human.
- Pigs are mostly being used in xenotransplantation because their organs are physiologically similar to human organs.
- Pig kidneys have been used because they are similar in structure to human kidneys and are approximately the same size.

Xenotransplantation Procedure:

- Genetic engineering is used to modify or alter the pig's genome.
- This involves 'disabling' four pig genes and adding six human genes to reduce any immunological complications.
- Last year, surgeons at the University of Maryland tried to save a dying man with a pig's heart, and he lived for two months.
- Recent years have seen significant progress in xeno transplantation due to the use of CRISPR-Cas9 genome editing.
- This technique has made it easier to create organs from pigs that are less likely to be attacked by the human immune system.

Benefit:

- Shortage of transplantable organs can be overcome.
- Alternative supply of organs will be possible for people suffering from life threatening diseases.
- New areas of research will open.

Concerns:

- The rejection rate of such organs by the human body is very high,
- There is a high risk of infection,
- It is difficult for the organ to perform all functional roles,
- Issues related to animal welfare come up etc.

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48. Rajiv Gandhi National Sadbhavana Award

Recently, the 25th Rajiv Gandhi National Sadbhavana Award was awarded to 'Vanasthali Vidyapeeth', a residential educational institution for women located in Rajasthan.

Former Vice President M. Hamid Ansari handed over the award to Siddharth Shastri of the organization.

About Rajiv Gandhi National Sadbhavana Award

- It was established in 1992 to commemorate the golden jubilee of the Quit India Movement.
- This award is given to an individual or organization for special contribution towards peace, communal harmony and national integration.
- It carries a cash prize of Rs 10 lakh and a citation.
- It is given on the birth anniversary of former Prime Minister Rajiv Gandhi.

Sadbhavana Diwas –

- Sadbhavana Diwas is celebrated in the country every year on 20 August, the birth anniversary of the sixth Prime Minister of India, Rajiv Gandhi.
- 20 August 2023 is the 79th birth anniversary of former Prime Minister of India, Rajiv Gandhi.
- It is dedicated to promoting peace, national integration and communal harmony among all religions in the country.
- The day was first observed in 1992, a year after the assassination of Rajiv Gandhi in a suicide bomb attack in Tamil Nadu.
- Rajiv Gandhi, who took office at the age of 40, became the youngest Prime Minister of India. He was posthumously awarded the Bharat Ratna, the country's highest civilian honour, in 1991.

49. India announces definition of Green Hydrogen

Recently the Ministry of New and Renewable Energy (MNRE) has introduced the Green Hydrogen Standard for the country as part of the National Green Hydrogen Mission.

The standard issued by the Government of India describes the emission limits that must be met for hydrogen produced from renewable sources to be classified as 'green'.

Key Points:

- The scope of this definition includes electrolysis-based and biomass-based hydrogen production methods.
- The Ministry of New & Renewable Energy has decided to define Green Hydrogen as having a well-to-gate emission (i.e., including water treatment, electrolysis, gas purification, drying and compression of hydrogen) of not more than 2 kg CO_2 equivalent / kg H2.
- The well-to-gate concept involves the receipt of raw materials (from the well) and the production of hydrogen.
- Another process is the cradle-to-grave concept, which includes a life cycle approach to emissions from raw material receipt, hydrogen production, use, and disposal.
- The notification also stipulates that the Bureau of Energy Efficiency (BEE) of the Ministry of Power will be the nodal authority for accreditation of agencies for monitoring, verification and certification of green hydrogen generation projects.

Green Hydrogen:

- Green hydrogen is a clean energy source that emits only water vapor, and unlike coal and oil, leaves no residue in the air.
- Green hydrogen technology is based on the production of hydrogen through a chemical process called electrolysis.
- This method uses an electric current to separate hydrogen from oxygen in water.
- If electricity is obtained from renewable sources in the process, hydrogen energy is produced without emitting carbon dioxide into the atmosphere. This is green hydrogen.

50. Trinidad And Tobago Inks Pact For Sharing Indian Technology Stack

Recently India has signed a Memorandum of Understanding (MoU) to share India Stack with Trinidad and Tobago.

India Stack Open is a collection of 'Application Programming Interface (API)' and digital public goods, which aims to facilitate identity, data and payment services on a large scale.

An API is a set of defined rules that enable different applications to communicate with each other.

Earlier India has signed MoUs for sharing India Stack with countries like Armenia, Sierra Leone, Suriname and Antigua and Barbuda.

A similar MoU was also signed with Papua New Guinea in July 2023, which shows the growing interest and acceptance of the initiative globally.

UPI, which is also a part of the India stack, has been accepted in France, UAE, Singapore and Sri Lanka. Different agencies own and maintain the individual components of India Stack.

For example-

- "Aadhaar" related products are owned and managed by the Unique Identification Authority of India (UIDAI);
- 'DigiLocker' is under the Ministry of Electronics and Information Technology (Meity);
- Unified Payments Interface (UPI) is controlled by the National Payments Corporation of India (NPCI).
- The regulation of the account aggregator framework rests with the Reserve Bank of India (RBI).

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Significance of India Stack:

- It enables governments, businesses, start-ups etc. to move towards presence-less, paperless and cashless service delivery.
- It helps in establishing synergy in all forms of digital economy. Also, it expands the access of digital services to all citizens.
- It promotes innovation and entrepreneurship by providing equal access to data, especially in emerging technologies such as Artificial Intelligence (AI) and Machine Learning.

Layers of India Stack:

- Identity based layer: Each resident is given a unique ID, and they are enabled to prove that "I am who I claim to be".
- Payment based layer: It allows any person to make payment to any other person. It is inter-operable, fast and affordable. It is not just limited to smartphones.
- Data Empowerment: Helps in sharing data in a secure manner.

51. Gene-Edited Mustard: Less Pungent, More Useful

Recently Indian scientists have developed mustard with less pungent odor for the first time, which is pest resistant as well as disease resistant.

It is based on CRISPR/Cas9 gene editing while being non-genetically modified (GM) and transgene-free.

Indian mustard seeds are known to have high levels of glucosinolates, a group of sulfur- and nitrogen-containing compounds. It imparts pungent odor to mustard oil and food. Because of this, many consumers avoid consuming such oil.

The low glucosinolate mustards developed by scientists are genome edited or GE, unlike GM or transgenic plants. Glucosinolates are synthesized in the leaves and pod walls of mustard plants. Their transfer and storage in seeds occurs through the action of the 'glucosinolate transporter (GTR)' gene.

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There are 12 such genes under two distinct clades, GTR1 and GTR2, with six copies each. Researchers have edited 10 out of 12 GTR genes in the high-yielding Indian mustard variety 'Varuna'.

They used the gene editing tool CRISPR/Cas9 which acts as "molecular scissors" to cut DNA at precise target locations of genes via enzymes.

For gene editing in mustard, the Cas9 enzyme derived from Streptococcus pyogenes bacteria was used to cut the DNA of the target gene in the first generation of plants, the protein being truncated in subsequent generations.

Thus, later mustards do not contain any Cas9 protein and are transgene-free. The research has the potential to increase domestic oilseed production in India, thereby reducing the country's dependence on imported vegetable oils.

CRISPR technology:

- It is a gene editing technique that uses a special protein called Cas9 to replicate the natural defense mechanisms in bacteria to fight off virus attacks.
- These are usually helpful in adding, removing or altering genetic material through a process described as genetic engineering.
- CRISPR technology does not involve adding any new genes from outside.

Genetic Engineering Appraisal Committee (GEAC)

- Significantly, GM crops currently have to comply with strict "environmental release" regulations in India not only for commercial cultivation but also for field trials and seed production.
- Such a release requires approval from a special Genetic Engineering Appraisal Committee (GEAC) under the Ministry of Environment, Forest and Climate Change.
- It is not binding on the Central Government to accept the recommendation of the GEAC. Thus the final approval rests with the Ministry of Environment, Forest and Climate Change.

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52. Turmeric supplement warning after fatality

Australia's Therapeutic Goods Administration (Therapeutic Goods Administration: TGA) has warned about the risk of liver injury from the use of medicines and herbal supplements containing turmeric or its active ingredient, curcumin.

The TGA had received 18 reports of liver problems experienced by consumers taking curcuma longa (turmeric) and/or products containing curcumin.

The TGA concluded that there is a "rare risk" of liver injury from taking curcuma longa, or curcumin, in medicinal forms, especially for individuals with existing or past liver problems.

Turmeric intake:

- The TGA warning states that the risk of liver injury is not associated with curcuma longa consumed in "normal" dietary amounts as a food.
- Several studies over the past five decades have investigated curcumin's properties and reported that it has antioxidant properties that may help with inflammation.

Safe Consumption Limit:

- The European Food Safety Authority has set an acceptable daily intake of curcumin at 180 mg per day for an adult weighing 60 kg as a safe level of consumption.
- The World Health Organisation/Food and Agriculture Organization advice recommends 3 mg/kg of body weight.

Turmeric:

- Turmeric (Curcuma longa) is a flowering plant of the ginger family, used as a spice, dye, medicine, and cosmetic, in addition to use in religious ceremonies.
- India is the leading producer and exporter of turmeric in the world. 80% of the world's turmeric is produced in India.
- Turmeric has been studied for its potential health benefits, including anti-inflammatory and antioxidant properties, as well as its role in traditional medicine and cuisine.

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53. Giant megalithic site in Kerala

Recently the Kerala State Archaeological Department has found a large number of megalithic 'hat stones' from a single site during the archaeological excavations carried out at 'Nagaparamba' in Kuttipuram village near Tirunavaya.

Key Points:

- The team found several megalithic burial sites and remains during pipeline work, including a unique rock-cut laterite burial chamber, which inspired the excavation.
- A large number of pottery vessels and distinctive iron tools have been recovered from the site, which throw light on the culture and life of the people who lived in the region 2,000 years ago.
- Ashes were discovered within urns and under cap stones, which is distinct from the more common occurrence of cremated bones. This suggests unique mortuary practices at this site.

Hat Stone (Thoppikkallu)

- Hat stones, called 'thoppikallu' in Malayalam, are hemispherical laterite stones that were used as lids on burial urns during the megalithic period.
- Archaeologists say it may be arguably the largest number of hat stones at any unprotected site in the state.
- It is feared that several Hat Stones have been inadvertently destroyed by local people in recent times. Some local people say that they had no idea of the Hat Stones' archaeological significance, and that many of them were destroyed when they cleared their land for house construction.
- It should be known that in Kerala, hat stones were kept in many ways to cover the Kalash Shavadhan.

Kudakkallu:

- Kudakkallu, commonly seen throughout the state of Kerala, consists of curved blocks on the ground. There is a hollow in the middle, and on top is an umbrella-shaped rock called the Hat Stone.
- On the other hand in Thoppikallu cremation process, an umbrella shaped rock is placed above the ground.

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⊙ 'Muthummakthazhi' or 'Nannangadi' (funeral urn) is another form of megalithic funerary monument, in which the body is buried in a large urn. These urns have been found in many coastal areas of Kerala.

54. Malabar naval exercise concludes in Sydney

Recently the 27th edition of Malabar exercise has concluded near Sydney off the east coast of Australia.

Australia is hosting this exercise involving India, Australia, Japan and the US for the first time.

Key Points:

⊙ The exercise saw the participation of ships, submarines and aircraft from the Indian Navy, Royal Australian Navy, Japan Maritime Self-Defense Force and the US Navy.
⊙ The 'MALABAR 2023' exercise was conducted in two phases, comprising the harbor phase from 11-15 August 2023 and the sea phase from 16-21 August 2023.
⊙ The Indian Navy was represented by indigenously built destroyer INS Kolkata, frigate INS Sahyadri and P8I maritime patrol aircraft.
⊙ The sea phase of Exercise Malabar saw complex and high intensity exercises, weapon firings and cross deck helicopter operations in the air, surface and undersea areas.

Objectives of Malabar Exercise:

⊙ Exercise Malabar showcased the strong cooperation, shared values and collective capability of the four participating nations to ensure a free, open and inclusive Indo-Pacific and promote peace and security for all.
⊙ Joint exercises at sea to strengthen war-fighting skills.
⊙ To enhance interoperability to undertake advanced maritime operations among the navies of the four countries.

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55. Gabon announces $500 million 'debt for nature swap'

Recently, the African country Gabon has announced a debt-for-nature swap worth $500 million.

This becomes the second Debt for Nature swap in Africa after a similar agreement in Seychelles.

Debt for Nature Swap:

- Debt for nature swaps provide developing countries with high debt burdens the option of seeking help from financial institutions in developed countries to service their debt. In return, these countries have to agree to spend on the conservation of natural resources.
- Debt for Nature Swap offers opportunities to raise capital in low-income countries to address environmental and other policy challenges and support green development.
- The rationale behind a 'debt for nature swap' is that the debt can be obtained at a discount. When lenders don't expect to recover the entire loan, they may be willing to accept less.
- In exchange for (partially) canceling the debt, the government of the debtor country agrees to raise an amount equal to the reduced amount in local currency for agreed purposes on agreed terms.
- Typically, banks in developed countries buy the debt of such countries and replace them with new debt that matures later. The interest rates on these are low.
- The idea of "Debt for Nature Swap" was first mooted in 1984 by Thomas Lovejoy of the World Wildlife Fund-US, in view of the Latin American debt crisis. The world's first "Debt for Nature Swap" was a third-party deal supported by Conservation International. It was finalized in 1987.
- In this, foreign creditors agreed to forgive Bolivia's US$650,000 debt, but in exchange Bolivia set aside 1.5 million hectares of land in the Amazon basin for conservation efforts.
- Gabon's debt has been restructured under blue bonds in the world's second largest "debt for nature swap".
- It is to be noted that in May 2023, Ecuador signed the world's largest "Debt for Nature Swap" agreement to conserve the oceans.

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Gabon:

Gabon is a country located on the west coast of Central Africa. It shares borders with Equatorial Guinea, Cameroon, Republic of the Congo and the Gulf of Guinea. Covering approximately 270,000 square kilometres, it consists of coastal plains, mountains such as the Crystal Mountains and Chailu Massif, and an eastern savanna.

56. 'Wolf-Rayet': Discovery of a Helium Star

Recently, a massive helium star with the potential to form a 'magnetar' named 'Wolf-Rayet' has been discovered.

The discovery marks the discovery of a new type of astronomical giant—the magnetic helium star—and sheds light on the origin of 'magnetars'.

Magnetars are neutron stars with extremely strong magnetic fields, whose origin is debated. One possibility is the expansion of the magnetic field in the core of the original star, which formed the neutron star during the supernova explosion.

Researchers have used spectropolarimetry to identify a high magnetic field in Wolf-Rayet. The mass of a Wolf-Rayet is high enough that it can generate a neutron star in a supernova.

Massive stars that are in an advanced stage of stellar evolution, and are losing mass at a very rapid rate, are known as Wolf–Rayet stars. Being typically 25 times the mass of the Sun, they have short lifetimes and are therefore fairly rare objects.

Neutron Star:

- A neutron star is the remnant formed from the gravitational collapse of a massive star after a supernova event.
- These stars are made only of neutrons. Their size is very small but mass is very high. They have a nuclear density, which is approximately 13 or 14 times the power of 10 of the density of water.

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57. Dholpur-Karauli to be Rajasthan 5th tiger reserve & India's 54th

Recently the Union Ministry of Environment, Forest and Climate Change has given final approval to the fifth 5th Tiger Reserve of Rajasthan at Dholpur Karauli. This is the 54th Tiger Reserve of the country.

Earlier, Ranipur Tiger Reserve in Uttar Pradesh was declared as the 53rd Tiger Reserve of the country.

Union Ministry of Environment, Forest and Climate Change, Government of India has also given in-principle approval to declare Kumbhalgarh in Rajasthan as Tiger Reserve.

It may be noted that with the increasing population of big cats in 'Ranthambore Tiger Reserve', the Rajasthan State Forest Department had proposed to develop Dholpur-Karauli as the fifth Tiger Reserve in Rajasthan.

Rajasthan has other four tier reserves – Ranthambore Tiger Reserve in Sawai Madhopur, Sariska Tiger Reserve in Alwar, Mukundra Hills Tiger Reserve in Kota and Ramgarh Vishdhari Tiger Reserve in Bundi, which were added in May 2022.

Number of tigers in India:

- According to government data, the number of tigers in India is set to increase from 2,967 in 2018 to 3,682 in 2022, an annual increase of 6 percent.
- With an increase of 50 per cent in the last four years, Madhya Pradesh has the maximum number of tigers in the country (785), followed by Karnataka (563), Uttarakhand (560), and Maharashtra (444). The number of tigers in Rajasthan has increased from 32 in 2006 to 88 in 2022.

National Tiger Conservation Authority (NTCA)

- It was established in 2005 following the recommendation of the Tiger Task Force constituted by the then Prime Minister of India to reorganize the management of Project Tiger and Tiger Reserves in India.
- It has been set up under the chairmanship of the Minister of Environment and Forests.
- The authority consists of eight experts or professionals who have experience in wildlife conservation and welfare of people including tribals, among others.

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- Out of these eight, three are Members of Parliament, out of which two are members of the Lok Sabha and one is a member of the Rajya Sabha.
- The Inspector General of Forests in charge of Project Tiger acts as its ex-officio member secretary.
- The National Tiger Conservation Authority (NTCA) is a statutory body constituted under the Wildlife (Protection) Act, 1972.

Functions:

- NTCA is the overarching body for the conservation of tigers in India. Its main administrative function is to approve the tiger conservation plan prepared by the state governments.
- Also evaluating various aspects of sustainable ecology and disallowing any ecologically unsustainable land use such as mining, industry and other projects within the tiger reserve area.

58. Supreme Court Allows Rape Survivor To Terminate 27-Week Pregnancy

Recently the Supreme Court has allowed the rape victim to terminate her pregnancy beyond 27 weeks.

The Medical Termination of Pregnancy (MTP) (Amendment) Act, 2021 allows rape victims to terminate their pregnancy up to 24 weeks.

Key provisions of the MTP Act, 2021:

- Any abortion performed in violation of the provisions of the MTP Act is an offense punishable under sections 312 and 313 of the Indian Penal Code (IPC).
- If the duration of pregnancy is up to 20 weeks, then all women are allowed on the advice of a doctor.
- If the duration of pregnancy is 20-24 weeks, then termination of pregnancy is allowed only in the following two circumstances on the advice of at least two doctors-
  1. Risk of serious illness to the child or
  2. Threat to the life or mental health of the woman.

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- It may be noted that this facility is available for rape victims and women suffering from adultery by family members and other vulnerable women such as disabled, minors etc.
- Also, all married or unmarried women have been included under this.
- If the duration of pregnancy is more than 24 weeks, then termination of pregnancy is permitted only in case of abnormal condition of the fetus on the advice of a medical board.
- It has been made mandatory for all the States/Union Territories to constitute a Medical Board. This would include gynaecologists, paediatricians etc.

59. The First WHO Traditional Medicine Global Summit

Recently the first "World Health Organization (WHO) Global Summit on Traditional Medicine" has been organized in Gandhinagar, Gujarat.

The summit discussed the role of 'Traditional Complementary and Integrative Medicine (TCIM)' in addressing health challenges.

For the first time such a summit discussed topics such as funding of 'Traditional, Complementary and Integrative Medicine', indigenous people's health, quality assurance, traditional medical knowledge, biodiversity, trade, patient safety, etc.

The theme of the summit was "Towards Health and Well-being for All".

Traditional Medicine:

- Traditional medicine refers to health practices, attitudes, knowledge, and beliefs for the treatment, diagnosis, and prevention of disease or for the welfare of people. It is treated with herbs and spiritual therapy.
- These include Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homeopathy (AYUSH) and Sowa Rigpa.
- Between 2014 and 2023, an 8-fold increase has been registered in the field of traditional medicine in India.

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Benefits of traditional medicine:

- It is an easily accessible and economical treatment system.
- This method focuses on patient specific treatment and strives to achieve the best possible outcome.
- Its treatment does not cause any side effects or is nominal.
- It focuses on holistic care of an individual.

Measures taken to promote traditional medicine:

- The WHO Global Center for Traditional Medicine (GCTM) has been established in Jamnagar, Gujarat.
- The Astana Declaration on Primary Health Care (PHC), 2018 has been adopted. This declaration recognizes the need to incorporate traditional medical knowledge and techniques into PHC service delivery.
- AYUSH Information Cells have been set up in 39 countries to disseminate authentic information about the AYUSH system.

60. PM-DevINE Scheme and North East Special Infrastructure Development Scheme

Recently, the Prime Minister's Development Initiative for North Eastern Region (PM-DevINE), designed to promote the development of North East India, has undergone significant amendments to suit the needs and aspirations of the region.

Along with this, the Ministry of Development of North Eastern Region (MDoNER) has issued new plan guidelines to implement the Cabinet approved North East Special Infrastructure Development Scheme- NESIDS during the period 2022-2026.

The Ministry has revised the guidelines for the following –

Revised Guidelines of PM-DevINE Scheme:

- **Project oversight and governance:** The MDoNER will oversee project selection, approval and monitoring in consultation with state governments, the North Eastern Council and the relevant central ministries, with implementation through the NEC or central ministries/agencies. These guidelines outline the process, which includes project

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identification, selection, DPR preparation, clearance, release of funds, monitoring and project completion.

- ⏱ **Empowered Inter-Ministerial Committee (EIMC):** Constitution of Empowered Inter-Ministerial Committee to oversee various works under PM-Divine.
- ⏱ **State Level Empowered Committee (SLEC):** Formation of State Level Empowered Committee for review and approval of the project. The Chief Secretary, concerned Secretaries and representatives of NEC come under its members.
- ⏱ **Regarding project selection:** North Eastern states should notify the State Logistics Policy and update the Gati Shakti National Master Plan data sections including land revenue charts. Along with this, speed power implementation mechanism like Empowered Group of Secretaries, Network Planning Group and Technical Support Unit should be established. States not meeting these criteria will not be sanctioned new PM-Divine projects from the year 2023-24.

North East Special Infrastructure Development Scheme (NESIDS)

- ⏱ NESIDS is a Central Sector Scheme with 100% Central funding, with an updated approved outlay of Rs.8139.50 crore for the years 2022-23 to 2025-26.
- ⏱ The scheme comprises of two components- NESIDS- Roads and NESIDS- Other than Road Infrastructure (OTR).
- ⏱ The new guidelines were formulated after the merger of the already existing North-East Road Sector Development Scheme (NERSDS) with NESIDS-Road.
- ⏱ NESIDS aims to promote infrastructure development, especially coordination, in the identified areas of the North Eastern States.

PM-DevINE Scheme

- ⏱ PM-Divine scheme is a Central Sector Scheme. It was introduced as a part of the Union Budget 2022-23.
- ⏱ On October 12, 2022, the cabinet approved the PM-Divine scheme. It is fully i.e. 100% centrally funded, to ensure that resources are directly allocated to development initiatives.
- ⏱ It is implemented by the Ministry of Development of North Eastern Region.
- ⏱ **Purpose:** This scheme is in line with the spirit of PM Gati Shakti. The scheme will fund infrastructure and social development projects based on the needs of the Northeast. Also, will enable livelihood activities for youth and women.

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- ⏱ **Project Selection:** Based on consultation with different stakeholders including NITI Aayog, concerned Ministries/Departments etc.
- ⏱ **Sustainability of PM-DevINE projects:** Adequate provision will be made for operation and maintenance (O&M) of the assets created under the schemes.

61. A positive Indian Ocean Dipole (IOD) plus El Niño

A recent report from the Australian Bureau of Meteorology states that the IOD index has moved beyond the positive range.

Indian Ocean Dipole (IOD):

- ⏱ The IOD is the difference in sea surface temperature between the Western Indian Ocean and the Eastern Indian Ocean that affects the monsoon in India. Hence, it is called a dipole. It is also called 'Indian Nino'.
- ⏱ A positive IOD event, which is characterized by warm temperatures in the western basin, can enhance India's southwest monsoon.

Two phases of the Indian Ocean Dipole:

- ⏱ **Positive IOD:** This occurs when the western part of the Indian Ocean (near the Somalia coast) becomes warmer than the eastern Indian Ocean. A positive IOD is believed to favor rainfall over the Indian subcontinent and the African coast, while reducing the chance of rainfall over Indonesia, Southeast Asia, and Australia.
- ⏱ **Negative IOD:** On the other hand, the cooling of the western Indian Ocean and the warming of the eastern Indian Ocean lead to negative IOD conditions. As a result, Australia receives more rainfall, while East Africa experiences dry conditions. But when the temperature is close to normal over the entire Indian Ocean, the situation is called neutral IOD.

IOD's relationship to the El Nino/La Nina Southern Oscillation (ENSO)
- ⏱ The IOD is associated with the El Nino/La Nina Southern Oscillation (ENSO). This association is manifested through the extension of the Walker Circulation to the west and associated warm water flow from the Pacific Ocean to the Indian Ocean. Be aware that 'Walker Circulation' is the flow of air in the equatorial Pacific region.

- Positive IOD phenomena are commonly associated with El-Nino, an abnormal increase in the temperature of the equatorial Pacific Ocean.
- While the phenomenon of negative IOD is associated with La-Nina. Abnormal cooling conditions are observed by this.

62. India-Sri Lanka conflict over Katchatheevu Island

Recently the Chief Minister of Tamil Nadu, said that reclaiming the Katchatheevu island from Sri Lanka could be a permanent solution to the fishermen's problems in Tamil Nadu.

It may be noted that this has been a long-standing issue of dispute between India and Sri Lanka regarding the right and sovereignty of fisheries on this uninhabited island.

Katchatheevu island dispute

- Kachchatheevu Island is a small green island of about 285 acres in the middle of the Palk Strait, which connects the Bay of Bengal to the Arabian Sea.
- Katchatheevu Island was formed due to a volcanic eruption in the 14th century.
- In the year 1974, Prime Minister of India Indira Gandhi and Sirima RD Bandaranaike of Sri Lanka signed an agreement. Under this agreement, the island of Katchatheevu was handed over to Sri Lanka.
- The agreement allowed Indian fishermen to fish around the island, drying their nets there, and allowing Indian pilgrims to visit the Catholic shrine on the island.

Fishing rights and livelihood:

- Fishermen from both India and Sri Lanka have historically used Kachchatheevu for fishing.
- Although this facility was accepted in the 1974 agreement, the supplementary agreement was signed in the year 1976.
- The purpose of the 1976 agreement was to define maritime boundaries and exclusive economic zones for both countries. Along with this, there was a ban on fishing vessels and fishermen of both countries, to ban fishing in each other's territorial waters without the explicit permission of either of the two countries.

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Stand of Government of India and State Government:

- The Government of India clarified in 2013 that the question of recovery did not arise, as no Indian territory had been transferred.
- The issue was raised as a dispute between British India and Ceylon (now Sri Lanka), which was resolved through agreements in 1974 and 1976.
- The central government claimed that Katchatheevu was located on the Sri Lankan side of the India-Sri Lanka International Maritime Boundary Line.
- The central government had announced in Kanyakumari in 2014 that the 'BJP' would reclaim the Kachchatheevu island, but till date it has not been done.
- Tamil Nadu leaders have raised the demand for the restoration of the island from time to time.
- The Chief Minister of Tamil Nadu said that he hoped that the central government would now take up the issue with Sri Lanka and take steps to reclaim Katchatheevu.
- If this does not happen, the DMK will bring in a new government at the Center after May 2024 (after the Lok Sabha elections), he claimed, which will lead Bharat (Indian National Development Inclusive Alliance).

63. Historic Landing Near Moon's South Pole: Chandrayaan 3

On August 23, 2023 at 6:04 pm, India's lunar mission "Chandrayaan-3" created history by successfully soft landing on the lunar surface.

It may be noted that with the lander Vikram performing a 'soft landing' on the south pole of the Moon, India has become the only country to do so.

India became the fourth country after the United States, China and the erstwhile Soviet Union to master the technology of soft-landing on the Moon also.

Three objectives of the Chandrayaan-3 mission:

- To perform a safe and soft landing on the lunar surface, to demonstrate the rover moving on the Moon, and to conduct in-situ scientific experiments.
- Soft landing simply means a slow, controlled descent of a spacecraft so as not to damage it.

- ⏱ Doing so demonstrates the technical capabilities of the spacecraft. The landing site is near the south pole of the Moon at 70 degree latitude.
- ⏱ Let us tell you that all the previous spacecraft that have landed on the Moon before this have landed in the area near the equator of the Moon, because it is easier and safer.
- ⏱ The lander and rover, with a mission life of one lunar day (14 Earth days), have scientific payloads for conducting experiments on the lunar surface.
- ⏱ The Chandrayaan-3 mission was launched on July 14 from the Satish Dhawan Space Center in Sriharikota.

Polar Regions of the Moon:

- ⏱ The polar regions of the Moon are distinct. Many parts are in a completely dark region without sunlight, and the temperature can drop below 230 °C. This creates difficulty in operating the equipment.
- ⏱ The extremely cold temperatures can mean that anything trapped in the area will remain frozen there without much change. So the rocks and soil of the Moon's north and south poles can provide clues about the early Solar System. In addition, there are large craters everywhere. So soft landing is difficult there.
- ⏱ The South Pole is also an area of potential. Scientists believe that craters in this region may contain ice, making it possible for water to exist.

64. Fukushima: China retaliates as Japan releases treated nuclear water

Recently, Japan will release 1.34 million tonnes of treated radioactive water from the Fukushima nuclear plant into the Pacific Ocean after 12 years.

It may be noted that this plant was hit by the 2011 earthquake and tsunami.

The International Atomic Energy Agency (IAEA) concluded in a final report in July 2023 that if the water was released as designed, there would be negligible effects on the environment and human health. The plan will be executed by the Tokyo Electric Power Company (TEPCO), the operator of the nuclear plant.

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The Fukushima plant is located on the east coast of the country. This site is located about 220 kilometers north-east of the capital Tokyo.

Japan claims that it has used an 'Advanced Liquid Processing System' (ALPS) to treat stored water. ALPS is a pumping and filtration system. It removes most radioactive substances from water except tritium. Tritium is a radioactive isotope of hydrogen. It is very difficult to separate it from water.

Concerns related to Water release:

- DNA can be damaged if this water containing tritium reaches the body.
- Exposure to radioactive substances can cause health problems like leukemia, anemia, bleeding, etc.
- This water can destroy the nutrients present in the soil.
- The release of waste water can pollute the ocean, which can lead to an increase in the cost of salt and seafood.
- China has banned seafood imports from Japan including Fukushima and Tokyo.

International Atomic Energy Agency (IAEA)

IAEA is an intergovernmental organization. It was established in 1957. Its purpose is to promote the peaceful use of nuclear energy and to prohibit its use for any military purpose, including nuclear weapons.

65. 6 new countries to join BRICS, including Iran and Saudi Arabia

Recently the members of 'BRICS' have announced the expansion of the BRICS group by welcoming 6 (six) new countries.

The first phase of expansion includes Argentina, Egypt, Ethiopia, Saudi Arabia, the Islamic Republic of Iran and the United Arab Emirates, which will officially become full members of BRICS from 1 January 2024.

15th BRICS Summit:

- The 15th BRICS summit was held in Johannesburg (South Africa) from 22 to 24 August. The addition of these six new members has been announced at the end of this 15th BRICS summit.

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- It is to be noted that for the first time since 2019, the leaders of BRICS countries Brazil, Russia, India, China and South Africa appeared on one stage in this event.
- The summit is the first BRICS summit to be held in person after the emergence of the coronavirus pandemic and subsequent global sanctions.
- The Prime Minister of India also participated in the 'BRICS-Africa Outreach and BRICS Plus Dialogue' in Johannesburg on August 24, 2023.

Importance of joining BRICS as a member:

- The joining of new members will strengthen the organization, and it will help in maintaining and strengthening the multilateralism system.
- Let us tell you that this group was earlier expanded in 2010, when South Africa was included. Then it became BRIC to BRIC.
- The expansion of BRICS is part of a plan to build dominance and reshape global governance into a "multipolar" world order that places the voice of the Global South at the center of the world agenda.
- The inclusion of Saudi Arabia, the United Arab Emirates, Iran and Egypt marks the first representation of MENA (Middle East and North Africa) in the group, and the inclusion of Argentina was supported by its member Brazil.
- The inclusion of Iran, Saudi Arabia and the United Arab Emirates assumes special significance as all three will represent both sides of the oil-rich Gulf in BRICS.
- Originally composed of Brazil, Russia, India and China, BRICS was conceived as a global organization of major economies playing an increasingly important role in the post-Cold War world order.

Challenges:

- There is a lack of trust among the present 5 member countries of BRICS. Also, there is no consensus among them on the standards, norms and procedures related to membership expansion. The India-China border dispute is an example of this.
- Differences are seen among its member countries on global issues.
- Authoritarian regimes exist in BRICS member countries like China and Russia.
- Sometimes BRICS is considered as an anti-Western group. This perception may challenge its integration with the world order.
- There are different economic and political restrictions on the existing members of BRICS and those who are proposed to become members. This can cause financial hindrance.

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BRICS:
- 🕐 BRICS is the name of an organization of five major emerging economies of the world. This organization includes Brazil, Russia, India, China and South Africa. The BRICS Summit is chaired every year on behalf of its member states.
- 🕐 The conference is hosted by five countries every year. South Africa is hosting the 2023 BRICS summit.

66. Legendary statistical scientist CR Rao dies

Recently a prominent Indian-American mathematician and statistician Kalyampudi Radhakrishna Rao passed away at the age of 103.

He was among the world's most distinguished statisticians, and spent a significant part of his career in India.

Rao was instrumental in introducing fundamental statistical concepts such as the Cramer–Rao inequality and Rao–Blackwellization, which are widely taught in statistics and econometrics.

He played a key role in developing statistical education and research in India, serving on various government committees and contributing to the development of the field.

He served as chairman of the Committee on Statistics and Demography and Communications for Population Control.

Works of CR Rao:

Rao's landmark paper, published in 1945 in the Bulletin of the Calcutta Mathematical Society, demonstrated three fundamental results that paved the way for the modern field of statistics and provided the statistical tools used extensively in science today.

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Major Theories of CR Rao:

- **Cramer–Rao Lower Bound:** Provides a means of knowing when a method of estimating a quantity is as good as any method can be.
- **Rao-Blackwell theorem:** It provides a means to convert an estimate into an optimal estimate. Together these results form a foundation on which many statistics are built.
- **Information Geometry:** This developed into a new interdisciplinary field that eventually established itself as "Information Geometry". Information geometry is the study of the geometric structure of families of probability distributions.

Significance of C. R. Rao's contribution

- His work on information geometry has aided in the understanding and optimization of Higgs boson measurements at the Large Hadron Collider and has contributed to advances in artificial intelligence, data science, signal processing, shape classification and image separation.
- The Rao–Blackwell theorem has been applied to stereology, particulate filtration, and computational econometrics, among others.
- The Cramer–Rao lower bound is of great importance in such diverse fields as signal processing, spectroscopy, radar systems, multiple image radiography, risk analysis, and quantum physics.

CR Rao Award:

- CR Rao has been awarded the 2023 International Prize in Statistics. This award is considered similar to the Nobel Prize in the field of statistics.
- Along with this, he has been awarded the Padma Bhushan in the year 1968, and the Padma Vibhushan in the year 2001.

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67. NHA Launches First Ayushman Bharat Digital Mission Microsite In Mizoram

Recently National Health Authority (NHA) had announced 100 microsites project for rapid adoption of Ayushman Bharat Digital Mission (ABDM) across the country.

Mizoram has become the first state in India to launch ABDM microsite in its capital Aizawl.

Under this, all health facilities including private clinics, small hospitals and laboratories in the region will be made ABDM-enabled, and digital health services will be provided to patients.

100 microsites:

- The 100 Microsites project under ABDM is a very important initiative to reach out to the small and medium scale healthcare providers in the private sector in a big way.
- The concept of microsites was envisaged to provide a boost to the healthcare digitization efforts across the country.
- As a result of the efforts of the Mizoram team, Aizawl has become the first ABDM microsite in India. ABDM microsites are defined geographic areas where focused efforts will be made to reach out to small and medium scale private healthcare providers.
- These microsites will be primarily implemented by the State Mission Directors of ABDM, while financial resources and overall guidance will be provided by the NHA.
- Under this program an interfacing agency will have an on-ground team to reach out to healthcare providers in the area.
- The team will spread awareness about the benefits of ABDM and promote the use of ABDM enabled digital solutions for routine clinical documentation besides helping service providers to join the main registries under ABDM.
- Apart from Mizoram, states like Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Maharashtra and Chhattisgarh have also made progress in implementing ABDM microsites.

68. LCA Tejas successfully test-fires indigenous ASTRA Beyond

Recently Light Combat Aircraft (LCA) LSP-7 Tejas has successfully flight tested the indigenous Beyond Visual Range (BVR) air-to-air missile Astra on August 23, 2023 off the coast of Goa.

The missile was successfully tested at an altitude of about 20,000 feet. All the objectives related to the test were met and it was a perfect and precise launch.

ASTRA indigenous Beyond Visual Range (BVR)

- An advanced Beyond Visual Range (BVR) air-to-air missile, developed by various DRDO laboratories including Defense Research and Development Laboratory (DRDL) and Research Center Imarat (RCI).
- It is designed to attack and destroy agile supersonic aerial targets.
- DRDO's indigenous weapon BVR test from domestic Tejas fighter aircraft is a major step towards 'Self-reliant India'.

69. India to name Chandrayaan-3's moon landing site Shiv Shakti Point

Recently the Prime Minister said that the landing site of Chandrayaan-3 on the Moon will be known as Shiv Shakti Point. The place where Chandrayaan-2 left its footprints on the Moon will be known as 'Tiranga Point'.

Along with this, Prime Minister Narendra Modi also declared August 23 as National Space Day to commemorate the remarkable achievement of Chandrayaan-3 landing on the Moon.

The Prime Minister made these announcements during the ISRO Telemetry Tracking and Command Network (ISTRAC) in Bengaluru where he had come to welcome the scientists of the historic Chandrayaan-3 mission.

Key Points:

- After a 40-day journey in space, Chandrayaan-3 mission successfully landed on the lunar surface on August 23.
- It is noteworthy that the Moon does not fall under the jurisdiction of any one country – this is what makes global exploration and landing missions possible.
- In 1966, the United Nations Office for Outer Space Affairs came up with the Outer Space Treaty. However, the treaty is silent about naming sites on the Moon.
- After the 2008 mission Chandrayaan-1, the place where the probe crashed (as it was for the purposes of the mission), was named "Jawahar Sthal" after the first Prime Minister Jawaharlal Nehru.

Chandrayaan-3:

- Chandrayaan-3 has created history by becoming the first mission to soft-land on the Moon's South Pole. The South Pole is a region that has never been explored before.
- The objective of this mission was to demonstrate safe and smooth lunar landing, rover mobility and in-plane scientific experiments.
- It is to be noted that India has now joined the United States, Russia and China among the few countries to successfully land on the Moon.

Future Missions of ISRO:

- **Chandrayaan-4:** Moving forward on the path of development of the Moon. On the basis of previous missions, Chandrayaan-4 can also be sent for sample return mission in the coming time.
- If successful, it could be the next logical step after Chandrayaan-2 and 3, which would provide the capability to retrieve lunar surface samples. The mission will help broaden our understanding of the Moon's composition and history.

70. NMC puts on hold rules for doctors to prescribe only generic medicines

Recently, the National Medical Commission (NMC) has banned doctors from writing only generic medicines as prescription.

Under the Registered Medical Practitioners (Professional Conduct) Regulations, 2023, it has been provisioned that doctors will have to prescribe only generic medicines. NMC has banned this provision.

Generic drugs are drug products which are identical to the branded/listed drugs in terms of dosage, efficacy, route of administration, quality, efficacy and intended use.

There is no definition of generic drugs in the Drugs and Cosmetics Act, 1940 and the Drugs and Cosmetics Rules, 1945.

After the patent of a branded drug expires, it can be marketed as a generic drug. However, there is a provision for compulsory license under the Indian Patent Act. Under this provision, medicine can be manufactured even without consent during any urgency.

Importance of generic medicine for India:

- Improves access and availability of critical medicines.
- Due to its relatively affordable price, health care costs may come down.
- Often multiple generic drugs are approved for the same product, creating competition.
- India accounts for 20-22 per cent of global generic drug exports.

Challenges:

- Lack of quality testing facilities, continuous evergreening of patents,
- High import dependence for key starting materials,
- Sellers of fake medicines etc.

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Steps taken by the government to promote generic drugs

- ⊙ The sale of quality generic medicines is being promoted under the Pradhan Mantri Bharatiya Jan Aushadhi Pariyojana.
- ⊙ Quality generic medicines are being made available at Pradhan Mantri Bharatiya Jan Aushadhi Kendras.
- ⊙ Under the National Health Mission, consideration is being given to providing essential generic medicines free of cost.

71. India-Russia talks to develop Northern Sea Shipping Route

Recently Russia is in talks with India to develop the Northern Sea Route (NSR).

Key Cause:

Port of Murmansk, the starting point of the Northern Sea Route, has seen an increase in Indian cargo traffic. India accounts for 35 percent of the cargo handled by this port.

Northern Sea Route (NSR):

- ⊙ It is the shortest shipping route connecting Europe and the Asia-Pacific region. Spread over 5,600 km, it passes through the four seas of the Arctic Ocean.
- ⊙ The route begins at the boundary between the Barents and Kara Seas (Kara Strait) and ends at the Bering Strait (Provideniya Bay).
- ⊙ The NSR offers potential distance savings of up to 50% compared to existing shipping lanes via Suez or Panama.

Significance of Northern Sea Route:

- ⊙ Using the NSR will save about 30-40 per cent of energy and time compared to the Suez Canal route commonly used by ships.
- ⊙ The length of the NSR is approximately one-third less than the length of the conventional waterway via the Suez Canal. The risk of piracy on this route is negligible.
- ⊙ The operation of this route will make exploration, exploitation and transportation of natural resources present in the Arctic region easier.

Challenges:

- Russia continues to claim sovereignty over the NSR. Violating the principle of freedom of navigation in this route can lead to geo-strategic conflicts.
- Due to the fog in the Arctic region, the shipping operation period will be reduced.
- The increased movement of ships on the NSR will harm the environment of the Arctic. In addition, the ship operating cost is also likely to increase.

72. Prime Minister Shri Narendra Modi honored with 'Grand Cross of the Order of Honour'

Recently, the President of Greece, Ms. Katerina Sakellaropoulou has honored Prime Minister Shri Narendra Modi with the Grand Cross of the Order of Honor.

The Grand Cross of the Order of Honour

- The Order of Honor was established in 1975. On the face of the star is the face of the goddess Athena. The words "Only the rich should be honoured" are engraved on it.
- The Head of State of Greece awards the Grand Cross of the Order of Honor to prime ministers and public figures who, while holding distinguished positions, have contributed to the advancement of Greece's status.
- The citation reads – "In the service of Prime Minister Shri Narendra Modi, this honor is given to the friendly people of India."
- It is also said in this,
- " On the occasion of this visit, the Greek State Honours the Prime Minister of India, a statesman who has tirelessly promoted the global reach of his country and who works systematically for India's economic progress and prosperity, bringing about bold reforms. A statesman who has brought environmental protection and climate change among the top priorities of international activity," the citation added.

73. WWF Applauds the Adoption of the Global Biodiversity Framework Fund

The "Global Biodiversity Framework Fund (GBFF)" has been launched at the recently held 7th session of the Global Environment Facility (GEF).

Through the GBFF, governments, non-profits and the private sector can now contribute their funds to the GBFF

With this financial contribution, the goals and targets of the 'Kunming-Montreal Global Biodiversity Framework' (KMGBF) will be met.

Target of GBFF:

- The MGBF aims to protect 30% of land and 30% of coastal and marine areas by 2030, known as 30-by-30.
- About 20% of the funds from the GBFF are targeted to support indigenous and local action to protect and conserve biodiversity.
- At least 36% of the Fund's resources are intended to support the most vulnerable, small island developing states and least developed countries.
- Around 25% of the fund will be disbursed through selected international financial institutions to ensure streamlining of policies and raising resources through private sector participation.

About GBFF:

- **Governance:** The GBFF Council will have the following representation – 16 member developing countries; 14 members from developed countries and 2 members from Central and Eastern Europe and former Soviet Union countries. The decisions of the GBFF Council will be taken by consensus on the lines of the GEF mechanism.
- **Financial Management:** The World Bank will be invited to play the role of trustee of the GBFF.
- The GBFF will be set up on the lines of the Capacity-Building Initiative for Transparency (CBIT) Trust Fund, the Least-Developed Countries (LDCs) Fund, the Special Climate Change Fund and the Nagoya Protocol Implementation Fund (NPIF).

Global Environment Facility (GEF):

- The Global Environment Facility (GEF) is a financial mechanism that provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities.
- It was established on the eve of the 1992 Rio Earth Summit.
- It is an international partnership of 183 countries, international institutions, civil society organizations and the private sector that addresses global environmental issues.
- It's headquarter is in Washington DC, USA.

Functions:

Seven main areas: biodiversity, climate change (mitigation and adaptation), chemicals, international waters, land degradation, sustainable forest management/REDD and depletion of the ozone layer.

74. India and Greece agree for strategic partnership
Recently, for the first time in four decades, an Indian Prime Minister paid a state visit to Greece.

During this, both sides have agreed to raise bilateral relations to a strategic level and increase India's reach in the Mediterranean region.

What is strategic partnership?
A strategic partnership is a long-term interaction between two countries based on political, economic, social and historical factors. For example, India has strategic partnerships with the United States, Russia, China, Japan, Britain, France and others.

Importance of the Mediterranean region for India's geopolitical interests:
- There will be increased engagement and connectivity with a region that spans three continents (Asia, Africa and Europe).
- This region is also important for India's Indo-Pacific policy. This is because India can be an important partner for the Mediterranean countries to connect with the Indo-Pacific region.

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Highlights of PM's visit:

- Both countries have also set a target of doubling bilateral trade by 2030. Bilateral trade was to increase to $1.94 billion in the year 2022-23.
- It has been agreed to expeditiously finalize the 'Mobility and Migration Partnership Agreement' to facilitate the movement of skilled migrants.
- An MoU was signed on cooperation in the agriculture sector. It also included the formation of a Hellenic-Indian Joint Sub-Committee on Agriculture. This sub-committee will help in sectoral cooperation for mutual benefit.
- Both sides said they stand united on the issue of maintaining maritime security and abide by the United Nations Convention on the Law of the Sea (UNCLOS).
- India welcomed Greece to the International Solar Alliance. Also, India said it looked forward to Greece joining the Coalition for Disaster Resilient Infrastructure (CDRI).
- Both countries have agreed to promote joint efforts in the conservation and protection of ancient sites, and to strengthen cooperation within UNESCO
- The Prime Minister of India was awarded the Grand Cross of the Order of Honor, the second highest civilian honor of Greece.

75. State of India's Birds 2023 report

Recently Wildlife Institute of India (WII) and Zoological Survey of India (ZSI) have released the report titled 'Status of Birds of India, 2023'.

This report is a periodic assessment on the distribution area, population trends and conservation status of major bird species of India.

Key points of the report:

- The number of bird species has decreased due to commercial monoculture gardening, urbanization, infrastructure development, climate change etc.
- The highest decline of more than 50 percent has been recorded in long distance migratory birds.
- Shorebirds that breed in the Arctic have been particularly affected. There has been a decline of about 80 percent in their numbers.

⏱ Several bird species such as the Indian peafowl, rock pigeon, Asiatic cuckoo and common crow are showing an increase in numbers.

Important birds and their habitat areas:

Endangered-
⏱ Indian Skimmer: Found in the region around Chambal, Ganges, Mahanadi, Yamuna and Son rivers.
⏱ Black-Bellied Tern: Found in the vicinity of Chambal, Mahanadi, Ganga, Son, Godavari and Yamuna rivers.

Critically Endangered-
⏱ **Great Indian Bustard:** Rajasthan, Gujarat etc.
⏱ **Bengal Florican:** Found in the Himalayan foothills, grasslands of Uttar Pradesh and Northeast India (Assam and Arunachal Pradesh).
⏱ **Bear's Pochard:** Found in the wetlands of Assam and Manipur.

Zoological Survey of India (ZSI)
The Zoological Survey of India (ZSI) was established in 1916. It was established under the Ministry of Environment, Forest and Climate Change (MoEFCC) to explore the animal diversity of the country.

Wildlife Institute of India (WII)

⏱ 'Wildlife Institute of India' established in 1982 as an autonomous Natural Resource Services Institute under MoEFCC, located in Dehradun (Uttarakhand).
⏱ Functions: It conducts wildlife research with reference to biodiversity, endangered species etc.
⏱ President of WII Society: Minister in charge of MoEFCC.

76. Khanan Prahari App Helping to Curb Illegal Coal Mining Activities

Recently, the Ministry of Coal has launched a mobile app called 'Khanan Prahari' to stop illegal coal mining activities.

Features of Khaning Prahari App:

- The related web portal named Coal Mine Monitoring and Management System (CMSMS) has been developed in collaboration with Bhaskaracharya Institute of Space Application and Geoinformatics, Gandhinagar and Central Mine Planning and Design Institute (CMPDI), Ranchi.
- Through this app, users can easily report incidents of illegal mining by taking photographs and providing comments on the incident. In addition, the identity of the user is kept confidential.
- A total of 483 complaints have been registered through Khan Prahari Mobile App, which shows the active participation of the public.

Status of Coal in India:

- Coal is a type of fossil fuel found in the form of sedimentary rocks, and is commonly known as 'black gold'.
- India is the second largest coal producer in the world, as well as the 5th largest country in terms of coal reserves.
- However, some part of its coal requirement is met through imports as India itself is one of the major consumers. India's coal import increased by 30% in the year 2022-23.
- The major coal producing states in India are Jharkhand, Odisha, Chhattisgarh, West Bengal, Madhya Pradesh and Telangana.

77. ISRO's Aditya-L1 solar mission 2023

After the recent success of Chandrayaan-3, Indian Space Research Organization (ISRO) is going to launch Aditya-L1 mission on 2 September.

Aditya – L1 will be India's first mission to study the Sun. It will be launched from the Polar Satellite Launch Vehicle (PSLV).

It will be placed in a halo orbit around the Lagrange point-1 (L1) of the Sun-Earth system, which is about 1.5 million km from Earth.

Lagrange points are points in space where the gravitational forces of two-body systems (such as the Sun and Earth) produce such attraction and repulsion that a body remains stationary at this point.

Payloads: There are a total of seven payloads in this mission. Four of these are solar remote sensing payloads, while the other three will make in-situ observations of L1.

Objective:

It will study the Sun's corona, solar emissions, solar winds, solar flares and coronal mass ejections (CME), and it will take pictures of the Sun around the clock.

Features of this mission:

- The CME will be measured from close to the solar surface (1.05 solar radii). This will give information about its acceleration system, which is not regularly observed.
- To observe the directional and energy anisotropy of the solar wind using multi-direction observations.
- Anisotropy refers to such a physical property of a body etc. that when it is measured from different directions, its different values are obtained.
- On-board intelligence to locate CMEs and solar flares for optimized observations and data volumes.

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Significance of Aditya L1 Mission:

Will provide important information about the following:

- Coronal heating problem,
- Pre-solar flare conditions and solar flare related activities and their characteristics,
- space weather dynamics,
- Propagation of particles and fields etc.

78. UNDP And Partners Launch Open-Source Software For Carbon Credits Trading

Recently the United Nations Development Program (UNDP) has launched software called 'National Carbon Registry'.

This software will enable countries to effectively manage national data and processes for trading carbon credits.

Key Points:

- Software called the National Carbon Registry has recently been recognized as a Digital Public Goods (DPG).
- As a DPG, the registry uses open source code, allowing countries to replicate and adapt the information to suit their needs and contexts.
- The registry's modules, software, and technical documentation can be reused and tailored by countries, potentially reducing production costs and implementation timelines.
- Also, it can be integrated with national measurement, reporting and verification (MRV) mechanisms to meet international reporting requirements. This registry will promote the development of the carbon market by facilitating trading of carbon credits.
- Article 6 of the Paris Agreement allows countries to voluntarily cooperate with each other to achieve emissions reduction targets set in their Nationally Determined Contributions (NDCs).
- Carbon markets establish trading systems where carbon credits or allowances are bought and sold. Companies or individuals can use carbon markets to offset their

greenhouse gas emissions. They can do this by purchasing carbon credits from entities that remove or reduce greenhouse gas emissions.

- A carbon credit is a type of tradable permit. This is equivalent to one tonne of carbon dioxide or any other greenhouse gas removed, reduced or stored from the atmosphere. Carbon trading was introduced in 1997 by the Kyoto Protocol.

- The Ministry of Power in India has notified the Carbon Credit Trading Scheme (CCTS), 2023. It aims at the institutionalization and functioning of the Indian Carbon Market (ICM).

79. Report on water crisis released by World Resources Institute (WRI)

According to a recently published report, one-fourth of the world's population is facing extremely high water stress.

As per the data released by the World Resources Institute (WRI), 25 countries including India are facing extremely severe water crisis every year.

"Extreme water stress" being faced by a country means that the country uses at least 80 percent of its annual available water supply.

Similarly, "high water stress" refers to the exploitation of at least 40 percent of the annually available water supply.

Other Key Points:

- 50 percent of the world's population faces extreme water stress conditions for at least one month a year.
- By 2050, 31 percent of global gross domestic product (GDP) will be affected by severe water stress.
- By 2050, four countries, namely India, Mexico, Egypt and Turkey, will be responsible for more than half of global GDP affected by severe water stress.
- 60 percent of the world's irrigated agricultural land is facing severe water stress.

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Reasons for global water crisis:

- Water usage has increased,
- There is a lack of investment in water-related infrastructure,
- Policies related to water use are not sustainable.
- The gap in water availability has increased due to climate change etc.

Key Recommendations:

- Water use governing structures should be improved through development of nature-based solutions and green infrastructures.
- Adoption of programs such as debt for nature swaps should be considered. Such programs should include a commitment to invest in mangrove restoration or wetland conservation.
- Cultivation of water-use efficient crops should be promoted. Under this, instead of irrigation through drains in the fields, methods like sprinkler or drip irrigation should be used.
- Urban water resilience action plans should be developed in cities.

Initiatives taken for water conservation in India:

- National Water Mission has been started.
- Water conservation initiatives are included under different schemes like MNREGA, Atal Groundwater Scheme, Pradhan Mantri Sinchai Yojana (PMKSY), AMRUT Mission, Jal Jeevan Mission.
- Jal Shakti Abhiyan – Catch the Rain is being run.
- Right crop campaign has been started.

World Resources Institute (WRI):

- WRI is a global research organization, spanning more than 50 countries and focusing on six critical environmental and development issues: climate, energy, food, forests, water, and cities and transport.
- It was established in 1982. Its headquarters is in Washington, USA.

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