



DIKSHANT TODAY

OCTOBER 2022



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- ⇒ PM SHRI Schools
- ⇒ Criminal Procedure (Identification) Act, 2022
- ⇒ Supreme Court's abortion ruling
- ⇒ India-Bangladesh ties
- ⇒ Hijab Issue & Iranian women's freedom
- ⇒ UNDP's human development index
- ⇒ Windfall tax & Energy Sector
- ⇒ National Logistics Policy
- ⇒ India's EV policy
- ⇒ Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE)
- ⇒ Practice Question For Upsc Prelims & Mains Exam



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CONTENTS

CURRENT AFFAIRS

POLITY & GOVERNANCE

⇒ 'Socialist' and 'Secular' in the preamble of the Constitution	6
⇒ Seat belts, head restraints and safety regulations	7
⇒ Cabinet approves a new centrally sponsored Scheme - PM SHRI Schools	8
⇒ The Indira Gandhi Urban Employment Guarantee Scheme in Rajasthan	10
⇒ Climate action that runs on cooperative federalism	11
⇒ The hijab case and the essential practices doctrine	12
⇒ MHA notifies rules governing the Criminal Procedure (Identification) Act, 2022	14
⇒ What is the Supreme Court initiative on capital punishment?	15
⇒ Supreme Court live-streaming	16
⇒ Ban on PFI under Unlawful Activities Prevention Act (UAPA)	17
⇒ Integrated urban water management system (IUWM)	19
⇒ Supreme Court's abortion ruling	20

INTERNATIONAL RELATION

⇒ Lessons India must take from China's war games in Taiwan Strait	22
⇒ Inaugural NITI - BMZ Dialogue on Development Cooperation	23
⇒ Time for a Indo-US joint space exercise	24
⇒ India, China begin disengagement at Gogra-Hot Springs in eastern Ladakh	25
⇒ G7 on Russian oil	25
⇒ India-Bangladesh ties, a model for bilateral cooperation	26
⇒ India raises Sri Lankan Tamil issue in U.N.	27
⇒ Eastern Economic Forum (EEF) & India's balancing act	28
⇒ India-Arab-Mediterranean Corridor & BRI programme	30
⇒ Hijab Issue & Iranian women's freedom	31
⇒ Permanent membership of the UNSC	32
⇒ Energising India-Nepal ties, the hydropower way	34

ECONOMY

⇒ India, 7% plus annual growth, and the realities	35
⇒ India ranks 132nd out of 191 in UNDP's human development index	36
⇒ The mandatory requirements for packaged commodities	37
⇒ Windfall tax & Energy Sector	38
⇒ RBI Guidelines on digital lending in India	40
⇒ Should India choose manufacturing over services?	41
⇒ National Logistics Policy	42
⇒ The ban on the export of broken rice	43
⇒ Convergence module between Agriculture Infrastructure Fund Scheme, Prime Minister's Micro Food Enterprises Upgradation Scheme and PM Kisan Sampada Yojana launched	44

SECURITY

⇒ The grounding of the Chinook helicopter & implications for India	45
⇒ India's first naval aircraft carrier 'INS Vikrant'	46
⇒ Exercise Vostok-22 & India	47
⇒ New Chief of Defence Staff (CDS) Appointed	48

ENVIRONMENT

⇒ Effecting the ban on single-use plastics	49
⇒ Invasive south red-eared slider turtle poses threat to Indian biodiversity	50
⇒ Shoonya Campaign	51
⇒ How cities can cope with climate change-induced floods	52
⇒ India observes 28th World Ozone Day	53

⇒ Cheetah, Leopard & Jaguar	54
⇒ Matching ecology with agricultural economics	55
⇒ Asiatic caracal	56
⇒ The 'triple dip' La Niña, and its likely impact in India	57
⇒ At 41.5 mn, India tops the list of disaster-related displacements in South Asia	59
⇒ Rotterdam Convention: International trade of 2 hazardous pesticides recommended for 'prior informed consent'	60

SOCIAL ISSUES

⇒ UGC's cluster college plan	61
⇒ Judicial recourse by Muslim women in India	61
⇒ Adoption cases under District Magistrates (DM)	63
⇒ Ageing population India	64

SCIENCE & TECHNOLOGY

⇒ Anti-radiation pills	65
⇒ India's first indigenous vaccine for cervical cancer	66
⇒ Restructuring India's cyber infrastructure	67
⇒ Deploying 5G in a world built on 4G technology	68
⇒ China's first solar-powered, semi-satellite drone	69
⇒ Europe unveils hi-tech MTG-II satellite	70
⇒ CRISPR solution to problems of health begins to take shape	71
⇒ National List of Essential Medicines, 2022	72
⇒ Lumpy skin disease in cattle in India	73
⇒ Virtual Autopsy	75
⇒ Dvorak technique	75
⇒ India's EV policy	76

MISCELLANEOUS

⇒ 'Pradhan Mantri TB Mukta Bharat Abhiyaan' to eliminate TB by 2025	77
⇒ "Adopt a TB patient" plan	78
⇒ GB 9 of the International Treaty on Plant Genetic Resources for Food and Agriculture	79
⇒ New ICC rules	80

PRELIMS FACT

POLITY & GOVERNANCE

⇒ 60-day special maternity leave	82
⇒ Centre renames Rajpath to Kartavya Path	82
⇒ MoHUA rolls out 'Swachh Amrit Mahotsav'	83
⇒ Cabinet approves addition of four tribes to ST list	83
⇒ New rules for child welfare panel members	84
⇒ SC bans all commercial activities around Taj Mahal	85
⇒ Bihar government promoted Surjapuri and Bajjika dialects	85
⇒ Centre extends Pradhan Mantri Garib Kalyan Ann Yojana (PMGKAY)	86
⇒ Government discontinues science, health awards	87

INTERNATIONAL RELATION

⇒ India, Australia ink six new memorandums for collaboration in space sector	87
⇒ International Dairy Federation World Dairy Summit	88
⇒ Three Indian cities join UNESCO learning cities network	88
⇒ MoU between India and UAE on cooperation in the field of Education	89
⇒ AIBD Unanimously extends India's Presidency for one more year	89
⇒ Ninth Session of Governing Body of the ITPGRFA	90
⇒ India-UN Partnership in Action	91

ECONOMY

⇒ Nord Stream 1 pipeline	91
⇒ First unit of Maitree Super Thermal Power plant, Rupsha rail bridge inaugurated	92
⇒ India likely to become world's third-largest economy by 2029: SBI report	93
⇒ Joint initiative of Union Ministry of Agriculture and Farmers Welfare and FICCI	93
⇒ 2nd Anniversary of Pradhan Mantri Matsya Sampada Yojana (PMMSY)	94
⇒ Initiatives as run up to the International Year of Millets 2023	95
⇒ Govt clears 23 strategic projects under National Technical Textiles Mission	95
⇒ PM-PRANAM Scheme	96
⇒ Cabinet approves PLI Scheme on 'National programme on High Efficiency Solar PV Modules'	96
⇒ REC accorded with 'Maharatna' company status	97
⇒ Poshan Vatikas or Nutri- gardens	97
⇒ Global Innovation Index 2022	98

SECURITY

⇒ Tejas Mark-2 project	99
⇒ New Navy ensign inspired by Chhatrapati Shivaji	99
⇒ Indian Navy launches third stealth frigate 'Taragiri' under Project 17A	100
⇒ Japan-India Maritime Bilateral Exercise – Jimex 2022	100
⇒ IAF's Project Cheetah	101
⇒ Navy launches 'Nistar' & 'Nipun'	101
⇒ India to export Pinaka rocket launchers, ammunition to Armenia	102

ENVIRONMENT

⇒ India submits updated NDCs to United Nations	102
⇒ ANGAN 2.0	103
⇒ UNEP launches Green Fins Hub	104
⇒ Swachh Sagar Surakshit Sagar campaign	104
⇒ 'Puneet Sagar Abhiyan'	105
⇒ India's 1st Avalanche Monitoring Radar installed in north Sikkim	106
⇒ Restoring Thamirabarani River	106

SCIENCE & TECHNOLOGY

⇒ CERT-In hosts Cyber Security Exercise "Synergy"	107
⇒ Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE)	107
⇒ Inflatable Aerodynamic Decelerator (IAD)	108
⇒ P vivax strain threatens India's progress towards malaria elimination by 2030	109
⇒ Ad5-nCoV, inhaled version of a Covid-19 vaccine	109
⇒ India's first night sky sanctuary to come up in Ladakh, boost Astro tourism	110
⇒ India's first nasal COVID vaccine	110
⇒ Molecular neuromorphic computing technology	111
⇒ Regulation of satellites in Low Earth Orbit (LEO)	112
⇒ China discovers a new mineral on the moon	112
⇒ India's first commercial satellite broadband service	113
⇒ MeitY Startup Hub and Meta launch XR Startup Program to create next Generation Startups in Extended Reality Technologies	113
⇒ Iodine destroying Ozone Layer	114
⇒ Indian and US firms unite to build satellite with both Synthetic Aperture Radar and optical sensors	114
⇒ Maya, world's first cloned wild arctic wolf	115
⇒ UAE to launch maiden Moon mission Rashid	116
⇒ Apple iPhone & eSIMs	116
⇒ NASA successfully crashes Dart spacecraft into asteroid Dimorphos	117
⇒ DRDO Flight Tests VSHORADS Missile	117

SOCIAL ISSUES

- ⇒ Decline in young population causing decline in student enrolment: NCERT 117
- ⇒ NCERT issues guidelines to schools for early identification of mental health problems in students 118
- ⇒ UN warns of global emergency as nearly 345 mn people face acute starvation 119
- ⇒ KRITAGYA 3.0 120
- ⇒ India achieves significant landmarks in reduction of Child Mortality 120

CULTURE

- ⇒ ASI finds remains of Buddhist caves, temples in Bandhavgarh Tiger Reserve 121
- ⇒ UNESCO launches list documenting 50 iconic Indian heritage textiles 121

MISCELLANEOUS

- ⇒ Queen Elizabeth II, Britain's monarch for 70 years, passed away 122
- ⇒ India wins UN awards for Large-scale Initiative against Hypertension under NHM 123
- ⇒ Malawi first country in southern Africa to eliminate trachoma: WHO 123
- ⇒ Asha Parekh to be honoured with Dadasaheb Phalke Award, 2020 124

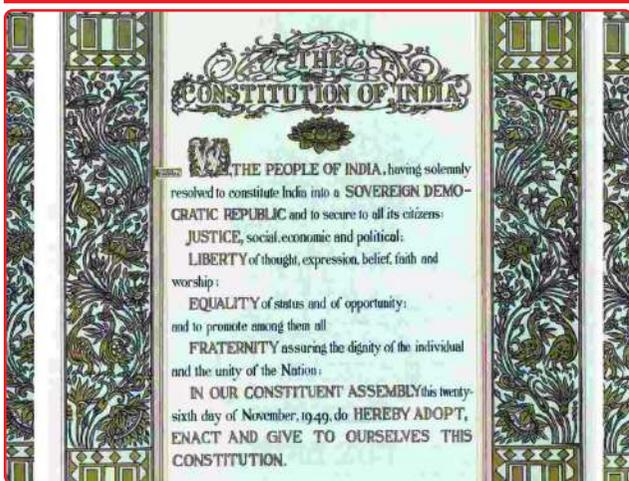
PRACTICE SET

- ⇒ Practice Question For Upsc Prelims Exam 125
- ⇒ Practice Question For Upsc Mains Exam 140



POLITY & GOVERNANCE

'SOCIALIST' AND 'SECULAR' IN THE PREAMBLE OF THE CONSTITUTION



Why in news?

- The Supreme Court will hear on September 23 a petition filed by former MP Dr Subramanian Swamy, seeking the removal of the words "socialist" and "secular" from the preamble of the Indian Constitution.

Details:

- The two terms were inserted into the preamble as part of the 42nd Amendment of the Constitution in 1976 during the Emergency imposed by then Prime Minister Indira Gandhi.
- The petitioners in two similar cases have argued that these words were never intended to be in the Constitution and that such insertion is "beyond the amending power of the Parliament under Article 368".
- Similar petitions have been filed earlier too and given rise to debates around the preamble and the role it plays in the Constitution.

What is the purpose of the preamble?

- A preamble serves as an introduction to a document and contains its basic principles and goals.
- When the Indian Constitution was being drafted, the ideals behind the preamble were first laid down in the Objectives Resolution, adopted by the Constituent Assembly in 1947.
- These ideals emerged out of the numerous debates that took place during the drafting of the Constitution.

- During the Constituent Assembly debates, many suggestions were put forth – including that God should be invoked in the preamble as in the Irish constitution, that Mahatma Gandhi's name should be included, etc.

Initially, the Preamble said:

"WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN DEMOCRATIC REPUBLIC and to secure to all its citizens:

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity;

and to promote among them all

FRATERNITY assuring the dignity of the individual and the unity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION."

Is preamble a part of the Constitution?

- The question of whether the preamble is a part of the Constitution or simply an introduction has been deliberated upon by the highest court, because the meaning and weight of the objectives mentioned in it, such as "equality of status and opportunity", remained unclear from the perspective of law.
- However, in its judgment in the famous LIC case of 1995, the Supreme Court said, "...and the Preamble of the Constitution which is an integral part and scheme of the Constitution", affirming its position as part of the Constitution.
- Additionally, the violation of any principle mentioned in the preamble cannot be a reason to go to court, meaning the preamble is "non-justiciable" however, judgments of courts can cite it as an additional factor in their reasoning, given that it constitutes the spirit of the Constitution.

How else has the preamble been debated earlier?

- In 2020 BJP MP Rakesh Sinha moved a resolution in Rajya Sabha seeking to remove the word socialism from the preamble.
- Earlier in 2015, the Ministry of Information and Broadcasting used an image of the preamble of the Indian Constitution without the words "socialist" and "secular", leading to some criticism.

⇒ In 2008, the Supreme Court rejected a plea demanding the removal of 'socialist'. "Why do you take socialism in a narrow sense defined by Communists? In broader sense, it means welfare measures for the citizens. It is a facet of democracy," a three-judge Bench headed by then Chief Justice of India K G Balakrishnan had said.

Under what circumstances was the preamble amended?

- ⇒ Over her years in government, Indira Gandhi had attempted to cement her approval among the masses on the basis of a socialist and pro-poor image with slogans such as "garibi hatao" (Eradicate poverty).
- ⇒ The 42nd Amendment to the Constitution, passed in 1976 when the Emergency was in place, replaced the words "sovereign democratic republic" with "sovereign socialist secular democratic republic".
- ⇒ It also changed "unity of the nation" to "unity and integrity of the nation".
- ⇒ Under Article 368(2), Parliament can amend the Constitution by passing a Bill in "each House by a majority of the total membership of that House and by a majority of not less than two-thirds of the members of that House present and voting". After that, the Bill "shall be presented to the President who shall give his assent... and thereupon the Constitution shall stand amended".
- ⇒ The 42nd Amendment had several other provisions, by which the Indira government sought to further centralise power. Some of these were reversed by the Janta government that came to power after the Emergency.

Were 'secular' and 'socialist' debated before Independence?

- ⇒ During the debates in the Constituent Assembly, members such as K T Shah and Brajeshwar Prasad had raised the demand to add these words to the preamble.
- ⇒ However, Dr B R Ambedkar argued: "What should be the policy of the State, how the Society should be organised in its social and economic side are matters which must be decided by the people themselves according to time and circumstances. It cannot be laid down in the Constitution itself because that is destroying democracy altogether."
- ⇒ In his petition, Dr Swamy mentioned Ambedkar's position. Ambedkar also said, "My contention is that what is suggested in this amendment is already contained in the draft Preamble".

Originally affirmed in the Constitution:

- ⇒ Indeed, many principles affirming secularism and socialism were contained in the Constitution originally, such as in the Directive Principles of State Policy that is meant to guide the government in its actions.
- ⇒ Some examples are provisions related to the "equitable distribution of material resources of the community

for the common good", and protecting the rights of workers.

- ⇒ Similarly, in the fundamental rights that allow the freedom to profess and propagate one's religion, as well as in the government policies that recognise religious occasions across communities, an Indian version of secularism is followed.
- ⇒ Unlike western secularism which strictly separates the state and religion, the Indian state has over the years acknowledged and involved itself in matters related to all religions.

SEAT BELTS, HEAD RESTRAINTS AND SAFETY REGULATIONS



Why in news?

- ⇒ The recent death of Cyrus P. Mistry, former Chairman of Tata Sons, in a car crash in Maharashtra's Palghar district has turned the focus on whether compulsory use of seat belts in cars, including by passengers in the rear seat, can save lives during such accidents.
- ⇒ It is reported that Mistry and a co-passenger, who was also killed in the mishap, were not wearing seat belts. Although a full investigation has to follow, authorities said preliminary findings showed the car was moving at high speed.

How is a seat belt a life saver?

- ⇒ The three-point seat belt engineered by Nils Evar Bohlin, a passive safety device first incorporated into a car by Volvo in 1959, and now standard in cars sold in India, is a low cost restraint system that prevents occupants of a vehicle from being thrown forward in a crash.
- ⇒ In a car crash, particularly at moderate to high speeds, the driver or passenger who has no seat belt continues to move forward at the speed of the vehicle, until some object stops the occupant. This could be the steering wheel, dashboard or windscreen for those in front, and the front seat, dashboard or windscreen for those in the rear.
- ⇒ Even if the vehicle is fitted with an airbag, the force at which an unrestrained occupant strikes the airbag can cause serious injuries.
- ⇒ Without an airbag, and no seat belt restraint, a severe crash leads to the occupant of the rear seat striking

the seat in front with such force that "it is sufficient for the seat mountings and seat structures to fail.

Functions of seat belt:

- The seat belt performs many functions, notably slowing the occupant at the same rate as the vehicle, distributing the physical force in a crash across the stronger parts of the body such as the pelvis and chest, preventing collisions with objects within the vehicle and sudden ejection.
- Newer technologies to "pretension" the belt, sense sudden pull forces and apply only as much force as is necessary to safely hit the airbags.
- Absence of seat belts could lead to rear seat occupants colliding with internal objects in the car, or even being ejected through the front windscreen during the collision.

What role do head restraints play?

- Head restraints, which are found either as adjustable models or moulded into the seats, prevent a whiplash injury.
- This type of injury occurs mostly when the vehicle is struck from behind, leading to sudden extreme movement of the neck backwards and then forwards. It could also happen vice versa in other circumstances.
- The injury involves the muscles, vertebral discs, nerves and tendons of the neck and is manifested as neck stiffness, pain, numbness, ringing in the ears, blurred vision and sleeplessness among others.
- The head restraint built into the seat must be properly placed and aligned with the neck, to prevent the injury in a vehicle accident.

How does India regulate and enforce safety?

- On February 11, 2022, the Ministry of Road Transport and Highways issued a draft notification providing for three-point seat belts to be provided in all vehicles coming under the M1 category, that is, for carriage of passengers comprising not more than eight seats in addition to the driver's seat, for vehicles manufactured from October 1.
- Also, it stipulated relevant Indian Standards to be followed by the manufacturers for both seat belts and reminder systems alerting occupants to wear them.
- What stands out is that the amended Motor Vehicles Act of 2019 already requires the occupants of a passenger vehicle to wear a seat belt. As per Section 194(B) of the Act, whoever drives a motor vehicle without wearing a safety belt or carries passengers not wearing seat belts shall be punishable with a fine of one thousand rupees.

Non-compliance:

- Evidently, although cars are equipped with seat belts, the enforcement for rear seat occupants is virtually absent in India.
- U.S. research findings show that seat belt use was low in states with weak laws or no laws at all, and riders

of taxi services are high risk groups. The study found that rear seat passengers who did not buckle up were eight times more likely to suffer serious injuries than those who did.

- The toll from non-compliance in India is high, as taxicabs often have missing seat belts.
- In one of the few questions on the subject asked in Parliament, the Road Transport Ministry said, during 2017, a shocking "26,896 people lost their lives due to non-use of seat belts and 16,876 of them were passengers. No specific data with regard to loss of lives due to non-usage of seat belts by rear seat passengers is available with the Ministry".

Way Forward:

- In the aftermath of the accident in which Cyrus Mistry died, there have been suggestions that automotive technology should bring about compliance by making it impossible to operate the vehicle if seat belts are not fastened.
- As of July, the European Union's General Safety Regulation requires new vehicles to incorporate advanced emergency braking technology that launches automatically when a collision is imminent, and intelligent speed assistance to reduce speed suitably besides accident event recorders, all of which are relevant to the Palghar crash.
- Making high quality dash cameras standard in cars could be a start to help record accidents and establish the cause.

CABINET APPROVES A NEW CENTRALLY SPONSORED SCHEME - PM SHRI SCHOOLS



Why in news?

- Recently, the Union Cabinet approved a new centrally sponsored scheme - PM SHRI Schools (PM ScHools for Rising India).

Details:

- This will be a new scheme for development of more than 14500 schools across the country as PM SHRI Schools by strengthening select existing schools being managed by Central Government/ State/ UT Government/ local bodies.
- PM SHRI Schools will showcase all components of the National Education Policy 2020, act as exemplar

schools and also offer mentorship to other schools in their vicinity.

- The PM SHRI schools will deliver quality teaching for the cognitive development of students and will strive to create and nurture holistic and well-rounded individuals equipped with key 21st century skills.

Implementation:

- Scheme of PM SHRI schools (PM Schools for Rising India) is to be implemented as a Centrally Sponsored Scheme with a total project cost of Rs. 27360 crore which includes a central share of Rs. 18128 crore for the period of five years from year 2022-23 to 2026-27.

Key features:

- PM SHRI will provide high-quality education in an equitable, inclusive and joyful school environment that takes care of the diverse background, multilingual needs, and different academic abilities of children and makes them active participants in their own learning process as per the vision of NEP 2020.
- PM SHRI Schools will provide leadership to other schools in their respective regions by providing mentorship.
- The PM SHRI Schools will be developed as Green schools, incorporating environment friendly aspects like solar panels and LED lights, nutrition gardens with natural farming, waste management, plastic free, water conservation and harvesting, study of traditions/practices related to protection of environment, climate change related hackathon and awareness generation to adopt sustainable lifestyle.
- Pedagogy adopted in these schools will be more experiential, holistic, integrated, play/toy-based (particularly, in the foundational years) inquiry-driven, discovery-oriented, learner-centred, discussion-based, flexible and enjoyable.
- Focus will be on learning outcomes of every child in every grade. Assessment at all levels will be based on conceptual understanding and application of knowledge to real life situations and will be competency-based.
- Assessment of the resources available and their effectiveness in terms of availability, adequacy, appropriateness, and utilisation for each of the domains and their key performance indicators will be done and gaps will be filled in a systematic and planned manner.
- Linkage with Sector Skill Councils and local industry for enhancing employability and providing better employment opportunities will be explored.
- A School Quality Assessment Framework (SQAF) is being developed, specifying the key performance indicators to measure outcomes. Quality evaluation of these schools at regular interval will be undertaken to ensure the desired standards.

Major illustrative interventions of Scheme of PM SHRI Schools are:

- Quality and Innovation (Learning Enhancement Programme, Holistic Progress Card, Innovative Pedagogies, Bagless days, Internships with Local artisans, Capacity building etc.)
- Beneficiary oriented entitlements under RTE Act. 100% of PM SHRI Schools will receive Science and Math Kits.
- Annual School Grants (Composite School grants, Library grant, Sports grant)
- Early Childhood Care and Education including Balvatika and Foundational Literacy and Numeracy
- Equity and Inclusion including provision of safe and appropriate infrastructure for girls and CWSN.
- Encouraging flexibility in choice of subjects offered to students.
- Encouraging mother tongue/local languages as medium of instruction using technological interventions to help bridge language barriers.
- ICT, smart classrooms and digital libraries for using digital pedagogy. 100% of the PM SHRI Schools will be covered under ICT, smart classrooms and digital initiatives.
- Strengthening of existing infrastructure
- Vocational interventions & Enhancing internship / entrepreneurship opportunities especially with local industry. Mapping of skills with developmental projects/nearby industry and develop courses/ curriculum accordingly.
- Saturation approach will be adopted to develop these schools with all modern facilities. Science labs, Library, ICT facility and Vocational labs etc. will be provided to all the schools.
- Green School initiatives
Further, the scheme envisages convergence with existing schemes /Panchayati Raj Institutions/ Urban Local bodies and community participation for infrastructure upgradation of the school and creation of facilities.

Implementation strategy:

- PM SHRI Schools would be implemented through the existing administrative structure available for Samagra Shiksha, KVS & NVS. The other autonomous bodies would be involved on specific project basis as required.
- These schools shall be monitored vigorously to assess progress and understand the challenges faced in implementation of National Education Policy 2020.

Selection Methodology:

- Selection of PM SHRI schools will be done through Challenge Mode wherein Schools compete for support to become exemplar schools. Schools would be required to self-apply on the online portal. The portal will be opened four times a year, once every quarter, for first two years of the scheme.
- The Elementary schools (Class 1-5/1-8) & the Secondary/ Sr. Secondary Schools (Class 1-10/1-12/6-10/6-12)

managed by Centre/State/UT Governments / local self-governments having UDISE+ code would be considered for selection under the Scheme. Selection would be done through a three-stage process with definite time lines, which is as follows: -

- a) Stage-1: States/UTs would sign MoU agreeing to implement NEP in entirety with Centre laying down the commitments for supporting these schools for achieving specified quality assurance as PM SHRI schools.
 - b) Stage-2: In this stage, a pool of schools that are eligible to be selected as PM SHRI Schools would be identified based on prescribed minimum benchmark through UDISE+ data.
 - c) Stage-3: This stage is based on the challenge method for fulfilling certain criteria. Only the schools from the above eligible pool of schools would compete to fulfill the challenge conditions. Fulfillment of conditions would be certified by States/KVS/JNV through physical inspection.
- Maximum two schools (one Elementary & one Secondary/Senior Secondary) would be selected per block/ULB with upper limit of number of total schools across India. Geo-tagging of schools for the selection and monitoring of PM SHRI schools will be done.
 - The services of Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-N) will be taken for geo-tagging and other related tasks. An Expert committee would be constituted for final selection of schools.

Quality Assurance of PM SHRI Schools:

- Showcase of NEP 2020
- Student registry for tracking enrolment and learning progress
- Improvement in learning outcomes of each child to achieve levels above state and national average
- Every middle grade child exposed/oriented to cutting edge and 21st century skills
- Every secondary grade child passes out with at least one skill
- Sports, Arts, ICT for every child
- Sustainable and Green schools
- Each school linked/connected to Higher Education Institutions for mentoring
- Every school linked/connected to local entrepreneurial ecosystem
- Every child counselled for psychological well-being and career
- Students will be rooted to knowledge and heritage of India, proud of civilizational ethos and values of Bharat, aware of India's contribution to the world, conscious of duties towards society, living beings and the nature, communicatively competent in Indian languages, respecting inclusivity, equality and unity in diversity, sense of service and furthering the spirit of 'Ek Bharat Shreshth Bharat'.

- Character-building, citizenship values, fundamental duties and responsibilities towards nation-building

Way Forward:

- More than 18 lakh students are expected to be direct beneficiaries of the scheme. Further impact will be generated through the mentoring and handholding of the schools in vicinity of PM SHRI schools.

THE INDIRA GANDHI URBAN EMPLOYMENT GUARANTEE SCHEME IN RAJASTHAN



Why in news?

- The Indira Gandhi Urban Employment Guarantee Scheme has rolled out in Rajasthan with the objective of providing economic support to the poor and needy families living in the cities through work to be provided on demand for 100 days in a year.
- It is a scheme to give guaranteed jobs to the people residing in cities, on the lines of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) for villagers started by the UPA government at the Centre in 2006.

Who are eligible to get jobs?

- Those in the age group of 18 to 60 years residing within the limits of urban local bodies are eligible to demand and get employment in the identified segments.
- There is no income limit, though the poor and destitute people, especially those who lost their livelihood during the pandemic, will be given preference.
- A budgetary provision of ₹800 crore, announced by Chief Minister in the State Assembly earlier in 2022, has been made for the scheme in 2022-23.
- At least 50 persons in each ward of urban local bodies will be given employment and the work permitted under the scheme will be approved and executed through committees at the State, district and local body levels.
- The State government will also reward the municipal bodies doing good work under the scheme. The cost of material and the payment for the labour for work of general nature will be in the ratio of 25:75 and will vary for special work which needs technical expertise.
- The State government's Department of Local Bodies will be responsible for the scheme's implementation.

What are the categories of tasks?

- The tasks to be carried out under the scheme have been clubbed mainly under eight heads.
- The first is environment protection, which will involve tree plantation at public places, maintenance of parks and watering plants on footpaths and dividers.
- The next is water conservation, where the tasks may be allotted for cleanliness and improvement of ponds, lakes and stepwells, construction, repair and cleaning of rain water harvesting structures and restoration of water sources.
- Other categories are heritage conservation, removal of encroachments and illegal boards, hoardings and banners, stopping defacement of property and service-related works.
- As part of convergence, the people engaged under the employment guarantee scheme can be employed elsewhere in other schemes, already having a material component, which require the labour.
- Eligible people will get work such as tree plantation, cleaning ponds, collecting garbage from door to door and segregating it and catching stray animals. Apart from all these categories, the State government can add new tasks or amend the ones already included in the list.

Wages:

- A Jan Aadhar card, introduced by the State government, or its registration slip will be required for registration, which can be done at e-Mitra centres.
- While more than 31,000 muster rolls have been issued for the work, the wages will be paid at the rate of ₹259 a day to unskilled labourers and ₹283 a day to skilled labourers. The 'mates' or supervisors on top of the labourers will get ₹271 a day.

Advantages:

- The latest initiative will highlight it as a major step to address the plight of urban poor, which had not received much attention earlier.
- The identification of unemployed youths in urban areas may require an approach different from the one adopted in the villages for MGNREGA. Besides, the kind of jobs provided under the scheme will be different than those in the rural areas and will need a more skilled workforce.
- The scheme may turn out to be a game changer for the people who lost their jobs in the pandemic and are struggling to make ends meet amid high inflation.

Are similar schemes operative in other States?

- The Rajasthan government has prepared the employment guarantee programme after studying similar such schemes operative in other States. Several States are looking favourably towards an urban version of MGNREGA.
- These schemes include the Ayyankali Urban Employment Guarantee Scheme in Kerala, Urban Wage Employment Initiative under UNNATI in Odisha,

Mukhya Mantri Shramik Yojana in Jharkhand and Mukhya Mantri Yuva Swabhiman Yojana in Madhya Pradesh.

- The Swarna Jayanti Shahari Rozgar Yojana was launched as a Centrally-sponsored scheme in 1997 to provide gainful employment to the urban unemployed and underemployed poor by encouraging them to set up self-employment ventures and through the provision of wage employment.
- The scheme was replaced with the National Urban Livelihoods Mission in 2013. However, neither of the two was an employment guarantee scheme.

Urban unemployment:

- The demand for a job guarantee scheme in the cities is increasing because of the growing distress among the urban poor, higher unemployment rates in urban areas in comparison with villages, the persistently high inflation affecting the people and the prevalence of low-wage and poor quality informal work in urban areas.
- Moreover, as against the rural unemployment being mostly seasonal, unemployed people in the cities face problems throughout the year.

CLIMATE ACTION THAT RUNS ON COOPERATIVE FEDERALISM



Context:

- India's procurement of 5,450 electric buses and subsequent increase in ambition to have 50,000 e-buses on Indian roads by 2030 represent the immense potential for progress on climate and development goals through close collaboration between the Union and State governments.

New business model:

- With the shared aim to rapidly electrify a key pillar of India's public transportation, recent governance efforts have created a new business model for e-buses.
- If this sector is further developed, it can reduce air pollution in cities and fuel import bills, improve the balance sheets of State transport companies, and spur domestic manufacturing and job creation.

State of State-owned buses:

- There are currently around 1,40,000 registered public buses on India's roads and at least 40,000 of these

buses are at the end of their lifespan and must be taken off the roads immediately.

- However, most buses are owned and operated by State transport undertakings, which are in poor financial health. In part, they incur large losses because they play an important social function by providing subsidised fares to crores of Indians each day.
- With a few exceptions such as Mumbai's Brihanmumbai Electric Supply & Transport Undertaking (BEST) of the Brihanmumbai Mahanagarpalika, when State transport undertakings go to the market to buy buses, they face problems of fragmented demand and high prices.
- Furthermore, there are limitations to nation-wide action on this issue as State governments control issues such as transit, urban governance and pollution control.

Example of Grand Challenge 1:

- Until recently, there had never been a unified tender to address some of these challenges. Cooperative federalism can easily become a fraught issue. However, in the case of the Grand Challenge 1, a tender for 5,450 buses (across five major Indian cities – Kolkata, Delhi, Bengaluru, Hyderabad and Surat), the opposite happened.
- Convergence Energy Services Limited (CESL), a nodal agency of the Union government, acted as the programme manager in this effort at centralised procurement in concert, with State-led demand and customisation.
- Coordination between a range of Union government Ministries and State governments standardised demand conditions across these five cities and discovered prices that beat the increasingly outmoded internal combustion engines.
- On a cost-per-kilometre basis, the prices discovered were 40% lower than diesel and 34% less than CNG (without factoring in the subsidy through FAME-II).

FAME SCHEME
<ul style="list-style-type: none"> ➤ FAME, the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME-India) Scheme was launched under the National Mission on Electric Mobility in 2011/National Electric Mobility Mission Plan 2020, and unveiled in 2013. ➤ The scheme encourages the progressive induction of reliable, affordable and efficient electric and hybrid vehicles.

- With high fuel prices and energy security challenges in the wake of the war in Ukraine, the switch to electric vehicles appears even more sensible and lucrative.

How Grand Challenge 1 turned into huge success?

- This inflection point in unit economics was enabled by three key factors: collaboration, pace and transparency.

- First, the tender itself was a fully consultative process and varied contributions by participants already influenced the design of future tenders.
- Second, there was a shared sense of urgency that shaped this collaboration, which leveraged the bureaucracy's power when working on time-bound and measurable schemes and increased receptivity to creative and new ideas.
- Finally, transparency was the most resilient quality of a public process. From the outset, there was clarity about the intention to engender trust and build a publicly available process and tender that invited bids from automakers and operators.

Cooperative federalism:

- Excessive centralisation can have limitations and contradict the federal principles enshrined in the Constitution.
- For instance, India's States and districts vary vastly in their vulnerability to climate impacts, and decentralised decision-making and locally-led adaptation will help reduce potential damage to lives and livelihoods. Urban local bodies and gram panchayats can be the heart of climate action.
- However, in certain areas where India must move the needle quickly or where States lack size and financial clout, such as the electrification of mass mobility, centralised procurement and programme management can deliver architectural transformations rather than just incremental transitions.

Way Forward:

- Although a good start has been made, much work remains to be done to enable the electrification of mass mobility in India.
- The country's shift to clean public transportation will require a suite of efforts, from ramping up manufacturing capacity to domestic battery production to building out charging infrastructure (ideally plugged in to a grid powered by renewables) to capacity building of State transport undertakings to developing financial instruments and structures.
- As India now ramps up its demand to deploy 50,000 buses across 40 cities, it will need to continue the spirit of true inter-ministerial and Union-State collaboration to fulfil its ambitious targets for green and inclusive economic development.

THE HIJAB CASE AND THE ESSENTIAL PRACTICES DOCTRINE

Context:

- A two-judge Bench of the Supreme Court of India is presently hearing arguments on the correctness of a Karnataka High Court judgment that upheld the ban on the use of the hijab by students in Karnataka.

Theological aspect:

- Over the last few days, counsel for the petitioners has addressed a bundle of different issues, ranging from the rights of students to freedom of expression, conscience, and religion to the disparate impact that the ban has had on the right to education of Muslim women.
- In theory, the issues emanating out of these submissions ought to be capable of easy resolution, through an application of ordinary doctrines of constitutional law.
- But, as transcripts from the hearings have shown that every time an argument over religious freedom in India is made, it invariably mires itself in the court-crafted doctrine of essential practice.
- This requires judges to engage not merely in legal analysis but also in theological study, something an education in the law scarcely equips one to perform.

**Findings by Karnataka High Court:**

- The Karnataka High Court made three primary findings in its judgment:
 - a) First, it held that the use of a hijab is not essential to the practice of Islam. Thus, the right to freedom of religion was not violated.
 - b) Second, it ruled that there exists no substantive right to freedom of expression or privacy inside a classroom and, therefore, these rights were simply not at stake here.
 - c) Third, it held that the ban did not stem directly out of the government's order, which only called for a uniform dress code to be prescribed by the State or school management committees, and, hence, the law did not discriminate, either directly or indirectly, against Muslim students.
- To decide on the correctness of this verdict, the Supreme Court need not answer all the questions posed before it. A reversal of any of the three findings made by the High Court ought to result in a nullification of the ban.

Possible outcomes of the issue:

- If the petitioners can establish that the law's seemingly neutral language does not negate the ringfencing of most forms of expression against the singling out of the hijab, and for that reason if they can show that

Muslim women have been discriminated against, the Bench must reverse the High Court's judgment.

- Similarly, if the petitioners can establish that there is nothing to suggest that there exists no right to freedom of expression within the confines of an educational institution, then the onus shifts to the State to show that the ban is proportionate and legitimate.
- That analysis was never conducted by the High Court because in its belief, classrooms are "qualified public spaces" where individual rights must give way to the interests of "general discipline and decorum".
- The Supreme Court should be able to decide these questions based on settled canons of constitutional law.

Practice & Faith:

- If the SC Bench were to find that the Karnataka High Court erred in deciding either of these issues against the petitioners perhaps it might be keen on ignoring altogether the question of whether the ban impinges on the right to freedom of religion.
- For that analysis, on the law as it stands today, requires it to engage in a study of scriptures and conventions, and to then determine how indispensable the practice is to faith.

Essential practices doctrine by B.R. Ambedkar:

- The essential practices doctrine owes its existence to a speech made by B.R. Ambedkar in the Constituent Assembly. "The religious conceptions in this country are so vast that they cover every aspect of life, from birth to death," he said. "...I do not think it is possible to accept a position of that sort... we ought to strive hereafter to limit the definition of religion in such a manner that we shall not extend beyond beliefs and such rituals as may be connected with ceremonials which are essentially religious. It is not necessary that... laws relating to tenancy or laws relating to succession, should be governed by religion."
- Ambedkar was striving to distinguish the religious from the secular, by arguing that the state should be allowed to intervene in matters that are connected to religion but are not intrinsically religious.
- Indeed, it was in this vein that the Supreme Court, in the case concerning the Shirur Mutt (1954), held that to determine what constituted an 'essential' aspect of religion, the Court ought to look towards the religion concerned, and to what its adherents believed was demanded by their faith.
- But since then, the Court has, with a view to determining the kinds of circumstances in which the state could legitimately intervene, transformed this doctrine into an altogether different form of inquiry.

Supreme Court's essential practices test:

- Through a fusion of tests, the Court is now deciding not only when the state could lawfully interfere in the interests of social welfare and reform, but also which

practices are deserving of constitutional protection in the first place.

- ⇒ The embedding of this test in the Court's jurisprudence has achieved at least two things, neither of which is particularly desirable.
 - a) First, it has allowed the Court to narrow the extent of safeguards available to religious customs by directly impinging on the autonomy of groups to decide for themselves what they deem valuable, violating, in the process, their right to ethical independence.
 - b) Second, it has also negated legislation that might otherwise enhance the cause of social justice by holding that such laws cannot under any circumstances encroach on matters integral to the practice of a religion.
 - c) For example, in 1962, the Court struck down a Bombay law that prohibited excommunications made by the Dai of the Dawoodi Bohra community when it held that the power to excommunicate is an essential facet of faith and that any measure aimed at social welfare cannot reform a religion out of its existence.

Principle of anti-exclusion:

- ⇒ In his concurring opinion, in the case concerning the ban on entry of women into the Sabarimala temple, Justice D.Y. Chandrachud proposed one such doctrine: a principle of anti-exclusion.
- ⇒ Its application would require the Court to presume that a practice asserted by a religious group is, in fact, essential to the proponents of its faith.
- ⇒ But regardless of such grounding, the Constitution will not offer protection to the practice if it excludes people on grounds of caste, gender, or other discriminatory criteria.
- ⇒ As Justice Chandrachud put it, "the anti-exclusion principle allows for due-deference to the ability of a religion to determine its own religious tenets and doctrines. At the same time, the anti-exclusion principle postulates that where a religious practice causes the exclusion of individuals in a manner which impairs their dignity or hampers their access to basic goods, the freedom of religion must give way to the over-arching values of a liberal constitution".
- ⇒ But until such time as the essential practices doctrine is overruled by a Bench of more than seven judges, the Court is bound to apply its tenets.
- ⇒ Perhaps that reassessment will happen when a nine-judge Bench constituted in the review petitions filed against the judgment in the Sabarimala case passes judgment.

Conclusion:

- ⇒ For now, any Court hearing a matter touching upon a matter of faith has the unenviable task of acting not merely as an expert on law but also as an expert on religion.

MHA NOTIFIES RULES GOVERNING THE CRIMINAL PROCEDURE (IDENTIFICATION) ACT, 2022



Why in news?

- ⇒ Recently, the Ministry of Home Affairs (MHA) has notified the rules governing The Criminal Procedure (Identification) Act, 2022 that would enable police and central investigating agencies to collect, store and analyse physical and biological samples including retina and iris scans of arrested persons.

Exemptions:

- ⇒ The rules do not mention the procedure to be adopted for convicted persons.
- ⇒ The measurements of persons detained under various preventive detention laws shall not be taken unless clubbed with a serious offence or ordered by a court.
- ⇒ When the Bill was introduced in Parliament in March 2022, the Opposition members termed it "unconstitutional" and an attack on privacy as it allowed to record samples of even political detainees.
- ⇒ However, the rules notified state that samples of those detained under preventive sections such as 107, 108, 109, 110, 144, 145 and 151 of the Code of Criminal Procedure Code (CrPC) code shall not be taken unless such person is charged or arrested in connection with any other offence punishable under any other law for the time being in force or the person has been ordered to give security for his good behaviour or maintaining peace under section 117 of the said Code for a proceeding under the said sections.

Measurements:

- ⇒ "Measurements" includes finger-impressions, palm-print, foot-print, photographs, iris and retina scan, physical, biological samples and their analysis, behavioural attributes including signatures, handwriting or any other examination referred to in section 53 or section 53A of the Code of Criminal Procedure, 1973 (2 of 1974).
- ⇒ The National Crime Records Bureau (NCRB) under the MHA will direct States on how to collect and store the information.
- ⇒ This includes- specifications of the equipment or devices to be used for taking measurements,

specifications and the digital and physical format of the measurements, method of handling and storage of measurements in the State government in a format compatible with the database of the NCRB and also the information technology system to be used for taking of measurements.

Other Guidelines:

- If any person who is required to allow the measurements to be taken under the Act resists or refuses to allow the taking of such measurements, the authorised user shall take the measurements in accordance with the provisions of sections 53 and 53A of the Code of Criminal Procedure, 1973 (2 of 1974).
- The record of measurements shall be stored and preserved in a secure and encrypted format as specified in the Standard Operating Procedures by the NCRB from "time to time."
- Any act of unauthorised access, distribution or sharing of data collected under the Act shall be punishable as per the provisions of the Indian Penal Code, 1860 and the Information Technology Act, 2000.

Repealed Act:

- The Act repeals 'The Identification of Prisoners Act, 1920', even though the rules do not mention convicted persons.
- The over 100-year-old Act's scope was limited to capturing finger impressions, footprint impressions and photographs of convicted prisoners and certain categories of arrested and non-convicted persons on the order of a Magistrate.

Objects and Reasons:

- The Statement of Objects and Reasons of the bill said that new "measurement" techniques being used in advanced countries are giving credible and reliable results and are recognised the world over.
- It said that the 1920 Act does not provide for taking these body measurements as many of the techniques and technologies had not been developed then.

WHAT IS THE SUPREME COURT INITIATIVE ON CAPITAL PUNISHMENT?



Why in news?

- A three-judge Bench of the Supreme Court has referred to a five-member Constitution Bench the issue of

giving meaningful opportunity to those found guilty of a capital offence to present mitigating factors and circumstances so that they can better plead for a life term instead of a death sentence.

- The reference was made to resolve differences between judgments, mainly on whether it is necessary to hold the hearing on sentencing on a subsequent day and not on the day of the conviction.
- It is believed that an authoritative verdict on the question may lead to the judicial system making death sentences even rarer than it is now.

What does the law say on sentencing?

- The issue arises from the legal requirement that whenever a court records a conviction, it has to hold a separate hearing on the quantum of sentence.
- Section 235 of the Code of Criminal Procedure (CrPC) says that after hearing arguments, the judge shall give a judgment; and, "if the accused is convicted, the judge shall hear the accused on the question of sentence and then pass sentence".
- This process gains significance if the conviction is for an offence that entails either death or life imprisonment.
- Section 354(3) says that when an offence is punishable with death or imprisonment for life, the judgment shall state the reasons for the sentence awarded, and if the sentence is death, "special reasons" for the sentence.
- Taken together, these provisions would mean that the sentencing hearing following the conviction of a person for a capital offence is a matter of great importance, as it would decide if the death penalty should be imposed or a life term will be sufficient.
- This would necessarily entail an inquiry into the nature and gravity of the offence and the circumstances in which it took place.

Bachan Singh vs State of Punjab (1980):

- Ever since the Supreme Court, in Bachan Singh vs State of Punjab (1980) laid down that the death penalty can be awarded only in the 'rarest of rare cases', the nature of the sentencing hearing has undergone a transformation.
- Besides the gravity of the crime, the circumstances of the accused also came to be examined to determine the suitability of the death penalty in a given case.
- Trial courts were required to balance 'aggravating circumstances' and 'mitigating circumstances' to decide the sentence.

What have courts said about the process?

- The Supreme Court noted in Bachan Singh that Section 235 is based on a recommendation in the 48th Report of the Law Commission, which had said that one of the deficiencies in sentencing policy was the lack of comprehensive information about the characteristics and background of the offender.

- The Commission had also suggested that gathering evidence related to the circumstances relevant to sentencing should be encouraged.
- Given this background, the Supreme Court said the trial court, while deciding the sentence, "should not confine its consideration 'principally' or merely to the circumstances connected with a particular crime, but also give due consideration to the circumstances of the criminal."
- In a series of judgments, the Supreme Court has advocated that the sentencing hearing be done separately, that is, at a future date after conviction.
- However, in a contradiction of sorts, several judgments have upheld the practice of 'same-day' sentencing. Such a practice does not vitiate the sentence, the courts have ruled.

What are the views on same-day sentencing?

- Even though a separate hearing on sentencing is practised in all trials, most judges do not adjourn the case to a future date to go through this. As soon as the verdict of 'guilty' is pronounced, they ask counsel on both sides to argue on sentencing.
- There is a view that such 'same-day' sentencing is inadequate and violates natural justice as convicts do not get enough time to gather mitigating factors.
- A major premise for the current order of referral is that this process is hopelessly tilted against the accused.
- While the State is given an opportunity to present aggravating circumstances against the accused throughout the duration of a trial, the accused, on the other hand, is able to produce evidence showing mitigating circumstances in their favour, which may spare them the noose, only after their conviction.

What is expected from the reference?

- The Constitution Bench may lay down comprehensive guidelines on the manner in which sentencing decisions can be arrived at. It may make it necessary for the trial court to get to know the accused better before passing the sentence.
- Going beyond the reports of jail authorities or parole officers, the courts may draft the help of psychologists and behavioural experts.
- A study into the childhood experiences and upbringing of the accused, mental health history in the family and the likelihood of traumatic past experiences and other social and cultural factors may be mandated to be part of the sentencing process.
- This may mean that trial courts will be better informed than now, when only basic data such as educational and economic status are ascertained before a sentence is imposed.

SUPREME COURT LIVE-STREAMING

Why in news?

- The Supreme Court recently began live-streaming proceedings of all constitution bench hearings in a

bid to enhance transparency and accessibility in its functioning.



Background:

- This comes a month after the apex court, for the first time since its inception, live-streamed its proceedings of a bench headed by then chief justice NV Ramana through a webcast portal.
- A unanimous decision was taken by the 30 judges of the apex court in the full court meeting headed by Chief Justice of India UU Lalit to implement an apex court verdict of 2018 in the Swapnil Tripathi case.

Why live-streaming of cases?

- The Supreme Court wants to increase transparency and accessibility.
- These include the validity of the 103rd constitution amendment granting 10 per cent quota to the Economically Weaker Section (EWS) and pleas challenging the constitutional validity of the Citizenship Amendment Act.
- The rationale was spelled out on 26 September, 2018, when the apex court headed by then chief justice of India Dipak Misra in a path-breaking verdict and a major leap in imparting transparency in the functioning of the judiciary allowed live-streaming of court proceedings of cases of "constitutional and national importance". The court said this openness was like "sunlight" which is the "best disinfectant".
- An apex court bench had said it will soon make the necessary rules for balancing the rights of the public and protecting the dignity of litigants.

Public right to know:

- Live-streaming of court proceedings will effectuate "public right to know" and bring in more transparency in judicial proceedings.
- The verdict was passed on a batch of petitions, including those filed by senior advocate Indira Jaising, law student Snehil Tripathi and NGO 'Centre For Accountability and Systemic Change' on the issue.
- In March 2018, the apex court sought the view of Attorney-General of India, who in return suggested live-streaming of important cases in the CJ's court can be started on a pilot basis.
- He gave his support on the basis of decongesting the courts and improving physical access to courts for

litigants who have to otherwise travel long distances to come to the court.

- The Attorney-General had said the process can be adopted in other court rooms depending on the success of the pilot project.
- The Supreme Court then approved a set of guidelines suggested by the A-G, which included allowing transcripts and archiving the proceedings.

Guidelines by the Attorney-General:

- As per the report the then A-G suggested that the court must retain the power to withhold broadcasting, and to also not permit it in cases involving:
 - Matrimonial matters
 - Matters involving interests of juveniles or the protection and safety of the private life of the young offenders
 - Matters of National security
 - To ensure that victims, witnesses or defendants can depose truthfully and without any fear. Special protection must be given to vulnerable or intimidated witnesses.
 - It may provide for face distortion of the witness if she/he consents to the broadcast anonymously,
 - To protect confidential or sensitive information, including all matters relating to sexual assault and rape,
 - Matters where publicity would be antithetical to the administration of justice, and
 - Cases which may provoke sentiments and arouse passion and provoke enmity among communities.

Other courts livestreaming:

- Six High Courts in India – Gujarat, Orissa, Karnataka, Jharkhand, Patna, and Madhya Pradesh – already have their own channels on YouTube where they live-stream proceedings.
- In April 2020, the Bombay High Court joined a live-streaming virtual courtroom on an experimental basis.
- During the streaming, Justice Gautum S Patel heard nine listed cases and one urgent matter during the public video-conferencing held through the Zoom application.
- The US Supreme Court does not allow video broadcasts, however, audio recordings and oral transcripts of arguments are permitted.
- While Canada, South Africa and United Kingdom court proceedings to be broadcast, Australia and Brazil place certain limitations which vary depending on the courts.

Copyright Issue:

- The Supreme Court said it will have its own “platform” to live-stream its proceedings and the use of YouTube for the purpose is temporary.
- A bench headed by Chief Justice Uday Umesh Lalit said this when former BJP leader KN Govindacharya’s

counsel argued that the copyright of apex court proceedings cannot be surrendered to private platforms like YouTube.

- Referring to a 2018 judgment, the lawyer said it was held that “the copyright over all the material recorded and broadcast in this court shall vest with this court only”.
- The lawyer also referred to the terms of use of YouTube and said this private platform also gets the copyright.

What's next?

- The apex court may live-stream proceedings through YouTube and later host them on its server. People would be able to access proceedings of the apex court on their cell phones, laptops, and computers without any hassle.

BAN ON PFI UNDER UNLAWFUL ACTIVITIES PREVENTION ACT (UAPA)



Why in news?

- Recently, the Central government has banned the Popular Front of India (PFI) under Section 3 of the Unlawful Activities (Prevention) Act, 1967, for a period of five years.

Background:

- The government’s decision came after the National Investigation Agency (NIA) and the Enforcement Directorate (ED) conducted multiple raids across the country on the PFI and its members. In the first round of raids, 106 people belonging to PFI were arrested.
- Meanwhile, in the second round of raids, 247 people belonging to PFI were arrested/detained. Investigating agencies got enough evidence against the outfit, based on which the decision to ban the outfit was taken.

What is Popular Front of India (PFI)?

- The PFI describes itself as an organisation that works towards “the achievement of socio-economic, cultural and political empowerment of the deprived and the downtrodden and the nation at large”.
- But it was born out of the controversial National Development Fund (NDF) that was set up in Kerala in 1994, two years after the Babri Masjid demolition

incident to protect the interest of the Muslim community.

- On 22 November 2006, the NDF merged with Tamil Nadu's Manitha Neethi Pasarai (MNP) and the Karnataka Forum for Dignity (KFD) to form the Popular Front of India.
- Both MNP and KFD were founded with the agenda to work on issues related to minority rights and other social causes, but both the groups have occasionally been alleged to have terror links.

What is Unlawful Activities Prevention Act (UAPA)?

- The Unlawful Activities Prevention Act (UAPA) lays down the definitions and rules for designating an organisation as an "unlawful association" if it is engaged in certain types of activities.
- The government can then issue a notification designating such an organisation as a terrorist organisation, if it believes that the organisation is part of "terrorist activities."
- Under section 2(o) of the UAPA, an unlawful activity in relation to an individual or association means any action taken by such an individual or association (whether by committing an act or by words, either spoken or written, or by signs or by visible representation or otherwise),
 - a) which is intended, or supports any claim, to bring about, on any ground whatsoever, the cession of a part of the territory of India or the secession of a part of the territory of India from the Union, or which incites any individual or group of individuals to bring about such cession or secession; or
 - b) which disclaims, questions, disrupts or is intended to disrupt the sovereignty and territorial integrity of India; or
 - c) which causes or is intended to cause disaffection against India;

The UAPA also defines an "Unlawful Association" under section 2(p) as meaning any association,--

- a) which has for its object any unlawful activity, or which encourages or aids persons to undertake any unlawful activity, or of which the members undertake such activity; or
 - b) which has for its object any activity which is punishable under section 153A (45 of 1860) or section 153B of the Indian Penal Code, or which encourages or aids persons to undertake any such activity, or of which the members undertake any such activity.
- Under the Act, therefore, 'unlawful activity' is not limited to terror activities relating to causing direct violence or attacks, it also includes any activities that disrupt the sovereignty and territorial integrity of the country, disrupts the economic stability of the country or causes disharmony or feelings of enmity, hatred or ill-will between different religious, racial, language

or regional groups or castes or communities in the country.

- Related and ancillary acts, including financing, support or promotion of any such activities are also "unlawful activity".

What does the Notification say?

- At present, the MHA notification has said that the PFI and its affiliated organisations are being notified as "Unlawful Associations" with immediate effect.
- The Gazette notification accused the PFI of "pursuing a secret agenda to radicalize a particular section of society working towards undermining the concept of democracy and showing sheer disrespect towards the constitutional authority and constitutional set up of the country."
- It has been alleged that the "PFI is involved in several criminal and terror cases and shows sheer disrespect towards the constitutional authority of the country and, with funds and ideological support from outside, it has become a major threat to the internal security of the country."
- Further, the PFI is accused of "engaging in violent and subversive acts. Criminal violent acts carried out by PFI include chopping off the limb of a college professor, cold-blooded killings of persons associated with organisations espousing other faiths, obtaining explosives to target prominent people and places and destruction of public property."
- The Government has also claimed that there is evidence of "international linkages of PFI with Global Terrorist Groups and some activists of PFI have joined the Islamic State of Iraq and Syria (ISIS)". PFI leaders have also been accused of receiving funds from foreign countries and money laundering.
- For these reasons, the government notified PFI as an 'Unlawful Association' with immediate effect.

What does the ban mean?

- The notification means that the membership of, support or financing to the PFI and the allied banned organizations, such as the Rehab India Foundation (RIF), Campus Front of India (CFI), All India Imams Council (AIIC), National Confederation of Human Rights Organization (NCHRO), National Women's Front, Junior Front, Empower India Foundation, and Rehab Foundation, Kerala; is now illegal.
- Any person who is a member of these organisations can face arrest, and joining membership of these organisations is a criminal offence.
- The government can also seize the properties, bank accounts and offices connected to these organisations.

What is the process of banning an Organisation?

- Before issuing a notification under Section 3 of the UAPA, the government conducts an analysis of threat perception to peace in the country, secession activities, territorial safety, terrorism etc. The recommendations

and complaints by a state government can also be considered based on FIRs filed or incidents in the state.

- Section 3 also allows the government to implement an "immediate ban" on an organisation, "if the central government is of the opinion that circumstances exist which render it necessary".
- However, the Gazette notification of the government is required to give reasons and allegations against the organisation and its members.

Tribunal:

- Within 30 days of the notification, the government has to set up a tribunal, headed by a sitting Judge of a High Court, to consider the evidence and allegations. The tribunal has the power to consider the evidence, hear the objections from the organisation or its members/supporters and then take a decision to confirm or deny the ban.
- A public notice is issued by the tribunal for responses to the notifications. Persons connected to the organisation can submit affidavits or statements to the tribunal.
- Many times, the tribunal holds hearings not only in the court premises, but also in other areas in the state where the organisation operates.
- The Tribunal has six months under the law to conduct proceedings and either accept or reject the proposed ban.

For the tribunal to uphold the ban, the government would have to show evidence for:

- deliberate acts/statements made by an organization or its leaders that come within the definition of 'Unlawful Activities'
- witness statements that unlawful activities were carried out
- FIRs and complaints against the organisation or its leaders
- evidence that the statement/activity by the organisation had any impact/link to an event or incident that falls under the definition of terrorism, disruption, disaffection or disharmony

During these proceedings, the organisation and its members can also appear before the tribunal to oppose the ban. The organisation will have to give evidence that:

- no links found between their activities and the alleged offence
- the organisation has expelled/distanced from the specific leader whose statement/activity is under scrutiny
- if their source of funds, books of accounts show no link to the alleged offences
- that the activities carried out by the organisation are not within the definition of 'Unlawful Activity'

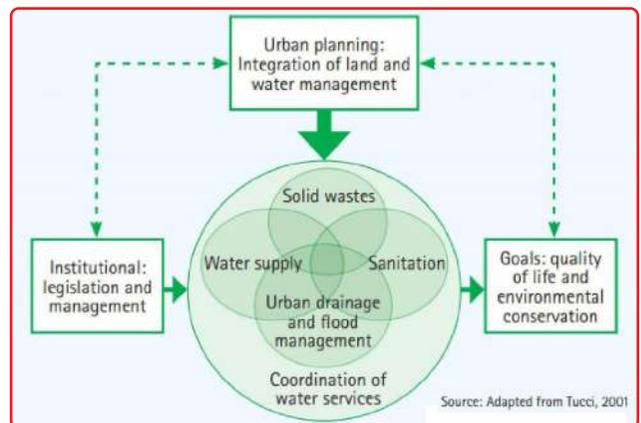
Appeal before HC:

- If the tribunal upholds the ban, the organisation can also move an appeal before the concerned High Court, in case it can show "patent error" or "perversity" in the tribunal order, and show that the tribunal ignored key evidence.
- The government notification is scrutinised by the tribunal, which considers all allegations and evidence.

INTEGRATED URBAN WATER MANAGEMENT SYSTEM (IUWM)

Context:

- With the rapid growth of cities, water demand has exponentially increased. Even as aspirations cause people to migrate to urban areas, water depletion and scarcity remains a huge challenge staring at people's faces in the near future.



- As water demand exceeds supply in most cities, water management needs to undergo a revolution to ensure most urban areas can be self-sufficient in the future.

Water demand in urban areas:

- Water demand is going to increase even more, with India's population in urban areas expected to double by 2050. Around 35 per cent of India's population lived in urban areas as of 2020.
- In urban areas, only 45 per cent of the demand is met using groundwater resources. Apart from this, climate change, pollution and contamination have also added to the burden on water resources.

Water Management Systems in place:

- In India, there are different water management systems based on utilities like sanitation, urban water, stormwater and wastewater that deal with water-related issues in different localities. Since areas and localities define distribution and water allocation, it is often a challenge to find a unified solution.
- With climate change and population growth leading to increased water use, new solutions have to be conceived for better urban water management. More people in different local contexts need to be made aware of the challenges.

⇒ Similarly, there are changes required in institutions like local departments that play a crucial role. It is essential that holistic and systemic solutions are implemented to solve water issues.

Integrated urban water management system for reliable supply:

- ⇒ Integrated urban water management system (IUWM) is a process, which ensures water supply, used water management, sanitation and stormwater management can be planned in line with economic development and land use.
- ⇒ This holistic process makes coordination among water departments easier at the local level. It also helps cities adapt to climate changes and manage water supply more efficiently.

Approaches to successful urban water management:

- a) Collaborative action
- b) Shift in perception of water
- c) Understanding water as a resource
- d) Customised solutions for different cities

Collaborative action:

- ⇒ Collaborative action is one of the leading principles of IUWM. It focuses on a collaborative approach involving all stakeholders. While effective legislation will help guide local authorities, engaging local communities will lead to faster solutions in water management.
- ⇒ When there is clear coordination between all the stakeholders, it is easier to define priorities, take action, implement changes and take accountability.

Shift in perception:

- ⇒ The shift in perception must view water in connection with other urban sectors. It is essential to understand how water is inseparable in its connection to economic development, city infrastructure and land use.
- ⇒ Earlier, many solutions focused solely on seeing water as an independent sector, but now the perception has shifted and it is necessary to view the interdependence with other sectors.

Once the water situation is gauged, it will be easier for urban local bodies to link a city's development plans with the water management process.

Understanding water as a resource:

- ⇒ To understand water as a resource, there is need to realise water is used for different purposes like domestic use, industrial use, freshwater, agricultural use and wastewater.
- ⇒ This means it cannot be just seen as an end product for consumers but rather as a resource for various end goals. Once all sources are clearly defined, it will be easier to treat different kinds of water based on agricultural, industrial and environmental purposes.

⇒ IUWM ensures water management can be done based on the quality and quantity of water targeted toward specific uses.

Customised solutions for different cities:

- ⇒ Since IUWM focuses on specific contexts and local requirements, it prioritises a rights-based solution approach over one-size-fits-all approach.
- ⇒ Conventional methods did not focus on stakeholder engagement, however, IUWM's integrated system brings in healthy coordination between all stakeholders.
- ⇒ This helps to build climate resilience among communities and also produces decisions that are more holistic, catering to different industries and communities.

Water for all:

- ⇒ IUWM prioritises access to water for the most vulnerable communities. This means incorporating a few changes in the entire system.
- ⇒ Integrated policies can help secure sustainable development and also ensure there is innovation, efficiency and sustainability at every level.
- ⇒ Institutional practices in large cities will have to be transformed, but a different approach to stakeholder resource management might yield a positive result.
- ⇒ IUWM has proven to be a successful practice, but budget constraints, inadequate guidance from authorities and lack of awareness have limited the implementation of this solution. However, recent policies by the central government can help pave the way for state-wise planned implementation of IUWM.

Initiatives by the Government:

- ⇒ The Centre has started initiatives by implementing the Swachh Bharat Mission (SBM) for inclusive sanitation solutions and Jal Jeevan Mission for ensuring piped water supply.
- ⇒ The government has also allowed reuse of water based on circular economy principles. No sustainable development goals (SDGs) can be accomplished without running water, therefore, it is imperative that water is managed efficiently.
- ⇒ This will help India achieve SDGs in health, sanitation, education, livelihood and education.

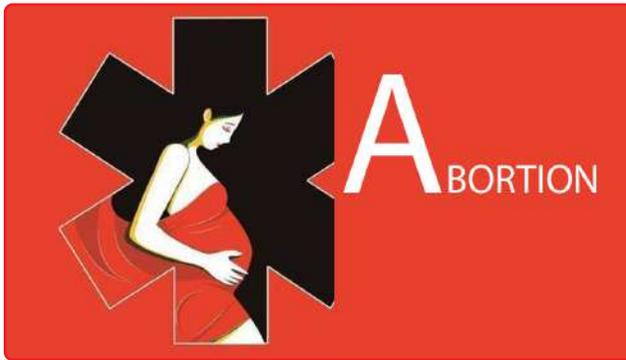
Way Forward:

- ⇒ Adopting IUWM will also help tackle water scarcity, address public health risks and make cities climate resilient. It is the one-stop solution to ensure good health and clean water for all.

SUPREME COURT'S ABORTION RULING

Why in news?

- ⇒ Recently, the Supreme Court in a significant judgment said it is unconstitutional to distinguish between married and unmarried women for allowing termination of pregnancy on certain exceptional grounds when the foetus is between 20-24 weeks.



- ⇒ The decision follows an interim order in July by which the court had allowed a 25-year-old woman to terminate her pregnancy.
- ⇒ The ruling, incidentally delivered on World Safe Abortion Day (September 28) emphasises female autonomy in accessing abortion.

What is the court's decision?

- ⇒ A three-judge Bench comprising Justices D Y Chandrachud, A S Bopanna, and J B Pardiwala framed the interpretation of Rule 3B of the Medical Termination of Pregnancy Rules, 2003, as per which only some categories of women are allowed to seek termination of pregnancy between 20-24 weeks under certain extraordinary circumstances.
- ⇒ The challenge to the provision was made in July by a 25-year-old unmarried woman who moved the court seeking an abortion after the Delhi High Court declined her plea. The woman's case was that she wished to terminate her pregnancy as "her partner had refused to marry her at the last stage".
- ⇒ She also argued that the continuation of the pregnancy would involve a risk of grave and immense injury to her mental health. However, the law allowed such change in circumstances only for "marital" relationships.
- ⇒ The Supreme Court, holding that the law had to be given a purposive interpretation, had allowed the petitioner to terminate her pregnancy in an interim order. However, the larger challenge to the law, which would benefit other women as well, was kept pending.

What does the law on abortion say?

- ⇒ The Medical Termination of Pregnancy Act allows termination of pregnancy by a medical practitioner in two stages.
- ⇒ After a crucial amendment in 2021, for pregnancies up to 20 weeks, termination is allowed under the opinion of one registered medical practitioner.
- ⇒ For pregnancies between 20-24 weeks, the Rules attached to the law prescribe certain criteria in terms of who can avail termination. It also requires the opinion of two registered medical practitioners in this case.
- ⇒ For both stages; within 20 weeks and between 20-24 weeks termination is allowed "where any pregnancy

is alleged by the pregnant woman to have been caused by rape, the anguish caused by the pregnancy shall be presumed to constitute a grave injury to the mental health of the pregnant woman".

For pregnancies within 20 weeks, termination can be allowed if:

- a) the continuance of the pregnancy would involve a risk to the life of the pregnant woman or of grave injury to her physical or mental health; or
- b) there is a substantial risk that if the child was born, it would suffer from any serious physical or mental abnormality.

Any woman or her partner:

- ⇒ The explanation to the provision states that termination within 20 weeks is allowed "where any pregnancy occurs as a result of failure of any device or method used by any woman or her partner for the purpose of limiting the number of children or preventing pregnancy, the anguish caused by such pregnancy may be presumed to constitute a grave injury to the mental health of the pregnant woman".
- ⇒ The phrase "any woman or her partner" was also introduced in 2021 in place of the earlier "married woman or her husband".
- ⇒ By eliminating the word "married woman or her husband" from the scheme of the MTP Act, the legislature intended to clarify the scope of Section 3 and bring pregnancies which occur outside the institution of marriage within the protective umbrella of the law.

Who falls in the category of women allowed to terminate pregnancy between 20-24 weeks?

For pregnancies between 20-24 weeks, Section 3B of the Rules under the MTP Act lists seven categories of women:

- a) survivors of sexual assault or rape or incest;
- b) minors;
- c) change of marital status during the ongoing pregnancy (widowhood and divorce);
- d) women with physical disabilities (major disability as per criteria laid down under the Rights of Persons with Disabilities Act, 2016);
- e) mentally ill women including mental retardation;
- f) the foetal malformation that has substantial risk of being incompatible with life or if the child is born it may suffer from such physical or mental abnormalities to be seriously handicapped; and
- g) women with pregnancy in humanitarian settings or disaster or emergency situations as may be declared by the Government.

What is the court's interpretation?

- ⇒ The court stated that the whole Rule 3B(c) cannot be read in isolation but has to be read together with other sub-clauses under 3B. When other sub-clauses do not distinguish between married or unmarried women,

for example survivors of sexual assault, minors, etc., only 3B(c) cannot exclude unmarried women.

- ⇒ Rule 3B(c) is based on the broad recognition of the fact that a change in the marital status of a woman often leads to a change in her material circumstances.
- ⇒ A change in material circumstance during the ongoing pregnancy may arise when a married woman divorces her husband or when he dies, as recognized by the examples provided in parenthesis in Rule 3B(c).
- ⇒ The fact that widowhood and divorce are mentioned in brackets at the tail end of Rule 3B(c) does not hinder court's interpretation of the rule because they are illustrative.
- ⇒ The court also expanded on Rule 3B(a) "survivors of sexual assault or rape or incest" to include married women in its ambit. Although it does not have the effect of striking down the marital rape exception under the Indian Penal Code, the ruling said that even women who have suffered "marital assault" can be included under the provision.

What is the effect of the judgment?

- ⇒ The court's "purposive interpretation" states that the common thread in Rule 3B is "a change in a woman's material circumstance". While the ruling recognises the right of unmarried women, it leaves the enforcement of the right to be decided on a case-to-case basis.
- ⇒ It is not possible for either the legislature or the courts to list each of the potential events which would qualify as a change of material circumstances. Suffice it to say that each case must be tested against this standard with due regard to the unique facts and circumstances that a pregnant woman finds herself in.
- ⇒ This means the decision will be in the hands of the registered medical practitioners and if unsatisfied, the woman can approach the court.

INTERNATIONAL RELATION

LESSONS INDIA MUST TAKE FROM CHINA'S WAR GAMES IN TAIWAN STRAIT

Context:

- ⇒ In China's war games in the Taiwan Strait earlier in August, China may not have gone the whole hog against Taiwan, but it did hit the oceanic waters in its north, south and west. Chinese planes and missiles crossed the median line several times, something that was not done in past.
- ⇒ However, while these may be distant drills, India's policy-makers may still like to draw inferences for better management of futuristic Chinese offensives like frequent transgressions across the Line of Actual Control (LAC).

WAR GAMES

China has announced a massive military deployment around Taiwan after a visit by top US politician Nancy Pelosi



How it is relevant also in case of continental conflicts?

- ⇒ Critics may discard the linkage between the two theatres since continental conflicts like the one near the LAC in the Galwan Valley are different from the maritime conflicts in the Taiwan Straits.
- ⇒ However, Chinese People's Liberation Army (PLA) is undergoing planned stages of modernisation to improve upon capabilities and proficiencies across all warfare domains so that as a joint force it can conduct land, air, and maritime operations.
- ⇒ Further, China is a global leader in conducting unilateral and bilateral war games. Therefore, the Taiwan Straits war games being a 'distant issue' is irrelevant since every war game has some lessons for participating, as well as observing armed forces.

Replications in LAC:

- ⇒ In the recent war games, China displayed a quick, large, and lethal air and maritime force mobilisation, pushing the war meters up in the Taiwan Straits.
- ⇒ However, at least in the near future, Taiwan Straits may not metamorphose into a war zone since China is still not assured of a decisive victory despite mobilising 'a million men to swim' against Taiwan. Additionally, there is a reasonable prospect of such a war spilling over into a regional war.
- ⇒ Therefore, China may use the peripheries with its adversaries such as the LAC to replicate the lessons learnt in Taiwan Straits.

Derivative lessons for India:

Limited territorial targets:

- First, China may not go for full-fledged war against India. Instead, it may instigate localised wars with limited territorial targets.
- A look into China's territorial transgressions across the entire LAC makes one thing clear: it is targeting the whole arc for nibbling small portions of land with a strategy of 'capture some, retreat some, negotiate some, and try to retain some'.

Air power:

- Second, China has displayed effective use of its airpower in the just-concluded war games. Whether it was the Russian-built Sukhois or the domestic J Series fighter planes, the aerial performances were as per exceptional benchmarks.
- So was the case with the multiple range of missiles. In the process, it did emerge that China may bank heavily on superior air power for futuristic transgressions across the LAC.

Vulnerable soft spots:

- Third, China displayed the capabilities to enforce an air and sea blockade to Taiwan. Taiwan's air traffic was badly affected by the Chinese military drills.
- The international commercial cargo in the adjacent waters was also affected.
- It would be prudent to proliferate the lessons by contextualising the same near LAC where the Chinese are looking for vulnerable soft spots like the Siliguri Corridor or the Chicken's Neck in West Bengal.

Bilateral Issue:

- Unlike the Taiwan crisis, the LAC is a bilateral problem, and external players are not likely to support beyond hollow statements. Also, there has been a definite shift in Chinese strategic objectives under President Xi Jinping.
- China is no more a satisfied party vis-à-vis India and would, in all probability, continue to play the teasing game of regular transgressions across the LAC. Unfortunately, unlike the Taiwan Straits, where enough academic research has been conducted along with simulated wars between China and Taiwan, the Sino-Indian conflict remains grossly under-researched.
- There are no simulated war models being iterated in different conditions to generate original data about war probabilities, and outcomes.

Way Forward:

- Handling China's increasing military prowess has always been a policy challenge for India. While commendable domestic efforts have enhanced India's combat resilience vis-à-vis the PLA, supplementary tactical threads from distant war games would be helpful.
- The ongoing digital explosion on a very wide level can fetch healthy details about the combat performance of many weapons, and combat platforms.

- These data can facilitate combat sizing and simulated war exercises on the China front. Probably, there lies some space for better deterrence against the PLA's frequent LAC intrusions.

INAUGURAL NITI - BMZ DIALOGUE ON DEVELOPMENT COOPERATION

**Why in news?**

- Recently, NITI Aayog and German Federal Ministry for Economic Cooperation and Development (BMZ) held the inaugural NITI-BMZ Dialogue of Development Cooperation via video conferencing.
- The current Dialogue laid down a pathway to strengthen mutual cooperation between the two countries, particularly to reconcile the imperatives of dealing with climate change with the goals of Agenda 2030.

Background:

- On May 2, 2022, India and Germany signed a Joint Declaration of Intent on Partnership for Green and Sustainable Development (GSDP).
- During the last G7 summit in Schloss Elmau in June 2022, India and the G7 had agreed to work towards a Just Energy Transition Partnership (JETP).

Core areas:

The NITI-BMZ Dialogue focused on five core areas of cooperation:

- Sustainable Development Goals (SDGs),
- Climate action,
- Energy transition,
- Emerging technologies and
- Agro-ecology.

Key Highlights:

- In support of a green and sustainable development partnership, Germany announced an additional funding of EUR 3.5 million, specifically for strengthening of implementation of SDGs and climate action at the level of Indian states.
- During the discussion, both sides highlighted the need to deepen engagement on the Lighthouse Cooperation on Agroecology and Natural Resources and to collaborate on
 - scaling up natural farming in India

- b) strengthening research in different agro-climatic regions for natural farming practices,
- c) working towards standards and certification of natural farming products for facilitating export and
- d) evaluating impact of natural farming for mitigating climate change and adapting to climate risks.

Way Forward:

- ⇒ NITI and BMZ reiterated their commitment on collaborating towards strengthening SDG localization at the city level and scaling-up SDG implementation in the context of climate change at the state level with capacity building and incentive systems for implementation.

TIME FOR A INDO-US JOINT SPACE EXERCISE



Context:

- ⇒ India and the U.S. will undertake joint military drills in October in Auli, Uttarakhand. Auli is at an altitude of 10,000 feet and some 95 km from the Line of Actual Control (LAC).
- ⇒ The time is ripe for the inaugural India-U.S. joint space military exercise.

What it translates?

- a) First, this single act will push India's defence partnership into a new orbit.
- b) Second, it will send a strong message to a common adversary.
- c) Third, it will have other ripple effects for the wider Quad.
- ⇒ Space has been singled out as a critical area of cooperation in the recent Defence Technology and Trade Initiative (DTTI) meeting between India and the U.S.
- ⇒ For the first time in history, both countries are jointly staring at a common adversary.

Space as a military domain:

- ⇒ In 2019, the U.S. stood up its space force as a branch under the department of the Air Force. At the time, it became the world's only independent space force.
- ⇒ In India, historically, space has remained the sole jurisdiction of its civilian space agency, the Indian Space Research Organisation (ISRO).
- ⇒ However, the successful demonstration (dubbed Mission Shakti) of anti-satellite (ASAT) missile test in

2019 changed things forever. In 2019, India conducted its first ever simulated space warfare exercise (IndSpaceX) with an eye on Chinese threats.

- ⇒ Furthermore, the launch of the tri-service Defence Space Agency (DSA) has permanently taken the military away from the shadows of civil space. The government has also set up the Defence Space Research Agency (DSRA) to help develop space-based weapons for the DSA. Space is as much recognised as a military domain as land, water, air and cyber.

Fourth domain:

- ⇒ India and the U.S. do drills on land, in air and at sea, which could be extended to fourth domain, space.
- ⇒ It will have actionable spill overs for the Quad, transform the moribund DTTI from a talk shop and send the right message to the adversary.
- ⇒ The lowest hanging fruit would be a joint anti-satellite (ASAT) missile test. It is essentially a missile launched from the Earth's surface to destroy a satellite passing overhead. Both countries have demonstrated capability in this.
- ⇒ The test would be against a simulated orbital target as that does not create space debris and is not included in the wording of the U.S. moratorium.
- ⇒ Eventually, this will lead to other space military collaborations such as directed energy weapons, rendezvous and proximity operations (RPOs), co-orbital ASATs (in space micro satellites as a kinetic kill option), etc.

Space programmes:

- ⇒ France conducted its first space military exercise, ASTERX, in 2021.
- ⇒ China is marching ahead to the Cis-Lunar space (region beyond the geosynchronous orbit) with an ambition to establish a permanent presence on the Moon by 2024.
- ⇒ The doctrine in space is still evolving with the U.S. urging partner countries to lay down rules and norms. China and Russia have released a draft binding treaty of their own.
- ⇒ Red lines and norms will eventually emerge but until then it provides an ideal new theatre to push Indo-U.S. military collaboration forward.
- ⇒ Space has assets that form the bedrock of the modern economy, GPS (PNT – position navigation timing), telecom networks, early warning systems for missiles and weather forecasts all are enabled by satellites in GEO or LEO orbits.

Pushbacks for India:

- ⇒ First, it will provoke India's eastern neighbour and compel them to draw a new redline.
- ⇒ Second, our eastern neighbour will use our western neighbour as a proxy state.
- ⇒ Third, it will derail the ongoing Core Commanders dialogue in Ladakh.

- ⇒ Fourth, the United States cannot be trusted.
- ⇒ Fifth, it will fastback militarisation for space.

Way Forward:

- ⇒ Changing times now require India to innovate on doctrines, technologies and deterrence. Xi Jinping is on his way to building a "world-class" Chinese military by 2049.
- ⇒ If India is to become a space power and if the Indo-U.S. partnership is to become the alliance of alliances, then imaginative steps will be needed.

INDIA, CHINA BEGIN DISENGAGEMENT AT GOGRA-HOT SPRINGS IN EASTERN LADAKH

Why in news?

- ⇒ On 8th September 2022, according to the consensus reached in the 16th round of the India China Corps Commander Level Meeting, the Indian and Chinese troops in the area of Gogra-Hotsprings (Patrolling Point 15) have begun to disengage in a coordinated and planned way, which is conducive to the peace and tranquillity in the border areas.



Background:

- ⇒ The announcement came ahead the annual summit of the Shanghai Cooperation Organisation (SCO) in Uzbekistan which is expected to be attended by Prime Minister Narendra Modi and Chinese President Xi Jinping among other leaders of the grouping.
- ⇒ There is speculation about a possible meeting between Modi and Xi on the sidelines of the summit though there is no official word on it from either side.

Details:

- ⇒ The high-level military talks started in July and the decision to disengage was an outcome of the same.
- ⇒ India and China have been engaged in a standoff along the LAC since May 2020.
- ⇒ Chinese encroachment was recorded in the Finger area, Galwan Valley, Kongrung Nala and hot springs. June 2020 even recorded a violent clash between both armies in the Galwan Valley.
- ⇒ Over the years, the Ministry of External Affairs has maintained that the Chinese position at 'friction points' will decide and conclude bilateral ties with China.

Eastern Ladakh standoff:

- ⇒ The eastern Ladakh border standoff erupted on May 5, 2020, following a violent clash in the Pangong lake areas. Both sides gradually enhanced their deployment by rushing in tens of thousands of soldiers as well as heavy weaponry.
- ⇒ Each side currently has around 50,000 to 60,000 troops along the LAC in the sensitive sector.

Disengagement process:

- ⇒ As a result of a series of military and diplomatic talks, the two sides completed the disengagement process in 2021 on the north and south banks of the Pangong lake and in the Gogra area.
- ⇒ The disengagement in the Pangong Lake area had taken place in February 2021 while the withdrawal of troops and equipment in Patrolling Point 17 (A) in Gogra took place in August 2021.

Buffer zone:

- ⇒ There is a possibility of both sides creating a 'buffer zone' or 'no-patrolling' area, a mechanism that was created following disengagement in other friction points.
- ⇒ A thorough verification process to examine the implementation of the disengagement process will be carried out by the Indian Army at PP-15.

What's next?

- ⇒ The high-powered China Study Group, comprising NSA Ajit Doval, the three service chiefs and a number of other top national security planners, is expected to meet in the next few days to review the overall situation in eastern Ladakh.
- ⇒ India will keep pressing for the resolution of pending issues in the remaining friction points of Depsang and Demchok.

G7 ON RUSSIAN OIL



Why in news?

- ⇒ Recently, Finance Ministers of all G7 countries, the U.S., Canada, the U.K., France, Germany, Italy, Japan, as well as the European Union announced their plan to "finalise and implement a comprehensive prohibition of services which enable maritime transportation of Russian-origin crude oil and petroleum products

globally", unless they are purchased at or below a "price cap" they will fix.

- The plan, however, doesn't include Russian gas, which Europe is still quite dependent on.

What is the price cap plan?

- The price cap plan is the latest of the sanctions proposed by Western countries against Russia for its invasion of Ukraine, as well as Belarus for its support to Russia.
- For the past few weeks, U.S. and EU officials have been trying to convince countries including India, China and Turkey to join the coalition or to at least support the price cap, which they say is in the interests of all oil buyers from Russia as it will give them leverage to lower purchase prices.

How will it be enforced?

- For countries that join the coalition, it would mean simply not buying Russian oil unless the price is reduced to where the cap is determined. For countries that don't join the coalition, or buy oil higher than the cap price, they would lose access to all services provided by the coalition countries including for example, insurance, currency payment, facilitation and vessel clearances for their shipments.
- In addition, the price cap is expected to be finalised when members of the G-20 countries meet in Bali in November, and will go into effect on December 5. This is the day that the European Union begins its sixth set of sanctions, to ban all Russia crude oil imports by sea, which would increase the pressure on Russia to reduce its selling price of oil.
- G7 countries say they are aiming to reduce the price of oil, but not the quantity of oil that Russia sells, so as to control inflation globally while hurting the Russian economy and its ability to fund the war in Ukraine. This could only work, of course, if all countries joined the coalition.
- However, if Russia is able to sell its price higher than the price cap, it would mean a huge squeeze on oil available to the coalition countries, especially the G7 which are major consumers, and could result in oil prices sky-rocketing.

How has Russia reacted to the plan?

- Russian President Vladimir Putin has lashed out at the plan, warning that Russia would not supply "anything at all" if it contradicts Russian interests.
- In September, Russia also announced a halt on all supplies via the Nord Stream 1 pipeline to Europe due to "maintenance issues" arising from the EU sanctions already in place, raising fears of a very difficult winter for European countries.

Will India comply with the price cap?

- The price cap is only the latest in a number of sanctions to hurt the Russian economy that the U.S. and EU have tried to bring India on board with.

- They have been asking India to change its uncritical stance on Russia at the United Nations, to cutting down oil imports, to stopping defence and other purchases from Russia, and to avoid the rupee-rouble payment mechanism that circumvent their sanctions.
- Thus far, India has not obliged, and there is little indication that India is likely to, just yet. India's oil intake from Russia, which was minuscule prior to the war has soared 50 times over.
- At the Eastern Economic Forum (EEF) in Vladivostok, Indian Prime Minister said he wanted to "strengthen" ties with Russia in the energy field and boost India's \$16 billion investment in Russian oilfields.

Way Forward:

- Now, Indian Prime Minister will attend the Shanghai Cooperation Organisation summit in Uzbekistan, where the price cap issue will no doubt be discussed from the opposite viewpoint to the G7's.
- It also remains to be seen whether India will bargain with the U.S. to set aside sanctions against Iran and Venezuela, from which it cancelled oil imports under pressure from the U.S. in 2017-18, in exchange for joining the price cap coalition.

INDIA-BANGLADESH TIES, A MODEL FOR BILATERAL COOPERATION



Context:

- The recent state visit of the Prime Minister of Bangladesh to India has amply showcased the high stakes of both polities in their bilateral ties, imbued with regional significance.
- The current Prime Minister of Bangladesh underlined the importance of the special "bonding" between the two nations, where one helped in the liberation of the other, and where both have worked together closely, especially since she came to power again in 2009.

Challenges in Indo-Bangladesh relations:

Rohingyas:

- First, the continued presence of 1.1 million Rohingyas who fled from Myanmar in 2017 has created enormous pressure on the economy and social harmony.
- She has said India is a big country that should "accommodate" them. Further, she wants stronger

support from India to facilitate their early return to Myanmar.

Teesta water sharing:

- Second, the absence of agreement on sharing of the Teesta's waters, pending since 2011 due to West Bengal's refusal to relent, and the broader issue of joint management of 54 common rivers, have been constant grievances.

China in Bangladesh:

- Third, India's sensitivity to growing cooperation between Bangladesh and China rankles the authorities in Bangladesh.
- She has stressed the point that if there were differences between India and China, she did not wish to "put her nose to it".

Bangladeshi Hindus:

- Four, she has conceded that despite her government's secular policy, "incidents" against the Hindu minority have occurred, but her government has acted against miscreants.
- At the same time, she has expressed concern about the safety of minorities in India, pointing out that "it is not only (in) Bangladesh, even in India also sometimes minorities suffered".

Recent visits between both countries:

- She last visited India in 2019. She played host to the Prime Minister and the President of India, when they visited Bangladesh in March and December 2021, respectively.
- The visits marked triple epochal celebrations: the birth anniversary of Bangabandhu Sheikh Mujibur Rahman, the Father of Nation; the golden jubilee of Independence; and 50 years of the establishment of diplomatic relations between India and Bangladesh.
- These visits were utilised to reach new agreements and add further content and momentum to the relationship.
- The latest visit resulted in seven agreements designed to increase cooperation in the diverse domains of water sharing, railways, science and technology, space, media and capacity building.

Specific outcomes of recent visit:

- First, there was the agreement "to continue close security cooperation" over counter-terrorism, border crimes, and border management.
- Second, the two sides recommitted themselves to enhancing their development partnership which is already quite extensive and multi-faceted.
- Third, they agreed "to build resilient supply chains" between the two countries and "across the region".
- A significant decision was to launch the Comprehensive Economic Partnership Agreement (CEPA) in 2022 and to conclude negotiations by the time Bangladesh graduates from least developed country status in 2026.

- Finally, the leaders favoured expanding connectivity through more rail, road, inland waterways, and coastal shipping linkages. They agreed to build on the impressive successes achieved in the past decade in this sphere.
- Bilateral trade has touched a high watermark of \$18 billion. Logistics for power trade between Bangladesh and its neighbours; India, Nepal and Bhutan have been put in place.
- India will assist Bangladesh by sharing its rich experience of innovation through startups.

Crisis in Bangladesh:

- In India, there are continuing worries about the cumulative and adverse impact of COVID-19 and the Ukraine war on Bangladesh's economy.
- The country faces escalating protests on the streets that have been triggered by a sharp rise in fuel prices, an erosion of foreign currency reserves, and a deepening financial crisis.
- Besides, the rising influence of fundamentalist forces, extremism, and radicalisation poses a serious danger to political stability. Thus, the contours of combined challenges before the Sheikh Hasina government as it faces parliamentary elections in 2023 become clear.
- It is for Bangladesh citizens to elect their next government, but they should know that the contribution of Sheikh Hasina and the Awami League government to building a strong relationship with their largest neighbour is enormous and widely appreciated in India.

INDIA RAISES SRI LANKAN TAMIL ISSUE IN U.N.



Why in news?

- Recently, India voiced concern over the "lack of measurable progress" in Sri Lanka's promised political solution to the "ethnic issue" involving Sri Lankan Tamils at a debate in the United Nations Human Rights Council.
- India's statement was made during the discussion on the report released earlier by the Office of the High Commissioner for Human Rights (OHCHR), on the first day of Geneva-based UNHRC's 51st session.

UNHRC on Sri Lanka:

- Over 13 years since the end of Sri Lanka's civil war, in which tens of thousands of civilians were killed and disappeared, survivors continue demanding justice and accountability for war-time crimes.
- In the post-war years, Sri Lanka's human rights defenders have frequently flagged concerns over persisting militarisation, especially in the Tamil-majority north and east; repression, and the shrinking space for dissent.
- UNHRC said that Sri Lanka should improve human rights and strengthen institutions to tackle the humanitarian challenges that have sprung from its worst financial crisis in seven decades.
- It urged Sri Lanka's new government to end the use of security laws to arrest protest leaders who helped oust former president Gotabaya Rajapaksa in July.

India's stand:

- India said it has "always believed in the responsibility of States for promotion and protection of human rights and constructive international dialogue and cooperation" guided by the U.N. Charter.
- In this regard, India is concerned with the lack of measurable progress by Government of Sri Lanka on their commitments of a political solution to the ethnic issue, through full implementation of the 13th Amendment of the Constitution, delegation of powers to Provincial Councils and holding of Provincial Council elections at the earliest.
- The terms of Sri Lanka's nine provincial councils expired about three years ago, and they have remained defunct since.

Resolution on Sri Lanka:

- India's statement comes ahead of a resolution on Sri Lanka that will likely face a vote at the Council. Since 2009, India has voted thrice in favour of the U.N. resolution on Sri Lanka, two were critical and abstained twice, in 2014 and 2021.
- Irrespective of its vote, India has consistently underscored the need for a political settlement within the framework of a united Sri Lanka, ensuring justice, peace, equality and dignity for the Tamils of Sri Lanka.

2021 resolution:

- In 2015, Sri Lanka co-sponsored a resolution, which called upon the country to establish a credible judicial process with the participation of Commonwealth and other foreign judges, defence lawyers, and authorised prosecutors and investigators.
- Incidentally, Wickremesinghe had been the prime minister when Colombo supported the resolution. However, the resolution was never implemented, as the Sri Lankan government had second thoughts about the proposals, especially the provision for foreign judges.
- In March 2021, the UN human rights body rejected the domestic mechanism proposed by the then Gotabaya

Rajapaksa government. The 2021 resolution was adopted with 22 votes and 11 siding with Sri Lanka, including China. There were 14 abstentions, including India.

- India had abstained at voting for the UNHRC resolution, despite stating publicly that the UN human rights chief's assessment of post-civil war Sri Lanka raised "important concerns".

Why India took this stand?

- This has been India's most severe criticism of the Sri Lankan government to date, in recent years.
- It comes after Sri Lanka allowed a Chinese research vessel to dock at Hambantota port in August, despite India conveying its security concerns over its intentions.
- India had already signalled its unhappiness with Sri Lanka when it issued an advisory calling on Indian tourists to exercise caution and examine all factors before undertaking non-essential travel to India. The advisory led to a drop in the arrival of Indian tourists to Sri Lanka in the last week of August.
- In 2022, India has extended around \$4 billion in aid to Sri Lanka as soft loans and currency swaps to tide over the economic crisis. However, the Sri Lankan government has to also enter into talks with China to restructure its debt, an essential requirement before IMF disburses a \$2.9 billion loan to Colombo.

China's response:

- China, Japan, and India are Sri Lanka's three main bilateral creditors, while the island nation owes the biggest chunk of its foreign debt to International Sovereign Bond holders.
- China said other nations should not take advantage of Sri Lanka's current vulnerability and expressed appreciation for Sri Lanka's "unremitting efforts in promoting reconciliation".

EASTERN ECONOMIC FORUM (EEF) & INDIA'S BALANCING ACT



Why in news?

- Recently, Russia hosted the seventh Eastern Economic Forum (EEF) at Vladivostok.

➤ The four-day forum is a platform for entrepreneurs to expand their businesses into Russia's Far East (RFE).

What is the Eastern Economic Forum?

- The EEF was established in 2015 to encourage foreign investments in the RFE. The EEF displays the economic potential, suitable business conditions and investment opportunities in the region.
- Agreements signed at the EEF increased from 217 in 2017 to 380 agreements in 2021, worth 3.6 trillion roubles. As of 2022, almost 2,729 investment projects are being planned in the region.
- The agreements focus on infrastructure, transportation projects, mineral excavations, construction, industry and agriculture.

Major actors in the Forum:

- In 2022, the Forum aimed at connecting the Far East with the Asia Pacific region.

China:

- China is the biggest investor in the region as it sees potential in promoting the Chinese Belt and Road Initiative and the Polar Sea Route in the RFE.
- China's investments in the region account for 90% of the total investments. Russia has been welcoming Chinese investments since 2015; more now than ever due to the economic pressures caused by the invasion in Ukraine.
- The Trans-Siberian Railway has further helped Russia and China in advancing trade ties. The countries share a 4000-kilometer-long border, which enables them to tap into each other's resources with some infrastructural assistance. China is also looking to develop its Heilongjiang province which connects with the RFE.
- China and Russia have invested in a fund to develop northeastern China and the RFE, through collaborations on connecting the cities of Blagoveshchensk and Heihe via a 1,080 metre bridge, supplying natural gas, and a rail bridge connecting the cities of Nizhneleninskoye and Tongjiang.

South Korea:

- Besides China, South Korea has also been gradually increasing its investments in the region.
- South Korea has invested in shipbuilding projects, manufacturing of electrical equipment, gas-liquefying plants, agricultural production and fisheries.
- In 2017, the Export-Import Bank of Korea and the Far East Development Fund announced their intention to inject \$2 billion in the RFE in a span of three years.

Japan:

- Japan is another key trading partner in the Far East. In 2017, Japanese investments through 21 projects amounted to \$16 billion. Under Shinzo Abe's leadership, Japan identified eight areas of economic cooperation and pushed private businesses to invest in the development of the RFE.

- Japan seeks to depend on Russian oil and gas resources after the 2011 meltdown in Fukushima which led the government to pull out of nuclear energy. Japan also sees a market for its agrotechnologies which have the potential to flourish in the RFE, given similar climatic conditions.
- However, the momentum of trade that existed with Shinzo Abe was lost with the leadership of Yoshihide Suga and Fumio Kishida. The trade ties between Japan and Russia are hindered by the Kuril Islands dispute as they are claimed by both countries.

India:

- India seeks to expand its influence in the RFE. During the forum, Indian Prime Minister expressed the country's readiness in expanding trade, connectivity and investments in Russia.
- India is keen to deepen its cooperation in energy, pharmaceuticals, maritime connectivity, healthcare, tourism, the diamond industry and the Arctic.
- In 2019, India also offered a \$1 billion line of credit to develop infrastructure in the region. Through the EEF, India aims to establish a strong inter-state interaction with Russia.
- Business representatives of Gujarat and the Republic of Sakha have launched agreements in the diamond and pharmaceuticals industry.

What does the EEF aim for?

- The primary objective of the EEF is to increase the Foreign Direct Investments in the RFE. The region encompasses one-third of Russia's territory and is rich with natural resources such as fish, oil, natural gas, wood, diamonds and other minerals.
- The sparse population living in the region is another factor for encouraging people to move and work in the Far East. The region's riches and resources contribute to five per cent of Russia's GDP. But despite the abundance and availability of materials, procuring and supplying them is an issue due to the unavailability of personnel.
- The RFE is geographically placed at a strategic location; acting as a gateway into Asia. The Russian government has strategically developed the region with the aim of connecting Russia to the Asian trading routes.
- With the fast modernisation of cities like Vladivostok, Khabarovsk, Ulan-Ude, Chita and more, the government aims to attract more investments in the region. Russia is trying to attract the Asian economies in investing and developing the Far East.
- The Ukraine invasion is a worrying issue as it affects the economic growth of the country. However, Russia believes that it can survive the economic crisis and the sanctions with the help of China and other Asian powers.
- Although, the EEF is an annual gathering, the forum comes at an opportune time for Russia who is dealing

with the impact of the sanctions. Moreover, the coming together of countries like Myanmar, Armenia, Russia, and China seems like the forming of an anti-sanctions group in the international order.

Will India be able to achieve a balance between the EEF and the Indo-Pacific Economic Framework for Prosperity (IPEF)?

- The U.S.-led Indo-Pacific Economic Framework for Prosperity (IPEF) and the EEF are incomparable based on its geographic coverage and the partnership with the host-countries. India has vested interests in both the forums and has worked towards balancing its involvement.
- India has not shied away from investing in the Russia-initiated EEF despite the current international conditions.
- At the same time, India has given its confirmation and acceptance to three of the four pillars in the IPEF. The country understands the benefits of being involved in the development in the RFE but it also perceives the IPEF as a vital platform to strengthen its presence in the Indo-Pacific region.
- The IPEF also presents an ideal opportunity for India to act in the region, without being part of the China-led Regional Comprehensive Economic Partnership or other regional grouping like the Comprehensive and Progressive Agreement for Trans-Pacific Partnership.
- The IPEF will also play a key role in building resilient supply chains. India's participation in the forum will help in disengaging from supply chains that are dependent on China and will also make it a part of the global supply chain network.
- Additionally, the IPEF partners will act as new sources of raw material and other essential products, further reducing India's reliance on China for raw materials. Although, India has refrained from full participation in the trade pillar of the IPEF, it does not signify an end to India's role in the forum.

INDIA-ARAB-MEDITERRANEAN CORRIDOR & BRI PROGRAMME



Context:

- The India-Arab-Mediterranean corridor is the most

ambitious project that adds a new dimension to its geo-economic imagination.

- The outbreak of COVID-19 and the trust deficit globally over China's cunning and the ongoing Russia-Ukraine war have generated a serious vacuum in the supply chain domain.
- In such a trying time, India and UAE are poised to reverse the current status quo in the supply chain domain, manufacturing, and distribution through this multimodal transport network.

What is India-Arab-Mediterranean corridor?

- This corridor links India, UAE, Saudi Arabia, Jordan, Israel, and Greece through renewed infrastructure diplomacy paving the way for free trade transcontinental economic space.
- As envisaged, the goods from India through its Mumbai ports are chartered to be transhipped to the UAE port and from there by railroad passing through Saudi Arabia and Jordan, they are to be transported to Haifa port in Israel and subsequently by sea to the port in Piraeus, Greece.
- The entire exercise of transshipment is expected to be covered in a period of 10 days. This duration is assumed to be 40 per cent faster than the conventional and busy Suez Canal maritime route.
- The four major ports to be involved to operationalise this corridor are Mumbai Port Trust and Jawaharlal Nehru Port Trust from India, Dubai's Jebel Ali Port, Israel's Haifa and Greece's Piraeus.

Stakeholders:

- Dubai's global logistics company DP World (DPW) has made a huge investment in the port infrastructures of India, primarily on India's west coast ensuring ceaseless and effective maritime connectivity between Jebel Ali port and Mumbai port.
- DPW and Israel's Bank Leumi and China's Shanghai International Port Group have invested in Haifa port for its expansion and capacity enhancement of container terminals.
- In addition, the Israeli government's bid to privatise Haifa port opened up the scope for Indian conglomerate Adani Ports to acquire a 70 per cent stake amounting to \$1.18 billion.

Alternative to BRI:

- The success of this deal is a product of a collective decision taken by India, Israel, the US, and UAE (I2U2) to open the India-Arab-Mediterranean economic corridor as an alternative to China's BRI (Belt and Road Initiative) expansionism and interference.
- India's trade discussions with the EU and UK have already started and efforts have been made to secure multilateral trade agreements.
- However, Adani's debut into an international port and that to the busiest and geo-strategically and geo-economically critical port like Israel's second largest

Haifa promotes India's role as an impact-making international actor in the domain of trade, commerce, defence and supply chain.

Multimodal commercial corridor:

- Apart from these functional ports (Mumbai Port, UAE Port, Haifa Port and Piraeus Port), the transport by land from Dubai to Haifa port involves UAE, Saudi Arabia, Jordan and Israel.
- The rail connection from Dubai port to Al Ghweifat at the UAE- Saudi Arabia border consisting of a 139 km track has been completed by UAE's Etihad Rail. A 1392 km rail road covering Haradh in southeast Saudi Arabia Al-Kharj, Riyadh, Buraidah and Al-Haditha on the Saudi-Jordan border is functional and ready to be made use of. The Saudi Arabian Railway (SAR) ensures connectivity and logistics aspects of that section.
- A 300 km stretch connecting Al-Haditha to Haifa port which passes through Jordan needs to be completed to operationalise the multimodal commercial corridor.
- Jordan is also going to be one of the beneficiaries of the project and it has developed a dependable relationship with Israel, UAE and US. This multimodal commercial corridor connects the Indian Ocean region through West Asia with the Mediterranean regions.
- It was the Abraham Accords signed in 2020 that could bring Israel, UAE, Bahrain and USA together to work jointly in the region keeping aside decades-long animosity. This initiative could further lead to the formulation of the Arab-Mediterranean corridor.

What it holds for India?

- The India-Arab-Mediterranean corridor has driven the prominent stakeholders to chart the course of economic cooperation and trade partnership in the manufacturing, food production, processing sectors, etc. The multilateral partnership between India, UAE, Saudi Arabia and Israel has led to the formulation of the India-Middle East food corridor project.
- Moreover, UAE and Saudi Arabia have invested significantly in India for modernising its agriculture and water management system. This is going to encourage scientific farming in India and reinforce the importance of agriculture.
- Israel, on the other hand, has extended its support in terms of supplying the cutting-edge scientific and technological know-how it has in the field. Both India and Israel are working closely to manufacture semiconductors and highly sophisticated drones.
- In the event of India turning out to be a manufacturing hub for semiconductors, the European automobile industry and other related sectors may depend on India for their requirements.
- Joint ventures in innovative technology, green energy, electric battery, electric vehicle, battery charging stations, technology-driven agriculture, etc., involving multiple investors and partners would

help India in stretching its geo-economic leverage in Europe as well.

UAE's interest in this corridor:

- In such a scenario India's capacity to emerge as a manufacturing hub is likely to attract global majors to invest and minimize their dependencies on China and find a proper replacement.
- UAE understands this dimension very well and has expressed exceptional keenness in investing in the port, transport and logistics on the western coast of India. It works with India to share India's journey towards becoming a major force in the supply chain sector. UAE too realises the non-renewability aspect of its oil reserves and fossil deposits.
- Partnering with India in several sectors helps it diversify its economy and reduce the singular dependencies on conventional sources for its economy.
- These imperatives bind UAE to India to ensure the consistency of strength of its economy secured from any probable volatility. This explains the enduring nature of the India-Arab-Mediterranean corridor. Hence, the

Way Forward:

- The corridor will be a real game changer connecting the Indian Ocean with the Mediterranean Sea giving a fillip to supply chain resilience, and subsequently paving the way for comprehensive economic architecture in the region.

HIJAB ISSUE & IRANIAN WOMEN'S FREEDOM



Context:

- The death of Mahsa Amini, a 22-year-old Kurdish woman, has once again catapulted Iran's conservative rules on dress code under global scrutiny.
- Some women posted clips of themselves chopping off their hair and burning their hijabs on social media to express their anger and protest the government.

What was the case?

- Amini was detained by the morality police in Tehran for not wearing the hijab (Islamic headscarf) properly, which is compulsory for Iranian women. She slipped into a coma and died while in police custody.

- ⇒ While the police have claimed she died of a heart attack, her family has alleged Amini was beaten up during her detention.
- ⇒ Amini's death has witnessed Iran explode with anger with demonstrators demanding a probe into the case and the dismantling of the morality police.

Dress code before 1979 Islamic Revolution:

- ⇒ Before the 1979 Islamic Revolution, the hijab was still prevalent in Iran.
- ⇒ Before the 1979 Islamic Revolution, women in the country enjoyed similar rights to their male counterparts.
- ⇒ However, women could wear Western-style clothes including tight-fitting jeans, dresses, miniskirts and short-sleeved tops in public.
- ⇒ Afterwards, men were no longer seen in hair salons for women, a common sight during the monarchy. Women were also forced to cover their hair as soon as they step out.

Dress code post 1979 Islamic Revolution:

- ⇒ The hijab was made mandatory for Iranian women in the early 1980s. The morality police is in charge of enforcing the dress code and other restrictions.
- ⇒ The force has come under fire several times for its harsh treatment of young women. Women are also mandated to wear a coat to cover the body when out in public.
- ⇒ Those who do not adhere to the dress code can be subjected to two months in prison, fined up to 500,000 rials and up to 74 lashes.
- ⇒ As per a 2019 US state department report, women activists who have opposed the strict hijab law have been sentenced to harsh punishments by the courts.
- ⇒ Among such cases was one of human rights attorney Nasrin Sotoudeh – sentenced to 38 years in prison and 148 lashes in 2018 for extending legal defence services to women prosecuted for not wearing hijab.

Marriage age:

- ⇒ The marriage age for girls was first reduced from 18 to 13 (in 1979) and then further to nine (in 1982).

Travel:

- ⇒ Married women cannot leave the country or even obtain a passport without their husband's written permission, while single females need their father's approval.
- ⇒ A man has the choice of where his family lives and can forbid his wife from taking certain jobs if he considers them against "family values".

Family Protection Law:

- ⇒ As Supreme Leader Khomeini came to power, the Family Protection Law was suspended, which greatly affected women's rights.
- ⇒ Men could now easily divorce their wives by a verbal utterance, while women have to approach courts to get a divorce.

- ⇒ In 2002, the parliament amended the law to let a woman file for divorce if her husband was imprisoned, mentally ill, physically abusive or an addict.
- ⇒ Moreover, polygamy is permitted for men. An Iranian man can marry up to four women while a woman can have one husband.

Child custody:

- ⇒ A woman has custody right over children under seven.
- ⇒ For offspring above seven, the court will decide which parent will be granted custody of the child.
- ⇒ If a divorced woman remarries, she will lose custody even if her husband is deceased.
- ⇒ When Family Protection Law was in force, men did not automatically gain custody of the children.

Sporting events:

- ⇒ Sports is another arena that has seen a drastic change since the 1979 revolution.
- ⇒ Women would often frequent stadiums.
- ⇒ Even though there is no official ban on women, they are often refused entry where men are playing.
- ⇒ Women officially attended a domestic league football match at Azadi Stadium in Tehran in August 2022. The women attended the match between home side Estaqal and rivals Mes-e-Kerman at the Azadi Stadium in Tehran.
- ⇒ Before this, in 2019, Iranian women were allowed to watch the AFC Champions League final between Persepolis and Japan's Kawashima Antlers in Tehran.

PERMANENT MEMBERSHIP OF THE UNSC



Context:

- ⇒ There is a buzz in India about the prospects of India becoming a permanent member of the United Nations Security Council.

- India's External Affairs Minister has been actively canvassing for the country's candidature, meeting his counterparts from several countries.

P5 nations:

- The five permanent members of the United Nations Security Council (UNSC): China, France, the Russian Federation, the United Kingdom and the United States constitute what is the last, most exclusive club in international relations.
- Until a quarter century ago, the Nuclear Non-Proliferation Treaty (NPT) had five members, the same five as the P-5. India, Pakistan, North Korea and Israel have since joined the club.
- The P-5 could do nothing to stop the latter countries from forcing themselves into membership of the NPT. But the permanent membership of the Security Council is another story.

Reluctance of the P-5:

- The inescapable fact is that none of the P-5 wants the UNSC's ranks to be increased. One or the other of them might make some noise about supporting one or more of the aspirants. Each is confident that someone among them will torpedo the enlargement of the club.
- When delegations of 50 countries were drafting the Charter of the future United Nations at Dumbarton Oaks near Washington DC in 1944-45, the article regarding the Security Council, particularly the right of veto, was the subject of maximum debate and controversy. Many countries opposed it.
- The British representative made it clear: either you have a United Nations with veto or there will be no United Nations. The other participating nations had to lump it. The chief Indian delegate said that it was better to have an imperfect United Nations than not to have one.

Issue over Veto Power:

- There is considerable unhappiness among membership at large in the UN about the right of veto. The debate about veto is most often raked up when the western members of the P-5 club are not able to have their way.
- It is true that Russia, in its incarnations as the Soviet Union and the Russian Federation, has cast more vetoes (estimated to be 120 times, 'or close to half of all vetoes') than the three western members of the club.
- But the western members have used their privileged position any number of times to protect Israel when the Palestinian question was being discussed. They also used veto to prevent sanctions being imposed on the apartheid regime of South Africa.

Veto power in favour of India:

- India needs to be think carefully about veto. Russia have bailed India out on many occasions on the question of Kashmir. Most importantly, Russia helped India by vetoing unfavourable resolutions during the

war of Bangladesh liberation in 1971. Looking ahead, India can never rule out the possibility of the Kashmir issue being raised in the Council at some time in the future.

- India must rule out either Britain or America from casting a negative vote against Pakistan.
- Going by the Chinese position of repeatedly blocking India's efforts to include confirmed Pakistani terrorists in the sanctions list, it can be sure of Chinese hostility towards India for a long time.

Candidates for permanent membership:

- There are four declared candidates for permanent membership: India, Japan, Brazil and Germany, called the G-4.
- Africa and Latin America and the Caribbean are unrepresented in the permanent category at present. Africa's claim for two permanent seats has wide understanding and support, but the Africans have yet to decide which two countries these are to be.
- India can discount Pakistan's opposition; China will not support India nor will it ever support Japan.
- Brazil has regional opponents and claimants.
- As for Germany, Italy is firmly opposed to its claim. Italy has an interesting argument. If Germany and Japan, both Axis powers during the Second World War, and hence 'enemy' states were to join as permanent members, that would leave out only Italy, the third founding member of the Axis group. In any case there are already three western nations among the P-5.
- Even if India enjoyed near universal support, there is no way that India alone can be elected; it will have to be a package deal involving countries from other groups.

Amendment to Charter:

- Changing the membership of the Council requires amending the Charter. This involves consent of two-thirds of the total membership of the U N, including the concurring votes of P-5.
- This means that each of the five has a veto. The Charter was amended once in the 1960s to enlarge the Council by additional non-permanent seats.
- Even now, if the proposal was to add a few non-permanent seats only, it would be adopted with near unanimity or even by consensus.
- It is the permanent category that poses the problem. One can have a good idea of the difficulty of amending the Charter by the fact that the 'enemy clause' contained in Article 107 of the Charter remains in it even though some of the enemy states such as Germany, Japan, Italy, etc. are very active members, often serve on the Council, and are close military allies of some of the victors in the war.

Semi-permanent members:

- A distinguished group of experts suggested a few years ago that a new category of semi-permanent

- members should be created. Countries would be elected for a period of eight to 10 years and would be eligible for re-election. India ought to give serious consideration to this idea.
- Some experts are of the opinion that India should not accept permanent membership without the right of veto. Even a permanent membership without veto will be tremendously helpful in protecting our interests.
 - For, there should be no illusion about how states view membership in the Council. It is all about national interest; nobody is there for any worthy cause such as human rights or even war and peace. India will be and should be no different.

ENERGISING INDIA-NEPAL TIES, THE HYDROPOWER WAY



Context:

- In August 2022, the Investment Board Nepal signed a Memorandum of Understanding (MoU) with India's National Hydroelectric Power Corporation (NHPC) Limited to develop the West Seti and Seti River (SR6) projects, a total of 1,200 MW.
- Interestingly, nearly four years have passed since China's withdrawal from the project before Nepal decided to grant the project to India.

Challenges:

- Historically, the 750MW West Seti Hydroelectric Project was thought of in the early 1980s as a 37 MW run-of-the-river scheme. Nepal issued the developing licence to France's Sogreah, which prepared a pre-feasibility study in 1987 proposing the scheme without building a dam.
- With the project failing to see the light of the day, Australia's Snowy Mountains Engineering Corporation (SMEC) acquired a majority stake in the early 1990s. Between 1997-2011, attempts to make progress were affected due to investment and environmental concerns.

China's involvement:

- Consequently, the China National Machinery and Equipment Import and Export Corporation stepped in in 2009, with SMEC holding a majority stake.

However, China National Machinery and Equipment Import and Export Corporation withdrew citing a poor investment environment.

- In 2011 Nepal revoked the licence of the West Seti Hydropower Company Limited in which SMEC had a majority stake, and handed it over to China.
- In an MoU in 2012, China's Three Gorges International Corporation was assigned to develop the project, but it withdrew in 2018, citing issues of resettlement and rehabilitation.
- Subsequently, Nepal tried to develop the project by mobilising internal resources. However, increased costs resulted in further delays. Meanwhile, the project was remodelled as the West Seti and Seti River (SR6) joint storage project (1,200 MW).

What this project holds for India?

- The decision to involve India is a sign that Nepal is reposing its faith in India to complete the project. If completed, it is expected to provide India the much-needed leverage in future hydropower cooperation.
- The NHPC has initiated a preliminary engagement of the site with an investment of over ₹18,000 crore. It has also signed an MoU with the Power Trading Corporation Limited, India for sale of power.
- India is already involved in the Mahakali Treaty (6,480 MW), the Upper Karnali Project (900 MW) and the Arun Three projects (900 MW) in western and eastern Nepal, respectively.
- This will also help India minimise the geopolitical influence of China and firm its presence in Nepal, considering that the West Seti Hydroelectric Project was a major Chinese venture under the Belt and Road Initiative.
- The project has the potential to enhance cross-border power exchanges between the two countries.

Potential for Nepal & India:

- It is ironic that despite its huge hydropower potential, Nepal experiences power shortages during peak time, increasing its dependence on India to bridge the shortfall.
- With an estimated potential of 83,000 MW, Nepal's electricity exports to India are expected to increase foreign exchange and address the power shortage.
- It is estimated that if the hydropower potential is fully harnessed, Nepal can generate revenue to the tune of ₹310 billion in 2030 and ₹1,069 billion per year in 2045 by exporting electricity to India.
- Similarly, India's severe deficit in coal-based thermal power plants in recent years, which meet 70% of India's electricity demand, has compelled the Government to arrange supplies through coal imports, accelerating the search for better alternatives.
- Given the growing energy demand, the West Seti Hydroelectric Project can provide an added alternative and viable way to address power deficits.

Needed Steps:

- For the project to be successfully completed, options and alternatives need to be explored.

Finance:

- First, the revised cost around the construction process has increased to \$2.04 billion.
- Since investment-related constraints have delayed the project, there needs to be a careful study of investment scenarios, particularly a conducive investment environment, distribution and transmission network and cost of resettlement and rehabilitation, at the preliminary stage.

Demand:

- Second, Nepal is concerned that the electricity rates and supply from India is inadequate to meet the rising demands.
- To address these concerns, the new MoU has already revised the percentage share of energy that Nepal will receive free of cost from the generation projects to 21.9% from 10% (Section 6.1) and provides for discussion 'in good faith for further modalities, including Section 6.1' to make it commercially viable (Section 6.2).
- Further, to address domestic demand, the MoU allows Nepal to request the NHPC to sell the power generated from the projects to the domestic market before selling whole or part to the export market (Section 8.2).

Involving regional partners:

- Third, the project can also be extended to other regional partners under the Bangladesh-Bhutan-India-Nepal (BBIN) framework for cross-border energy cooperation.
- For example, if the combined estimated hydropower potential in Nepal and Bhutan, along with the potential of Northeast India, is effectively harnessed, a cross-border energy market can be created and optimally operationalised. It will be a win-win at the bilateral and regional levels.

ECONOMY**INDIA, 7% PLUS ANNUAL GROWTH, AND THE REALITIES****Context:**

- The National Statistical Office's real GDP growth estimate of 13.5% for the first quarter of 2022-23 is 2.7% points lower than the Reserve Bank of India's earlier assessment of 16.2%.

Beyond 7% growth:

- Assuming that the RBI's estimates of the remaining three quarters of the fiscal year at 6.2% in 2Q, 4.1% in 3Q, and 4% in 4Q are realised, the annual GDP growth using the NSO's 1Q estimate works out to be 6.7%.
- Compared to the pre-COVID-19 GDP level of ₹35.5 lakh crore in 1Q of 2019-20, real GDP at ₹36.9 lakh crore shows an increase of only 3.8%. This indicates that the performance of the Indian economy is not fully normalised yet which would be consistent with a growth of 6.5% to 7%.
- In order at least to reach an annual growth of 7%, GDP may have to grow at about 5% in 3Q and 4Q of 2022-23.

Composition of growth:

- Out of the eight Gross Value Added (GVA) sectors, the first quarter growth performance is higher than the average of 12.7% in public administration, defence and other services (26.3%), trade, hotels, transport et al. (25.7%), construction (16.8%), and electricity, gas, water supply et al. (14.7%).
- Agricultural growth has remained robust, showing a growth of 4.5% in 1Q of 2022-23, which is the highest growth over nine consecutive quarters.
- Growth in manufacturing, at 4.8%, however, is much below the overall average.

Increase with respect to corresponding output levels in the pre-COVID-19 normal year that is in 1Q of 2019-20:

- In this comparison, manufacturing seems to have done better with an increase of 7% in 1Q of 2022-23 while the trade, hotels, transport et al. sector has remained below its pre-COVID-19 level by a margin of minus 15.5%.
- This was the main contact-intensive sector which suffered the most during COVID-19 and which may show better recovery in succeeding quarters. Construction has also increased by a small margin of 1.2% when compared to its 1Q 2019-20 level.

Demand side:

- On the demand side, all major segments showed magnitudes in 1Q of 2022-23 that were higher than their corresponding levels in 1Q of 2019-20.
- Recovery in domestic demand has been reflected in the growth rates of private final consumption expenditure (PFCE), at 25.9%, and gross fixed capital formation (GFCF) at 20.1% over the corresponding quarter of the previous year.
- As compared to its 1Q 2019-20 level, the GFCF showed a growth of 6.7%. The ratio of gross fixed capital formation to GDP at current prices is 29.2% in 1Q of

2022-23 which is 1% point higher than the investment rate of 28.2% in the corresponding quarter of the previous year.

Exports:

- The contribution of net exports to real GDP growth is negative at minus 6.2% points in 1Q of 2022-23 since import growth continues to exceed export growth by a tangible margin. Such an adverse contribution of net exports to real GDP growth is an all-time high for the 2011-12 base series.
- It is likely that import growth will continue to exceed export growth in the next few quarters, both in real and nominal terms, considering prevailing high global prices of petroleum products and other intermediate inputs and India's growing demand for importing intermediate goods with a view to boosting 'Make in India'.

Policy support:

- The Indian economy may still show a 7% plus growth in 2022-23 provided it performs better in the subsequent quarters, particularly in the last two.
- Two important areas of policy support for this purpose would be to further increase the investment rate and to reduce the magnitude of negative contribution of net exports.

Available high frequency indicators for the first four to five months of 2022-23 indicate continuing growth momentum:

- Headline manufacturing Purchasing Manager's Index (PMI) was at an eight-month high of 56.4 in July 2022. It remained high at 56.2 in August 2022. PMI services were at 55.5 in July 2022, indicating 12 consecutive months of expansion.
- Outstanding bank credit by scheduled commercial banks (SCBs) grew by 15.3% in the fortnight ending August 12, 2022.
- Gross Goods and Services Tax collections have remained high at ₹1.49 lakh crore and ₹1.43 lakh crore in July and August 2022, respectively, although a good part of this may be due to the higher inflation levels of both Wholesale Price Index (WPI) and Consumer Price Index (CPI).

Capital expenditure:

- As seen in 1Q of 2022-23, GVA growth has been led by public administration, defence, and other services, with a growth of 26.3%. This has been driven by the central government's frontloading of capital expenditure.
- The Centre's capital expenditure grew by 62.5% during the first four months of 2022-23. This momentum needs to be maintained.
- This would be facilitated by a buoyant growth in the Centre's gross tax revenues, which showed a growth of nearly 25% during the first four months of the current fiscal year.

- The relatively high tax revenue growth is in turn linked to the excess of nominal GDP growth at 26.7% in 1Q of 2022-23 over the real GDP growth of 13.5%. Such a large gap between these two growth measures reflects a high implicit price deflator (IPD)-based inflation which is estimated at 11.6% in 1Q of 2022-23.
- This in turn is because of the ongoing WPI and CPI inflation trends where the former continues to exceed the latter. With buoyant tax revenue growth, fiscal policy may strongly support GDP growth without making any significant sacrifice on the budgeted fiscal deficit target.

Future roadmap:

- Given India's desire to achieve developed country status in the next 25 years, the required growth rate is in the range of 8% to 9%. In 2023-24, it must try to achieve a growth rate of 6% to 7%.
- The key to growth lies in raising the investment rate. Public capital expenditure has shown a rise. In crisis years, it is particularly good. It can crowd in private capital expenditure. But this cannot be the normal. Private capital expenditures, both corporate and non-corporate, must rise.
- It is pointed out that capacity utilisation in industry has touched 75% in 4Q 2021-22. This should help to attract private investment if demand for goods continues to increase.

Way Forward:

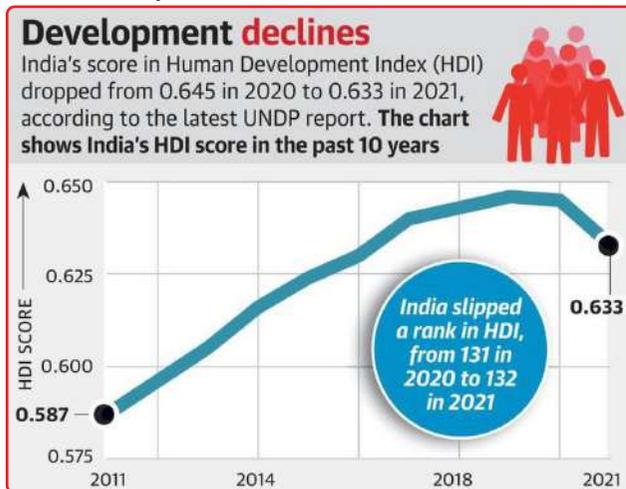
- The output loss because of COVID-19 and the consequent lockdown is greater if measured from the trend line rather than the base of 2019-20. Had it maintained growth of 7% since 2019-20 in successive years, the real GDP would have been ₹183.4 lakh crore in 2022-23.
- Even if it achieve a 7% growth in 2022-23 over 2021-22, there is a shortfall of ₹25.7 lakh crore at 2011-12 prices.
- The international environment for growth is bleak. Developed countries even fear a recession. India's growth path in the next few years must depend on domestic investment picking up.
- Sector-wise growth in investment must be the focus of policymakers in removing bottlenecks and creating a favourable climate.

INDIA RANKS 132ND OUT OF 191 IN UNDP'S HUMAN DEVELOPMENT INDEX

Why in news?

- Recently, the 2021 Human Development Index (HDI) was released by the United Nations Development Program (UNDP).
- The world over, nine out of 10 countries have slipped in their human development performance due to multiple crises such as COVID-19, the war in Ukraine and environmental challenges, indicating that

human development globally has stalled for the first time in 32 years.



Global decline:

- For the first time on record, the global Human Development Index (HDI) has dropped for two years in a row, taking the world back to just after the adoption of the 2030 Agenda for Sustainable Development and the Paris Agreement.
- Every year a few countries face declines on the HDI, but over 90 percent of countries saw their HDI value drop in either 2020 or 2021.
- Furthermore, while only a third of very high HDI countries saw a decline in 2021 (compared with over 90 percent in 2020), about 60 percent of low and medium HDI and high HDI countries did in 2021.

India's rank:

- India ranks 132 out of 191 countries in the Human Development Index (HDI) 2021, after registering a decline in its score over two consecutive years for the first time in three decades.
- The drop is in line with the global trend since the outbreak of COVID-19 during which 90% of the countries have fallen backward in human development.
- India was ranked 131 out of 189 countries and territories in the 2020 report.

HDI value of India:

- India's latest HDI value of 0.633 places the country in the medium human development category, lower than its value of 0.645 in the 2020 report.
- The report attributes the drop in HDI from 0.645 in 2019 to 0.633 in 2021 to India's falling life expectancy from 69.7 years to 67.2 years during the survey period.
- India's expected years of schooling stands at 11.9 years, down from 12.2 years in the 2020 report, although the mean years of schooling is up at 6.7 years from 6.5 years in the 2020 report.
- Although India retained its 132nd position in the Gender Development Index, the female life expectancy

dropped from 71 years in the 2020 report to 68.8 years in the 2021 report.

- The mean years of schooling for females also declined from 12.6 to 11.9 years in the corresponding period.
- India scored 0.123 in the Multi- Dimensional Poverty Index (MPI) with a headcount ratio of 27.9 per cent, with 8.8 per cent population reeling under severe multidimensional poverty. Over the last decade, India has lifted a staggering 271 million out of multidimensional poverty.

Positive steps taken by India:

- The report lauds India's efforts through pilot projects to ensure a minimum guaranteed income.
- Compared to 2019, the impact of inequality on human development is lower. India is bridging the human development gap between men and women faster than the world. This development has come at a smaller cost to the environment.
- India's growth story reflects the country's investments in inclusive growth, social protection, gender-responsive policies, and push towards renewables to ensure no one is left behind.

India's neighbours:

- Among India's neighbours, Sri Lanka (73rd), China (79th), Bangladesh (129th) and Bhutan (127th) are ranked above India, while Pakistan (161st), Nepal (143rd) and Myanmar (149th) are worse off.

Rising insecurities:

- The report notes that people across the globe are feeling more distressed and insecure about their lives and the future, in the wake of the Covid pandemic.
- While perceived insecurity is higher in low and medium HDI countries, some of the largest increases in feelings of insecurity are in very high HDI countries.
- Ethnic minorities of both sexes were severely affected in the United Kingdom, with the largest increase in mental distress among men with a background from Bangladesh, India or Pakistan.

About HDI:

- The Index is part of the Human Development Report 2021-2022 released by the United Nations Development Programme.
- The HDI measures average achievement of a country in three basic dimensions of human development – a long and healthy life, education and a decent standard of living.
- It is calculated using four indicators – life expectancy at birth, mean years of schooling, expected years of schooling, and the Gross National Income (GNI) per capita.

THE MANDATORY REQUIREMENTS FOR PACKAGED COMMODITIES

Why in news?

- Recently, the Department of Consumer Affairs, Legal

Metrology Division has notified a draft amendment to the Legal Metrology (Packaged Commodities) Rules 2011.



- The Department of Consumer Affairs Legal Metrology Division has observed that many manufacturers/packagers/importers do not clearly label necessary declarations or prime constituents on the front of packaged commodities, which are deemed essential to be disclosed in order to protect consumer interests.

What are the mandatory provisions under the Legal Metrology (Packaged Commodities) Rules, 2011?

- It is mandatory under the Legal Metrology (Packaged Commodities) Rules, 2011 to ensure a number of declarations, such as the name and address of the manufacturer/packer/importer, the country of origin, the common or generic name of the commodity, the net quantity, the month and year of manufacture, the Maximum Retail Price (MRP) and consumer care information. As a consumer-oriented policy, all prepackaged commodities should also be inspected.
- As stated in Rule 2(h), the "principal display panel", in relation to a package, means the total surface area of a package containing the information required in accordance with these rules, namely that all the information should be grouped together and given in one place – the pre-printed information could be grouped together and given in one place and the online information in another place.
- Additionally, Rule 9(1)(a) provides that the declaration on the package must be legible and prominent. The consumers' 'right to be informed' is violated when important declarations are not prominently displayed on the package.
- If there is more than one major product, Rule 6(1)(b) states that ".....the name or number of each product shall be mentioned on the package." This sub-rule is however, not applicable to mechanical or electrical commodities.

What are the proposed amendments?

- As many blended food and cosmetic products are sold on the market, the key constituents need to be mentioned on the product packaging. It is common for consumers to assume that brands' claims are accurate, but such claims are usually misleading.

Unique Selling Proposition (USP):

- Additionally, the front side of the package must contain the percentage of the composition of the unique selling proposition (USP). As the name suggests, a USP also known as a unique selling point, is a marketing strategy designed to inform customers about the superiority of one's own brand or product.
- Listing the USP of a product on the front of the package without disclosing its composition percentage violates consumer rights.
- Also, packages displaying key constituents must display a percentage of the content used to make the product. For example, if a brand sells aloe vera moisturiser or almond milk/biscuits, then the maximum percentage of the product should be aloe vera and almond, otherwise, the product name is misleading.

Mandatory components:

- The Department of Consumer Affairs, Legal Metrology Division has suggested that at least two prime components should be declared on the package's front side along with the brand name. Currently, manufacturers list the ingredients and nutritional information only on the back of the packaging.
- The proposed Section 6(1)(ba) states that when a commodity contains more than one constituent, the front side of the package must include a declaration of two or more of the commodities' prime constituents along with the brand name.
- This declaration must also include the percentage/quantity of the USPs of the product in the same font size as the declaration of the USPs. However, mechanical or electrical commodities are excluded from this sub-rule.

Way Forward:

- Moreover, public comments were solicited from all stakeholders, including industries, associations, consumers, and voluntary consumer organisations, in order to obtain their viewpoints.
- When the new provision of Section 6(1) (ba) is added, consumers will not be misled by the fake claims of manufacturers relating to the content in blended foods and cosmetics.

WINDFALL TAX & ENERGY SECTOR

Why in news?

- Recently, Finance Minister defended the windfall tax imposed by the Centre on domestic crude oil producers, saying that it was not an ad hoc move but was done after full consultation with the industry.
- The Central government on July 1, introduced a windfall profit tax of ₹23,250 per tonne on domestic crude oil production, which was subsequently revised fortnightly four times so far.

- Besides India, a wave of countries including the United Kingdom, Italy, and Germany have either already imposed a windfall profit tax on super normal profits of energy companies or are contemplating doing so.

Money matters
This is not the first time India is considering a windfall tax. Here is why the idea is firmly on the table:

- 1 India is expecting its food, fuel and fertiliser subsidy bills to jump. At the same time, it has reduced excise duty on auto fuels
- 2 The hit in revenues comes at a time when domestic oil and gas producers have seen a sharp rise in profits
- 3 ONGC in February this year declared highest-ever 9-month net profit of ₹31,446cr in 2021-22, a 597% y-o-y jump

What is a windfall tax?

- Windfall taxes are designed to tax the profits a company derives from an external, sometimes unprecedented event—for instance, the energy price-rise as a result of the Russia-Ukraine conflict.
- The United States Congressional Research Service (CRS) defines a windfall as an “unearned, unanticipated gain in income through no additional effort or expense”.
- Governments typically levy a one-off tax retrospectively over and above the normal rates of tax on such profits, called windfall tax. One area where such taxes have routinely been discussed is oil markets, where price fluctuation leads to volatile or erratic profits for the industry.
- There have been varying rationales for governments worldwide to introduce windfall taxes, from redistribution of unexpected gains when high prices benefit producers at the expense of consumers, to funding social welfare schemes, and as a supplementary revenue stream for the government.

Why are countries levying windfall taxes now?

- Prices of oil, gas, and coal have seen sharp increases since late last year and in the first two quarters of the current year, although having reduced recently.
- The increase stems from a combination of factors, including a mismatch between energy demand and supply during the economic recovery from COVID-19, further amplified by the Russian war in Ukraine. Pandemic recovery and supply issues resulting from the Russia-Ukraine conflict shore up energy demands, in turn driving up global prices.
- The rising prices meant huge and record profits for energy companies while resulting in hefty gas and electricity bills for household bills in major and smaller economies. Since the gains stemmed partly from external change, multiple analysts have called them windfall profits.

Suggestion by UN, IMF & OECD:

- In early August, the United Nations sharply criticised the “grotesque greed” of big oil and gas companies for making record profits from the global energy crisis on the back of the world’s poorest people. The largest energy companies in the first quarter of the year made combined profits of close to \$100 billion.
- The U.N. chief urged all governments to tax these excessive profits “and use the funds to support the most vulnerable people through these difficult times.
- The calls to introduce windfall taxes also found support in organisations like the IMF, which released an advice note as to how such a tax should be levied.
- The chief of the Organisation for Economic Co-operation and Development (OECD), also recommended in March that given the windfall gains, European governments levy windfall taxes on the energy company profits to help fund support programmes for those most affected by inflation.

Imposition by India:

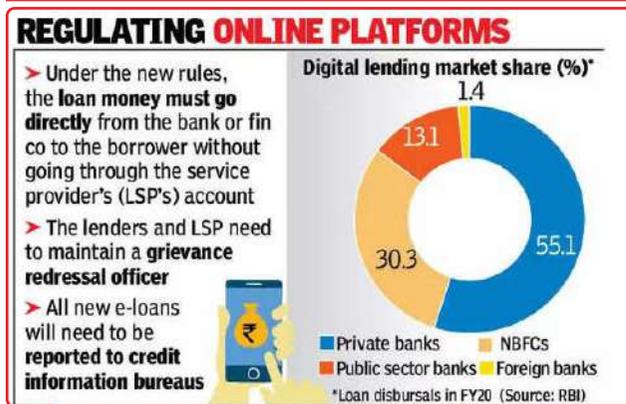
- In July, India announced a windfall tax on domestic crude oil producers who it believed were reaping the benefits of the high oil prices. It also imposed an additional excise levy on diesel, petrol and air turbine fuel (ATF) exports.
- India’s case was different from Europe’s, as it was still importing discounted Russian oil. The windfall tax was targeted mainly at Reliance Industries Ltd and Russian oil major Rosneft-backed Nayara Energy, who the government believed were making a killing on exporting large volumes of fuel made from discounted Russian oil at the cost of the domestic market.
- Analysts also saw the windfall tax as a way for the Centre to narrow the country’s widened trade deficit.

What are the issues with imposing such taxes?

- Analysts say that companies are confident in investing in a sector if there is certainty and stability in a tax regime. Since windfall taxes are imposed retrospectively and are often influenced by unexpected events, they can brew uncertainty in the market about future taxes.
- The also said that taxes in response to price surges may suffer from design problems—given their expedited and political nature. It added that “introducing a temporary windfall profit tax reduces future investment because prospective investors will internalize the likelihood of potential taxes when making investment decisions”.
- A report, argues that if rapid increases in prices lead to higher profits, in one sense it can be called true windfalls as they are unforeseeable but on the hand, companies may argue that it is the profit they earned as a reward for the industry’s risk-taking to provide the end user with the petroleum product.

- Another issue is who should be taxed- only the big companies responsible for the bulk of high-priced sales or smaller companies as well- raising the question of whether producers with revenues or profits below a certain threshold should be exempt.
- Besides, the windfall tax imposed by Italy has already met with a roadblock, many Italian power, oil, and gas companies had not paid their 40% instalment of windfall taxes by the prescribed June date, leaving the government with a revenue shortfall of nearly \$9 billion.
- Even when a similar tax was introduced by the U.S in the 1980s on domestic oil companies, the revenue it generated for the government was significantly lower than what it had projected, while the tax also reduced domestic oil production and increased imports.

RBI GUIDELINES ON DIGITAL LENDING IN INDIA



Why in news?

- Recently, the Reserve Bank of India (RBI) issued the 'Guidelines on Digital Lending' to banks and non-banking financial companies (NBFCs), which disburse loans through digital lending platforms.
- This follows the press release issued by the RBI on the implementation of the recommendations of the working group set up by the RBI in 2021 to study the market practices followed in the digital lending industry.

Unethical practices by Fintech companies:

- Fintech companies, which operated digital lending platforms offered unique credit products which were tailor-made to the requirements of a specific user base. These platforms gained popularity in a short span of time, especially in the aftermath of the COVID-19 lockdowns imposed by the government.
- Given that only banks and licensed NBFCs had legitimate access to capital, fintech companies had to enter into partnerships with such lenders who outsourced customer acquisition, portfolio monitoring, and loan recovery functions to them.
- With increasing cases of borrower harassment and suicides being reported pursuant to loans availed

through such digital lending platforms, the RBI was forced to take notice of the rapid growth of the digital lending industry, and closely monitor the arrangements entered into by regulated lenders and technology companies operating the digital lending platforms.

Regulatory measures:

- The RBI has laid clear emphasis to protect digital lending borrowers who have been the worst affected parties due to the unethical practices, and harsh recovery methods adopted by some digital lending platforms.
- Regulatory measures such as prescribing uniform T&C disclosure formats to be adopted by all digital lenders, permitting customers to exit the loan arrangement within a specified time-period, prohibiting hidden charges, mandating appointment of a nodal officer by both the regulated lenders as well as the digital lending platforms to address customer complaints, and the introduction of data minimisation norms will go a long way in boosting customer confidence and trust in digital lending platforms.

FLDG arrangements:

- The digital lending industry thrived until now since banks and other regulated lenders were ready to provide capital on the assurance that if the borrowers default, they would be compensated by the fintech companies operating the digital lending platforms, and in sourcing new customers.
- Such compensation arrangements were structured though first loss default guarantee (FLDG) arrangements, and the extent of such credit comfort offered was commercially negotiated based on the quality of the loan portfolio, among other factors.
- The RBI working group had recommended a complete ban on such arrangements as it viewed such credit comfort obtained from unregulated fintech companies as posing systemic risks to the market. It appears that the RBI has accepted this recommendation since the digital lending guidelines effectively restrict any such FLDG arrangements.
- This could drastically affect access to capital for fintech companies who are working towards designing new-age credit products, and increasing offerings to new-to-credit borrowers.
- FLDG arrangement would also adversely impact the financial inclusion efforts of the RBI, as regulated lenders would be less incentivised to support new fintech companies innovating in this space without any skin in the game of such companies.

What's next for Fintech companies?

- Overall, while the new digital lending guidelines will help to streamline and standardise digital lending practices relating to customer transparency and data collection, the restrictions on FLDG could force fintech companies to rethink their strategy.

- ⇒ Some market players may not have the means to directly obtain lending licenses and fund their customers using their own capital.
- ⇒ Fintech companies may have to explore adoption of public market infrastructure such as the account aggregator network and open credit enablement network to survive in an increasingly competitive and evolving market.

SHOULD INDIA CHOOSE MANUFACTURING OVER SERVICES?



Context:

- ⇒ Recently, the former Governor of the Reserve Bank of India, questioned the Central government's production-linked incentive (PLI) scheme, arguing that it works against the interests of Indian consumers.
- ⇒ In doing so, he revived the larger debate on the government's efforts to promote the country's manufacturing sector through subsidies, and on its relative importance vis-a-vis the services sector.

Should government policy focus on promoting any particular sector of the economy?

Favour:

- ⇒ All developing or industrialised countries made strategic interventions, or had an industrial policy.
- ⇒ The government can't do everything, prioritising certain sectors that have desirable features such as higher job creation or greater industrialisation is welcome.
- ⇒ The latest example is the 2022 CHIPS (and Science) Act in the U.S., under which some \$50 billion in incentives will be given to American companies to develop or to strengthen their semiconductor industry.
- ⇒ Each of the East Asian countries such as Japan, South Korea, Taiwan, Malaysia, Thailand, China and Vietnam has a story of strategic interventions by the state and has become a manufacturing powerhouse running consistent trade and current account surpluses.
- ⇒ In such a context, the Centre's decision to promote the manufacturing sector is timely because India has favoured an agriculture and services-dominated economy over the years.

Against:

- ⇒ No one has predicted that two-wheelers in India would fight off foreign competition pretty well while dozens of other manufacturing businesses would get butchered by foreign competition.
- ⇒ It is not feasible for officials in bureaucracies to look at the industrial landscape and make speculative calls. The task of figuring out which sector to focus on is best left to the private sector. The job of the government is to create a broad enabling environment.

Should India focus on manufacturing over services?

- ⇒ Services' share of the economy has gone up to over 50% of the GDP. However, this sector has not been able to create enough jobs in a commensurate manner.
- ⇒ The result is that agriculture still continues to sustain nearly half of India's workforce, which means that 15% of GDP is supporting some 45% of the workforce.
- ⇒ There is need more productive job opportunities for the workforce to shift away from agriculture. There is to focus attention on the manufacturing sector because of the direct and indirect jobs that it can create.
- ⇒ It is an empirical fact that manufacturing of all productive sectors has the highest backward and forward linkages. So, all together, there is significant potential for the manufacturing sector to create higher productivity jobs for people stuck in agricultural activities.

Aren't schemes like the PLI prone to the risk of cronyism?

- ⇒ It is possible that the PLI would lead to some kind of cronyism. But when subsidies are linked to performance, there is little room for discretion.
- ⇒ There are objective criteria which have been defined, such as getting a certain percentage in incentive if performance is better than last year. And of course, one can have third-party verification of performance to minimise misuse.
- ⇒ Also, government can tighten the criteria further to things such as export performance, competitiveness and innovation. So, it is possible to have an incentive system and achieve most of the objectives without major problems.

Shouldn't the government liberalise all sectors and let market forces decide outcomes?

New Sunrise sectors:

- ⇒ The sectors that have been selected by the government include some of the new sunrise sectors, such as the semiconductor industry, which are highly import-dependent.
- ⇒ Industries have been chosen based on where there is an opportunity to create new industries or reduce the dependence on imports, or where there are high spillovers or linkages to other sectors. So, industries

benefiting from these subsidies have not been randomly chosen.

- Of course, one could argue that there are also other sectors that merit subsidies, but one has to start somewhere.

Conclusion:

- When India is trying to revive its economy, and want the investment cycle to pick up, it need to persuade investors to invest. And for that, some incentivisation is important, especially in the context of other countries offering incentives.
- So, what has been done through the PLI, and the current focus of the government to promote the manufacturing sector, is the right thing to do at this moment.

NATIONAL LOGISTICS POLICY

Why in news?

- Recently, the Prime Minister, launched the National Logistics Policy in New Delhi.

Vision:

- The vision of the policy is to develop a technologically enabled, integrated, cost-efficient, resilient, sustainable and trusted logistics ecosystem in the country for accelerated and inclusive growth.
- The policy aspires to reduce cost of logistics in India to be comparable to global benchmarks by 2030, endeavour to be among top 25 countries by 2030 in the Logistics Performance Index ranking, and create data driven decision support mechanism for an efficient logistics ecosystem.
- The Logistics Performance Index was reported by the World Bank every two years from 2010 to 2018.

NEW LOGISTICS POLICY

<p>INTEGRATION OF DIGITAL SYSTEM (IDS): Will integrate data from several ministerial departments to smooth cargo movement</p> <p>UNIFIED LOGISTICS INTERFACE PLATFORM (ULIP): Will display all modes of transport available to facilitate cargo movement</p> <p>EASE OF LOGISTICS (ELOG): Will simplify rules for logistics business</p>	<p>SYSTEM IMPROVEMENT GROUP (SIG): Officers from ministries will monitor all logistics projects regularly to remove bottlenecks in a time-bound manner</p> <p>FOCUS ON SKILLING: Attention will be given to skilling. Generating employment will also be a key focus area</p> <p>E-HANDBOOK: Will aim to standardise warehouses of physical assets</p>
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Why a National Logistics Policy?

- Logistics efficiency is a function of infrastructure, services (digital systems / processes / regulatory framework) and human resource.

- PM GatiShakti National Master Plan (NMP) for multimodal connectivity infrastructure to various economic zones, has been launched.

- While development of integrated infrastructure and network planning is envisaged to be addressed through the PM GatiShakti National Master Plan, for efficiency in services (processes, digital systems, regulatory framework) and human resource, the National Logistics Policy is the logical next step.

- This will provide a comprehensive agenda for development of entire logistics ecosystem.

Implementation:

- The Policy will be implemented through a Comprehensive Logistics Action Plan (CLAP).
- The interventions proposed under the CLAP are divided into eight key action areas:

- Integrated Digital Logistics Systems
- Standardisation of physical assets and benchmarking service quality standards
- Logistics Human Resources Development and Capacity Building
- State Engagement
- EXIM (Export-Import) Logistics
- Service Improvement framework
- Sectoral Plan for Efficient Logistics
- Facilitation of Development of Logistics Parks.

Unified Logistics Interface Platform (ULIP):

- The central government will create a Unified Logistics Interface Platform (ULIP) under the National Logistics Policy.

- ULIP will integrate seven ministries, the Ministry of Ports, Shipping and Waterways, the Ministry of Civil Aviation, the Ministry of Road Transport and Highways, the Ministry of Commerce and Industry, the Ministry of Railways, the Ministry of Finance, and the Ministry of Electronics and Information Technology, on one platform to provide logistics companies with information about cargo movement in the country.

- The government will integrate around 17 digital systems from the seven ministries on ULIP.

- Out of the 17 systems till now 12 systems have been integrated under ULIP and only one system each from the Ports and Shipping ministry and one from the Finance Ministry are left to be integrated.

Tasks undertaken by ULIP:

- The government has integrated data from the National Industrial Corridor Development Corporation into ULIP.

- Furthermore, discussions are underway to integrate the Food Safety and Standards Authority of India and Digilocker into ULIP.

- ULIP will be used for inventory management, digitized document generation & exchange, track & trace, grievance redressal, risk-based import clearance, and

ease of cargo movement in India, the government said.

- The government will also hire different third-party companies for the development, operation, and maintenance of ULIP.
- The ULI platform will provide logistics companies, importers, and exporters data on their cargo movement across the country and will also help provide cargo movement clearances.

Way Forward:

- It is a transformative approach for improving logistics efficiency and reducing logistics cost, with focus on integrating existing and proposed infrastructure development initiatives of different agencies, to ensure first and last mile connectivity, for seamless movement of people and goods.

THE BAN ON THE EXPORT OF BROKEN RICE

Why in news?

- Recently, the Centre instituted a ban on the export of broken rice.
- Additionally, it mandated an export duty of 20% on rice in husk (paddy or rough), husked (brown rice) and semi-milled or wholly-milled rice. The measures do not affect export of basmati or parboiled rice.

BROKEN RICE EXPORTS OVER THE YEARS

COUNTRY	FY19	FY20	FY21	FY22
China	—	—	2.73	15.85
Senegal	6.73	1.62	8.64	9.22
Vietnam	—	—	1.87	3.44
Djibouti	1.08	0.17	1.07	2.44
Indonesia	1.51	—	0.41	2.08
TOTAL	12.21	2.7	20.64	38.9

(Lakh metric tonnes)

Why ban has been imposed?

- The measures would ensure adequate availability of broken rice for consumption by the domestic poultry industry and for other animal feedstock.
- Additionally, it would sustain production of ethanol that would further assist the successful implementation of the Union government's Ethanol Blending Programme (EBP).
- However, the measures may affect countries dependent on Indian food exports in the face of a lost 'breadbasket' in Ukraine owing to the Russian conflict.

What does it have to do with inflation?

- The lower the supply of a commodity, the higher would be the price of a product, which results in inflationary pressures.
- The adequacy of rice stocks in the country would ensure that markets do not experience excess demand and thus, trigger an abrupt price rise.

- For seven consecutive months, inflation has been above the Reserve Bank of India's 6% tolerability threshold. The Consumer Price Index (CPI), or retail-based inflation, stood at 7% in August 2022 with rural and urban inflation scaling 7.15% and 6.72% respectively. This was furthered by an uptick of 7.62% in food prices during the same period.

Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY):

- The COVID-19 pandemic also had an impact on India's previously held surplus. As a reaction to the distresses caused by the pandemic to the vulnerable sections the Union Cabinet had introduced a food security program, called the Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY) in March 2020.
- The scheme provisions an additional 5kg ration per person each month in addition to their normal quota of foodgrains under the National Food Security Act. In March, the scheme was extended for another six months until September 2022.
- The foodgrain stocks (including rice, wheat and unmilled paddy) in the Food Corporation of India (FCI)'s central pool had dropped 33.5% on a year-over-year basis to 60.11 million tonnes as of September 1, prompting doubts on the continuation of the scheme.
- Research analysts observe that on the whole, though rice stocks should remain above buffer levels, the current export restrictions may not necessarily improve the demand-supply situation materially, implying, that there remains an upside risk to the price of rice.

Rice production in 2022:

Conditions for Rice cultivations:

- The major rice cultivation season in India is the Kharif season, that entails sowing the crop during June-July and harvesting them in November-December.
- It is imperative to note that rice is a water-intensive crop which also requires a hot and humid climate. Thus, it is best suited to regions which have high humidity, prolonged sunshine and an assured supply of water.
- It is for this reason that the eastern and southern regions of the country, with sustainable humidity and suitable mean temperatures are deemed favourable for the crop.
- While the two regions are able to grow paddy crops throughout the year, higher rainfall and temperature prompt the northern regions to grow only one crop of rice from May to November. Andhra Pradesh, Telangana, Punjab, Haryana, Chhattisgarh, Odisha, Madhya Pradesh, Tamil Nadu, Maharashtra, Uttar Pradesh and Bihar are among the rice producing States in India.

Deficit rainfall:

- A perusal of Indian Meteorological Dept's data, between June 1 and September 14 illustrate that

Uttar Pradesh, Jharkhand, Punjab and Bihar have experienced deficient rainfall.

- The latter refers to rainfall being 20-59% below normal in a particular region. Although West Bengal, the country's largest producer, has overall experienced a normal rainfall, its major productivity areas such as Nadia, Burdwan and Birbhum have had deficient rainfall. This indicates a potentially lower produce this year.

What are the concerns on ethanol blending?

- Ethanol is an agro-based product, mainly produced from molasses, which is a by-product of the sugar industry.
- The EBP endeavours to blend ethanol with vehicular fuels as a means to combat the use of fossil fuels and in turn, rising pollution. As per the government, sugar-based feed stocks alone would not be able to meet its stipulated target of 20% ethanol blending by 2025.
- In the 2018-19 Ethanol Supply Year (ESY), the government had allowed the FCI to sell surplus rice to ethanol plants for fuel production. The idea was to have in place an insurance scheme and an emergency provision for distillers.
- However, in the ongoing ESY, because of supply constraints there has been an uptick in the procurement of rice from the FCI. The total ethanol produced from rice lifted from the FCI stood at 26.64 crore litres whereas that from damaged food grains outside the FCI purview stood at 16.36 crore litres.
- This means that the production accruing from FCI rice has increased 10-fold from the 2.2 crore litres used in a full ESY. At the same time, production from damaged foodgrains stands at half.
- Thus, the export ban would endeavour to catch-up with this supply and additionally, unburden the FCI from provisioning to distillers.

What are the likely after-effects of the ban?

- Geopolitical tensions between Russia and Ukraine have unsettled global food supply chains. With trade disrupted in the Black Sea region, Bloomberg reported in March that prices of rice are surging because traders are betting it will be an alternative for wheat which is becoming prohibitively expensive.
- India accounted for 41% of the total rice exports in the world in 2021 larger than the next four exporters (Thailand, Vietnam, Pakistan and United States) combined.
- As for broken rice, the United States Department of Agriculture (USDA) states that India accounted for more than half of the commodity's global exports in the first half of 2022.
- As per government figures, between April and August 2022, broken rice's share in the overall rice export mix (of India) was 22.78% compared to 18.89% in FY 2021.

- In descending order, China, Senegal, Vietnam, Djibouti and Indonesia are the biggest importers of India's broken rice.

CONVERGENCE MODULE BETWEEN AGRICULTURE INFRASTRUCTURE FUND SCHEME, PRIME MINISTER'S MICRO FOOD ENTERPRISES UPGRADATION SCHEME AND PM KISAN SAMPADNA YOJANA LAUNCHED

Why in news?

- As part of Azadi Ka Amrit Mahotsav, the convergence module between the Agriculture Infrastructure Fund (AIF) scheme of the Ministry of Agriculture and Farmers Welfare, Pradhan Mantri Micro Food Enterprises Upgradation Scheme (PMFME) and Pradhan Mantri Kisan Sampada Yojana (PMKSY) of the Ministry of Food Processing Industries was launched.
- This will benefit different sections of the country, including farmers and Small scale entrepreneurs of processing industry.



Agriculture Infra Fund (AIF):

- Agriculture Infra Fund (AIF) is a financing facility launched on 8th July 2020 for creation of post-harvest management infrastructure and community farm assets, with benefits including 3% interest subvention and credit guarantee support.
- Under this, ₹1 lakh crore from 2020-21 to 2025-26 provision of funds has been made and interest subvention and credit guarantee assistance will be given till the year 2032-33.
- AIF scheme has the facility of convergence with any other scheme of State or Central Government, therefore in order to optimize the benefits of multiple government schemes for a particular project, these are being integrated with multiple external systems/portals for convergence of schemes on a large scale.
- Convergence of AIF has already been done for commercial horticulture development and cold storage development schemes of National Horticulture Board under INM Division of Ministry of Agriculture.

Pradhan Mantri Micro Food Enterprises Upgradation Scheme (PMFME):

- The Ministry of Food Processing Industries has launched the Pradhan Mantri Micro Food Industry Upgradation Scheme on 29th June, 2020 under the Atma Nirbhar Bharat Campaign to enhance the competitiveness of individual micro enterprises, which will provide financial, technical and commercial assistance for up-gradation of micro food processing enterprises in the country.
- All the States/UTs have appointed nodal agencies for its implementation. Applications for credit-linked subsidies for individual enterprises are approved at the district level, while applications for clusters are approved at the state level/ MoFPI.
- Under PMFME scheme, 35% credit linked subsidy will be provided for setting up of micro food processing unit with a maximum subsidy limit of Rs 10 lakh and common infrastructure with a maximum subsidy of ₹3 crore.
- So far about 62,000 beneficiaries engaged in food processing activities have been benefitted by this scheme. Around 7,300 loans have been sanctioned under the scheme for setting up new micro food enterprises or for upgrading existing units.
- Out of these, about 60% eligible beneficiaries are engaged in primary agricultural produce and can avail direct benefit through this convergence by availing additional interest subvention of 3% at the rate of interest charged by the banks. The pace of loan approvals is expected to increase by 50% in the third quarter of 2022-23.

Pradhan Mantri Kisan Sampada Yojana (PMKSY):

- Pradhan Mantri Kisan Sampada Yojana, a Central Sector Scheme of the Ministry of Food Processing Industries, is envisaged as a comprehensive package, which will result in creation of modern infrastructure with efficient supply chain management from farm gate to retail outlet.
- It is an umbrella scheme consisting of sub-schemes.

Benefit of Convergence of AIF, PMFME & PMKSY:

- Through this convergence, eligible beneficiaries receiving credit-linked subsidy under PMFME and PMKSY schemes can avail interest subvention at the rate of interest charged by the banks.
- The eligible AIF beneficiaries under PMFME can get the benefit of subsidy by applying in PMFME MIS portal.
- The process of obtaining 3% interest subvention has been made very simple, wherein the beneficiary can apply on the portal using the already approved DPR and acceptance letter under PMFME and PMKSY.
- The ultimate objective of the Ministry of Food Processing Industries and the Ministry of Agriculture and Farmers Welfare is the sustainable development

of farmers and food processing entrepreneurs in rural areas and increasing their income.

- The goal of this initiative is to make the benefits of the schemes reach all the beneficiaries and empower them financially, technically and professionally.

Way Forward:

- This partnership will prove to be a milestone in building a self-reliant India, taking the Prime Minister's slogan 'Vocal for Local' to newer heights.

SECURITY

THE GROUNDING OF THE CHINOOK HELICOPTER & IMPLICATIONS FOR INDIA

Why in news?

- Recently, the United States Army grounded its entire fleet of Chinook helicopters, its battlefield workhorse since the 1960s, after finding the helicopter to be at risk of engine fires.
- The move has implications for India, as it operates a fleet of 15 Boeing-made Chinook helicopters acquired from the US and inducted into service in March 2019.

About the Chinook:

- The Chinook helicopter, manufactured by Boeing, is a heavy-lift helicopter that is among the heaviest lifting Western helicopters. Its name, Chinook, is from the Native American Chinook people of Oregon and Washington state.



- The Chinook helicopter has been in use in the US Army since the 1960s and it is also used by the armed forces of more than 19 countries.
- The helicopter was originally deployed in the Vietnam War and since then been a familiar sight during the Iraq and Afghanistan wars. The Chinook is designed to carry around 36 passengers, but during the last days of the Vietnam War it carried 147 refugees in a single lift.
- It is considered the world's fastest military helicopter with a maximum speed of 315 kilometres per hour. It has been deployed by the US across many countries including Afghanistan, Iraq, Syria and others. The US and UK remains the largest operators.

Why has the US grounded the Chinook?

- The US Army had grounded its Chinook fleet as it is suspected that some engine fires broke out on an unspecified number of helicopters.
- The move was taken "out of an abundance of caution", and more than 70 aircraft were being examined as they "contained a part that is suspected to be connected" to the fires.
- The grounding could "pose logistical challenges" for US soldiers.

India's Chinooks:

- In September 2015, India had placed a \$3.1 billion order for 15 Chinooks and 22 Apache helicopters to scale up capabilities.
- In 2019, India received the first batch of Chinook helicopters and Boeing completed the delivery of the helicopters to the Indian Air Force in 2020.
- The big factor behind the purchase of the choppers was that they're capable of slinging the M777 lightweight howitzers from one location to the other, especially in mountainous terrain like along the borders with China.
- Since then, they have emerged as one of the major military tools for airlift operations in places like Ladakh and Siachen glaciers to assist Indian forces deployed in these regions.

What happens to India's Chinooks?

- After the US grounded its fleet of the workhorse helicopter, the IAF sought details on the matter.
- The fact that the IAF is continuing to fly its Chinooks implies that the technical issue affecting the American fleet is not relevant to IAF's fleet. However, what is certain is that the IAF would be in close touch with the manufacturer and keeping a close watch on the progress of the rectification.
- Even if later the Chinook had to be checked out of India's arsenal, its non-availability wouldn't be an issue as the Indian Air Force has a large and capable fleet of Mi-17s that would take over the task.

INDIA'S FIRST NAVAL AIRCRAFT CARRIER 'INS VIKRANT'

Why in news?

- Recently, INS Vikrant, India's first indigenously made aircraft carrier and the largest ship built in the country's maritime history, was commissioned by Prime Minister at Cochin Shipyard Limited in Kerala.

Details:

- The ship, built at a cost of Rs 20,000 crore, has a flying deck that is 262 metres in length and 62.4 meters wide and can make up for two football fields.
- It has been built using indigenous equipment and machinery supplied by India's major industrial houses as well as over 100 MSMEs.
- The new ship has been christened after INS Vikrant or Vikrant (R11), India's first aircraft carrier which

was built for the British Royal Navy as HMS Hercules in 1943 and saw action during the India-Pakistan war in 1971.



- About 90 per cent of the hull, 50 per cent of the machinery and 30 per cent of weapons and sensors of INS Vikrant are indigenously designed and built.
- It has been designed by Indian Navy's in-house Warship Design Bureau (WDB) and built by Cochin Shipyard Limited, a public sector shipyard under the Ministry of Ports, Shipping & Waterways.

Old INS Vikrant:

- India's first aircraft carrier, INS Vikrant, with pennant number R11, was built for the British Royal Navy as HMS (Her Majesty's Ship) Hercules on October 14, 1943. It was commissioned in the British Royal Navy in 1945.
- After World War II ended, the ship's construction was stopped. It was later sold to India in 1957 in an incomplete condition.
- INS Vikrant underwent a four-year-long refitting at Harland and Wolf Yard in Belfast, Ireland. The ship arrived in India on November 3, 1961 and formally join the Indian Navy fleet in the Bombay Harbour. The commissioning event was attended by then Prime Minister Jawaharlal Nehru amid great fanfare.
- INS Vikrant played a major role in India's decisive victory in the 1971 war with Pakistan. It helped suppress the ground movements and resupply the Pakistani Army in the east by blockading East Pakistan (now Bangladesh) as a whole.
- The ship was decommissioned in 1997 and laid anchored off Mumbai Harbour, serving as a museum.
- In 2013, the central government decided to scrap the ship as it was becoming too expensive for its upkeep. Despite opposition from certain groups, the ship was sold off to Darukhana ship-breaker for Rs 60 crore. The ship was finally scrapped in 2014.

How INS Vikrant is different from its predecessor?

- The new INS Vikrant is 262-metre-long, as against its predecessor which was 192-metre-long. The new ship displaces approximately 43,000 tonnes when

fully loaded, as against the former Vikrant which had a full load displacement of 20,000 tonnes.

- The newly commissioned INS Vikrant has a maximum designed speed of 28 knots with endurance of 7500 nautical miles.
- The old INS Vikrant could sail at a speed of 46 km per hour while the new ship can sail at 56 km per hour.
- Besides this, the new INS Vikrant has state-of-the-art features and can operate an air wing consisting of 30 aircraft, including MiG-29K fighter jets, besides the domestically manufactured Advanced Light Helicopters (ALH).
- It has around 2,200 compartments, designed for a crew of around 1,600 that include specialised cabins to accommodate women officers and sailors.

Way Forward:

- It might take another 5-6 months for INS Vikrant to be combat ready with fighter jets carrying out flying sorties and the warship equipped with surface-to-air Barack missiles. The flying trials are likely to start by November and should end by May 2023.
- With the commissioning of INS Vikrant, the Indian Navy will have two aircraft carriers operational simultaneously -- the second one being INS Vikramaditya.
- This would solve the Navy's problem of continuing its naval operations even as the other ship goes in for maintenance.

EXERCISE VOSTOK-22 & INDIA



Why in news?

- From September 1-7, Russia is holding annual military exercises in its eastern region, with about 13 countries including India and China sending contingents.
- While the exercises in Vostok-2022 are routine, they are the first such multilateral exercises to be held since the Russian war in Ukraine began.
- They include a maritime component near the disputed islands of South Kuril, claimed by both Russia and Japan.

Who is taking part in Vostok-22?

- The countries that have sent military contingents

are Algeria, Armenia, Azerbaijan, Belarus, India, Kazakhstan, Kyrgyzstan, China, Laos, Mongolia, Nicaragua, Syria and Tajikistan.

- It is estimated that "more than 50,000 troops and 5,000 units of military equipment" including 140 aircraft and 60 warships would participate in the exercises.
- The Indian Army contingent is part of joint manoeuvres to include joint field training exercises, combat discussions, and firepower exercises.

India not to take part in maritime section:

- India has only sent its army contingent of the 7/8 Gorkha Rifles, and will not take part in the maritime section of the two-part event.
- This is because, while the first part of the land exercises will be held in Russian military training grounds in Siberia and the Far Eastern Federal District, the maritime part of the exercises would be held in the Sea of Okhotsk and the Sea of Japan, near the disputed South Kuril islands.
- Japan's Foreign Ministry issued a demarche calling on Russia to move the location of its maritime exercises, which the Russia rejected, and India's decision not to take part in the naval exercises is believed to be in deference to Tokyo's sensitivities.

Why has US criticised the exercises?

- In a statement ahead of the exercises, U.S. Secretary said that the U.S. has "concerns about any country exercising with Russia while Russia wages an unprovoked, brutal war against Ukraine," adding that the decision to participate was up to each country, and that the government had been "pretty public" about its opposition to the exercises in talks.
- The Biden administration is in the process of gaining support for more sanctions against Russia for its invasion of Ukraine, as well as a demand for price-caps on Russian oil exports, and the decision by India and other countries to participate in Vostok-2022 presents a divided approach towards Russia.
- The Ministry of External Affairs (MEA), however, rejected the concerns and said India has been regularly participating in multilateral exercises in Russia, along with a number of other countries.

What does India's participation mean and what is the likely impact?

- By sending an army contingent to join Russian and Chinese troops in the exercises at this time, India is aiming to send a four-pronged message.
- The first is its continuing relationship with Russia despite the Ukraine war, where the Indian government has decided not to join the Western sanctions regime, or to curb oil imports and other economic engagement with Moscow.

Non-alignment:

- The second is to signal balance and non-alignment in the current crisis, given India has mostly abstained

from votes at the United Nations seeking to criticise Russia.

- India also takes part in routine Indo-Pacific exercises with its Western partners including the Quad, as well as in bilateral exercises, like the India-U.S. "Yudh Abhyas" in Uttarakhand next month.
- These exercises will take place just after Prime Minister Narendra Modi's visit to Uzbekistan for the Shanghai Cooperation Organisation (SCO) summit in September, where he will participate alongside leaders of Russia, China, Belarus, Kazakhstan, Kyrgyzstan, who have sent contingents for Vostok-22 as well.
- It is a way of signalling that India remains comfortable in both its engagement with the U.S.-EU coalition and its rival groupings led by Russia-China.

Sensitivity to Japan:

- Third, by staying away from the maritime exercises, India has shown both its sensitivity to Japan's concerns on maintaining the status quo over the disputed islands, as well as stressing the importance of territorial sovereignty and integrity for India.
- India is hosting a Quad meeting on Indo-Pacific initiatives in Delhi and holding bilateral talks with U.S. and Japan on trade and defence as well.

China factor:

- Finally, the message the government continues to give is that it is willing to engage with China on a number of fronts, even as military talks with China at the LAC (Line of Actual Control) remain stuck.
- The government, however, asserts that it cannot be "business as usual" with China until the latest logjam over Chinese troops' transgression since April 2020 is resolved.

NEW CHIEF OF DEFENCE STAFF (CDS) APPOINTED

Why in news?

- The Centre has appointed Lt General Anil Chauhan as India's new Chief of Defence Staff (CDS) who shall also function as Secretary to Government of India, Department of Military Affairs.

Background:

- The development comes more than nine months after post fell vacant following the death of General Bipin Rawat, India's first Chief of Defence Staff, who assumed the role in January 2020.
- Rawat and his wife were killed in December after a military chopper crashed in Tamil Nadu, killing 13 on board. The only survivor, an Air Force Group Captain, died of severe burns later.

Retired officer appointed:

- The Centre announced that retired 61-year-old Army officer has been appointed as the CDS.

Lt General Anil Chauhan (Retd) is the new CDS



- Born on May 18, 1961; studied in Kolkata
- Commissioned into 11 Gorkha Rifles in 1981
- Had a career spanning nearly 40 years
- Held several command, staff and instrumental appointments
- Retired as Eastern Army Commander in May, 2021
- Served on a UN mission to Angola
- Contributed to national security, strategic matters post-retirement
- Will be India's 2nd CDS after Gen Bipin Rawat

- This is the first time a retired officer has been appointed to the post.
- Additionally, this is also the first time that a retired three-star officer returns to active service in a four-star position.

Who is Lt General Anil Chauhan?

- He is an alumnus of the National Defence Academy, Khadakwasla, and Indian Military Academy, Dehradun.
- He retired in May 2021 as the Eastern Command Chief, which means he served for a period of over nearly 40 years.
- During service as Major General, he had commanded an Infantry Division in Jammu and Kashmir's Baramulla sector in the Northern Command. Later as Lt General, he commanded a corps in the North East and then became General Officer Commanding-in-Chief of the Eastern Command from September 2019 until he retired from service.
- In 2019 during the Balakot strike, he was the Director General of Military Operations.

About CDS:

- The Centre decided to establish the post of Chief of Defence Staff (CDS) of the Armed Forces in 2019 – on the recommendations of a committee headed by Lt General DB Shekatkar – to bolster the nation's military prowess and bring about more operational cohesiveness between the army, the navy and the air force.
- The CDS brings about jointness in operation, logistics, transport, training, support services, communications, repairs and maintenance of the three services.

The CDS plays two roles:

- As permanent Chairman of the Chiefs of Staff Committee comprising the three service chiefs as members.
- As main military adviser to the defence minister as head of the Department of Military Affairs (DMA).

Amendments in June 2022:

- The new CDS became eligible for the post after the Centre changes the rules for CDS appointments in June.
- The Centre had issued a notification making all serving and recently-retired three-star officers under the age of 62 eligible for the post of CDS.
- Notably, the government had announced that any serving or retired Lt General, Air Marshal or Vice Admiral would be eligible to be appointed as the CDS.
- It further said that the government may extend the service of the Chief of Defence Staff for such a period as it may deem necessary subject to a maximum age of 65 years.
- The move essentially widened the available military talent pool from which a CDS could be appointed and made it possible for the second-in-command of the army, navy and air force to supersede their seniors.

ENVIRONMENT

EFFECTING THE BAN ON SINGLE-USE PLASTICS



Context:

- The Ministry of Environment, Forest and Climate Change, notified the Plastic Waste Management Amendment Rules, 2021 on August 12, 2021.
- In keeping with the spirit of the 'Azadi ka Amrit Mahotsav', the country is taking steps to curb littered and unmanaged plastic waste pollution.

Plastic ban:

- Since July 1, 2022, India has banned the manufacture, import, stocking, distribution, sale, and use of single-use plastic (SUP) items with low utility and high littering potential.
- India is a party to the United Nations Environment Assembly (UNEA).
- In all, 124 nations are party to the UNEA, and India has signed a resolution to draw up an agreement

in the future that will make it legally binding for signatories to address the full life cycle of plastics, from production to disposal.

Why are single-use plastics harmful?

- The purpose of single-use plastics is to use them once or for a short period of time before disposing of them.
- Plastic waste has drastic impacts on the environment and human health. There is a greater likelihood of single-use plastic products ending up in the sea than reusable ones.
- India has taken resolute steps to mitigate pollution caused by littered single-use plastics.
- A number of items are banned, including earbuds with plastic sticks, balloon sticks, plastic flags, candy sticks, ice cream sticks, polystyrene (thermocool) for decorations, plates, cups, glasses, cutlery such as forks, spoons, knives, straws, trays, wrapping or packing films around sweet boxes, invitation cards, cigarette packets, plastic or PVC banners less than 100 micron, stirrers, etc.

What is the impact on the environment?

- Littered single-use plastic items have an adverse effect on both terrestrial and aquatic ecosystems. All countries face a major environmental challenge due to pollution caused by single-use plastic items.
- India piloted a resolution on single-use plastics pollution at the 4th United Nations Environment Assembly in 2019, recognising the urgent need for the global community to address this issue. This resolution was adopted at the UN Environment Assembly as an important step forward.
- In the recently concluded 5th session of the United Nations Environment Assembly in March 2022, India engaged constructively with all member states to develop a consensus on a resolution to drive global action against plastic pollution.
- However, India is not the first country to ban single-use plastics. Bangladesh became the first country to ban thin plastic bags in 2002; New Zealand banned plastic bags in July 2019. China had issued a ban on plastic bags in 2020 with a phased implementation.

What are the plastic waste management rules in India?

- With effect from September 30, 2021, the Plastic Waste Management Amendment Rules, 2021, prohibited the manufacture, import, stocking, distribution, sale, and use of plastic carry bags whose thickness is less than 75 microns. From December 31, 2022, plastic carry bags whose thickness is less than 120 microns will be banned.
- It means that the ban does not cover all plastic bags; however, it requires the manufacturers to produce plastic bags thicker than 75 microns which was earlier 50 microns. As per the notification, the standard shall be increased to 120 microns in December 2020.

- The notification clearly mentioned that plastic or PVC banners/ hoardings should have more than 100 microns in thickness, and non-woven plastic (polypropylene) must be more than 60 GSM (grams per square metre).
- Non-woven plastic bags have a cloth-like texture but are counted among plastics. Still, plastic or PET bottles, counted among the most recyclable types of plastic, have been left out of the scope of the ban.

Steps taken for adoption of alternatives:

- The Indian government has taken steps to promote innovation and create an ecosystem for accelerated adoption and availability of alternatives across the country.
- To ensure the effective enforcement of the ban, national and State-level control rooms will be established, as well as special enforcement teams for the purpose of checking the illegal sale and use of single-use plastics.
- To prevent the movement of banned single-use plastic items between States and Union Territories, border checkpoints have been established.
- In an effort to empower citizens to help curb the plastic menace, the Central Pollution Control Board (CPCB) has launched a grievance redressal application.
- The Government has been taking measures for awareness generation towards the elimination of single-use plastics. The awareness campaign has brought together entrepreneurs and start-ups, industry, Central, State and local Governments, regulatory bodies, experts, citizen organisations, R&D and academic institutions.

What is the role of the manufacturer?

- In addition, the Ministry of Environment, Forests, and Climate Change notified the Plastic Waste Management Amendment Rules, 2022 on February 16, 2022.
- Extended Producer Responsibility (EPR) is the responsibility of a producer for the environmentally sound management of the product until the end of its life.
- The guidelines provide a framework to strengthen the circular economy of plastic packaging waste, promote the development of new alternatives to plastic packaging and provide the next steps for moving towards sustainable plastic packaging by businesses.

What are the challenges?

- The ban will succeed only if all stakeholders participate enthusiastically and engage in effective engagement and concerted actions.
- However, earlier almost 25 Indian States previously banned plastic at the state level. However, these bans had a very limited impact in reality because of the widespread use of these items.

- Now the challenge is to see how the local level authorities will enforce the ban in accordance with the guidelines.
- Banned items such as earbuds with plastic sticks, plastic sticks for balloons, etc., are non-branded items and it is difficult to find out who the manufacturer is and who is accountable for selling because these items will be available in the market even after the issuing of guidelines.

Way Forward:

- The consumer needs to be informed about the ban through advertisements, newspaper or TV commercials, or on social media. In order to find sustainable alternatives, companies need to invest in research and development.
- The solution to the plastic pollution problem is not the responsibility of the government alone, but of industries, brands, manufacturers and most importantly consumers.
- Finding alternatives to plastic seems a little difficult, however, greener alternatives to plastic may be considered a sustainable option. For example, compostable and bio-degradable plastic, etc., may be considered as an option.
- While the total ban on the use of plastic sounds a great idea, its feasibility seems difficult at this hour, especially in the absence of workable alternatives.

INVASIVE SOUTH RED-EARED SLIDER TURTLE POSES THREAT TO INDIAN BIODIVERSITY



Why in news?

- The presence of invasive and non-native south red-eared slider turtles would lead to the extinction of native species of their own kind, according to experts.
- India is home to 29 freshwater turtles and tortoise species of the 356 turtle species recognised worldwide and around 80 per cent of them are threatened.

Habitat of red-eared slider:

- The red-eared slider are native to south-eastern USA and Mexico, but have found their way across the globe including India through trade of exotic animals.

Why red-eared slider are a threat in India?

- In India, keeping indigenous turtles as pets is prohibited under the wildlife protection act. But the

foreign breeds are not restricted and are kept as pets in many families across India.

- It is also not mentioned in the Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- The small and easy-to-maintain species is a hit in the pets market. The species breeds faster compared to other local turtle varieties. As their size increases, they no longer fit in small tanks or ponds. The owners release them in the wild or nearby waterbodies and once released, they become a threat to the local fauna.
- The species has a wide set of diet and eats almost all vegetation, unlike native species.
- The red-eared slider is also aggressive, it drives away the native species. Its paws are also lethal.

Red-eared slider in India:

- The species is already spread across many Indian states and poses a threat to all species of its kind, including soft-shell and hard-shell turtles.
- It is widely found in urban wetlands, such as Sukhna lake in Chandigarh, temple ponds of Guwahati, lakes of Bengaluru, Sanjay Gandhi national park in Mumbai, Yamuna river in Delhi – among other water bodies.
- These turtles should be restrained, captivated and sent to local zoos.

Worst invasive non-native species:

- The species is considered as one of the world's 100 worst invasive non-native species. Also, the populations are observed in every continent except Antarctica and at least 73 countries.
- These turtles cannot be culled for sentimental value and other reasons but could be kept captive until their lifespan. These animals can be used for research and teaching purposes.

Laws in India:

- The Union Ministry of Environment Forest and Climate Change has only an advisory in place to streamline the import and possession of exotic live animals in India.
- The government advisory demands registration and declaration of progenies of the imported exotic live species. But there should be more rules to prevent the species from entering our environment and negatively impacting the environment.

Similar to water hyacinth:

- The turtle species, if unchecked, may become a nuisance like water hyacinth.
- The native plant species of South America was brought to India during the British era. Initially introduced in Kolkata, the plant is now present across the waterbodies in the country, choking them and affecting the local biodiversity.

Way Forward:

- It is imperative to prevent more red-eared slider turtle from entering water bodies and take mitigation steps

by government officials and environmentalist to address the issue.

SHOONYA CAMPAIGN



Why in news?

- Recently, NITI Aayog held a day-long forum to commemorate the one-year anniversary of Shoonya, India's zero pollution e-mobility campaign.
- Shoonya is a consumer awareness campaign to reduce air pollution by promoting the use of electric vehicles (EVs) for ride-hailing and deliveries. The campaign has 130 industry partners, including ride-hailing, delivery and EV companies.

Key Highlights:

- The National Programme on Advanced Chemistry Cell (ACC) Energy Storage (Part III) report was launched during the event.
- The report highlights that India's \$2.5-billion Production-Linked Incentive (PLI) scheme for Advanced Chemistry Cell (ACC) energy storage is critical for meeting the projected cumulative battery demand of 106–260 GWh by 2030 to successfully realize the country's vision for EV adoption and grid decarbonisation.

Scope for EVs in India:

- Rapid global urbanization and e-commerce sales are driving significant growth in urban freight and mobility demand. In India, these sectors are expected to grow at a CAGR of 8% through 2030.
- If this demand is met by internal combustion vehicles (ICE), it would significantly increase local air pollution, carbon emissions, and lead to adverse public health effects. EVs offer an opportunity to address these challenges.
- Compared to ICE vehicles, EVs do not emit PM or NOx emissions at the tailpipe; they release 60% less CO2 and have 75% lower operating costs.

Background:

- NITI Aayog, with RMI and RMI India's support, launched Shoonya—an initiative to promote zero-pollution delivery vehicles by working with consumers and industry on 15th September 2021.

⇒ The campaign aims to accelerate adoption of electric vehicles (EVs) in the urban deliveries segment and create consumer awareness about the benefits of zero-pollution delivery.

Initiatives by Shoonya:

- ⇒ Shoonya supplements existing national and sub-national EV policies as well as corporate efforts in India by creating consumer awareness and demand for zero pollution rides and deliveries in Indian cities.
- ⇒ Till April 2022, the estimated number of electric deliveries and rides completed by corporate partners via the Shoonya campaign was close to 20 million and 15 million, respectively. This translates to a carbon dioxide emission savings of over 13,000 tonnes.
- ⇒ If all final-mile deliveries and rides in India were shoonya, India would be well on its way to improving air quality, reducing public health costs, enhancing energy security, and achieving its climate targets.

Way Forward:

- ⇒ The electrification of the ride-hailing and delivery sector in India could mitigate close to 54 MT of CO₂ emissions, 16,800 tonnes of PM emissions, and 537,000 tonnes of NO_x pollution, saving roughly 5.7 lakh crore in expenditures over a year.
- ⇒ Thus, Shoonya can lead to dramatic emission reductions in the transport sector, supporting India's five-point agenda (Panchamrit), announced at COP 26, to reduce carbon emissions and secure its 2070 climate goals.

HOW CITIES CAN COPE WITH CLIMATE CHANGE-INDUCED FLOODS



Context:

- ⇒ The repeated flooding of Bengaluru in the monsoon season of 2022 will become more common as the world becomes warmer and the atmosphere holds more moisture, increasing the possibility of extreme rainfall events.
- ⇒ There were many meteorological reasons for the floods, but the lack of climate-adaptive infrastructure increased the intensity of the flooding and this needs to be addressed.

Climate Change related events:

- ⇒ Climate change in cities will lead to increased rates of heavy precipitation, accelerated sea-level rise, exacerbated acute and chronic coastal flooding, drought, higher-than-average annual temperatures and extreme heat events. These, in turn, will exacerbate socioeconomic challenges and inequalities.
- ⇒ Such urban flooding events have also happened during the northeastern floods in June, especially in Assam, and during the devastating Pakistan floods of August.

Urban flooding in Assam:

- ⇒ In the case of the urban flooding in Assam, the loss of wetlands (known as beels) around the various towns and cities was found to be the major reason. The degradation of these natural sponges of excess flood waters lead to the increase in the intensity in urban floods in the state.

Khamranga wetland:

- ⇒ A 27-year (1992-2019) analysis of the Khamranga wetland close to Guwahati shows that the wetland degraded each year, its size decreasing by almost 22 per cent during the period.
- ⇒ The decline occurred between 2000 and 2010. The study identified rapid urbanisation, industrial activities and lack of government intervention as the major factors for the degradation.

Deepor beel:

- ⇒ Another study on the Deepor beel, also close to Guwahati and Assam's only wetland of international importance under the Ramsar convention, showed a decrease in the storage capacity of the highly biodiverse site over the last two decades.
- ⇒ The study showed that the storage capacity decreased by almost 27 per cent between 2001 and 2019.
- ⇒ If these wetlands had been healthy, they could have lessened the impact of extensive flooding in Guwahati in June. The same could be said for other urban flooding events that have happened in 2022 in Cachar, Darrang, Goalpara, Karimganj and Morigaon districts.

Adaptation Measures:

- ⇒ The report highlighted the adaptation measures that cities need to take to protect their populations, especially the most vulnerable, from frequent flooding of the sort that has happened in Assam, Bengaluru and Pakistan.
- ⇒ By continuing to address climate challenges as they occur, decision-makers put themselves in positions of responsive rather than proactive action. There is an urgent need to address pressing ecological, social, economic, and climate justice needs within cities and settlements.
- ⇒ In cities, rapid experimentation with inclusive decision-making and multi-level governance can take place.

- ⇒ Both bottom-up approaches involving communities and top-down climate actions coming from the local governments can work together to make cities more resilient to climate change-induced events such as urban flooding.
- ⇒ Reducing greenhouse gas emissions of cities, along with adaptation, is also important for mitigation of climate change.

Early warning system:

- ⇒ One of the key aspects of this is the monitoring, collection and analysis of high-resolution data over space and time on various aspects of urban climate and environment.
- ⇒ In the case of floods, the Interdisciplinary Programme in Climate Studies (IDPCS) at the Indian Institute of Technology Bombay came up with an interesting early warning system for urban flooding based on crowdsourcing of information from citizens through the social networking platform Twitter.
- ⇒ With the help of geotagged photos of water-logging people put on Twitter, the team of researchers wanted to generate real-time flood maps, which can help people avoid those areas while commuting. The data will also help them in creating a flood-risk map for future flooding scenarios.

Way Forward:

- ⇒ Co-generation of knowledge and research while working with stakeholders is crucial to create usable climate data at the city level.
- ⇒ Cities have a vital role to play by implementing inclusive, urgent, and scaled-up urban climate action required to enhance resiliency, limit the degrees of warming, and keep the planet liveable.

INDIA OBSERVES 28TH WORLD OZONE DAY



Why in news?

- ⇒ On 16 September 2022, India observed the 28th International Day for the Preservation of the Ozone Layer.
- ⇒ The event was organized in Mumbai by the Ministry of Environment, Forest and Climate Change in collaboration with the Department of Environment and Climate Change, Government of Maharashtra.

Theme:

- ⇒ The theme of World Ozone Day 2022 is "Montreal Protocol@35: global cooperation protecting life on earth".

Releases:

- ⇒ India Cooling Action Plan (ICAP), is a vision document developed by the MoEFCC to provide socio-economic and environmental benefits related to reduced refrigerant use, climate change mitigation and Sustainable Development Goals over the period 2037-38.
- ⇒ The Union Minister released the 23rd edition of "The Montreal Protocol: India's Success Story". The other publications of the Ozone Cell of the MoEFCC released on the occasion include:
 - a) Action Plan for implementing the recommendations of the India Cooling Action Plan (ICAP) for the thematic Area Space Cooling in Buildings
 - b) Study Report on Public Procurement Policies for Refrigeration and Air-Conditioning (RAC) Equipment using non-ODS based refrigerants
 - c) Study Report on Cold Chain sector in India for Promoting non-ODS and Low-GWP Refrigerants
 - d) Booklet on Good Servicing Practices for Energy Efficient operation of Room Air conditioners.

Contributions by India:

- ⇒ India's contribution to the Montreal Protocol in terms of policy formulation is noteworthy, India has played a proactive role in the phase-out of production and consumption of Ozone Depleting Substances.
- ⇒ India adopted the mantra of L.I.F.E (Lifestyle for Environment) coined by Prime Minister Narendra Modi, in line with the concept of sustainable lifestyle, encouraging to adopt mindful and not mindless consumption and utilization of resources.
- ⇒ India is among the countries which has stated that the country's sustainable development will be such that net zero is achieved by 2070.
- ⇒ India played a key role in the finalization of the Kigali Amendment. After ratifying the same in September 2021, the central government is working towards developing a national strategy, in close consultation with the industry stakeholders, for phasing down Hydrofluorocarbons (HFCs).

Collaboration with 8 IITs:

- ⇒ The Ministry will soon be entering into collaboration with eight Indian Institutes of Technology (Bombay, Roorkee, Hyderabad, Kanpur, Guwahati, Banaras, Madras and Delhi) to promote research and development of chemicals with low global warming potential, including blends.
- ⇒ These can be used as alternatives to substances controlled under the Montreal Protocol.
- ⇒ The collaborative research will be done in line with industry requirements through engagement

of research scholars, leading to the development of a robust R&D ecosystem in this area, and will also help promote the Make in India initiative of the Government.

About World Ozone Day:

- World Ozone Day is celebrated on 16th September each year to commemorate the signing of the Montreal Protocol that came into force on this day in 1987.
- World Ozone Day is celebrated every year to spread awareness among people about the depletion of Ozone Layer and the measures taken and to be taken to preserve it.

India's achievements in Implementation of the Montreal Protocol:

- India, as Party to the Montreal Protocol since June 1992, has been successfully implementing the Montreal Protocol and projects and activities for phasing out of ozone depleting substances, in line with the phase out schedule of the Protocol.
- India phased out Chlorofluorocarbons, Carbon tetrachloride, Halons, Methyl Bromide and Methyl Chloroform for controlled uses as on 1 January 2010, in line with the Montreal Protocol schedule.

Hydrochlorofluorocarbons Phase-out Management Plan (HPMP):

- Currently, Hydrochlorofluorocarbons are being phased out as per the accelerated schedule of the Montreal Protocol.
- Stage - I has been successfully implemented from 2012 to 2016 and Hydrochlorofluorocarbons Phase-out Management Plan (HPMP) Stage - II is under implementation since 2017 and will be completed by 2023.
- Stage III of the HPMP, the last of the HPMPs to phase out remaining HCFCs, will be implemented from 2023 - 2030.
- The phase-out of HCFCs in all manufacturing sectors, comprising refrigeration and air-conditioning manufacturing sectors, will be completed by 1.1.2025 and the activities relating to the servicing sector will be continued till 2030.

Reduction of Greenhouse Gas (GHG) emissions:

- The study on reduction of Greenhouse Gas (GHG) emissions through phase-out of Ozone Depleting Substances (ODS) under the Montreal Protocol implementation in India.
- The study carried out by the Ministry of Environment, Forest and Climate Change estimates that the reduction of GHG emissions due to phase-out of ODS till 2022 is 465 million tonne CO₂ equivalent, while it is expected that the reduction of GHG emissions till 2030 is expected to be 778 million tonnes of CO₂ equivalent.

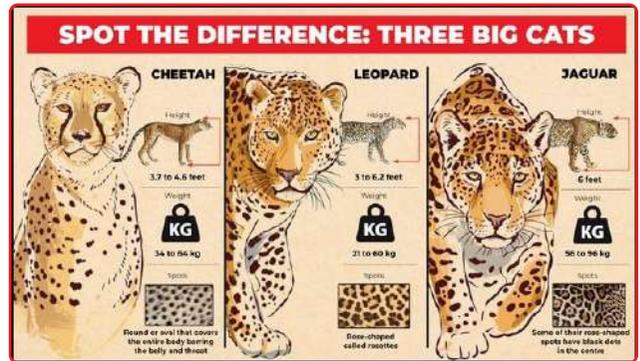
India Cooling Action Plan (ICAP):

- Implementation of actions emerging from India Cooling Action Plan (ICAP) will supplement efforts in

adopting climate-friendly alternatives and promotion of energy efficiency during the implementation of HFC phase-out under the Kigali Amendment.

- This will significantly contribute to India's climate action in achieving the net zero emissions by 2070, through the 'Panchamrits', committed by the Prime Minister of India, at the Climate Change Conference of Parties in 2021.

CHEETAH, LEOPARD & JAGUAR



Why in news?

- Eight cheetahs from Namibia were recently released by Prime Minister in the Kuno-Palpur National Park in Madhya Pradesh.
- The reintroduction has put the spotlight on the vulnerable cats, often confused with leopards and jaguars which too have rosettes (spots).

Cheetahs:

- Found mostly in sub-Saharan Africa, where they roam around freely in the savannahs, the African cheetah can measure from 3.3 feet to five feet from the head to the tail. The tail can further add 24 to 32 inches.
- The weight of an adult cheetah varies from 34 kg to 56 kg, with the male cheetah on the heavier side.
- A cheetah's undercoat has colours ranging from light tan to deep gold and is covered with black round spots.
- Unlike its other spotted cat cousins, cheetahs only hunt early in the morning or late afternoon. Their preys include gazelles, impalas and antelopes.
- Another distinct feature of a cheetah is its tail. They end with a bushy ball of hair which is encircled by five or six dark rings. However, what makes these felines stand out are the two distinctive black stripes that run down from their eyes to the mouth, the tear marks. They act like sunglasses, reflecting glare while hunting.

Asiatic cheetahs:

- The Asiatic cheetahs were found in India but extensive hunting and loss of habitat led to their decline. They were declared extinct in 1952.
- Now, critically endangered, this subspecies is only surviving in Iran.

Leopards:

- A big powerful cat that has no problem hanging out on a tree branch, leopards are closely related to lions, tigers and jaguars.

Habitat:

- Going by the scientific name, *Panthera pardus*, leopards are often found in sub-Saharan Africa, northeast Africa, Central Asia, India and China. Many of their populations are endangered, especially outside Africa.
- Leopards are the smallest members of the large cat category and can grow to a maximum size of six feet.
- They can adapt to any kind of habitat, be it rainforests, deserts, woodlands, grassland savannas, forests or mountain habitats.

Features:

- The wild cats spend a lot of their time on trees. Their spots camouflage with the foliage, making it easier for them to prey. Most leopards are light coloured with distinctive dark spots which are called rosettes, as they resemble the shape of a rose.
- The most common difference between leopards and cheetahs is the pattern of the spots on their coats. While both appear as black spots from a distance, a leopard's spots are shaped like a rose and cheetahs have solid round or oval-shaped spots.
- Another difference between the two cats is speed. Cheetahs have the ability to reach speeds up to 120 kilometre per hour and are known as the fastest land animals. On the other hand, leopards can only reach a top speed of 58 kilometres per hour.

Leopard in India:

- In India, the leopard population is spread across Madhya Pradesh, Karnataka, Maharashtra, Tamil Nadu, Kerala and Goa.
- Their numbers have increased by 60 per cent, according to a December 2020 report released by the government

Clouded leopard:

- Considered a vulnerable species, clouded leopards are most commonly spotted roaming around in the rainforests of Indonesia and the foothills of the Himalayas.
- They prefer a life of seclusion and are rarely found in the wild. They can neither roar nor purr.
- Its scientific name is *Neofelis nebulosa*. These wild cats are good climbers and are known for their ability to hang upside down beneath large branches. Their brown or yellowish-grey coats are covered with irregular dark stripes, spots and blotches.
- Clouded leopards have large dusky-grey blotches that cover their entire body.
- In India, clouded leopards are most commonly found in Sikkim, Assam and Nagaland. In early August, the rare cat was spotted in West Bengal's Buxa Tiger Reserve.

Snow Leopard:

- Known as the ghost of the mountains, a snow leopard's powerful build allows it to scale great steep slopes with ease.
- The snow leopards cannot roar and have the longest tail as compared to other leopards, which come in handy for balance while hunting along the snowy cliffs and keeps them warm in cold wintery weather. Their thick white-grey coat is covered with large black rosettes that blend perfectly with Asia's steep and rocky mountains.

Habitat in India:

- In India, snow leopards are found in Ladakh, Jammu and Kashmir, Sikkim, Uttarakhand, and Arunachal Pradesh. Their population has declined by more than 20 per cent in the past 25 years but in Himachal Pradesh, it is growing.
- The estimated population of the snow leopards in Himachal Pradesh at 73.
- They are the state animals of Ladakh and Himachal Pradesh.

Jaguars:

- Jaguars are considered the third biggest cat in the world – after the tiger and the lion.
- Unlike many other cats, jaguars don't avoid water. They have great swimming abilities and can hunt fish and turtles from a water body. Jaguars usually live alone and often mark their territories using their waste or clawing trees.
- Jaguars used to roam freely in the southwestern United States, from Texas to California before getting wiped out by hunters. The only known jaguar in the US is a young male nicknamed El Jefe.
- Somewhat similar to leopards, jaguars also have rose-shaped spots on their body but the only difference between both the cats is that the latter also has a black dot between its rosettes.
- Jaguars are not found in India.

**MATCHING ECOLOGY WITH
AGRICULTURAL ECONOMICS**

**Context:**

- As the world's climate undergoes change, the ability of existing species to hold on to their biogeographic niches may be altered.

⇒ This has an important bearing on agriculture, as practices and crop choices that have worked well for centuries may no longer be ideal.

What is ecological niche?

- ⇒ An ecological niche is the right set of environmental conditions under which an animal or plant species will thrive. A range of ecological niches can occur within an ecosystem.
- ⇒ Biodiversity is the result of these niches being occupied by species that are uniquely suited to them.
- ⇒ Desert plants, for example, are suited for dry, arid ecological niches because they have the ability to store water in their leaves.

Impact of alteration in niches:

- ⇒ Factors that are altered by such changes include the availability of food and nutrients, occurrence of predators and competing species.
- ⇒ Non-living, or abiotic factors also affect ecological niches.
- ⇒ These include temperature, amount of available light, soil moisture, and so on.

What is Ecological Niche modelling?

- ⇒ Ecological niche modelling is a predictive tool for identifying new possibilities – new inhabitants for an existing habitat, or new geographical locations where a desirable plant may grow well.
- ⇒ The modelling involves the use of computer algorithms to compare data about the environment and to make forecasts about what would be ideal for a given ecological niche.

Example:

- ⇒ Compare two places that are geographically apart, say the Madikeri area of Coorg in Karnataka and Gangtok in Sikkim. Both are on hilly terrain.
- ⇒ Madikeri is at 1,200 metre above sea level and Gangtok is 1,600 metre above sea level. Average yearly rainfall is 321 cm and 349 cm, respectively.
- ⇒ Average relative humidity at 5:30 p.m. is 76% and 83%, respectively. The similarities are many in both regions.

Uses of Niche modelling:

- ⇒ Ecologists use such information for conservation efforts as well as for future developments. However, ecological considerations may not correlate well with economic realities.
- ⇒ To bridge these two viewpoints, ecological niche modelling can be used to examine economic feasibilities within the context of changing ecological scenarios.

Ecological Niche modelling in India:

- ⇒ Researchers at the Institute of Himalayan Bioresource Technology, Palampur, Himachal Pradesh used modelling strategies to examine the economically important spice, saffron.

- ⇒ *Crocus sativus*, the saffron plant, is propagated through underground stems called corms. It is thought to be a native of Greece, and grows best under mediterranean climate conditions. Today, Iran grows nearly 90% of the world's saffron.
- ⇒ The flower of the plant has three bright crimson stigmata, which are handpicked when ready and carefully dried for the commercial saffron.
- ⇒ India produces 5% of the world's saffron. Historically, some of the world's most prized saffron has been grown in old lake beds of Kashmir.
- ⇒ The temperate climate of Jammu and Kashmir is well-suited with a well-drained soil of high pH value (6.3 to 8.3), summer temperatures (when flowers develop) of around 25°C and good soil nutrient availability.

Outcome:

- ⇒ Areas of saffron cultivation in Jammu and Kashmir, Himachal Pradesh and Uttarakhand were compared with 449 locations of saffron cultivation in different parts of the world.
- ⇒ The study identified 4,200 square kilometre of new areas suitable for saffron cultivation in places in Jammu and Kashmir, Himachal Pradesh, North Sikkim, Imphal, Manipur and Udagamandalam, Tamil Nadu.
- ⇒ Field trials over two seasons at some of these locations obtained a saffron yield that was very close to the average national yield of 2.6 kg per hectare.

ASIATIC CARACAL

Context:

- ⇒ The cheetah returned to India after seven decades recently. But the caracal, which was used by India's nobility in the sport of coursing like the cheetah, is struggling to survive, although both species had a similar distribution in the past.
- ⇒ A team of researchers have now mapped out the most suitable areas for the species to survive in India.



About Asiatic caracal:

- ⇒ The Asiatic caracal (*Caracal caracal schmitzi*) is an elusive medium-sized and locally threatened felid (cat) species, which has been widely reported to be on the brink of extinction in India.

- The reasons are large-scale hunting, illegal trading and loss of natural habitats are considered significant threats to the species.
- The caracal is currently included in Schedule I of the Wild Life (Protection) Act, 1972 and the Near Threatened category by the Conservation Assessment and Management Plan and International Union for Conservation of Nature Red list assessment in India.

Recent Research:

- The research was conducted by a team of researchers from the Wildlife Institute of India (WII), Dehradun; the Indian Space Research Organisation; the Madhya Pradesh Forest Department and the Leo Foundation, Wageningen, The Netherlands.
- They aimed "to identify the potential regions where the caracal might exist in India, based on fine-scale ensemble modelling of its distribution."
- The researchers also "intended to evaluate various protected areas where conservation efforts for caracals can be planned from the management and conservation outlook."

Potential habitat:

- The researchers found the most significant potential habitat for caracals in Rajasthan, with an area of 25,221.38 square kilometres, followed by Gujarat (16,652.1 sq km), Madhya Pradesh (6416.01 sq km), Haryana (191.36 sq km), Uttar Pradesh (131.11 sq km), and Maharashtra (34.17 sq km).
- The most suitable areas for caracals on the district level were found to be in the Kutch district of Gujarat; Sheopur, Morena, and Shivpuri of Madhya Pradesh and Sirohi, Jalore, Alwar, Karauli, Sawai Madhopur, Kota, Dhaulpur, Bundi, Baran, Jaipur, Tonk and Dausa of Rajasthan.
- The most suitable habitat for caracals in Rajasthan, Gujarat and Madhya Pradesh is located in Kutch, the Malwa Plateau, the Aravalli hill range and the Bundelkhand region, according to the researchers.
- They large amounts of caracal suitable habitats in India fell within protected areas, thus providing an excellent opportunity for its conservation in the already existing management and conservation setup.
- The protected areas which provided high conservation potential for caracals included Kachchh Wildlife Sanctuary (WLS) in Gujarat, the tiger reserves of Ranthambhore, Mukundra hills and Sariska and the WLS of Kumbhalgarh, Mount Abu and Todgarh-Raoli in Rajasthan, as well as Gandhi Sagar WLS in Madhya Pradesh.

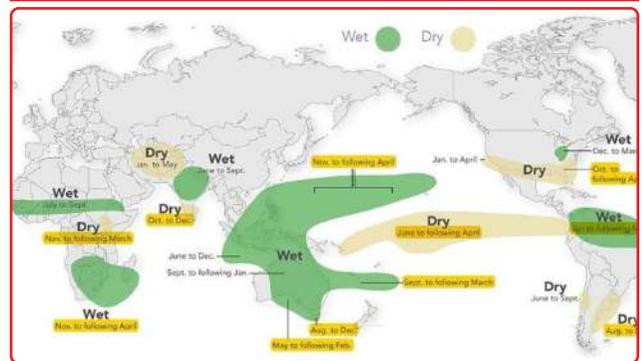
History:

- "The caracal was the only other feline which was used for hunting in India. Just when it came to be so used is unclear but it is known that Firoz Shah Tughlaq had many of them in his hunting establishment and it was well established in the Mughal Court for Abul

Fazl records that Akbar was very fond of using this plucky little animal for hunting purposes..." author Divyabhanusinh noted in his book, 'End of a trail: The Cheetah in India'.

- The animal had no Hindi or Urdu name but was known in India by its Persian name of Siyahgosh or 'black ears'.
- The Saidnamah-i-Nigarin manual from the Bundela Rajput princely state of Ajaigarh in Central India records that the caracal can be trained to hunt squirrels as well as birds such as kites, cranes and crows. It can also be trained to hunt animals far larger than itself such as the cheetah, the barasingha and the nilgai.
- End of a trail notes that the sport of hunting with caracals probably disappeared before World War II, Independence and Partition.

THE 'TRIPLE DIP' LA NIÑA, AND ITS LIKELY IMPACT IN INDIA



Why in news?

- The ongoing La Niña phase of the equatorial Pacific Ocean has just been predicted to persist for at least another six months, making it one of the longest ever La Niña episodes in recorded history.
- It is also only the third episode since 1950 to stretch into a third year.
- This is likely to have wide-ranging implications for weather events across the world in the coming months, and can potentially aggravate both floods and droughts in different regions.

What is La Nina?

- The periodic warming and cooling of surface waters in the equatorial Pacific Ocean, a phenomenon described as El Niño Southern Oscillations (ENSO) is known to trigger widespread changes in atmospheric conditions, and has a major influence on global weather patterns, including the Indian monsoon.
- La Niña refers to the ENSO phase in which sea-surface temperatures are cooler than normal. The warmer phase is known as El Niño.
- A result of interactions between ocean and wind systems, El Niño and La Niña have almost opposite impacts on weather events.

'Triple dip' La Niña:

- El Niño and La Niña episodes typically last for about nine months to a year. They usually develop in the March-June period, and are the strongest during winter (November-January in the northern hemisphere), before weakening or dissipating by March or April of next year.
- Occasionally, however, they continue for much longer periods. In recent years, the El Niño of 2015-16, spread over 19 months, was one of the longest on record, and was dubbed 'Godzilla' due to its sustained high intensity.
- The current La Niña episode has already surpassed that in length. Having started in September 2020, it has prevailed for the last 24 months, and looks set to continue for another six months, and has thus been classified as a 'triple dip' La Niña.

El Nino vs. La Nina:

- However, El Niño and La Niña events are not mirror images of each other. They differ in length and strength.
- El Niño episodes occur more frequently and are usually associated with more impactful weather events. La Niña, on the other hand, has a longer run.
- That is why multi-year La Niña events, those that continue for more than 12 months, are quite common. An El Niño is more likely to be a single-year event.

Observation on La Nina:

- Almost half (six out of 13) of all La Niña events since 1950 have stretched for two years, while three, including the current one, have continued for three years. In contrast, over 75% of El Niño events (15 out of 20) ended within a year. No El Niño has ever stretched into a third year.
- While prolonged La Niña episodes are not uncommon, the current one differs from the previous two triple-year events in an important aspect. Both the earlier events, one between 1973 and 1976, and the other between 1998 and 2001 were preceded by a strong El Niño.
- Prolonged La Niña events in those instances could be explained by the fact that the amount of accumulated heat in the oceans was higher, and therefore took a longer time to dissipate.
- In the absence of a strong El Niño preceding it, the reason for the current La Niña episode is not very clear at the moment.

Evaluating the likely impact:**Indian context:**

- In the Indian context, La Niña is associated with good rainfall during the monsoon season. This is the opposite of El Niño which is known to suppress monsoon rainfall. Thus, a continued spell of La Niña could lead to expectation of another year of good, or normal, rainfall during the monsoon.

- Until now, the monsoon season this year has produced 7% more rain compared to normal. In 2022, the seasonal rainfall was almost 100%.
- But, even though powerful, ENSO condition is only one of the several factors affecting monsoon rainfall in India. There is no one-on-one correlation between the ENSO condition and the amount of rainfall.
- Also, the influence of ENSO is at a macro level. There are wide variations in rainfall at the local level, which are getting exacerbated by climate change.

Global impact:

- In most parts of the United States, for example, La Niña is associated with very dry winters. In Australia and Indonesia, and generally in the tropical region, La Niña is expected to bring more rainfall.
- The widespread drought in the United States and flooding in eastern Australia in 2022 could have been a result of the prolonged La Niña. The excessive rainfall in Pakistan, which is experiencing its worst flooding disaster, can also be blamed in part on La Niña.
- The World Meteorological Organisation (WMO) said the worsening drought in the Horn of Africa and southern United States carried the "hallmarks of La Niña", as did the "above average rainfall in southeast Asia and Australasia". It said that the persistence of La Niña was most likely to result in a worsening of the drought in Africa.

Climate change link:

- During La Niña years, the colder surfaces allow the oceans to absorb more heat from the atmosphere. Consequently, the air temperatures tend to go down, producing a cooling effect. However, as pointed out by the WMO, this is not enough to reverse or neutralize the impacts of global warming.
- Recently, the National Oceanic and Atmospheric Administration (NOAA) of the United States declared that the month of August 2022 was the sixth hottest August in the last 143 years. Average global temperatures were about 0.9 degree Celsius higher than the 20th century average.

Lack of data:

- The occurrences of El Niño or La Niña are not very regular. Sometimes they emerge every two years, at other times there has been a gap of even seven years. Historical records do not go very far in the past.
- As a result, the natural variability of ENSO is not understood very clearly. And when the natural variability itself is not clear, the influence of global warming is difficult to quantify.
- There have been suggestions that climate change is increasing the frequency and intensity of El Niño and La Niña episodes, but the question is not entirely settled.
- A part of the reason is the fact that trade winds play a very important role in triggering ENSO events. And

the changes in the strength of trade winds are not easily explained by global warming.

AT 41.5 MN, INDIA TOPS THE LIST OF DISASTER-RELATED DISPLACEMENTS IN SOUTH ASIA



Why in news?

- Recently, a report, titled 'Disaster Displacement in Asia and the Pacific: A Business Case for Investment in Prevention and Solutions', was released by Internal Displacement Monitoring Centre (IDMC) and the Asian Development Bank (ADB).

Details:

- At least 61.4 million people were displaced in South Asia between 2010 and 2021 because of natural disasters such as floods, cyclones, earthquakes, etc., with India topping the list with 41.5 million internal displacements.
- South Asia accounted for the third-largest share of disaster displacements in the region during 2010-2021 as the impact of climate change deepened.

Monsoon shift:

- In recent years, the region experienced shifts in flood duration with the El Niño Southern Oscillation variation playing a role in their frequency and intensity.
- In 2021, La Niña had weakened the monsoon season in South Asia, because of which fewer people were forced out of their homes compared to previous years.
- However, in India the monsoon lasted from June to October 2021 instead of September. It overlapped with the onset of the northeast monsoons, bringing unusually heavy rain and floods in southern states and triggering 312,000 displacements in Tamil Nadu in November.
- In 2022, the monsoon has been pretty erratic and uneven in India, with some states battling a deluge while others are facing a deficit, which affected the sowing season and the kharif crop.
- Though the India Meteorological Department (IMD) announced the withdrawal of the monsoon on September 20, a depression over the Bay of Bengal that moved northwards, coupled with a western disturbance, has brought in a fresh wet spell over northwest and other parts of India. The wet spell is expected to continue for the next couple of days.

Factors responsible:

- On an average, nearly 90 percent of the displacements triggered by floods in Asia-Pacific took place between May and August. In South Asia, most flood-related displacements happened between May and September, with June and July the most affected.
- As climate change contributes to prolonged and erratic monsoons, the impact of seasonal flooding in South Asia may continue to have devastating consequences.
- Climate change combined with rapid urbanisation and other factors may significantly increase future displacement risk and related costs.
- An UN Habitat report released in June 2022 had also warned that an increase in extreme weather and natural disasters such as flooding, heatwaves, and landslides will affect urban areas the hardest, making adaptation a matter of paramount importance.
- The Intergovernmental Panel on Climate Change (IPCC) report 2021 also warned of more frequent and intense heat waves, extreme rain, erratic monsoon, more cyclonic activity, and droughts in India.

Disasters & displacements in 2022:

- In 2022, very heavy pre-monsoon and monsoon rains triggered deadly floods and landslides across India, affecting millions of people in both urban and rural areas.
- In nearby Pakistan, hundreds of thousands of people have been displaced in one of the worst-ever floods since June.
- South Asia fared better than East Asia and Southeast Asia, which had the highest number of disaster displacements nearly two-thirds of Asia and the Pacific's total between 2010-2021.
- There were over 225 million internal displacements in Asia and the Pacific, which was more than three-quarters of the global total for this period. Weather-related hazards such as rain and storm were responsible for 95 percent (213.5 m) of all disaster displacements across the region between 2010-2021.
- East Asia led with 75.9 million displacements or 33.7 percent of the total, followed by Southeast Asia with 69.2 million (30.7 percent). South Asia was third with 61.4 million (27.3 percent) of internal displacements between 2010-2021.
- Within South Asia, 58.6 million were displaced due to weather-related events: 37.4 million of them due to floods and 21 million due to storms, including cyclones.
- India (41.5 m displaced) was followed by Bangladesh with 14.1 million, Nepal with 3.3 million and Sri Lanka with 2.5 million internal displacements in South Asia.
- Pakistan, which has been categorised in Central and West Asia, had 16.4 million displacements. In East Asia, China fared the worst of all with 70.4 million displacements.

- ⇒ Earthquakes triggered 2.9 million internal displacements in South Asia from 2010 to 2021, 92 percent of which took place during the Gorkha earthquake in Nepal in 2015.
- ⇒ Cyclone Amphan over the Bay of Bengal in May 2020 displaced nearly five million in India and Bangladesh.

Economic losses:

- ⇒ Annual economic losses caused by disasters in Asia-Pacific were estimated to be around \$780 billion as of 2021, which is the equivalent of 2.5 percent of the regional gross domestic product (GDP).
- ⇒ In the worst climate change scenario, these losses could increase to \$1.4 trillion by the year 2059.
- ⇒ Indigenous communities, among the worst affected, can play an active role in prevention, forecasting, and response as their in-depth understanding of the environment have long helped them battle disasters.

Way Forward:

- ⇒ The ways forward suggested by the report include reviewing gaps in government efforts to monitor and address internal displacement, enhancing data collection and analysis to record the scale and severity, and developing policy frameworks to ensure immediate inclusive support to affected people.
- ⇒ The report suggests investing in the planning and financing of durable solutions, assessing the risk of future disaster displacement to develop prevention plans, and strengthening regional collaboration across Asia and the Pacific.

ROTTERDAM CONVENTION: INTERNATIONAL TRADE OF 2 HAZARDOUS PESTICIDES RECOMMENDED FOR 'PRIOR INFORMED CONSENT'



Why in news?

- ⇒ International trade of two new hazardous pesticides; Iprodione and Terbufos has been recommended for "prior informed consent" (PIC) procedure under Rotterdam convention. The chemicals are dangerous for humans and aquatic animals.

Details:

- ⇒ The PIC procedure is a mechanism for formally obtaining and disseminating the decisions of

importing parties on their willingness to receive future shipments of hazardous chemicals.

- ⇒ The recommendations were made by the Chemical Review Committee at the 18th meeting of the Rotterdam Convention's Chemical Review Committee (CRC 18) held at Rome, Italy.

Iprodione & Terbufos:

- ⇒ In India, the use of these chemicals was permitted by the 2015 Anupam Verma committee report. The country is among the largest exporters of Terbufos.
- ⇒ Iprodione, a fungicide used on vines, fruits, trees and vegetables, has been classified as carcinogenic and toxic for reproduction.
- ⇒ Terbufos is a soil insecticide used commonly on sorghum, maize, beet and potatoes. It has also been found to pose risk to aquatic organisms due to its toxicity.
- ⇒ Both the pesticides, which are used in agriculture, are known for their harmful impacts on human health and the environment.

Annex III to the Rotterdam Convention:

- ⇒ The 17th meeting of the chemical review committee (CRC 17) had recommended these two pesticides for listing in Annex III to the Rotterdam Convention and had decided to prepare the decision guidance documents after that.
- ⇒ Annex III includes pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons by two or more parties.
- ⇒ After being included under Annex III of the Rotterdam Convention, the chemicals are subject to the prior informed consent (PIC) procedure.
- ⇒ The list will include 54 chemicals after Iprodione and Terbufos are added to it.
- ⇒ The two chemicals have been included in the PIC procedure as "pesticides" based on the decision guidance documents approved by the chemical review committee.

Ban by EU and Mozambique:

- ⇒ Iprodione was listed under 'PIC procedure' on the basis of the final regulatory actions to ban its use, notified by the European Union and Mozambique.
- ⇒ Terbufos was listed on the basis of the final regulatory actions to ban its use, notified by Canada and Mozambique. It is extremely hazardous for human health, according to the World Health Organization.
- ⇒ Iprodione was used for control of fungal diseases in carrots and lettuce in the EU. It was banned in the region in March 2018.
- ⇒ In the EU, Iprodione was considered very toxic to aquatic life with long lasting effects and suspected of causing cancer. In the US and Australia too, it was suspected of causing cancer.
- ⇒ In Mozambique, Iprodione was used as fungicide in vines, fruit trees and vegetables. Terbufos was used as insecticide on maize, sorghum, potato and beans.

- Both were banned by Mozambique in March 2014, as recommended by the National Directorate of Agrarian Services (the pesticide registration authority) in a report.
- In Canada, Terbufos was used as an insecticide and nematicide on canola, corn, mustard, rutabaga and sugar beet. It was prohibited from August 1, 2012 to protect the environment.

Recommendation for more pesticides:

- CRC 18 has also recommended two pesticides, paraquat and methyl bromide to be listed in Annex III.

SOCIAL ISSUES

UGC'S CLUSTER COLLEGE PLAN



Why in news?

- Recently, the University Grants Commission (UGC) issued new guidelines for transforming colleges and universities into multi-disciplinary institutions.

Approaches:

- The guidelines prescribe three approaches, which include clustering of institutions located in proximity so that they can collaborate with each other to offer innovative programmes in offline, online or distance learning mode.
- The other two strategies recommended by the UGC include merger of single-stream institutions with other multi-disciplinary institutions under the same management or different managements and strengthening of existing establishments by setting up of new departments.

Who is likely to benefit from the move?

- Colleges with poor enrolment and fewer resources may benefit by forming clusters with other institutions and help students access better facilities as well as avail innovative courses, according to the guidelines.
- The member colleges in a cluster will continue to function as affiliated colleges under the university in the initial phase during which they will share their resources to offer multi-disciplinary programmes and guide student research projects.
- Subsequently, the affiliating university may affiliate the cluster of colleges as a single unit which will be

given autonomy in a graded manner before turning into an autonomous degree-granting cluster of colleges. These can later turn into research and teaching-intensive universities.

- The partnership plan must include infrastructure expansion, number of students, departments involved, administrative and academic functions and research activities. Member colleges will also have to design their timetable so that students don't face scheduling clashes.

Why the emphasis on multi-disciplinary institutions now?

- More multi-disciplinary institutions in the country is one of the recommendations for higher education in the National Education Policy 2020.
- The policy document has set a target of 2030 for all higher education institutions (HEIs) to become multi-disciplinary, and thereafter, increase student enrolments "preferably in the thousands" by 2040.
- The goal is to increase the Gross Enrolment Ratio in higher education including vocational education from 26.3% (2018) to 50% by 2035.
- The NEP proposes that though a number of new institutions may be developed to attain these goals, a large part of the capacity creation will be achieved by expanding and improving existing HEIs.

What is the response of the sector to the guidelines?

- While the emphasis on multi-disciplinary education is welcome, many wonder where the financial resources will come from. The UGC chairman said State governments will provide the required funds for functioning of State-run multi-disciplinary institutions.
- By suggesting clustering and merging of colleges, the intent is to build upon existing infrastructure to attain the goal of higher Gross Enrolment Ratio without any additional funding.

Criticism:

- Already institutions are running on their optimum thresholds as there have been no teacher recruitments for the past several years at Central and State Universities.
- It is claimed that the UGC is evading its responsibility in providing funds. The latest guidelines seek to implement the NEP, which is not acceptable to many because it is partisan and emphasises on centralisation and commercialization.
- There should be regulations instead of guidelines so that they are adopted by State governments.

JUDICIAL RECOURSE BY MUSLIM WOMEN IN INDIA

Context:

- A Talaq-e-Hasan petition filed by a Ghaziabad-based woman, seeking to make the divorce pronounced by

the husband at an interval of at least a month extra-judicial, was in the limelight recently.



- The Bench of the Supreme Court of India observed that the practice of Talaq-e-Hasan or divorce pronounced to the wife once a month for three months is “not so improper”.
- The Bench also brought to the counsel's notice the possibility of exploring divorce through mubarat or mutual consent. The judges referred to the option of khula, or a Muslim woman's right to divorce as well.

Demand of Rights by Muslim Women:

- The Court's observation continues the trend of the judiciary taking into cognisance the rights available to a Muslim couple to dissolve an unhappy marital union.
- It also marks the increasing propensity of Muslim women to stand up for their rights in marriage or otherwise, a clear departure from times when women left the husband's house in silence, battered, bruised and fearing social opprobrium.
- Indeed, more and more Muslim women are now approaching various courts, including Darul Qaza or shariah courts, for redress of marital grievances.

Greater awareness:

- While the widely-acclaimed invalidation of instant triple talaq by a five-judge Bench of the Court, in 2017, is well documented, there was a Kerala High Court judgment of 2021 which upheld the validity of khula. The court called khula, “the form of divorce conferred upon the wife similar to talaq conferred upon the husband”.
- Incidentally, there are more cases of khula in Darul Qazas or shariah courts than those of instant triple talaq, post the 2017 verdict, according to a rough estimate.
- In other words, greater awareness of their rights is seeing more and more Muslim women walking out of an abusive marriage, even opting for khula.

Issue of hijab:

- While much has been happening in the judicial fora when it comes to Muslim women's rights, a silent churning is also going on within the Muslim community in India.

- Take for instance, the issue of the hijab. While many women stood up to be counted, arguing forcefully their right to wear what their faith ordains, and quoted verses from Surah Ahzaab of the Koran, many also pointed out the rights granted under the Constitution of India to the minorities to protect their religion, language and culture.
- It was the new-found confidence of Muslim women to quote from the religious book and also speak up for the rights of a citizen enshrined in the Constitution.
- Some girls pointed out that it is not just women who have to observe purdah in Islam.
- The men too have their own limited purdah, a mode of compulsory dressing from the navel to the knees that they are not allowed to violate. Again, they quoted verses 30-31 of Surah Nur of the Koran to buttress their contention.

Raising voice for varied issues:

- Interestingly, at a much lower profile, Muslim women have also been asserting their right to enter mosques to pray. In the past, mosques were considered a men-only zone. Now, women want their sacred space.
- It started with a petition in the Haji Ali Dargah case in 2016, where women won the right to enter the dargah's sanctum sanctorum. This kind of a silent assertion of their rights is unprecedented.
- For instance, during the height of the Babri Masjid protests in the late 1980s and early 1990s, it was almost invariably the Muslim men who took out rallies and spoke in public.
- In the Shah Bano case too, where the women actually stood to gain, there was very little affirmative response from Muslim women.
- Recent years have seen change to the extent that in December 2019 when the Citizenship (Amendment) Act (CAA) was passed, it was not the traditional Muslim leadership that hit the streets but the women of the community.
- Even as pro-CAA noises emanated from Jama Masjid's Imam Bukhari and the chief of the Ajmer Dargah, Muslim women took the Government, the media and the men by surprise too by assuming leadership of a long-drawn out struggle against the CAA.

Challenges:

- Even as women assert their right to end a marriage through khula, some clerics still insist on the man's consent, thereby defeating the very purpose of khula. On the same lines, even as cases against nikah halala are pending before the Supreme Court for over three years, some maulanas still tend to misuse the provision for halala.
- Whereas the Koran allows two divorces, considering them revocable, and the third one is considered final, some clerics tend to circumvent it through a distortion of the provision of halala.

- Many Maulanas still consider a divorce pronounced in haste as final, and tell the victim to marry another man, consummate the marriage, and obtain divorce in order to return to her first husband after iddah or waiting period.

Conclusion:

- Muslim women are taking on such practices too in the Supreme Court. The quiet churning within the Muslim community could well herald the winds of change.

ADOPTION CASES UNDER DISTRICT MAGISTRATES (DM)

LONG ROAD | The wait gets longer for prospective parents as new adoption rules kick in

- Juvenile Justice (Care and Protection of Children) Amendment Act, 2021 came into effect on September 1
- New rules say adoption cases pending before courts "shall stand transferred" to the District Magistrates (DMs)
- The idea was to hasten the adoption process because of pendency of cases in courts
- Lawyers, activists and adoption agencies say neither DMs nor judges are aware of new rules
- CARA official says 1,000 adoption cases pending before courts



Why in news?

- From September 1, District Magistrates (DM) have been empowered to give adoption orders instead of courts. All cases pending before courts have to be now transferred.

Issues:

- Hundreds of adoptive parents in the country are now concerned that the transfer process will further delay what is already a long and tedious process.
- There are questions whether an order passed by the executive will pass muster when an adopted child's entitlements on succession and inheritance are contested before a court.

What do the amended rules say? How did they come about?

- The Parliament passed the Juvenile Justice (Care and Protection of Children) Amendment Bill, 2021 in July 2021 in order to amend the Juvenile Justice Act (JJ Act), 2015.
- The key changes include authorising District Magistrates and Additional District Magistrates to issue adoption orders under Section 61 of the JJ Act by striking out the word "court". This was done "in order to ensure speedy disposal of cases and enhance accountability".

- The District Magistrates have also been empowered under the Act to inspect child care institutions as well as evaluate the functioning of district child protection units, child welfare committees, juvenile justice boards, specialised juvenile police units, child care institutions etc.
- The Act and the corresponding rules came into effect from September 1.
- The amendments to the Juvenile Justice (Care and Protection of Children) Model Rules, 2016 say, "all the cases pertaining to adoption matters pending before the Court shall stand transferred to the District Magistrate from the date of commencement of these rules."

Why is there concern over the revised rules?

- The revised rules have parents, activists, lawyers and adoption agencies worried as cases already before courts for the past several months will have to be transferred and the process will have to start afresh.
- A petition for adoption orders is filed after a parent registers for adoption, who is then assessed through a home study report, referred a child and subsequently allowed to take a child in pre-adoption foster care pending an adoption order.
- A delay in such an order can often mean that a child can't get admission into a school because parents don't yet have a birth certificate, or like in one case, parents unable to claim health insurance if a child is admitted to a hospital.
- The Central Adoption Resource Authority (CARA) says there are nearly 1,000 adoption cases pending before various courts in the country. Parents and lawyers also state that neither judges, nor DMs are aware about the change in the JJ Act leading to confusion in the system and delays.

What is the adoption procedure in India? What are the challenges?

- Adoptions in India are governed by two laws; the Hindu Adoption and Maintenance Act, 1956 (HAMA) and the Juvenile Justice Act, 2015. Both laws have their separate eligibility criteria for adoptive parents.
- Those applying under the JJ Act have to register on CARA's portal after which a specialised adoption agency carries out a home study report. After it finds the candidate eligible for adoption, a child declared legally free for adoption is referred to the applicant.
- Under HAMA, a "dattaka hom" ceremony or an adoption deed or a court order is sufficient to obtain irrevocable adoption rights. But there are no rules for monitoring adoptions and verifying sourcing of children and determining whether parents are fit to adopt.

Challenges:

- There are many problems with the adoption system under CARA but at the heart of it is the fact that there are very few children in its registry.

- According to the latest figures there are only 2,188 children in the adoption pool, while there are more than 31,000 parents waiting to adopt a child which forces many to wait for upto three years to be able to give a family to a child. This allows traffickers to take advantage of loopholes in HAMA.
- These concerns were also highlighted by a Parliamentary panel in August in its report on the 'Review of Guardianship and Adoption Law', which recommended a district-level survey of orphaned and abandoned children.
- In 2015, the then Minister for Women and Child Development Maneka Gandhi centralised the entire adoption system by empowering CARA to maintain in various specialised adoption agencies, a registry of children, prospective adoptive parents as well as match them before adoption.
- This was aimed at checking rampant corruption and trafficking as child care institutions and NGOs could directly give children for adoption after obtaining a no-objection certificate from CARA. But the new system has failed in ensuring that more children in need of families are brought into its safety net.

Dissolution of adoption:

- The human contact, bonding and psychological preparedness has been taken away. Therefore, parents may look at other ways to adopt a child.
- One other dangerous repercussion of this is that in the past few years, there is an increasing number of disruptions and dissolutions, where children are returned after an adoption is formalised.

growing fast and may reach 18% by 2036 according to the National Commission on Population.

- If India is to ensure a decent quality of life for the elderly in the near future, planning and providing for it must begin today.

Challenge:

- Life expectancy in India has more than doubled since Independence; from around 32 years in the late 1940s to 70 years or so today.
- Over the same period, the fertility rate has crashed from about six children per woman to just two, liberating women from the shackles of repeated child-bearing and child care.
- All this is good news, but it also creates a new challenge, the ageing of the population.

Mental health issues in elderly:

- Recent work on mental health among the elderly in India sheds new light on their dire predicament.

Case of Tamil Nadu:

- Among persons aged 60 and above, 30% to 50% (depending on gender and age group) had symptoms that make them likely to be depressed. The proportion with depression symptoms is much higher for women than men, and rises sharply with age. In most cases, depression remains undiagnosed and untreated.
- As one might expect, depression is strongly correlated with poverty and poor health, but also with loneliness.
- Among the elderly living alone, in the Tamil Nadu sample, 74% had symptoms that would classify them as likely to be mildly depressed or worse on the short-form Geriatric Depression Scale. A large majority of elderly persons living alone are women, mainly widows.

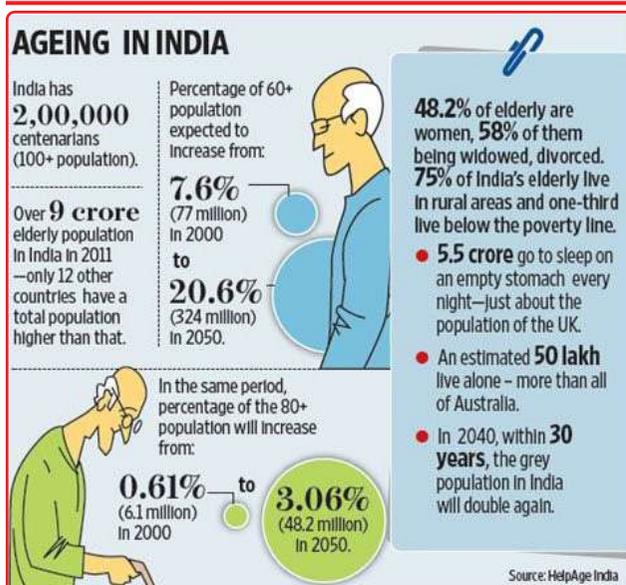
Role of old-age pensions:

- The hardships of old age are not related to poverty alone, but some cash often helps. Cash can certainly help to cope with many health issues, and sometimes to avoid loneliness as well. The first step towards a dignified life for the elderly is to protect them from destitution and all the deprivations that may come with it. That is why old-age pensions are a vital part of social security systems around the world.
- India has important schemes of non-contributory pensions for the elderly, widowed women and disabled persons under the National Social Assistance Programme (NSAP), administered by the Ministry of Rural Development.

Bottlenecks in NSAP:

- Alas, eligibility for NSAP is restricted to "below poverty line" (BPL) families, based on outdated and unreliable BPL lists, some of them are 20 years old.
- Further, the central contribution to old-age pensions under NSAP has stagnated at a tiny ₹200 per month since 2006, with a slightly higher but still paltry amount (₹300 per month) for widows.

AGEING POPULATION INDIA



Context:

- The share of the elderly (persons aged 60 years and above) in India's population, close to 9% in 2011, is

- Many States have enhanced the coverage and/or amount of social-security pensions beyond NSAP norms using their own funds and schemes. Some have even achieved “near-universal” (say 75%-80%) coverage of widows and elderly persons.
- That is now the norm, for instance, in all the southern States except Tamil Nadu – an odd exception since Tamil Nadu has been a pioneer in the field of social security.

Beyond target old-age pensions:

- “Targeting” social benefits is always difficult. When it comes to old-age pensions, targeting is not a good idea in any case.
- For one thing, targeting tends to be based on household rather than individual indicators. A widow or elderly person, however, may experience major deprivations even in a relatively well-off household. A pension can help them to avoid extreme dependence on relatives who may or may not take good care of them, and it may even lead relatives to be more considerate.

Complicated formalities:

- For another, targeting tends to involve complicated formalities such as the submission of BPL certificates and other documents. That has certainly been the experience with NSAP pensions.
- The formalities can be particularly forbidding for elderly persons with low incomes or little education, who are in greatest need of a pension.
- In the Tamil Nadu sample, eligible persons who had been left out of pension schemes were found to be much poorer than the pension recipients (by more than just the pension).
- In Tamil Nadu this often means, for example, that if the applicant has an able-bodied son in the city, they may be disqualified, regardless of whether they get any support from their son. In their quest to avoid inclusion errors, many officials are less concerned about exclusion errors.

Inclusive effort:

- A better approach is to consider all widows and elderly or disabled persons as eligible, subject to simple and transparent “exclusion criteria”.
- Eligibility can even be self-declared, with the burden of time-bound verification being placed on the local administration or gram panchayat. Some cheating may happen, but it is unlikely that many privileged households will risk trouble for the sake of a small monthly pension.
- And it is much preferable to accommodate some inclusion errors than to perpetuate the massive exclusion errors we are seeing today in targeted pension schemes.

Revamping NSAP:

- The proposed move from targeted to near-universal pensions is not particularly new. As mentioned

earlier, it has already happened in several States. Of course, it requires larger pension budgets, but additional expenditure is easy to justify.

- India’s social assistance schemes have low budgets and make a big difference to large numbers of people (about 40 million under NSAP). They are well worth expanding.
- The southern States are relatively well-off, but even some of India’s poorer States (such as Odisha and Rajasthan) have near-universal social security pensions.
- It would be much easier for all States to do the same if the central government were to revamp the NSAP. The NSAP budget in 2022 is just ₹9,652 crore, more or less the same as 10 years ago in money terms, and much lower in real terms. This is not even 0.05% of India’s GDP.

Way Forward:

- Social security pensions, of course, are just the first step towards a dignified life for the elderly.
- They also need other support and facilities such as health care, disability aids, assistance with daily tasks, recreation opportunities and a good social life.
- This is a critical area of research, policy and action for the near future.

SCIENCE & TECHNOLOGY

ANTI-RADIATION PILLS



Why in news?

- With fears of a nuclear disaster at Ukraine’s Zaporizhzhia power plant growing, the European Union has decided to pre-emptively supply 5.5 million anti-radiation pills to be distributed among residents in the vicinity.
- Those being handed out the pills are being told to only take them once a radiation leak has been confirmed.

What is a radiation emergency?

- These are unplanned or accidental events that create radio-nuclear hazard to humans and the environment.
- Such situations involve radiation exposure from a radioactive source and require prompt intervention to mitigate the threat.

⇒ Dealing with such an emergency also involves the use of anti-radiation tablets.

What are anti-radiation pills?

- ⇒ Potassium iodide (KI) tablets, or anti-radiation pills, are known to provide some protection in cases of radiation exposure.
- ⇒ They contain non-radioactive iodine and can help block absorption, and subsequent concentration, of radioactive iodine in the thyroid gland.

How do these pills work?

- ⇒ After a radiation leak, radioactive iodine floats through the air and then contaminates food, water and soil.
- ⇒ While radioactive iodine deposited during external exposure can be removed using warm water and soap, according to the World Health Organisation, the bigger risk is inhaling it.
- ⇒ The thyroid gland, which uses iodine to produce hormones to regulate the body's metabolism, has no way of telling radioactive from non-radioactive iodine.
- ⇒ Potassium iodide (KI) tablets rely on this to achieve 'thyroid blocking'. KI pills taken a few hours before or soon after radiation exposure ensure that non-radioactive iodine in the medicine is absorbed quickly to make the thyroid "full".
- ⇒ Because KI contains so much non-radioactive iodine, the thyroid becomes full and cannot absorb any more iodine for the next 24 hours.
- ⇒ But KI pills are preventive only and cannot reverse any damage done by radiation to the thyroid gland. Once thyroid gland absorbs radioactive iodine, those exposed are at a high risk of developing thyroid cancer.

Is the method fool-proof?

- ⇒ Anti-radiation pills do not provide 100% protection. The effectiveness of KI also depends on how much radioactive iodine gets into the body and how quickly it is absorbed in the body.
- ⇒ Also, the pills are not meant for everybody. They are recommended for people under 40 years of age. Pregnant and breastfeeding women are also advised to take them.
- ⇒ While it can protect the thyroid against radioactive iodine, it cannot protect other organs against radiation contamination.

Substitutes for KI:

- ⇒ The US Food and Drug Administration advises against using salt or iodine supplements as they do not contain enough iodine to trigger thyroid blocking.

INDIA'S FIRST INDIGENOUS VACCINE FOR CERVICAL CANCER

Why in news?

- ⇒ Recently, India introduced its first indigenously developed vaccine to prevent cervical cancer.



Details:

- ⇒ Dubbed quadrivalent Human Papilloma Virus (qHPV) vaccine, it has been developed jointly by the Serum Institute of India and the Department of Biotechnology to prevent the development of the deadly disease in both men and women.
- ⇒ The vaccine was launched after the Drugs Controller General of India (DCGI) granted market authorisation to the Serum Institute of India (SII) for manufacturing.

What is Cervical Cancer?

- ⇒ Cervical cancer is a form of gynecologic cancer that affects a woman's reproductive organs.
- ⇒ It begins in the cervix, which is the lower, narrow end of the uterus with early symptoms, being bleeding or discharge from the vagina that is not normal.
- ⇒ Cervical cancer is caused by the Human Papilloma Virus (HPV), a group of more than 200 related viruses, some of which are spread through vaginal, anal, or oral sex. The virus can infect both men and women, leading to cancer if the infection is long-lasting.
- ⇒ The cervical cancer is the second most common cancer among women in the country and is mostly caused due to HPV infection from poor genital hygiene, which includes unprotected sex, and multiple partners.
- ⇒ HPV plays a major role in cancer and almost 90 per cent of cervical cancer is caused by it.

How does Hpv Cause Cancer?

- ⇒ Once the HPV invades the cell, it strikes at the mode in which cells communicate, causing the infected cells to multiply faster. While these infected cells are to be stopped by the immune system, they tend to grow quietly.
- ⇒ This unchecked growth leads to the development of tumorous cells that end up causing cancer over time.

What is India's First qHPV Vaccine?

- ⇒ The quadrivalent Human Papilloma Virus (qHPV) vaccine is India's first homemade vaccine against cervical cancer and has demonstrated a robust antibody response.
- ⇒ The response is nearly 1,000 times higher than the baseline against all targeted HPV types and in all dose and age groups.
- ⇒ The vaccine will be administered in two or three doses depending on the age. The HPV vaccine is normally recommended for girls and boys aged 11-12.

- ⇒ While children who get the dose before turning 15 need two jabs, others need three. The vaccine is recommended up to the age of 26.

RESTRUCTURING INDIA'S CYBER INFRASTRUCTURE



Context:

- ⇒ There has been a steady spike in cases of cybercrime in the last five years.
- ⇒ According to the National Crime Records Bureau (NCRB), from 12,317 cases of cybercrime in 2016, there were 50,035 cases registered in 2020.
- ⇒ In India, cybercrime is increasing with the increased use of information and communication technology (ICT). However, despite this alarming trend, the capacity of the enforcement agencies to investigate cybercrime remains limited.

Electronic evidence:

- ⇒ As far as the admissibility of electronic evidence is concerned, though there were some conflicting judgments of the Supreme Court of India earlier, the law was finally settled in Arjun Pandit Rao Khotkar vs Kailash Kushanrao Gorantyal & Ors.
- ⇒ The Court held that a certificate under Section 65B(4) of the Indian Evidence (IE) Act was a mandatory pre-requisite for the admissibility of (secondary) electronic record if the original record could not be produced.

Challenges:

- ⇒ With 'police' and 'public order' being in the State List, the primary obligation to check crime and create the necessary cyberinfrastructure lies with States.
- ⇒ At the same time, with the IT Act and major laws being central legislations, the central government is no less responsible to evolve uniform statutory procedures for the enforcement agencies.
- ⇒ Though the Government of India has taken steps that include the setting up of the Indian Cybercrime Coordination Centre (I4C) under the Ministry of Home Affairs to deal with all types of cybercrime, much needs to be done to plug the infrastructural deficit.

Procedural code for the investigation of cybercrime:

- ⇒ As electronic evidence is entirely different in nature when compared with evidence of traditional crime, laying down standard and uniform procedures to deal with electronic evidence is essential.
- ⇒ The broad 'guidelines for the identification, collection, acquisition and preservation of digital evidence' are given in the Indian Standard IS/ISO/IEC 27037: 2012, issued by the Bureau of Indian Standards (BIS).
- ⇒ This document is fairly comprehensive and easy to comprehend for both the first responder (who could be an authorised and trained police officer of a police station) as well as the specialist (who has specialised knowledge, skills and the abilities to handle a wide range of technical issues).
- ⇒ The guidelines, if followed meticulously, may ensure that electronic evidence is neither tampered with nor subject to spoliation during investigation.

Rules for use of digital evidence:

- ⇒ As resolved in the Conference of the Chief Justices of the High Court in April 2016, a five-judge committee was constituted in July 2018 to frame the draft rules which could serve as a model for the reception of digital evidence by courts.
- ⇒ The committee, after extensive deliberations with experts, the police and investigation agencies, finalised its report in November 2018, but the suggested Draft Rules for the Reception, Retrieval, Authentication and Preservation of Electronic Records are yet to be given a statutory force.

Shortage of technical staff:

- ⇒ Second, there have been half-hearted efforts by the States to recruit technical staff for the investigation of cybercrime.
- ⇒ A regular police officer, with an academic background in the arts, commerce, literature, or management may be unable to understand the nuances of the working of a computer or the Internet.
- ⇒ He can at best, after proper training, act as a first responder who could identify digital evidence and secure the scene of crime or preserve digital evidence till the arrival of an expert.
- ⇒ It is only a technically qualified staff who could acquire and analyse digital evidence.

Examples of famous cases:

- ⇒ The Court, during the trial of the infamous State of Goa, through C.I.D. C.B., North Goa, Goa. vs Tarunjit Tejpal took objection to the fact that the investigating sub-inspector, who seized the relevant CDs, did not know the meaning of the term 'hash value'.
- ⇒ Similarly, in the Aarushi murder case of Noida, reported as Dr. (Smt.) Nupur Talwar vs State of U.P. and Anr., the Allahabad High Court observed that the Indian Computer Emergency Response Team (CERT-IN) expert was not provided with the details of the Internet logs, router logs and laptop logs to prove

whether the Internet was physically operated on the fateful night.

- Even the certificate under Section 65B of the IE Act (which is statutorily required), was undated, and hence rejected by the trial court.

Cyberpolice station:

- Therefore, it is essential that State governments build up sufficient capacity to deal with cybercrime. It could be done either by setting up a separate cyberpolice station in each district or range, or having technically qualified staff in every police station.
- Further, the Information Technology (IT) Act, 2000 insists that offences registered under the Act should be investigated by a police officer not below the rank of an inspector.
- The fact is that police inspectors are limited in number in districts, and most of the field investigation is done by sub-inspectors. Therefore, it will be pragmatic to consider a suitable amendment in Section 80 of the Act and make sub-inspectors eligible to take up investigation of cybercrimes.

Upgrade cyber labs:

- Third, the cyber forensic laboratories of States must be upgraded with the advent of new technologies. Offences related to crypto-currency remain under-reported as the capacity to solve such crimes remains limited.
- The central government has proposed launching a digital rupee using blockchain technology soon. State enforcement agencies need to be ready for these technologies.
- The Centre helps in upgrading the State laboratories by providing modernisation funds, though the corpus has gradually shrunk over the years.
- While most State cyber labs are sufficiently equipped to analyse hard disks and mobile phones, many are yet to be notified as 'Examiner of Electronic Evidence' (by the central government) to enable them to provide expert opinion on electronic records.
- Since there is now a state-of-art National Cyber Forensic Lab and the Cyber Prevention, Awareness and Detection Centre (CyPAD) of the Delhi Police, there may be an extension of professional help to States in getting their labs notified.

Need for data localization:

- Most cybercrimes are trans-national in nature with extra-territorial jurisdiction. The collection of evidence from foreign territories is not only a difficult but also a tardy process. India has extradition treaties and extradition arrangements with 48 and 12 countries, respectively.
- In most social media crimes, except for the prompt blocking of an objectionable website or suspect's account, other details do not come forth quickly from large IT firms.

- Therefore, 'data localisation' must feature in the proposed Personal Data Protection law so that enforcement agencies are able to get timely access to the data of suspected Indian citizens.

- Also, the police still get CyberTipline reports on online Child Sexual Abuse Material (CSAM) from the U.S.'s non-profit agency, the National Center for Missing & Exploited Children (NCMEC).

- It would be a step forward if India develops its in-house capacity and/or makes intermediaries accountable to identify and remove online CSAM for immediate action by the police.

Way Forward:

- In fact, the Centre and States must not only work in tandem and frame statutory guidelines to facilitate investigation of cybercrime but also need to commit sufficient funds to develop much-awaited and required cyber infrastructure.

DEPLOYING 5G IN A WORLD BUILT ON 4G TECHNOLOGY



Context:

- Since the dawn of mobile communication in the early 1980s, companies and consumers have been adapting to new ways of sending and receiving information.
- The first-generation technology let people make and receive phone calls through their mobile handheld devices while the second and third generations added text and multi-media messaging, as well as email services to cell phones.
- The emergence of 4G in the early part of the past decade changed the mobile-telephone landscape.
- The Long Term Evolution (LTE) standard-based generation had two important characteristics that set it apart from its predecessors.

4G multiplexing:

- With 4G-capable cell phones, people could make calls over the Internet instead of via telephone networks. This generation's evolution to 4G+ (LTE advanced), which offered download speeds of 200 to 300 Mbps, made it easier for people to connect and talk over the Internet.
- Secondly, 4G's multiplexing capability, technically known as orthogonal frequency division multiplex

(OFDM), provided a level of efficiency in achieving high data transfer rates while allowing multiple users to share a common channel.

- The OFDM modulation scheme divides a channel into several subcarriers. These subcarriers are spaced orthogonally so they don't interfere with one another despite the lack of guard bands between them.
- It is this aspect of 4G that lets people use social media, download music in an app, and live-stream videos on mobile devices.

Need for 5G:

- Since 4G's inception in the early 2010s, the number of smartphone users have grown significantly.
- According to data intelligence firm Statista, the total number of smartphone users in the world has nearly doubled in the last seven years to 6.6 billion in 2022, from 3.7 billion in 2016. This number is estimated to rise by another billion by 2027.
- The number of devices and things connected to the internet is not confined to the consumer world.
- Enterprises are also moving to digital channels and optimising the way tasks get done with the help of Artificial Intelligence (AI), Machine Learning (ML), predictive maintenance, and other environmental condition monitoring sensors.
- For these devices to work in sync with several other applications a far superior networking and connectivity is needed and the decade-old LTE-based generation is ill-prepared to handle workloads and real-time data processing of this magnitude.

5G New Radio (NR):

- The latest iteration of mobile connectivity offers low latency, greater download speeds coupled with the ability to connect multiple devices and exchange data in real-time.
- Building on the multiplexing technology of its predecessor, 5G ushers in a new standard called 5G New Radio (NR), which uses the best capabilities of LTE. 5G NR will enable increased energy savings for connected devices and enhance connectivity.
- Apart from this, the fifth-generation of mobile communication will use high-frequency millimeter wave (mmWave) bands that operate on wavelengths between 30 GHz and 300 GHz. For comparison, 4G's LTE operates on wavelengths under 6 GHz.

Modes of deploying 5G:

- The telecom operators and businesses looking to build their services on 5G have two options. They can either build a non-standalone (NSA) or a standalone architecture.
- In an NSA framework, the operator can use their existing installed capacities and LTE architecture to deploy 5G services while implementing a new radio access network (RAN).
- The operations in the core network will be supported by the existing evolved packet core (EPC) from

LTE. This short-to-medium term strategy can help operators reduce capital expenditure and lower operating costs that may arise from installing a new core network.

Standalone model:

- The SA model is a pureplay 5G architecture that provides operators full range of the fifth-generation's capability and lets them slice the network. In this architecture, RAN and the core are completely new, and there will be a clear separation of different network functions in line with 3GPP recommendations.
- U.S.-based Dish Network Corporation deployed a standalone 5G network in 2021. The cloud-native firm is said to be building an Open RAN-based network from scratch, and is looking to run its service on the public cloud.

Scenario in India:

- In India, Chinese handset maker Oppo conducted 5G network trials in July 2021 on one of its premium smartphones under the SA network environment provided by Reliance Jio at its 5G Lab in Hyderabad.
- Reliance Industries Limited plans to expand its 5G network to "every town" in India by the end of 2023. The firm plans to implement 5G SA architecture to provide better performance than an NSA based set up.

Way Forward:

- Different countries and firms are at various stages of 5G deployment. Telecom operators will drive 5G deployment towards a standalone future in the next few years. This will simplify their network operations and improve user experience.
- And just like how the mobile device-based communication era made people adapt to the new technology four decades ago, 5G could potentially make consumers connect and exchange information in a new way.

CHINA'S FIRST SOLAR-POWERED, SEMI-SATELLITE DRONE



Why in news?

- In a big step toward green development, China has built its first solar-powered large unmanned aerial vehicle.

➤ The drone successfully carried out its maiden flight from an airport in Yulin, northwest China's Shaanxi province and landed smoothly after 26 minutes airborne with all systems operating normally.

How does the drone use solar energy?

- The Qimingxing-50 (Morning Star) is the country's first major unmanned aerial vehicle platform that is all-electric and solely powered by solar energy.
- It is also the first high-altitude, low-speed drone with an ultrahigh aspect ratio produced by the Chinese aviation sector.
- The Aviation Industry Corporation of China (AVIC), the developer of the drone, said that it could stay in the air for an extended period using efficient, clean, and environmentally friendly solar energy.
- With a wingspan of 164 feet, the drone is designed to fly at altitudes of more than 20 km above the Earth's surface where there is stable airflow with no clouds. As a result, it can make the maximum use of solar equipment to stay functional for longer durations.
- The UAV can keep flying even during periods of overnight darkness.

What can the Qimingxing-50 drone be used for?

- The drone is referred to as a quasi-satellite, noting that it will be used for high-altitude surveillance, forest fire monitoring, atmospheric environmental inspection, aerial mapping, communication signal relay, and other tasks.
- The Qimingxing-50 can conduct very long endurance flights near space.
- It can be used for reconnaissance, monitoring, surveying and communications relay missions when satellite services are not available in emergencies – for time-sensitive operations and during conflicts.
- Satellite services are not always available because of limited numbers and relatively fixed schedules of overhead passes.
- For time-sensitive missions, near-space drones can offset those disadvantages, the satellite services could also get sabotaged in wartime, so near-space drones can replace them in that scenario.
- An aerial drone is also cheaper than a satellite.

How will it give an edge to the Chinese army?

- The People's Liberation Army has in the past displayed the WZ-8 high-altitude reconnaissance drone capable of near-space flight at high speed. However, it has limited endurance.
- The Qimingxing-50's long endurance and low-speed characteristics could be good complementation.
- The successful flight of the Qimingxing-50 will encourage China to develop more large solar-powered unmanned aerial vehicles, thus increasing its ability to perform tasks in near space and over far oceans and seas.

Do other nations have similar drones?

- The United States and the United Kingdom are among the nations that have built solar-powered drones that can soar as high as 20,000 metres.
- In July, the US army helped test a solar-powered, near-space Airbus Zephyr S drone that set a new record by being airborne for 42 days.
- In August 2001, the US Helios mode set a new record for the highest altitude a solar-powered drone has ever reached – 29,524 metres.
- The Helios Prototype is a remotely controlled flying wing aircraft developed under NASA's Environmental Research Aircraft and Sensor Technology programme.

EUROPE UNVEILS HI-TECH MTG-II SATELLITE



Why in news?

- Recently, Europe has unveiled the first of a 4 billion euro (\$4 billion) family of satellites designed to give earlier warning of extreme weather that has been causing havoc across the globe in 2022.

Salient features:

- The 3.8-tonne spacecraft will beam back images from next year and will be joined in geostationary orbit by three more MTG-I imaging satellites and two MTG-S "sounding" satellites capable of slicing the atmosphere, much like a medical scanner, by 2030.
- The hope is that forecasters will gain precious hours in predicting near-term storms and floods that can cost lives.
- Also scanning the atmosphere will provide a better picture of current conditions to feed into their computerised models.

Significance:

- The initiative highlights a race to grapple with weather disruption exacerbated by global warming and which is estimated to have cost \$100 billion worldwide in 2021 alone.
- While the MTG-I imaging satellites will bring Europe roughly in line with GOES-R operated by NASA and the National Oceanic and Atmospheric Administration, albeit with a newer lightning mapper, MTG- II will deploy sounders in space for the first time.
- China has experimented with the technology with lower accuracy but is yet to deploy it, while

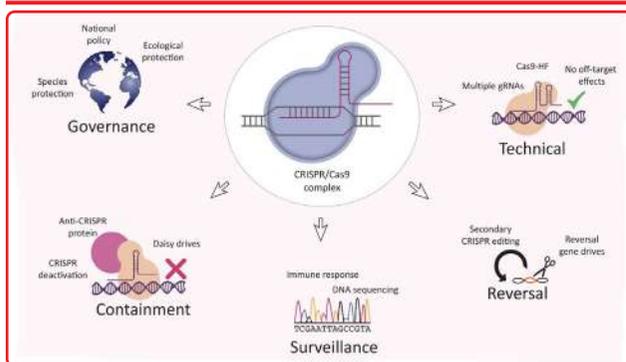
acknowledging China's space programme is developing fast.

- The sounding or scanning technique will capture storms before they become visible on traditional radar.

Way Forward:

- The result of 12 years of development for the European Space Agency and 30-nation EUMETSAT, the MTG-II satellite will be launched by the end of 2022 on an Ariane 5 rocket and put sharper eyes in space over Europe and Africa.

CRISPR SOLUTION TO PROBLEMS OF HEALTH BEGINS TO TAKE SHAPE



Context:

- Over the last two and a half years, as the coronavirus pandemic ravaged the world and exposed the vulnerabilities of humans to new diseases, scientists continued to push ahead with significant progress in utilising an exciting recent technology for permanent cures to some of the most intractable health disorders.
- In the 10 years since it was developed, the genome-editing technology called CRISPR has begun to deliver on the near unlimited potential that scientists say it has to improve the quality of human life.

CRISPR technology in practice:

- The technology enables a simple but remarkably efficient way to 'edit' the genetic codes of living organisms, thus opening up the possibility of 'correcting' genetic information to cure diseases, prevent physical deformities, or to even produce cosmetic enhancements.
- Over the last three years especially, several therapeutic interventions using CRISPR for diseases like thalassaemia or sickle cell anaemia have gone into clinical trials, mainly in the United States, and the initial results have been flawless.
- In 2021, the Indian government approved a five-year project to develop this technology to cure sickle cell anaemia that mainly afflicts the tribal populations of the country.
- The developers of the technology, Jennifer Doudna and Emmanuelle Charpentier, won the Nobel Prize

for Chemistry in 2020, one of the fastest recognitions accorded by the Nobel committee following after a breakthrough.

What is the CRISPR technology?

- CRISPR is short for Clustered Regularly Interspaced Short Palindromic Repeats, which is a reference to the clustered and repetitive sequences of DNA found in bacteria, whose natural mechanism to fight some viral diseases is replicated in this gene-editing tool.
- Editing, or modification, of gene sequences to eliminate or introduce specific properties in an organism is not a new development.
- It has been happening for several decades now, particularly in the field of agriculture, where genetically modified variants, with specific desirable traits, are regularly developed. It usually involves the introduction of a new gene, or suppression of an existing gene, through a process described as genetic engineering.
- CRISPR technology is different. It is simple, and still far more accurate and it does not involve the introduction of any new gene from the outside. Its mechanism is often compared to the 'cut-copy-paste', or 'find-replace' functionalities in common computer programmes.
- A bad stretch in the DNA sequence, which is the cause of disease or disorder, is located, cut, and removed and then replaced with a 'correct' sequence. And the tools used to achieve this are not mechanical, but biochemical, specific protein and RNA molecules.
- The technology replicates a natural defence mechanism in some bacteria that uses a similar method to protect itself from virus attacks.

How CRISPR Technology works?

- The first task is to identify the particular sequence of genes that is the cause of the trouble. Once that is done, an RNA molecule is programmed to locate this sequence on the DNA strand, just like the 'find' or 'search' function on a computer.
- After this, a special protein called Cas9, which is often described as 'genetic scissors', is used to break the DNA strand at specific points, and remove the bad sequence.
- A DNA strand, when broken, has a natural tendency to re-attach and heal itself. But if the auto-repair mechanism is allowed to continue, the bad sequence can regrow.
- So, scientists intervene during the auto-repair process by supplying the correct sequence of genetic codes, which attaches to the broken DNA strand.
- It is like cutting out the damaged part of a long zipper, and replacing it with a normally functioning part. The entire process is programmable, and has remarkable efficiency, though chances of error are not entirely ruled out.

Potential:

- A vast number of diseases and disorders are genetic in nature, that is, they are caused by unwanted changes or mutations in genes. These include common blood disorders like sickle cell anaemia, eye diseases including colour blindness, several types of cancer, diabetes, HIV, and liver and heart diseases. Many of these are hereditary as well. This technology opens up the possibility of finding a permanent cure to many of these diseases.
- This is also true for the deformities arising out of abnormalities in gene sequences, like stunted or slow growth, speech disorders, or inability to stand or walk.
- Also, CRISPR is just a platform; a tool to edit gene sequences. What is to be edited, and where, is different in different cases. Therefore, a specific solution needs to be devised for every disease or disorder that is to be corrected. The solutions could be specific to particular population or racial groups, since these are also dependent on genes.

Success in clinical trials:

- Over the last three years, several such solutions have been undergoing clinical trials. These mainly pertain to blood disorders, diabetes, inherited eye diseases, and some kinds of cancers.
- The case of Victoria Gray, suffering from sickle cell anaemia, who was in the first batch of patients who were treated using CRISPR-based solutions, has been widely tracked. Gray is now considered cured of the disease.
- In India, Debojyoti Chakraborty and Souvik Maiti at CSIR's Institute of Genomics and Integrative Biology have indigenously developed a CRISPR-based therapeutic solution for sickle cell anaemia, which is now being readied for clinical trials.
- Japan has already approved the commercial cultivation of a tomato variety that has been improved using CRISPR-based intervention. In India, several research groups are working on CRISPR-based enhancements for various crops including rice and banana.

The ethical dilemma:

- Because of CRISPR's power to induce dramatic changes in an individual, scientists, including the main developer Doudna, have been warning of the potential for misuse of the technology.
- In 2018, a Chinese researcher disclosed that he had altered the genes of a human embryo to prevent the infection of HIV. This was the first documented case of creating a 'designer baby', and it caused widespread concern in the scientific community.
- Preventive interventions to obtain special traits is not something that scientists currently want the technology to be used for. Also, because the changes were made in the embryo itself, the new acquired traits were likely to be passed to future generations.

Conclusion:

- Though the technology is fairly accurate, it is not 100 per cent precise, and could induce a few errors as well, making changes in other genes. This has the possibility of being inherited by successive generations.
- In case of therapeutic interventions, the changes in genetic sequences remain with the individual and are not passed on to the offspring.

NATIONAL LIST OF ESSENTIAL MEDICINES, 2022**Why in news?**

- Recently, the National List of Essential Medicines (NLEM), 2022, was released, with 384 drugs in it across 27 categories.
- While 34 new drugs are on the list, 26 drugs from NLEM, 2015, including common gastrointestinal medicines Ranitidine and Sucralfate, have been dropped.
- Prices of essential medicines are regulated by the National Pharmaceutical Pricing Authority.

Essential medicines on the list:

- Four major anti-cancer drugs, hydrochloride, HCl trihydrate, lenalidomide and leuprolide acetate as well as psychotherapeutic drugs, nicotine replacement therapy and anti-parasitic drugs like ivermectin, mupirocin (topical antibiotic), and meropenem (antibiotic) are on the list.
- It also includes four drugs that are still under patent; bedaquiline and delamanid, used in the treatment of multiple drug-resistant tuberculosis, dolutegravir used to treat human immunodeficiency virus (HIV) infection, and daclatasavir used in treating viral infections such as Hepatitis C.
- Endocrine medicines and contraceptives like fludrocortisone, ormeloxifene, insulin glargine and teneligliptin (for diabetes control) have also been added to the list.
- Montelukast, acting on the respiratory tract, the ophthalmological drug latanoprost and cardiovascular medicines dabigatran and tenecteplase are on the list too.

Essential medicines omitted from the list:

⇒ Omissions include commonly used gastrointestinal drugs ranitidine, sucralfate, white petrolatum (for treating skin conditions), atenolol and methyl dopa (for high blood pressure).

How are drugs eliminated and added to the list?

- ⇒ For inclusion in NLEM, the drugs have to be useful in treating diseases which are a public health problem in India.
- ⇒ They have to be licensed/approved by the Drugs Controller General (DCGI), have proven efficacy, a safety profile based on scientific evidence, comparatively cost effective, and aligned with the current treatment guidelines.
- ⇒ They have to be recommended under the National Health Programs of India (for instance, ivermectin is part of the Accelerated Plan for Elimination of Lymphatic Filariasis, 2018).
- ⇒ When more than one medicine is available from the same therapeutic class, a prototype that is the best suited medicine of that class is included.
- ⇒ Besides this, the price of the total treatment is considered and not the unit price of a medicine. Fixed dose combinations are usually not included.

Elimination criteria:

- ⇒ A medicine is deleted from the list if it is banned in India; if there are reports of concerns on the safety profile and if a medicine with better efficacy and is cheaper is available.
- ⇒ If the disease, for which a particular medicine is recommended, is no longer a national health concern, the drug is taken off the list.
- ⇒ Additionally, in case of antimicrobials, if the resistance pattern has rendered an antimicrobial ineffective, it is removed from the NLEM.

What is the purpose of having a list?

- ⇒ The primary purpose of the NLEM is to promote rational use of medicines considering three important aspects which are cost, safety and efficacy.
- ⇒ It also helps in optimum utilisation of healthcare resources and budget, drug procurement policies, health insurance, improving prescribing habits, medical education and training and drafting pharmaceutical policies.
- ⇒ In NLEM, the medicines are categorised based on the level of the healthcare system as primary, secondary and tertiary.
- ⇒ The NLEM is a dynamic document and is revised on a regular basis considering the changing public health priorities as well as advancement in pharmaceutical knowledge.

Background:

- ⇒ The National List of Essential Medicines was first formulated in 1996 and was revised thrice in 2003, 2011 and 2015, before 2022.
- ⇒ The NLEM independent Standing National Committee on Medicines (SNCM) was constituted by the Union Health Ministry in 2018.

- ⇒ After detailed consultation with experts and stakeholders, the committee revised the NLEM, 2015 and submitted its report on NLEM, 2022 to the Health Ministry. The government accepted the recommendations of the committee and adopted the list.

LUMPY SKIN DISEASE IN CATTLE IN INDIA



Why in news?

- ⇒ Recently, the Mumbai Police have ordered the prohibition of cattle transportation in the city to prevent the spread of the lumpy skin disease.
- ⇒ This means cattle cannot be moved out of the place they are being raised or transported to marketplaces.
- ⇒ The disease has killed 127 cattle in Maharashtra, having spread to 25 districts. The contagious viral infection has spread in cattle in more than 10 States and Union Territories so far.

What is the lumpy skin disease and how does it spread?

- ⇒ Lumpy skin disease is caused by the lumpy skin disease virus (LSDV), which belongs to the genus capripoxvirus, a part of the poxviridae family (smallpox and monkeypox viruses are also a part of the same family).
- ⇒ The LSDV shares antigenic similarities with the sheeppox virus (SPPV) and the goatpox virus (GTPV) or is similar in the immune response to those viruses.
- ⇒ It is not a zoonotic virus, meaning the disease cannot spread to humans.

Transmission:

- ⇒ It is a contagious vector-borne disease spread by vectors like mosquitoes, some biting flies, and ticks and usually affects host animals like cows and water buffaloes.
- ⇒ According to the United Nations Food and Agriculture Organisation (FAO), infected animals shed the virus through oral and nasal secretions which may contaminate common feeding and water troughs.
- ⇒ Thus, the disease can either spread through direct contact with the vectors or through contaminated fodder and water. Studies have also shown that it can spread through animal semen during artificial insemination.

Symptoms:

- LSD affects the lymph nodes of the infected animal, causing the nodes to enlarge and appear like lumps on the skin, which is where it derives its name from.
- The cutaneous nodules, 2–5 cm in diameter, appear on the infected cattle's head, neck, limbs, udder, genitalia, and perineum.
- The nodules may later turn into ulcers and eventually develop scabs over the skin. The other symptoms include high fever, sharp drop in milk yield, discharge from the eyes and nose, salivation, loss of appetite, depression, damaged hides, emaciation (thinness or weakness) of animals, infertility and abortions.
- The incubation period or the time between infection and symptoms is about 28 days according to the FAO, and 4 to 14 days according to some other estimates.

Morbidity:

- The morbidity of the disease varies between two to 45% and mortality or rate of date is less than 10%, however, the reported mortality of the current outbreak in India is up to 15%, particularly in cases being reported in the western part (Rajasthan) of the country.

What is the geographical distribution and how did it spread to India?

- The disease was first observed in Zambia in 1929, subsequently spreading to most African countries extensively, followed by West Asia, Southeastern Europe, and Central Asia, and more recently spreading to South Asia and China in 2019.
- As per the FAO, the LSD disease is currently endemic in several countries across Africa, parts of West Asia (Iraq, Saudi Arabia, Syrian Arab Republic), and Turkey.
- The spread in South Asia first affected Bangladesh in July 2019 and then reached India in August that year, with initial cases being detected in Odisha and West Bengal.
- The long porous borders between India, Nepal and Bangladesh allow for a significant amount of bilateral and informal animal trade, including cattle and buffaloes.

Is it safe to consume the milk of affected cattle?

- Studies say that it has not been possible to ascertain the presence of viable and infectious LSDV virus in milk derived from the infected animal.
- FAO notes, however, that a large portion of the milk in Asia is processed after collection and is either pasteurised or boiled or dried in order to make milk powder. This process ensures that the virus is inactivated or destroyed.

What are the economic implications?

- The spread of the disease can lead to "substantial" and "severe" economic losses according to FAO and the World Organisation for Animal Health (WOAH).

- The disease leads to reduced milk production as the animal becomes weak and also loses appetite due to mouth ulceration.
- The income losses can also be due to poor growth, reduced draught power capacity and reproductive problems associated with abortions, infertility and lack of semen for artificial insemination.
- Movement and trade bans after infection also put an economic strain on the whole value chain.

Economic impact on India:

- The current outbreak in India has emerged as a challenge for the dairy sector.
- India is the world's largest milk producer at about 210 million tonnes annually. India also has the largest headcount of cattle and buffalo worldwide.
- In Rajasthan, which is witnessing the worst impact of the lumpy skin disease, it has led to reduced milk production, which lessened by about three to six lakh litres a day. Reports indicate that milk production has also gone down in Punjab owing to the spread of the disease.

How bad is the current spread in India?

- The current outbreak started in Gujarat and Rajasthan around July and had spread to Punjab, Himachal Pradesh, Andaman & Nicobar and Uttarakhand by early August.
- It then spread to Jammu and Kashmir, Uttar Pradesh and Haryana. In recent weeks, it was reported in Maharashtra, Madhya Pradesh, Delhi, and Jharkhand.
- Of the nearly 75,000 cattle that the disease has killed, more than 50,000 deaths, mostly cows, have been reported from Rajasthan.

The FAO has suggested a set of spread-control measures for LSD, which involves

- vaccination of susceptible populations with more than 80% coverage,
- movement control of bovine animals and quarantining,
- implementing biosecurity through vector control by sanitising sheds and spraying insecticides, strengthening active and passive surveillance;
- spreading awareness on risk mitigation among all stakeholders involved, and
- creating large protection and surveillance zones and vaccination zones.

Indian Government's intervention:

- The Union Ministry of Fisheries, Animal Husbandry and Dairying informed that the 'Goat Pox Vaccine' is "very effective" against LSD and is being used across affected States to contain the spread.
- The affected States have put movement bans in place and are isolating infected cattle and buffaloes, spraying insecticides to kill vectors like mosquitoes, with some affected States such as Maharashtra, Rajasthan, Delhi, and Uttar Pradesh also setting up

dedicated control rooms and helpline numbers to guide farmers whose cattle have been infected.

Vaccine:

- In a major breakthrough, two institutes of the Indian Council of Agricultural Research (ICAR) have developed an indigenous vaccine for LSD, which the Centre plans to commercialise and roll out in the next three to four months.
- The vaccine is based on LSD virus samples from cattle in Ranchi afflicted in the 2019 outbreak and experimental trials conducted on animals afflicted in the ongoing 2022 outbreak with the vaccine have revealed encouraging results.

VIRTUAL AUTOPSY

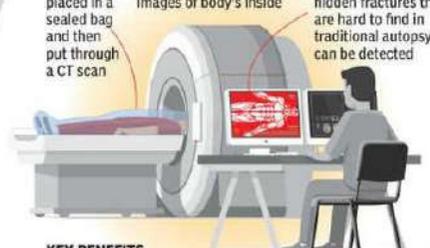
WHAT IS A VIRTUAL AUTOPSY?

➤ An emerging science where doctors attempt to assess the cause of death using digital CT scan or MRI instead of cutting the body open

➤ Countries like Switzerland, USA and Australia are already using imaging techniques to conduct autopsy. Recently, ICMR has approved a project for AIIMS to take up a similar exercise to assess its feasibility

HOW IT IS DONE

- ➊ The body is placed in a sealed bag and then put through a CT scan
- ➋ It finishes in seconds and acquires up to 25,000 images of body's inside
- ➌ Internal bleeding, bullet paths and hidden fractures that are hard to find in traditional autopsy can be detected



KEY BENEFITS

- Body remains intact
- Takes less time
- Can complement standard autopsy and increase the quality of assessment
- Permits additional analysis by other forensic pathologists on the same body even after years if some allegations crop up in future

Context:

- After battling for life for more than 40 days, recently comedian Raju Srivastava breathed his last at Delhi's All India Institute of Medical Sciences (AIIMS), Delhi.
- His post-mortem was performed using a novel technology known as "virtual autopsy". The entire procedure took around "15 to 20 minutes".

What is a virtual autopsy?

- A post-mortem or autopsy is a highly specialised surgical procedure that consists of a thorough examination of a corpse to determine the cause and manner of death and to evaluate any disease or injury that may be present.
- Virtual autopsy or virtopsy employs imaging methods that are also used in clinical medicine such as computed tomography (CT), magnetic resonance imaging (MRI), etc for autopsy and to find the cause of the death. It does not necessitate dissection of the body.

How is a virtual autopsy conducted?

- A CT or MRI is used to scan the body the same way it is done when a person is alive. Under this process, the body is packed in a bag and put in the CT machine. Images of the internal organs are captured within minutes which can then be analysed by forensic experts.

- Doctors can also use radiation to examine the inside of the body and reach a conclusion about the cause of death.

What are the benefits of a virtual autopsy?

- A regular post-mortem can take up to three hours. It can also go up to three days, depending on the complexity of the case and the availability of experts to conduct the procedure.
- However, a virtual autopsy can be conducted within less than 30 minutes.
- This process saves both time and manpower. It is also cost-effective.
- Apart from benefits to medical professionals, a virtual autopsy has many emotional and ethical advantages. Many religions and cultures are against mutilating the body for the sake of autopsy.

Disadvantages:

- Though virtopsy has its advantages, it has a disadvantage that the physiological senses of an anatomical pathologist like smell, texture, and colour are restricted as there is no direct contact with the dead body of the victim.
- Also, the main disadvantage is the feasibility of using these high-technology imaging devices in less developed countries.

When did India start doing virtual autopsies?

- In March 2021, AIIMS decided to conduct this procedure whenever possible. It was the first medical institution in south and southeast Asia to have the facility.
- AIIMS set up the virtual autopsy lab with the Indian Council of Medical Research (ICMR), the apex body in India that promotes biomedical research.

Where else is virtual autopsy practised?

- Virtual autopsy first began in Sweden. Now, this technique is used in the United States, the United Kingdom, Australia, Japan, Switzerland and other European countries.
- "Post-post-mortem" MRI service for "selected non-suspicious deaths" was introduced in Manchester, the UK in the 1990s.
- The Jewish and Muslim communities demanded a non-invasive procedure.

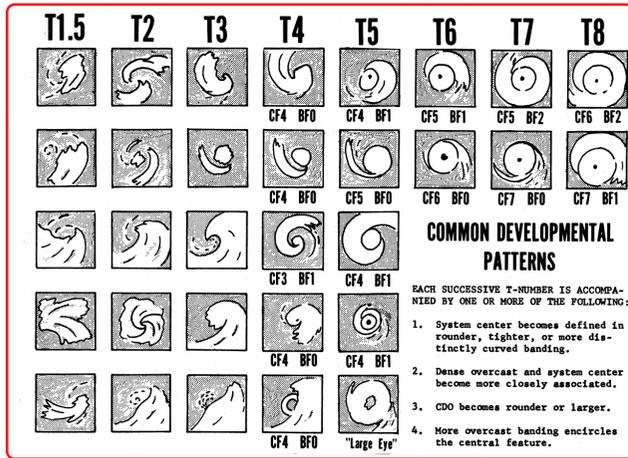
DVORAK TECHNIQUE

Why in news?

- Recently, the American meteorologist Vernon Dvorak passed away.
- In the era of advanced satellite technology, Machine Learning (ML), Artificial Intelligence (AI), Dvorak technique, named after him, continues to be widely relied upon by forecasters till date.

Who was Vernon Dvorak?

- Dvorak was an American meteorologist best credited for developing the Dvorak technique in the early 1970s.



➤ He was bestowed with the United States Department of Commerce Meritorious Service award in 1972. In 2002, he received a Special Lifetime Achievement Award from the National Weather Association.

Advanced Dvorak Technique:

- The technique has been upgraded multiple times since then, and after a recent software update in May 2022, it has been named the Advanced Dvorak Technique (ADT), coined by the National Hurricane Centre of the National Oceanic and Atmospheric Administration (NOAA).
- The updated technique would improve the tropical storm forecasts by many folds as they would have access to sharper and detailed images than ever before.

What is the Dvorak technique?

- It was first developed in 1969 and tested for observing storms in the northwest Pacific Ocean.
- Forecasters used the available satellite images obtained from polar orbiting satellites to examine the features of the developing tropical storms (hurricanes, cyclones and typhoons).
- During day time, images in the visible spectrum were used while at night, the ocean would be observed using infrared images.
- The Dvorak technique was a cloud pattern recognition technique based on a concept model of the development and decay of the tropical cyclone.

Cyclone intensity:

- Through this statistical technique, scientists are able to measure the cyclone’s convective cloud pattern; curved bands, eye and central dense or cold region and shear. It is the Dvorak technique which gives the best estimates of the cyclone intensity, a vital component while issuing weather warnings.
- This tool cannot help make any predictions, measure wind or pressure or any other meteorological parameters associated with the cyclone.
- But it is a guide to estimate the storm’s intensity and possible intensification which is crucial for local

administration in planning evacuation measures of coastal or other nearby residents.

- He had also presented the wind speed and associated category of the tropical cyclone, making it a near-perfect tool for the operational cyclone forecasters.

Why is technique still widely in use?

- Today, there continues to be an improved network of land-based meteorological observations, either in the form of taking manual observations, installing automatic weather stations or automatic rain gauges. On the other hand, ocean observations still remain limited.
- There are many vast regions across the four oceans that have not been fully examined with meteorological instruments.
- Ocean observations are mostly taken by deploying buoys or dedicated ships, but the number of observations from the seas is still not sufficient across the world.
- That is why meteorologists have had to depend more on satellite-based imageries, and combine it with the available ocean-data at the time of forecasting the intensity and wind speed of the tropical cyclones.

Way Forward:

- Even in the present day, when forecasters have access to several state-of-the-art tools like model guidance, animations, artificial intelligence, machine learning and satellite technology, it is the advanced versions of the 50-year-old technique that continues to be widely used.
- It has saved the lives of millions of people across the world and will continue to do so.

INDIA'S EV POLICY



Context:

- The electric vehicle (EV) ecosystem has been under intense scrutiny over the last several months. Despite various problems and challenges it is a certainty that EV’s are the future.
- Accordingly India’s EV policy and regulatory framework is evolving.

FAME I & FAME II:

- In April 2015, India launched the Faster Adoption and Manufacturing of Electric Vehicles (FAME) scheme,

when EVs were considered an emerging technology. Under this scheme, a variety of measures were enabled to promote the adoption and growth of hybrid and electric vehicles in India. The first phase of FAME ran for four years, until 2019.

- The next iteration (FAME II) has evolved, and ensured key economic incentives for EV manufacturers and consumers, such as concessions on customs duty, reduction of GST, waiver of road tax, etc., to further accelerate EV adoption.

New business models:

- Another important aspect is that India's progressive EV policy is combined with a policy push on 'Digital India' that has enabled new business models to come into being; for example: e-mobility as a service (e-maaS) adopted for e-buses in urban India.
- As with any new technology, the policies, regulations, standards, etc. will need to be tweaked from time to time, and this is happening in the EV ecosystem as well. Evidence now shows the rapidly-growing population of EVs of all types in India.

Key Indicators of Progress:

- Over the last three years, more than 500,000 EVs were registered in India, while the government intends to have EV sales penetration of 70 percent for commercial vehicles, 30 percent for private cars, 40 percent for buses, and 80 percent for two and three-wheelers by 2030. This is in line with the goal to achieve net zero carbon emissions by 2070.
- It must be borne in mind that EV technology is also evolving, and 'Green Hydrogen' shall also play a key role in heavy vehicles becoming EVs. India's policy approach in the EV domain, while being an early starter, has sufficient flexibility to be aligned with future technologies as well.
- e-FAST India (Electric Freight Accelerator for Sustainable Transport), the new platform launched on September 8 by NITI Aayog, shall enable scalable EV adoption in freight transportation.

New Approaches:

- While FAME and FAME II have created a solid framework and e-FAST is expected to be catalyst, one can expect a much higher penetration level of EVs in India. This will need new approaches in several policy areas:

Skilled Human Resources:

- At one level it is important that the syllabi and laboratory facilities for students and retraining of teachers across the technical education sector are upgraded, and enabled expeditiously.
- At another level, well-structured reskilling programmes need to be implemented across in the automobile aftermarket domain. Policy formulation and intervention is hence the need of the hour.

PLI Policy:

- The PLI Policy that has been initiated to promote domestic production capabilities of EV components may need further modifications going forward to ensure alignment with technology changes such as battery chemistries, next-gen EV motors and power electronics, etc.
- The PLI policies coupled with growing demand have resulted in industrial companies, Indian as well as foreign, investing across India to create robust domestic manufacturing capabilities across the entire EV component sector – battery cells, packs, motors, controllers, etc., whereas the semiconductors still represent a severe constraint as there is no domestic production visibility just yet.

EV Financing:

- EV Financing is a sector that needs fresh thinking since the resale value of EVs will also be related to the ability to reuse EV batteries as well as their recycling. India requires a new policy on EV financing.

Safety compliance:

- India's early formulation and rolling out of EV policies has enabled and accelerated the adoption of EVs by citizens for their personal mobility as well as in public transportation in urban India. However, the recent occurrences of EV-related fire incidents served as a wake up call.
- The authorities and EV manufacturers have reacted quickly to take corrective and preventive measures. New standards and revised safety compliance requirements for battery packs have been announced at the beginning of September. This should ensure minimising or eliminating EV-related fire incidents.

Way Forward:

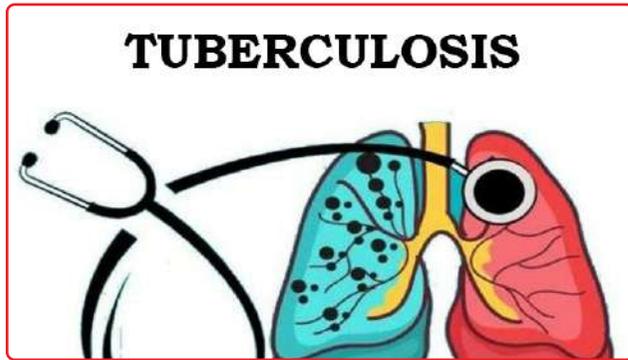
- The creation of a robust domestic manufacturing and supply chain of EV components with the right technologies and performance capabilities can enable India to emerge as a global EV component manufacturing hub as an attractive and competitive alternative to China and, thus, boost exports from India to various countries.
- Since there is a worldwide transition to an EV-led ecosystem, the question of how efficiently can India turn its early-mover developments to its advantage is what needs to be answered, and the opportunity presented needs to be capitalised at the earliest.

MISCELLANEOUS

'PRADHAN MANTRI TB MUKT BHARAT ABHIYAAN' TO ELIMINATE TB BY 2025

Why in news?

- Recently, the President of India, launched the Pradhan Mantri TB MukT Bharat Abhiyaan.
- It reiterated India's commitment to eliminate the high-burden infectious disease by 2025, five years ahead of the global goal of 2030.



- This vision was first articulated by the Prime Minister at the Delhi End TB Summit in March 2018.

Nikshay Mitra initiative:

- The President also launched the Nikshay Mitra initiative to ensure additional diagnostic, nutritional, and vocational support to those on TB treatment, and encouraged elected representatives, corporates, NGOs, and individuals to come forward as donors to help the patients complete their journey towards recovery.
- Individuals, non-profits, institutions and corporations can now “adopt” tuberculosis (TB) patients to support their nutritional needs, additional diagnostics and vocational training.
- The Ni-kshay 2.0 portal will facilitate in providing additional patient support to improve treatment outcome of TB patients, augmenting community involvement in meeting India’s commitment to end TB by 2025 and leveraging Corporate Social Responsibility (CSR) opportunities.

About National Tuberculosis Elimination Programme (NTEP):

- The National Tuberculosis Elimination Programme (NTEP), previously known as Revised National Tuberculosis Control Programme (RNTCP), aims to strategically reduce TB burden in India by 2025, five years ahead of the Sustainable Development Goals.
- In 2020, the RNTCP was renamed as the National TB Elimination Program (NTEP) to emphasize the aim of the Government of India to eliminate TB in India by 2025.
- It reached over a billion people in 632 districts/reporting units and is responsible for carrying out the Government of India’s five-year National Strategic Plans for TB elimination along with the States/UTs.

The National Strategic Plan for TB Elimination:

- The National Strategic Plan for TB Elimination was launched to achieve the target of ending TB by 2025 in a mission mode.
- It is a multi-pronged approach which aims to detect all TB patients with an emphasis on reaching TB patients seeking care from private providers and undiagnosed TB in high-risk populations.
- In 2021, India notified 21 lakh TB cases, successfully bridging the gaps between estimated number of cases

and those that were recorded on the Ni-kshay portal previously.

- A range of forward-looking policies have been implemented including critical schemes such as Ni-kshay Poshan Yojana (NPY), which helped meet the nutritional requirements of TB patients, especially the underserved.
- From 2018 till present, around ₹1,707 crore has been disbursed to more than 65 lakh people on TB treatment across the country.

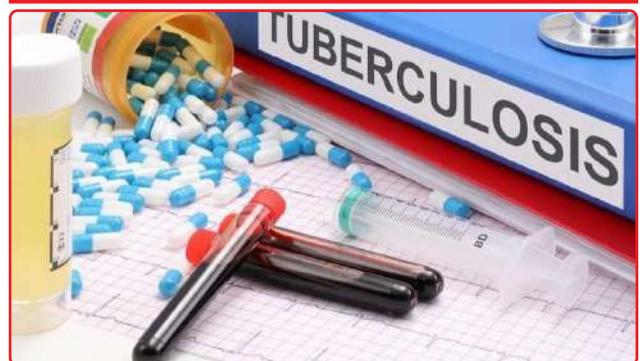
Other initiatives:

- As part of engaging the private sector, Patient Provider Support Agencies (PPSA) have been rolled out across 250 districts through the domestic setup and JEET initiative, leading to 32% of all TB patients being notified from the private sector.
- Building on Universal Drug Susceptibility Testing (UDST) for all diagnosed TB cases the programme has added 3,760 NAAT machines across the country till 2021 ensuring that patients are diagnosed with drug-resistant TB at the very outset and are put on correct treatment plans on a timely basis.
- Over 1,50,000 Ayushman Bharat - Health and Wellness Centres will be established by December 2022 to decentralize comprehensive primary healthcare including TB care services at the grassroots level.
- The programme also initiated strategies to engage the community and create a Jan Andolan against TB. The program has identified more than 12,000 TB champions to reach out to the underserved and marginalized and support patients in accessing care.
- The programme is also supporting creation of Patient Support Groups (PSGs) to facilitate conversations between patients, doctors and their caregivers to address common issues in treatment.

Way Forward:

- A 360-degree approach is the cornerstone of TB elimination in India and a societal approach that brings together people from all backgrounds into a Jan Andolan is needed to achieve the ambitious target of eliminating TB by 2025.

“ADOPT A TB PATIENT” PLAN



Why in news?

- Recently, the Ministry of Health and Family Welfare launched the Pradhan Mantri TB-Mukt Bharat Abhiyan campaign, which is part of the National TB Elimination Programme.
- It also includes the "Adopt a TB patient" plan and the aim is to adopt all patients who have given their consent for this initiative by 17 September.

Eliminating TB:

- The government has set the target of making India TB-free by 2025, five years before that global target of eliminating the disease.
- The plan emphasises the important role of jan bhagidari (people's participation) in solving critical problems and building a prosperous nation.

What is the "Adopt a TB patient" programme?

- Now, individuals, organisations, corporates, cooperative organisations, elected leaders and non-profits can provide support by adopting persons with TB.
- The donor can pledge their support for one or three years.
- Those who adopt TB patients are called Ni-kshay Mitra. A first-of-its-kind initiative, this is a voluntary scheme that the Centre has initiated under its plan to eliminate TB.

How to adopt a TB patient?

- In order to become a Ni-kshay Mitra, a person has to visit the official website of the scheme. They then have to search for the state, district, block and peripheral health institution to make a donation or adopt a TB patient.
- Health Ministry urged everyone to join the soon-to-be-launched TB Patient/Village Adoption scheme, where everyone can adopt TB patients and ensure their well-being, provide nourishment, timely diagnosis and prompt treatment.
- Under the scheme, a Ni-kshay Mitra can offer three types of support to TB patients – nutritional, diagnostic, vocational and additional nutritional supplements.

Nutritional & social support:

- The initiative intends to provide essential nutritional and social support to people with TB and root out stigma and discrimination against them. Three types of support are essential:
 - First, a kit that contains appropriate food and supplements to take care of their nutritional needs.
 - Second, support for additional lab-based diagnostic requirements.
 - Third, equipping the patients with vocational skills to help them join the workforce and live a prosperous and productive life.
- The health ministry has recommended a monthly food basket for patients which will comprise three

kg of rice, 1.5 kg of pulses, 250 grammes of vegetable cooking oil and one kg of milk powder or six litres of milk or one kg of groundnut.

- The food basket support will be an addition to free diagnostics, drugs and Rs 500 that the government already provides to TB patients.

TB burden in India:

- India reported a sharp 19 per cent rise in tuberculosis cases in 2021 over the previous year, revealed the India TB Report 2022. The total number of incident TB patients (new and relapse) notified during 2021 was 19,33,381 as opposed to that of 16,28,161 in 2020.
- The National TB Prevalence Survey of India 2019-2021 found that the prevalence of the disease is 312 per 100,000 population. While more than 40 per cent of the population in India carries the TB infection only 10 per cent get the disease.
- According to World Health Organisation (WHO), in 2020, 30 high TB burden countries accounted for 86 per cent of new TB cases around the world, with India leading the count.

Way Forward:

- Under the newly launched Pradhan Mantri TB-Mukt Bharat Abhiyan campaign, 1.78 lakh patients have been adopted. The government will reach out to the remaining TB patients for consent and also encourage the community for adopting them as a part of the campaign.
- With this programme, India is taking a big step toward getting rid of the dreaded disease.

GB 9 OF THE INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE



Why in news?

- Recently, Union Minister of Agriculture and Farmers Welfare, inaugurated the Ninth Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) in New Delhi.

Theme:

- GB9 is being organized under the theme 'Celebrating the Guardians of Crop Diversity: Towards an Inclusive Post-2020 Global Biodiversity Framework'.

- The theme aims to highlight the contribution of the world's small farmers to the effective management of PGRFA and provide an opportunity to consider how the treaty and its community can contribute to the new global biodiversity architecture.

Agenda:

The major issues to be deliberated during the meeting comprise

- Amendment of the Treaty to expand the list of crops in the multilateral system;
- Capacity-development strategy for the Treaty;
- Funding strategy, resource mobilization and the budget;
- Conservation and sustainable use of PGRFA and agriculture;
- Compliance;
- Cooperation with other organizations and bodies; and
- Multi-year Programme of Work, including genome sequence information to pursue a more robust Treaty implementation.

What is ITPGRFA?

- The ITPGRFA is a legally binding comprehensive agreement signed during the 31st session of the United Nations Food and Agriculture Organization (FAO) in Rome in November, 2001, which took effect on 29 June 2004, and currently has 149 Contracting Parties including India.
- This treaty, in consonance with the Convention on Biological Diversity, seeks to achieve food security through the conservation, exchange and sustainable use of the world's Plant Genetic Resources for Food and Agriculture (PGRFA), equitable sharing of profits from its use, as well as playing an important role in the recognition of rights of farmers.
- PGRFA provides scale-free solutions to achieve food and nutritional security as well as climate resilient agriculture. Countries are mutually interdependent for the PGRFA, leading to the need for a global system to facilitate access and profit sharing.

Rights of farmers:

- Article 9 of the ITPGRFA deals with the rights of farmers, which India is fully compliant with and relevant provisions are contained in the PPV&FR Act, 2001.
- 166 farmers/agriculture communities have been honoured with Plant Genome Saviour Awards.
- India proposes to the Governing Body of ITPGRFA to consider putting into action a module of Awareness, Outreach and Capacity Building Programme related to Farmers' Rights, for which India will support its implementation

Way Forward:

- As host of GB9, India is expected to play a crucial role in minimizing the dissonance between technology-rich developed and gene-rich developing countries

to achieve functional resolutions on critical agenda items.

- The GB9 also provides an excellent opportunity to convey the steadfast commitment of India to conservation and sustainable utilization of plant genetic diversity as well as farmers' rights.
- On the eve of GB9, India called for a global harmony to use every available germplasm resource and every advanced technology to fight global hunger and ensure food and environmental security.

NEW ICC RULES



Why in news?

- The International Cricket Council (ICC) has come up with a host of changes in the rules on playing conditions of cricket. The changes will come into effect on October 1.
- The men's T20 World Cup, to be held in Australia from October 16 to November 13, will be played in accordance with the new rules.
- The ICC Chief Executives' Committee has ratified the recommendations from the Men's Cricket Committee, led by former Indian captain Sourav Ganguly. The changes were approved by the Women's Cricket Committee too.

What are the significant changes?

- The practice known as 'mankading', a batter being run out by the bowler while backing up too far from the non-striking end has been destigmatised. It has been removed from the section on Unfair Play to the one on Run Out.
- 'Mankading' became a topic of discussion after R. Ashwin ran Jos Buttler out in such a manner during an IPL match at Jaipur three years ago.
- It has been considered against the spirit of cricket, a game which has traditionally valued ethics highly, sometimes at the cost of losing a considerable advantage or even a match.
- West Indies fast bowler Courtney Walsh had famously refused to run Pakistan's Saleem Jaffar out by 'mankading' in a match at the 1987 World Cup in Lahore. The host had needed two off the last ball when Walsh stopped and warned Jaffar.

⇒ 'Mankading' is once again dividing opinions after India's Deepti Sharma ran England's Charlie Dean out in the third Womens One Day Internationals (ODI) at Lord's.

Other changes:

- ⇒ Other changes include the banning of the use of saliva to polish the ball. The ban had already been in place, as a temporary measure, following the COVID-19 outbreak.
- ⇒ Additionally, some part of the batter or the bat has to remain within pitch. If the batter goes beyond the pitch, the umpire could call it a dead ball. Conversely, if a ball forces the batter to leave the pitch, it will be a no-ball.
- ⇒ Also from now on the new batter, coming in at the fall of a wicket, should be ready to face the music from ball one: it doesn't matter if the batters have swapped ends before the catch is taken. Earlier, if the batters had crossed, the new batter would have walked up to the non-striking end.
- ⇒ In precarious situations, the previous rule would have made life a little easier, especially for a tail-end batter.
- ⇒ The new batter will also have a little less time to reach the middle.
- ⇒ The time to take strike has been reduced, for Tests and ODIs, to two minutes, from three. The 90-second

deadline stands for T20 Internationals, though.

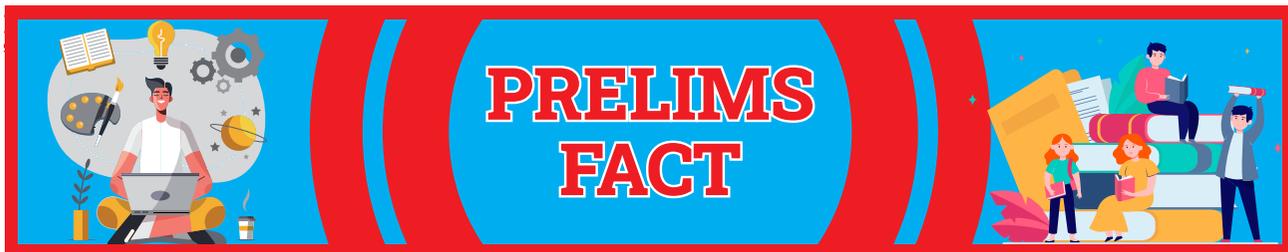
- ⇒ A penalty of five runs will be awarded to the batting side for an unfair and deliberate movement while the bowler is running in to bowl. Besides, that ball will be called a 'dead ball'.
- ⇒ The ball can now also be deemed dead when a bowler attempts to run down the striking batter who comes down the wicket before the former enters the delivery stride.

What about the use of hybrid pitches?

- ⇒ The hybrid pitches could now be used for ODIs and T20Is, for men and women if both the rival teams agree.
- ⇒ At present it is used only in women's matches. The hybrid pitches are made of natural grass (predominantly) and artificial fibre.

What about penalising a team for poor over-rate?

- ⇒ The penalty already in force in T20Is since January 2022 will be adopted in the ODIs as well, but only after the completion of the ICC Cricket World Cup Super League (2020-2023), which is part of the qualification process of the 2023 World Cup (ODI).
- ⇒ If a team fails to bowl its overs in the given time, an additional fielder will have to be placed inside the 30-yard circle, for the remaining overs. That could make saving runs tougher for the fielding side.



POLITY & GOVERNANCE

60-DAY SPECIAL MATERNITY LEAVE



Why in news?

- According to a recent order issued by the Department of Personnel and Training (DoPT), all female central government employees will be entitled for 60 days special maternity leave in case of death of a child soon after birth.

Why this decision has been taken?

- The matter has been considered in consultation with Ministry of Health and Family Welfare.
- The decision has been taken keeping in view the potential emotional trauma caused due to stillbirth or death of a child soon after birth, which has a far-reaching impact on the mother's life.
- The DoPT said it has been receiving several references/queries requesting for clarification pertaining to grant of leave/maternity leave in case of death of a child soon after birth/stillbirth.

Key Highlights:

- In case a maternity leave has already been availed by a female central government servant and her leave continues till the date of expiry of child soon after birth/stillbirth, the maternity leave already availed till death of the child may be converted into any other kind of leave available in her leave account without insisting for a medical certificate and a special maternity leave of 60 days may be granted from the date of expiry of child soon after birth/stillbirth.
- In case the maternity leave has not been availed by a female central government servant, 60 days of special maternity leave may be granted from the date of expiry of child soon after birth/ stillbirth.

Who can avail the benefit?

- The condition for death of a child soon after birth may be defined as up to 28 days after birth.
- A baby born with no signs of life at or after 28 weeks of gestation may be defined as stillbirth.
- The benefit of special maternity leave shall be admissible only to a female central government servant with less than two surviving children and for child delivery only in an authorised hospital.
- The authorised hospital is defined as government hospital or private hospital empanelled under the Central Government Health Scheme (CGHS).
- In case of emergency delivery in non-empanelled private hospital, production of emergency certificate is mandatory.
- These orders shall be applicable to government employees appointed to the civil services and posts in connection with the affairs of the Union of India in terms of Rule 2 of the Central Civil Services (Leave) Rules 1972 with effect from the date of issue of this order, it said.

CENTRE RENAMES RAJPATH TO KARTAVYA PATH



Why in news?

- The Centre will be renaming the Rajpath and the Central Vista lawns as 'Kartavya Path'.
- In his Independence Day speech on 15 August, Prime Minister stressed on the abolition of symbols related to colonial mindset.
- The move comes days after the government replaced the colonial St. George's Cross with Chhatrapati Shivaji's seal on the Indian Navy's new ensign (flag).

What is Kartavya Path?

- The route runs from Rashtrapati Bhavan on Raisina Hill through Vijay Chowk and India Gate to National Stadium in Delhi.

- ⇒ Built during British rule in the early 20th century, Rajpath literally translates to king's way. It was named so in honour of King George V.
- ⇒ In 2015, the name of the road on which PM's official residence is located was changed from Race Course Road to Lok Kalyan Marg.

Renaming of roads in New Delhi:

- ⇒ Roads named after Mughal emperors have also been renamed. In 2015, Aurangzeb Road was renamed APJ Abdul Kalam Road.
- ⇒ In 2017, Dalhousie Road was renamed Dara Shikoh Road. Dara Shikoh was the eldest son of the Mughal emperor Shah Jahan. Dara Shikoh was killed by his younger brother Aurangzeb who wanted to ascend the throne.
- ⇒ Apart from this, Teen Murti Chowk was changed to Teen Murti Haifa Chowk in 2018. There have been several proposals to rename Akbar Road, but nothing has been done yet.

Revamped Central Vista:

- ⇒ The redevelopment project of the Central Vista the nation's power corridor also envisages a new triangular Parliament building, a common central secretariat, a new residence of the prime minister, a prime minister's office, and a new vice-president's enclave.
- ⇒ The revamped Central Vista Avenue along the Rajpath will have state-wise food stalls, red granite walkways with greenery all around, vending zones, parking lots and round-the-clock security.

MOHUA ROLLS OUT 'SWACHH AMRIT MAHOTSAV'



Why in news?

- ⇒ To celebrate eight years of Swachh Bharat Mission-Urban, the Union Minister for Housing and Urban Affairs officially announced the commencement of the 'Swachh Amrit Mahotsav'.
- ⇒ It is a fortnight of activities to galvanize action around swachhata from 17th Sept. 2022, Seva Diwas, till 2nd Oct. 2022, Swachhata Diwas.

Focus:

- ⇒ The fortnight will focus on mobilizing citizen action

and commitment towards the vision of building 'Garbage Free Cities'.

- ⇒ The official logo for the fortnight, 'Swachh Amrit Mahotsav: Ek Aur Kadam Swachhata Ki Ore' signifying the resolve to intensify and reinvigorate the Jan Andolan in the world's largest sanitation programme was also released.

'Indian Swachhata League'

- ⇒ He also announced the opening of the first ever 'Indian Swachhata League', an inter-city competition to take place between the youth of the cities on the 17th of Sept. 2022.
- ⇒ For the maiden edition of ISL, more than 1,850 city teams from across the country have officially registered to compete.
- ⇒ Each team will compete in the League by creating their own unique sanitation initiatives to focus on creating garbage free beaches, hills, and tourist places.

Cities from diverse geographies:

- ⇒ Additionally, the ISL has successfully attracted a diverse set of Indian cities to take part in the first of its kind League.
- ⇒ Cities from diverse geographies and with iconic tourist locations across the length and breadth of the country – such as Leh, Kanyakumari, Kohima, Dwarka, Konark, Port Blair, Rameswaram, Gaya, Poanta Sahib, Karta, Ujjain, Nashik, Varanasi, Pahalgam – have registered their teams and appointed team captains for the competition.

Other initiatives:

- ⇒ Various other interesting initiatives have been lined up during the fortnight such as the Start-Up Challenge Forum, Toycathon- Making toys from waste, Technology Exhibition, Swachh Seher Samvad, etc finally culminating with the observation of Swachh Bharat Diwas on 2nd Oct., Gandhi Jayanti.

CABINET APPROVES ADDITION OF FOUR TRIBES TO ST LIST



Why in news?

- ⇒ Recently, the Union Cabinet has approved the addition of four tribes to the list of Scheduled Tribes,

including those from Himachal Pradesh, Tamil Nadu and Chhattisgarh.

- Demands for inclusion of the communities have been pending for decades.

Key Highlights:

- The Hatti tribe in the Trans-Giri area of Sirmour district in Himachal Pradesh, the Narikoravan and Kurivikkaran hill tribes of Tamil Nadu and the Binjhia in Chhattisgarh, who were listed as ST in Jharkhand and Odisha but not in Chhattisgarh, were the communities newly added to the list.
- Further, the Cabinet approved a proposal to bring the Gond community residing in 13 districts of Uttar Pradesh, under the ST list from the Scheduled Caste list.
- This includes the five subcategories of the Gond community (Dhuria, Nayak, Ojha, Pathari, and Rajgond).
- Gonds are one of the largest tribal groups in the world.

Synonyms for tribes:

- The Cabinet had approved the inclusion of synonyms for 11 tribes in Chhattisgarh and one tribe in Karnataka so that variations in their spellings and pronunciations do not result in people being left out of beneficiary schemes.
- The Cabinet approved 'Betta-Kuruba' as a synonym for the Kadu Kuruba tribe in Karnataka.
- In Chhattisgarh, the Cabinet approved synonyms for tribes like the Bharia (variations added include Bhumia and Bhuyian), Gadhwa (Gadwa), Dhanwar (Dhanawar, Dhanuwar), Nagesia (Nagasia, Kisan), and Pondh (Pond), among others.

How a tribe is included in ST List?

- The Tribal Affairs Minister explained that the process to include tribes in the ST list begins with the recommendation from the respective State governments, which are then sent to the Tribal Affairs Ministry, which reviews and sends them to the Registrar General of India for approval.
- This is followed by the National Commission for Scheduled Tribes' approval before the list is sent to the Cabinet for a final decision.

Background:

- The demand for the Binjhia tribe to be added to the ST list in Chhattisgarh had been pending for around 15 years while the Hatti tribe had been seeking their inclusion for around 50 years.
- Like the Binjhia community, the Hatti tribe had been in the ST list in neighbouring Uttarakhand but not in Himachal Pradesh.
- The Hatti community will benefit around 1.6 lakh people of this area-specific tribe in Himachal Pradesh, who will be able to avail benefits meant for members of STs after the Constitution (Scheduled Tribes) Order (Third Amendment) Bill, 2022, becomes an Act.

NEW RULES FOR CHILD WELFARE PANEL MEMBERS



Why in news?

- The recently amended rules for implementation of the Juvenile Justice Act, 2015, bar a person associated with an organisation receiving foreign funds to be a part of Child Welfare Committees tasked with giving necessary directions for care and protection of children who are abused, exploited, abandoned or orphaned.

Background:

- The Juvenile Justice (Care and Protection Amendment) Model Amendment Rules 2022 were notified on September 1 and came into effect immediately.
- This follows the passage of JJ Amendment Bill, 2021 in Parliament in July 2021.

Key amendments:

- The rules make several changes to aspects under the JJ Act including those that govern adoption, foster care, sponsorship, as well as modify eligibility criteria for Child Welfare Committees (CWCs).
- Rule 15 (4B) of the Model Rules 2021 states, "a person associated with an organisation receiving foreign contribution shall not be eligible to be a Chairperson or member of the Committee."
- Rule 15 (4C) also says that any person working in the implementation of the JJ Act in any NGO or organisation such that it causes conflict of interest will also be ineligible to be on a CWC.
- It adds that those who have "any family member" or "close relation" working for an NGO will also be disqualified to be on a CWC.
- Any person working in rescue and rehabilitation in the district, or a person representing someone running a child care institution or member of the Board or Trust of any NGO can also not be on a CWC.
- Retired judicial officers have also been omitted from the category of persons who can be considered for appointment to a CWC.

Powers of CWC:

- A CWC appointed by the State government under the

- JJ Act has the authority to dispose of cases of children in need of care and protection brought before them.
- It can also order an inquiry to ensure their safety and well-being and give an order for their rehabilitation either in family-based care such as through restoration to family or guardian, adoption, foster care or send them to child care institutions.
 - Those on CWC have the power of a magistrate and also receive a salary from the government for 20 days in a month and are therefore equivalent to government officials, who are barred under FCRA from receiving foreign funds.
 - According to the JJ Act, 2015, the CWC will function as a Bench and shall have the powers conferred by the Code of Criminal Procedure, 1973 on a Metropolitan Magistrate or a Judicial Magistrate of First Class.

Who are bared from receiving foreign funds?

- The Foreign Contribution (Regulation) Act, 2010, only bars certain categories of people and organisations from receiving foreign funds, which include candidates standing for elections, judges, government employees, member of any Legislature, political parties, journalists and media organisations.
- The law requires organisations receiving foreign funds to register and obtain a certificate provided they meet certain conditions, following which they have to maintain an account of funds received and a record of how it has been utilised.
- In 2017, the Ministry of Home Affairs, through the Finance Bill route, brought amendments to pave the way for political parties to receive funds from the Indian subsidiary of a foreign company or a foreign company in which an Indian holds 50% or more share.

SC BANS ALL COMMERCIAL ACTIVITIES AROUND TAJ MAHAL



Why in news?

- The Supreme Court of India in its latest order has imposed a complete ban on all commercial activities within a 500-metre radius from the peripheral the Taj Mahal in Agra.
- The Supreme Court has directed the Agra Development Authority to ensure compliance.

Petition before the SC:

- The order of the apex court came while hearing an application seeking direction to the authorities to prohibit commercial activities within the 500-metre radius of the historic mausoleum.
- The application was filed by a group of shop owners who had been allotted an area outside the 500-metre radius to run their businesses.
- They told the court that illegal business activities are being carried out near the Taj Mahal which is in gross violation of the previous orders of the SC.

Taj Trapezium Zone (TTZ):

- The Supreme Court is seized of the matter filed in 1984 related to the protection and preservation of the Taj Mahal, built by Mughal emperor Shah Jahan in the memory of his wife Mumtaz Mahal in 1631, and its surroundings.
- Environmentalist MC Mehta had filed the plea pertaining to the protection of the Taj Mahal, the fragile ecosystem surrounding it, and construction in the Taj Trapezium Zone (TTZ), an “eco-sensitive area” having four world heritage sites including the Taj Mahal.
- The mausoleum is also a UNESCO World Heritage Site.
- The TTZ, established on December 30, 1996, to protect the Taj Mahal from pollution through an order of the Supreme Court, is a 10,400 sq km area spread across the districts of Agra, Firozabad, Mathura, Hathras and Etah in Uttar Pradesh and Bharatpur district of Rajasthan.

Recent order:

- The 500m-radius of the monument is a no-construction zone, besides strict regulations on vehicular movement.
- There is also a ban on the burning of wood near the monument and municipal solid waste and agriculture waste in the entire area.

BIHAR GOVERNMENT PROMOTED SURJAPURI AND BAJJIKA DIALECTS

Why in news?

- With the aim to revitalise Bihar's local languages and indigenous culture, the State government has directed the state education department to erect two new academies for the promotion of the Surjapuri and Bajjika dialects.
- The Bihar education department will also set up an umbrella organisation that will keep track of the progress of all languages and dialects spoken in the state.

What are Surjapuri and Bajjika dialects?

- The language is prevalent in Kishanganj and some areas of Seemanchal in northeastern Bihar such as the districts of Katihar, Purnia and Araria.



- The language is mostly spoken by Surjapuri Muslims residing in Kishanganj, the district with around 70 per cent Muslim population. However, the language has no specific connection to religion.
- Surjapuri and another regional dialect Tharu, spoken in Bihar, and some regions of Uttar Pradesh and Uttarakhand will become extinct if they are not restored as people now prefer conversing in dominant languages like Bhojpuri, Maithili, Bangla and Hindi.
- Similar to Maithili, Bajjika is mostly spoken in northwest Bihar including Muzaffarpur, Vaishali, West Champaran, Sheohar and parts of Samastipur.

Bihar's eight language academies:

- The two new academies for Bajjika and Surjapuri will be set up akin to the already existing eight language centres, which include Bihar Hindi Granth Academy, Maithili Academy, Magahi Academy, Bangla Academy, Sanskrit Academy, Bhojpuri Academy, Angika Academy and South Indian languages organisation.

Way Forward:

- The reason to introduce language academies for Bajjika and Surjapuri is to popularise their literature and to push for more research in these dialects.
- The planned umbrella body for Bihar's languages will provide a platform for intellectuals like academics, litterateurs, and others to collaborate for promoting literary work and upgrading the grammar and dictionaries of these dialects.

CENTRE EXTENDS PRADHAN MANTRI GARIB KALYAN ANN YOJANA (PMGKAY)

Why in news?

- Recently, the Union Cabinet has approved the extension for the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY-Phase VII) for a further period of 3 months i.e. October to December 2022.

- Recognising that people have gone through a difficult period of pandemic, Govt has decided to extend PMGKAY for a period of three months so that poor and vulnerable sections of society are supported for the forthcoming major festivals.



Key Highlights:

- Under this welfare scheme, 5 kg of food grain per person per month is provided free of cost for all the beneficiaries covered under the National Food Security Act (NFSA) (Antodaya Anna Yojana & Priority Households) including those covered under Direct Benefit Transfer (DBT).
- The total outgo in terms of food grains for PMGKAY Phase VII is likely to be about 122 LMT. The aggregate allocation of food grain for phases I- VII is about 1121 LMT.

So far, PMGKAY has been in operation for 25 months as under

- Phase I and II (8 months) : April'20 to Nov'20
- Phase-III to V (11 months) : May'21 to March'22
- Phase-VI (6 months) : April'22 to Sept.'22

About PM-GKAY:

- PM Garib Kalyan Anna Yojana (PM-GKAY) was initially announced for a three-month period (April, May and June 2020), covering 80 crore ration cardholders. Later it was extended till November 2020.
- Its nodal Ministry is the Ministry of Finance.
- The scheme aimed at providing each person who is covered under the NFSA (National Food Security Act 2013) with an additional 5 kg grains (wheat or rice) for free, in addition to the 5 kg of subsidized food grain already provided through the Public Distribution System (PDS).
- The new version of the PMGKAY lacks one of its important components which was there in 2020 PMGKAY i.e free-of-cost 1 kg pulses per month to each household covered under the NFSA.

Way Forward:

- Going by the experience of earlier phases, the performance of PMGKAY-VII is expected to be on the same high level as achieved before.

GOVERNMENT DISCONTINUES SCIENCE, HEALTH AWARDS

LIST OF AWARDS TO BE PHASED OUT AS PER GOVT NOTIFICATION

➤ **Department of Atomic Energy:** 25 performance-based awards, which are conferred by the PSUs under the department and 13 non-core domain awards given by the department have been discontinued by a recent govt order

➤ **Department of Space:** Three internal awards discontinued

➤ **Department of Biotechnology:** Six fellowships categorised as awards will be converted to fellowships

➤ **Department of Scientific and Industrial Research:** Six awards, except the Shanti Swarup Bhatnagar Awards, cancelled

➤ **Ministry of Earth Sciences:** Dr Anna Mani Award for Women Scientist may be merged with awards given to women by other departments like Ministry of Women & Child Development. Three other awards discontinued

➤ **Department of Health and Family Welfare:** Kayakalp award may be discontinued as it is "basically an incentivizing scheme." 3 awards being conferred by FSSAI may be discontinued. Three national awards given by the National Medical Council are suspended for now. All 9 private endowments awards may be discontinued.

➤ **Department of Health Research:** There are 37 awards given by Indian Council for Medical Research. Among them, 32 endowment awards have been discontinued

Why in news?

- Recently, the Centre has decided to do away with over 250 awards given to scientists and medical researchers.
- This comes as delayed-release grants and student fellowships already haunt the research community.

Transformation:

- The transformation of India's award ecosystem envisages restricting the number of awards and awardees and making the selection process transparent.
- The Department of Science and Technology gives out 207 awards. Some 38 awards are given by the atomic energy department, three by the space department, six by the biotechnology department, seven by the industrial research department, four by the Ministry of Earth Sciences and 17 by the Department of Health and Family Affairs.

Shanti Swarup Bhatnagar prize:

- The Council of Scientific and Industrial Research, India's largest research and development organisation, presents the prestigious Shanti Swarup Bhatnagar prize annually September 26.
- It recognises outstanding contributions to science and technology. But in 2022, any announcements on the same haven't been made yet.
- Shanti Swarup Bhatnagar awards will be allowed to continue, but with some changes, according to the minutes of the meeting.
- The awardees received a monthly remuneration of Rs 15,000 for 20 years. This tenure may be reduced to 15 years.

Vigyan Ratna:

- Further, the Home Secretary recommended setting up Vigyan Ratna, a "Nobel Prize-like award."

Budget on R&D:

- India's research and development expenditures are among the lowest in the world.
- The Centre spends only 0.7 per cent of gross domestic product on research and development. This pales in comparison to China's 2 per cent, Japan's 3.4 per cent and the United States' 2.7 per cent.

INTERNATIONAL RELATION

INDIA, AUSTRALIA INK SIX NEW MEMORANDUMS FOR COLLABORATION IN SPACE SECTOR



Why in news?

- Recently, six new industry-to-industry memorandums for collaboration between the India and Australia were signed at the seventh 'Bengaluru Space Expo 2022'.

Six separate Australia-India space industry memorandums exchanged were

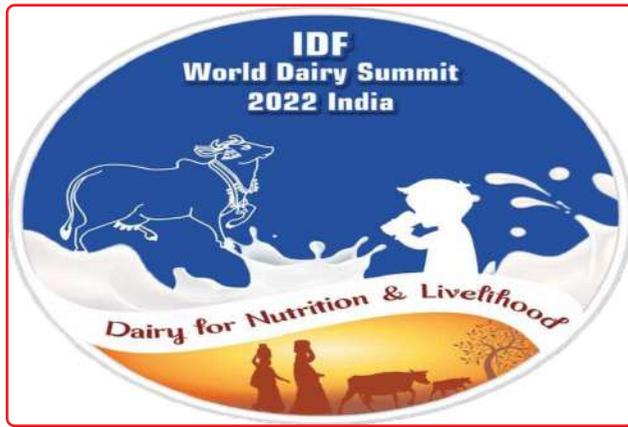
- Australia's Space Machines Company will collaborate with Bengaluru-based aerospace and defence manufacturer Ananth Technologies on product integration, testing, technology development and joint-space missions.
- Australian startup HEX20 will work with Hyderabad-based Skyroot Aerospace to provide launch services, spacecraft avionics and components to Australian Space Initiatives.
- Perth-headquartered QL Space will also partner with Skyroot Aerospace to further develop launch facilities in Australia and support joint mineral exploration missions in space. Perth is known as Australia's resources, mining and mining technology capital.
- QL Space will partner with Chennai-based GalaxEye to develop a hybrid optic and Radar payload to reduce the adverse environmental impact of critical mineral exploration in Australia and beyond.
- QL Space and Bengaluru-based SatSure will work together to build satellite and AI-based solutions to support the agriculture, mining and defence industries, and apply this technology to the outer space environment.
- Australia's SABRN Health, Altdata and India's DCube will work together on the development and integration of hardware, sensor technology and software to provide health support to astronauts, it was stated.

Way Forward:

- The establishment of a Consulate-General in

- Bengaluru from 2023 will allow Australia to further develop the space relationship.
- Australia is also open to launching Indian satellites from their land sometime, and vice versa.

INTERNATIONAL DAIRY FEDERATION WORLD DAIRY SUMMIT



Why in news?

- Recently, the Prime Minister addressed the inauguration of the International Dairy Federation World Dairy Summit (IDF WDS) 2022, at India Expo Centre & Mart in Greater Noida.

Theme of IDF WDS 2022:

- The theme is 'Dairy for Nutrition and Livelihood'.

Uniqueness of dairy sector in India:

- India's dairy sector is characterized by "production by masses" more than "mass production". The sector provides livelihood to 8-crore families.
- There is huge network of Dairy Cooperative in India, which collect milk twice a day from about two crore farmers in more than two lakh villages in the country and deliver it to the customers.
- The indigenous breeds can withstand many adverse circumstances. For example, the sturdy buffalo breed of Banni Buffalo of the Kutch region of Gujarat. Other buffalo breeds such as Murrah, Mehsana, Jafrabadi, Nili Ravi, and Pandharpuri; among the cow breeds, he mentioned Gir, Sahiwal, Rathi, Kankrej, Tharparker and Haryana.
- Women have a 70% representation in the workforce in India's dairy sector.

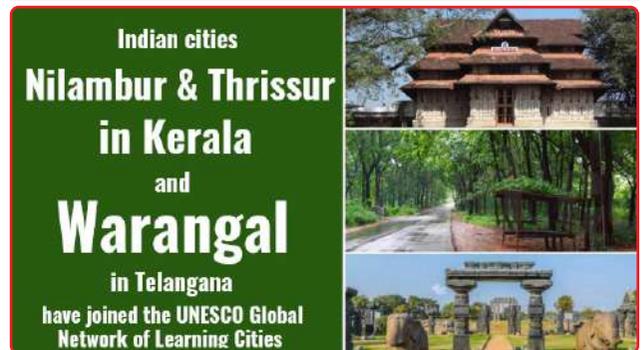
Background:

- The four-day-long IDF WDS 2022, held from 12th to 15th September, is a congregation of global and Indian dairy stakeholders including industry leaders, experts, farmers and policy planners.
- Around 1500 participants from 50 countries are expected to participate in IDF WDS 2022. The last such Summit was held in India about half a century ago in 1974.

Way Forward:

- The Indian dairy industry is unique because it is based on a cooperative model that empowers small and marginal dairy farmers, especially women.
- Driven by the vision of the Prime Minister, the government has taken multiple steps for the betterment of the dairy sector resulting in an increase in milk production by more than 44% in the last eight years.
- The success story of the Indian dairy industry, accounting for about 23% of global milk, producing around 210 million tonnes annually, and empowering more than 8 crore dairy farmers, will be showcased at the IDF WDS 2022. The summit will also help Indian dairy farmers gain exposure to global best practices.

THREE INDIAN CITIES JOIN UNESCO LEARNING CITIES NETWORK



Why in news?

- Warangal and two cities from Kerala have joined the UNESCO Global Network of Learning Cities (GNLC) in recognition of their outstanding efforts to make lifelong learning a reality for all at the local level.

New additions:

- Warangal in Telangana, Thrissur and Nilambur are among the 77 cities from 44 countries which have joined UNESCO GNLC.
- Other cities that have joined the network are the Ukrainian capital Kyiv, Durban in South Africa and Sharjah in the United Arab Emirates (UAE) among others.

What is UNESCO GNLC?

- UNESCO GNLC is an international network consisting of cities that successfully promote lifelong learning across their communities.
- It includes 294 cities from all around the world that share inspiration, know-how and best practice among each other.

Criteria:

- A strong commitment to lifelong learning by the mayor and city administration and a track record

- of good practices and policy initiatives are key prerequisites for becoming a learning city
- The Network supports the achievement of all seventeen Sustainable Development Goals (SDGs), in particular, SDG 4 (Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all) and SDG 11 (Make cities and human settlements inclusive, safe, resilient and sustainable).

MOU BETWEEN INDIA AND UAE ON COOPERATION IN THE FIELD OF EDUCATION



The Cabinet has approved an agreement between India and the United Arab Emirates on cooperation in the field of education

Why in news?

- Recently, the Union Cabinet approved to sign a Memorandum of Understanding between the Ministry of Education, Government of India and the Ministry of Education of the Government of United Arab Emirates on cooperation in the field of Education.
- The objective of the MoU is to further strengthen ongoing educational collaboration between India and UAE and widen the scope of engagements.

Background:

- An MoU was signed in 2015 with UAE in the field of Education which expired in 2018.
- In 2019, at a meeting between Education Ministers of the two countries, UAE side proposed to sign a new MoU.
- The new MoU incorporates changes brought in by the National Education Policy 2020 in India's education ecosystem.

Key Highlights:

- This MoU aims to promote Exchange of Information Education, Capacity Development of Technical and vocational Education and Training (TVET) teaching staff, Facilitation of academic collaboration between Higher Education Institutions in both the countries for offering Twinning, Joint Degree and Dual Degree Programmes and any such other areas agreed upon.
- This MoU will rejuvenate educational cooperation and increase academic mobility between India and UAE besides facilitating exchange information in order to promote mutual recognition of these qualifications.

- It also covers cooperation in TVET as UAE is a major work destination for Indians.

What's next?

- The MoU will be valid for a period of five years from the date of signing and will be automatically renewable with the consent of both parties. Once signed, this MoU shall supersede the earlier MoU signed with UAE in 2015, which will then cease to have effect.

AIBD UNANIMOUSLY EXTENDS INDIA'S PRESIDENCY FOR ONE MORE YEAR

Why in news?

- India's Presidency of the prestigious Asia-Pacific Institute of Broadcasting Development (AIBD) has been extended for one more year.

Details:

- This was unanimously decided by the AIBD member countries at the General Conference of the Institute held in New Delhi.



- Currently, Mayank Kumar Agrawal, Chief Executive Officer, Prasar Bharati and Director General, Doordarshan is the President of AIBD.

Key Highlights:

- Recently, the 47th AIBD Annual Gathering / 20th AIBD General Conference and Associated Meetings held in New Delhi.
- It witnessed a range of discussions, presentations and idea exchange sessions especially focusing on the topic of "Building a Stronger Future of Broadcasting in post pandemic era".
- A five year plan for co-operative activities and exchange programmes was also finalised.

About AIBD:

- The Asia-Pacific Institute for Broadcasting Development (AIBD), established in 1977 under the auspices of UNESCO, is a unique regional inter-governmental organisation servicing countries of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP) in the field of electronic media development.
- The AIBD is mandated to achieve a vibrant and cohesive electronic media environment in the

Asia-Pacific region through policy and resource development.

- The AIBD currently has 26 countries as full members represented by 43 organizations, and 52 affiliate members.

NINTH SESSION OF GOVERNING BODY OF THE ITPGRFA



Why in news?

- Recently, the Ninth Session of the Governing Body (GB9) of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) concluded.
- In the six-day GB9 session of ITPGRFA, more than 400 eminent scientists and resource persons from 150 member-countries participated in the deliberation during the 9th session of GB.

Key Highlights:

First contribution towards Benefit Sharing Fund of Treaty from India

- In a historical first, Federation of Seed Industry of India (FSII) contributed Rs 20 lakhs (~USD 25,000) to the Benefit-Sharing Fund (BSF) as the first collective contribution from Indian seed sector, during the GB-9 meetings.
- The BSF is the funding mechanism of the Treaty used for support of capacity building, Conservation and sustainable use projects among the Contracting Parties of the Treaty.

India appointed as Co-Chair of the Working Group on Enhancement of MLS

- Dr Sunil Archak, ICAR-National Bureau of Plant Genetic Resources, India, was appointed as Co-Chair, along with Dr Michael Ryan, Department of Agriculture, Canberra, Australia, on the Working Group on 'Enhancement of the Multilateral System (MLS)'.
- A fully functional user-friendly and simple MLS is crucial for the success of the ITPGRFA.
- Elements of enhancement would include measures for increased benefit sharing mechanism, expansion of crops and accessions available through the MLS, while also taking into cognisance changes in scientific, technical and policy environment globally.

Consensus on implementation of Farmers Rights reached after extensive negotiations at GB9

- Based on meetings in the last five years of Ad Hoc Technical Expert Group (AHTEG) on Farmers'

Rights (FRs) and the working group/plenary deliberations during the GB9 meeting, a resolution on implementation of Farmers Rights under Article 9 was finally agreed upon ensuring equilibrium and justice.

Resolutions:

- The GB called upon the Contracting Parties to update inventory of national measures, best practices and lessons learnt for national implementation of Farmers' Rights under the Treaty, as per the national legislation.
- Further, the Treaty Secretariat was requested to publish the options for realization of Farmers' Rights, including Option Category 10 (legal measures for the implementation of the Farmers' Rights), which was noted as Co-Chairs proposal, based on India's experience under the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001 where FRs are well balanced with Plant Breeders Rights were included in the resolution as the Co-Chairs.
- The GB9 also called upon the Treaty Secretariat to include in its multi-year programme of work (MYPOW) for possible impact of digital sequence information (DSI) on Farmers' Rights.
- The GB9 welcomed the offer of Government of India to host a global symposium on Farmers' Rights to share experiences and discuss future work on Farmers' Rights and also for the assessment of the Implementation of the Farmers' Rights as per the Treaty Article 9 in various countries which are Contracting Parties.

India flags issue regarding genebank funding:

- In a major breakthrough in the GB9 of ITPGRFA, Contracting Parties acknowledged the intervention made by India, and supported by many African nations, regarding effect due to institutional reform within the CGAIR system on funding of genebanks globally, and CIFOR-ICRAF and ICRISAT in particular.
- GB emphasised the need to ensure the long-term safety of the Article 15 IARC genebanks and the distribution of germplasm held 'in trust' by the CGIAR centres and other Article 15 genebanks, and for long-term solutions by strengthening the Treaty and the Crop Trust mechanism.

About ITPGRFA:

- ITPGRFA is a legally binding comprehensive agreement adopted in November, 2001 at Rome during the 31st session of Food and Agriculture Organization of the United Nations, which entered into force on June 29, 2004 and currently has 149 Contracting Parties, including India.
- The treaty provides solutions to achieve food and nutritional security as well as climate resilient agriculture. Countries are inter-dependent for PGRFA and consequently a global order is essential to facilitate access and benefit sharing.

INDIA-UN PARTNERSHIP IN ACTION



India-UN Development
Partnership Fund 

Why in news?

- In his message to a special India@75' event on 'Showcasing the India-UN Partnership in Action', the UN chief underlined that as home to the largest youth generation in history, India will be decisive in the success of the Sustainable Development Goals (SDGs).
- It was held on the margins of the high-level 77th UN General Assembly session.
- The event was organised by the Government of India and the United Nations to highlight India's partnership with the UN, its South-South Cooperation, its development journey and achievements in the 75th year of its independence.

Excerpts from speech by UN Chief:

- Over the last 75 years India has achieved remarkable progress in equitable and sustainable development, lifting over 270 million people out of extreme poverty and rising to become the world's fifth largest economy.
- Transformations and food systems, sustainable energy, connectivity and health are going to be the key opportunities for deepening the partnership.
- As a founding member of the United Nations, India strongly supports the purposes and principles of the UN.
- India's deepening engagement with the United Nations is based on its steadfast commitment to multilateralism and dialogue as the key for achieving shared goals and addressing common challenges.

India-UN Development Partnership Fund:

- The India-UN Development Partnership Fund is the first-ever single-country South-South cooperation initiative at the UN.
- Launched in June 2017, this USD 150 million Fund supports South-owned and South-led demand-driven sustainable development projects with a focus on LDCs, LLDCs and SIDS.
- The dedicated facility is managed by the United Nations Office for South-South Cooperation (UNOSSC). In the last five years, the Fund has accumulated a portfolio of 66 projects in 51 countries.
- From supporting a project to get ready a Convention Centre in Palau to host Ocean Conference, to

rehabilitating hospitals in Antigua & Barbuda and Guyana, to building a school in Dominica, an Information Technology Centre of Excellence in Papua New Guinea to developing the capacity of women to stem desertification in the Kanem and Lake Chad regions, this Fund is directly impacting the lives of communities across the developing world.

Leadership in Climate Change:

- An important aspect of India's leadership in climate action is converting domestic action into an international collaboration.
- India is helping ensure access to affordable, reliable, sustainable and modern energy for all' through its initiatives like International Solar Alliance (ISA), which was formed at CoP21 in 2015 in Paris.
- Over the years, ISA has helped ensure energy security and sustainable livelihoods by providing poor communities in developing countries access to natural, economic, human, and social capital.
- ISA was accorded multilateral treaty status by the UN in December 2017, and now has over 100 members.
- At CoP26 in 2021, India and the UK announced the One Sun One World One Grid initiative, the first international network of global interconnected solar power grids which will combine large-scale solar power stations, wind farms and grids with rooftop solar and community grids towards a reliable, resilient and affordable supply of clean energy.
- India is also the founder member of the Coalition for Disaster Resilient Infrastructure (CDRI) which is a partnership of national governments, UN agencies and programmes that aim to promote the rapid development of resilient infrastructure to respond to the Sustainable Development Goals' imperatives of expanding universal access to basic services, enabling prosperity and decent work.

ECONOMY**NORD STREAM 1 PIPELINE****Why in news?**

- Recently, Russia halted gas supplies for three days to Europe via Nord Stream 1, citing maintenance issues.

- In July, it was shut down for ten days for annual maintenance. The maintenance was usually done quietly in the past.
- But with the pipeline becoming a bargaining chip between Russia and the West, the company's announcements are now made public.

What is Nord Stream 1?

- Nord Stream 1 is the biggest pipeline transporting natural gas between Russia and Europe via Germany. It runs from Vyborg in Russia to Greifswald in Germany. In 2021, Russia supplied nearly 40 per cent of the EU's natural gas needs through this pipeline.
- It is majorly owned by Gazprom. The twin pipeline system of Nord Stream can transport 55 billion cubic metres of gas from Russia to Europe through the Baltic Sea.
- In June, Russia slashed the supply via Nord Stream to 40 per cent. In July, it was further reduced to 20 per cent.
- Along with the pipeline, Russia has completely cut off supplies to Denmark, Bulgaria, Finland, the Netherlands, and Poland.
- The flows through Nord Stream play a vital role in filling up the national storage tanks of Germany and the EU. It is crucial to provide the required heating in the upcoming winter.

What is the politics around Nord Stream 1?

- Russia has said that it does not intend to cut off the gas supplies via Nord Stream 1 completely. But "if Europe continues its course of absolutely recklessly imposing sanctions and restrictions that are hitting it, the situation may change."
- Russia is using the supplies via the crucial pipeline as a bargain to navigate its economy through sanctions from the western countries, imposed in response to its invasion of Ukraine in February.
- Ukrainian president had, in July, said that Russia is trying to wage an "overt war" against Europe using the pipeline.

Why the pipeline is significant for Germany?

- Energy prices in Germany, Europe's largest economy, are among the lowest in the continent. This is made possible due to cheap gas supplies via Nord Stream 1.
- This also makes German manufactured goods more competitive in the international market. Russian threats to choke this gas supply to Europe present an economic threat to Germany.
- To expand its options and double the supply from Russia, Germany had decided to build Nord Stream 2. But it was halted in February post-Russia's attack on Ukraine.



Why in news?

- On the second day of the state visit of Bangladesh Prime Minister Sheikh Hasina to India, a slew of projects were unveiled and seven MoUs signed between the two countries.

Details:

- Maitree Super Thermal Power Plant:
- Both Prime Ministers jointly inaugurated the first unit of the 1320 MW (660x2 MW) Maitree Super Thermal Power Plant at Rampal in Khulna district of Bangladesh.
- The USD 2 billion power plant is being built with USD 1.6 billion as Indian Development Assistance under Concessional Financing Scheme.

Rupsha Rail Bridge:

- The two leaders also inaugurated the 5.13 kilometre long Rupsha rail bridge built under the concession Line of Credit (LOC) provided by India.
- The bridge is a key part of the 64.7 kilometre long Khulna-Mongla port single track broad gauge rail project.
- Once completed, the rail line would help increase the connectivity of Mongla Port, the 2nd largest port of Bangladesh, and provide an alternate route for rail and maritime trade.
- It would also allow other countries in the region to use the port and boost sub-regional trade.

Khulna Darshana railway line link project:

- The Khulna Darshana railway line link project which involves upgradation of the existing infrastructure linking the current cross border rail link at Gede-Darshana to Khulna was also announced during the visit.
- It will augment the rail connections between the two countries, especially to Dhaka, but also in future to Mongla Port. The project cost is estimated at USD 312.48 million.

Parbatipur and Kaunia railway line link:

- Another railway project estimated to cost USD 120.41 million for the conversion of the existing Metre Gauge line to Dual Gauge line between Parbatipur and Kaunia was also announced.
- The project will connect to the existing cross border

**FIRST UNIT OF MAITREE SUPER
THERMAL POWER PLANT, RUPSHA
RAIL BRIDGE INAUGURATED**

rail at Birol (Bangladesh)-Radhikapur (West Bengal) and will enhance bilateral rail connectivity.

Way Forward:

- The projects will further multi-modal connectivity, enhance people to people contact and facilitate regional economic integration.

INDIA LIKELY TO BECOME WORLD'S THIRD-LARGEST ECONOMY BY 2029: SBI REPORT



Why in news?

- India is likely to become the third-largest economy in the world by 2029 due to a major structural shift since 2014, according to a State Bank of India (SBI) research report.

Key Highlights:

- The path taken by India since 2014 reveals the nation is likely to get the tag of the third-largest economy in 2029, a movement of seven places upwards since 2014 when India was ranked 10th.
- The report highlighted that owing to looming uncertainties, a growth rate of 6-6.5 percent is the new normal in the global economy.
- India should surpass Germany in 2027 and most likely Japan by 2029 at the current rate of growth.
- India's share in world GDP is now at 3.5 percent, as against 2.6 percent in 2014, and is likely to cross four percent in 2027, the current share of Germany in global GDP.

Significance:

- India is likely to be the beneficiary of the investment slowdown in China.
- Broad-based growth of empowerment will also lift India's per person income and this could act as a force multiplier for a better tomorrow.
- It further said that the current estimates might even undergo an upwards revision with the right policy perspective and realignment in global geopolitics.

Forecast:

- It had recently revised downwards the full-year growth forecast to a low 6.8 percent from 7.5 percent earlier for FY23, citing the way below GDP numbers for the first quarter.

- India's Q1 growth numbers showed a consensus growth of 13.5 per cent, pulled down by the poor show of the manufacturing sector, which reported a paltry 4.8 per cent expansion in the first three months of FY23, negating the robust show by the services sector.

JOINT INITIATIVE OF UNION MINISTRY OF AGRICULTURE AND FARMERS WELFARE AND FICCI



Why in news?

- Recently, the Union Minister of Agriculture and Family Welfare, launched the Project Management Unit (PMU) on Public-Private Partnership (PPP) in Agriculture in New Delhi.

Why PPP initiatives in the Agriculture sector?

- Agriculture investments and increasing gross capital formation in agriculture are key to modernizing the Agriculture sector.
- Combining public investments, in the form of various Central Government and State Government initiatives in agriculture along with the Private sector investment, can be a force multiplier for the agriculture sector.
- The Government is keen to incentivize PPP initiatives in the Agriculture sector to improve yields, reduce losses and enhance farmer incomes.
- PPP initiatives will crowd in private capital in agriculture, leverage public investment and align the Central and State Governments, the Private sector, and farmers in a shared vision of dynamic and value-added growth in the sector.
- PPP initiatives will also lead to the convergence of various schemes to benefit farmers and improve their impact.

Objectives:

- The primary objective of this PPP initiative is to enhance the income of small farmers by creating additional value, - from provisioning of quality inputs, technology extension to market linkages, and value addition.
- PPP initiatives are also expected to lead to modernizing agriculture practices, promoting research in climate resilient crops, developing agriculture and rural

infrastructure, and increasing agricultural exports.

- A particular objective is to assist the States to unlock the full potential of their respective agro-climatic regions, and wide variety of agri-produce and help producers to integrate better with domestic and export markets.

Way Forward:

- The PMU initiative for PPP in Agriculture launched today will accelerate large scale PPP projects in Agriculture by leveraging the private sector investments and bring convergence of Government schemes and subsidies.

2ND ANNIVERSARY OF PRADHAN MANTRI MATSYA SAMPADA YOJANA (PMMSY)



Why in news?

- Recently, the Pradhan Mantri Matsya Sampada Yojana (PMMSY) accomplished its successful second anniversary.

Details:

- The Union Ministry of Fisheries, Animal Husbandry and Dairying launched Booklet on PMMSY & its achievements, Matsya Sampada: 3rd edition of DoF Newsletter, Tilapia Action Plan as a part of Export Diversification, Scampi Action Plan, National Seed Plan: 2022-2025 etc.
- The Government of India, as part of the 'Atma Nirbhar Bharat' package, introduced the Pradhan Mantri Matsya Sampada Yojana (PMMSY) with investments to the tune of Rs. 20,050 crores, highest ever investment in the sector.

Fisheries Sector form 2019-2022:

- Though Covid-19 has impacted the sector adversely, but Fisheries growth rate in last 2 years, shows an impressive growth of 14.3% from 2019-20 to 2021-22.
- Further, fish production reached an all-time high of 141.64 lakh tons during 2019-20 to 161.87 lakh tons (provisional) during 2021-22.
- Similarly in exports, India have achieved the all-time high exports of 13.64 lakh tonnes valuing Rs 57,587

crores (USD 7.76 bn) dominated by exports of shrimps. At present India is exporting to 123 countries.

Aquaculture:

- Earlier, Marine fish production dominated India's total fish production. However, with adoption of science-based practices and technology in year 2019, 74% of fish production was contributed by inland fisheries and the rest 26% by marine fisheries.
- In this scheme, Aquaculture promotion will be undertaken especially in the saline and alkaline areas of Northern India.
- Another key concern is Aquatic health management and focus is laid on the address of diseases, anti-biotic and residue issues which will be supported by an integrated laboratory network.

Credit Boost:

- To help meet working capital and short-term credit requirements of the sector, the Government has extended the Kisan Credit Card (KCC) to Fishers, Fish Farmers, Self Help Groups (SHGs), Joint Liability Groups, Women Groups, etc.
- To strengthen the fisheries infrastructure and augment fish production, as of date a total of 19 fishing harbors and fish landing centers proposals have been approved to the tune of Rs. 912.03 crores.
- Through the PMMSY, it is envisaged that an estimated 68 lakh Employment will be generated by the end of 2024-25.

About PMMSY:

- Pradhan Mantri Matsya Sampada Yojana (PMMSY) was launched on 10th September 2020. The aim of the scheme is to bring about Blue Revolution through the sustainable development of the fisheries sector over a period of five years (2020-2025.) PMMSY was announced in the union budget 2019-20.
- Prime Minister envisioned PMMSY as a tool of Atma Nirbhar Bharat towards the purpose of rural development by utilizing rural resources and boosting rural economy in a rapid way. PMMSY can be a key factor for augmenting livelihood of rural sector of the nation.
- The main motto of PMMSY is 'Reform, Perform and Transform' in the fisheries sector.
- The reforms and initiatives in PMMSY scheme have been inculcated in core & trunk infrastructure development, modernization of Indian fisheries, especially the push for new fishing harbours/landing centres, modernisation and mechanization of traditional fishermen crafts-trawlers-deep sea going vessels, provision of post-harvest facilities to reduce post-harvest loss, cold chains facilities, clean and hygienic fish markets, two wheelers with ice boxes and many more.
- Fishermen are provided with insurance cover, financial assistance and a facility of Kisan Credit Card

as well. PMMSY has set a way forward to enhance its utilization by invigorating rural economy.

Interventions:

- The interventions in the scheme have been adequately developed to cater to multi-pronged aspects in terms of people, process and technology which are the 3 important pillars of continued growth and change.
- These 3 pillars comprise various aspects across the chain: sustainable production practices; adequate processing infrastructure creation; target marketing for end consumer; inclusive policies and ample regulatory frameworks for adoption.
- To give right impetus to the state initiatives though technology adoption, optimal utilization of fisheries and capacity building, the Department has sanctioned proposals from different states for leveraging innovative technologies under Ministry's flagship scheme of Pradhan Mantri Matsya Sampada Yojana (PMSSY).

INITIATIVES AS RUN UP TO THE INTERNATIONAL YEAR OF MILLETS 2023



Why in news?

- Recently, a series of pre-launch events and initiatives have been organised by the Department of Agriculture and Farmers Welfare on the MyGov platform as run-up to the International Year of Millets 2023 to create awareness and a sense of participation in the country around the ancient and forgotten golden grains.

Key Highlights:

- A contest for designing a comic story, with the theme 'India's Wealth, Millets for Health' has been launched on 5th September 2022, and is intended to showcase the health benefits of millets to raise awareness among the masses.
- The Millet Startup Innovation Challenge has been launched on 10th September 2022. This initiative encourages young minds to offer technological/business solutions to the existing problems in the millets ecosystem.
- The Mighty Millets Quiz was recently launched with questions based on millets and its benefits.
- A competition for an audio song and documentary

film on the importance of millets, is also to be launched shortly.

Background:

- The United Nations General Assembly has declared the year 2023 as the International Year of Millets. This was adopted by a United Nations Resolution for which India took the lead and was supported by over 70 nations.
- This will help to create awareness throughout the world of the importance of millets, its role in sustainable agriculture, and its benefits as a smart and super food.
- India is poised to become the global hub for millets with a production of more than 170 lakh tonnes and producing more than 80 % of the millets produced in Asia.
- Earliest evidence for these grains have been found in Indus civilization and were one of the first plants domesticated for food.
- It is grown in about 131 countries and is the traditional food for around 60 crore people in Asia & Africa.
- India is the largest producer of millets with 37.5% of the total global output followed by Sudan and Nigeria.

GOVT CLEARS 23 STRATEGIC PROJECTS UNDER NATIONAL TECHNICAL TEXTILES MISSION



Why in news?

- Recently, the Centre has cleared 23 strategic research projects of around Rs 60 crore in the areas of specialty fibres, sustainable textiles, geotextiles, mobiltech and sports textiles under its flagship programme National Technical Textiles Mission.

Focus Areas:

- Identification of the area of research in technical textiles with industry interaction and promotional activities like conferences, exhibition, and buyer-seller meet to promote the use of Technical Textile in the country and to increase the exports to be the key focus areas.

Key Highlights:

- Among these 23 research projects, 12 projects of Specialty Fibres having application areas in agriculture, smart textiles, healthcare, strategic application and protective gears were cleared.

- ⇒ Four projects from sustainable textiles having application area in agriculture and healthcare sector were cleared.
- ⇒ Five projects from geotextile, 1 from mobiltech and 1 from sportech were cleared.

About National Technical Textiles Mission:

- ⇒ The Government approved the proposal for creation of National Technical Textiles Mission for a period of 4 years (2020-21 to 2023-24) with an outlay of Rs.1480 crores in September 2020.
- ⇒ The distribution of funds is (i) For Research Innovation & Development – Rs. 1000 crores, (ii) For Promotion and Market Development- Rs.50 crore, (iii) For Education, Training and Skilling- Rs. 400 crore, and (iv) For Export Promotion – Rs.10 crores and balance Rs.20 crores for administrative expenses.

PM-PRANAM SCHEME



Why in news?

- ⇒ The Centre will soon introduce its Pradhan Mantri-Promotion of Alternate Nutrients for Agriculture Management Yojana (PM-PRANAM) to encourage states to cut down on their use of fertilisers.
- ⇒ The government under the proposed scheme will reduce the subsidy on chemical fertilisers which is expected to increase to Rs 2.25 lakh crore in 2022-2023 – a 39 per cent hike compared to the previous year's Rs 1.62 lakh crore.

How will it work?

- ⇒ The Centre will make the determination by comparing a state's use of chemical fertilisers in a given year to its average usage in the past three years.
- ⇒ The fertiliser ministry dashboard (Integrated fertilisers Management System) will be used by the Centre to make the necessary calculations.

How will it be funded?

- ⇒ There will be no separate funding for this scheme.
- ⇒ The scheme would be financed by the 'savings of existing fertiliser subsidy' and that 50 per cent savings would be passed on to states that save money and that 70 per cent of the grant under the scheme would be used to create assets related to using alternate fertilisers and their production at village, block and district levels.

- ⇒ The rest 30 per cent grant would be used to aid farmers, panchayats, farmer producer organisations and self-help groups involved in reducing fertiliser use and generating awareness, as per the report.

Why is it needed?

- ⇒ Because of the 21 per cent increase in the need for four fertilisers.
- ⇒ The use of Urea, Di-ammonium Phosphate (DAP), Muriate of potash (MOP), and Nitrogen, Phosphorus and Potassium (NPK), has increased from 528.86 lakh metric tonnes in 2017-18 to 640.27 lakh metric tonnes (LMT) in 2021-22.
- ⇒ The Centre is thus intending to introduce this scheme to promote the balanced use of fertilisers or alternative fertilisers.
- ⇒ The Centre subsidises farmers against high global prices of fertilisers. In May, the Finance Ministry announced an additional fertiliser subsidy of Rs 1.10 lakh crore in 2022.

Way Forward:

- ⇒ The Union Ministry of Chemicals and fertilisers has sought their suggestions on the features of PM-PRANAM.

CABINET APPROVES PLI SCHEME ON 'NATIONAL PROGRAMME ON HIGH EFFICIENCY SOLAR PV MODULES'



Why in news?

- ⇒ Recently, the Cabinet has approved the Ministry of New & Renewable Energy's proposal for implementation of the Production Linked Incentive Scheme (Tranche II) on 'National programme on High Efficiency Solar PV Modules'.
- ⇒ It has been approved with an outlay of Rs.19,500 crore for achieving manufacturing capacity of Giga Watt (GW) scale in High Efficiency Solar PV Modules.

Aim:

- ⇒ The national programme on High Efficiency Solar PV Modules aims to build an ecosystem for manufacturing of high efficiency solar PV modules in India, and thus reduce import dependence in the area of Renewable Energy.
- ⇒ It will strengthen the Atamirbhar Bharat initiative and generate employment.

Selection Process:

- ⇒ Solar PV manufacturers will be selected through a transparent selection process.
- ⇒ PLI will be disbursed for 5 years post commissioning of solar PV manufacturing plants on sales of high efficiency solar PV modules from the domestic market will be incentivised.

The outcomes/benefits expected from the scheme are as follows:

- ⇒ It is estimated that about 65,000 MW per annum manufacturing capacity of fully and partially integrated, solar PV modules would be installed.
- ⇒ The scheme will bring direct investment of around Rs.94,000 crore.
- ⇒ Creation of manufacturing capacity for Balance of Materials like EVA, Solar glass, Backsheet, etc.
- ⇒ Direct employment of about 1,95,000 and indirect employment of around 7,80,000 persons.
- ⇒ Import substitution of approximately Rs.1.37 lakh crore.
- ⇒ Impetus to Research and Development to achieve higher efficiencies in Solar PV Modules.

Background:

- ⇒ For solar energy sector, in April 2021, the Cabinet approved a Production Linked Incentive (PLI) Scheme, namely, 'National Programme on High Efficiency Solar PV Modules', with an outlay of Rs. 4,500 crore.
- ⇒ The 'National Programme on High Efficiency Solar PV Modules' targets direct employment to 30,000 people and indirect jobs to 1.2 lakh people.
- ⇒ The 'National Programme on High Efficiency Solar PV Modules' targets an additional 10,000 MW of integrated domestic manufacturing capacity of high efficiency solar PV modules with an investment of around Rs.17,200 crore.

REC ACCORDED WITH 'MAHARATNA' COMPANY STATUS

Why in news?

- ⇒ Recently, Power sector focussed non-banking finance company (NBFC) REC Ltd. has been accorded the status of a 'Maharatna' Central Public Sector Enterprise, thus providing it with greater operational and financial autonomy.

What it translates for REC Ltd?

- ⇒ The granting of 'Maharatna' status will impart enhanced powers to the company's board while taking financial decisions.
- ⇒ The board of a 'Maharatna' CPSE can make equity investments to undertake financial joint ventures and wholly-owned subsidiaries and undertake mergers and acquisitions in India and abroad, subject to a ceiling of 15 per cent of the net worth of the CPSE concerned, limited to ₹5,000 crore in one project.



- ⇒ The Board can also structure and implement schemes relating to personnel and Human Resource Management and Training.
- ⇒ With this, REC can also enter into technology Joint Ventures or other strategic alliances among others.

Contribution to Social Sector:

- ⇒ REC has played a key role in the success of the flagship schemes of the Government of India such as DDUGJY and SAUBHAGYA and has contributed towards achieving village and household electrification in the country.
- ⇒ REC is currently playing the role of nodal agency for Revamped Distribution Sector Scheme (RDSS), for revamping the distribution sector to alleviate the financial & operational issues.

About REC:

- ⇒ Incorporated in 1969, REC is an NBFC focusing on Power Sector Financing and Development across India.
- ⇒ It provides financial assistance to state electricity boards, state governments, central/state power utilities, independent power producers, rural electric cooperatives and private sector utilities.

POSHAN VATIKAS OR NUTRI- GARDENS

Why in news?

- ⇒ Under ongoing Poshan Maah 2022, activities for setting-up nutri-gardens or retro-fitting Poshan Vatikas with backyard poultry / fishery units is being carried out in a big way across the country.

Achievements:

- ⇒ So far, more than 1.5 lakh events on retrofitting Poshan Vatikas with backyard poultry and fishery units have been reported. Also, more than 75 thousand sensitization camps have been conducted to promote millets and backyard kitchen gardens.



- Under various interventions taken up by the Ministry of Women and Child Development jointly with Ministry of Ayush, close to 4.37 lakh Anganwadi Centres have set up Poshan Vatikas.
- Additionally, so far, 1.10 lakh medicinal saplings have also been planted across some of the selected districts of 6 States.

About POSHAN Abhiyaan:

- Launched on 8th March, 2018, by the Prime Minister, POSHAN Abhiyaan aims to improve nutritional outcomes for children, adolescents, pregnant women & lactating mothers.
- The Abhiyaan is a key component of Mission Poshan 2.0 which seeks to address the challenges of malnutrition in children, adolescent girls, pregnant women and lactating mothers through a strategic shift in nutrition content and delivery and by creation of a convergent eco-system to develop and promote practices that nurture health, wellness and immunity.

Poshan Vatikas:

- A key plank of the goal to enable the right kind of nourishment are the Poshan Vatikas or Nutri-gardens that are being set up across the country to provide easy and affordable access to fruits, vegetables, medicinal plants and herbs.
- The idea is simple; to provide a fresh and regular supply of locally produced fruits, vegetables and medicinal plants to women and children straight from a nutri-garden at or near an Anganwadi Centre.
- Poshan Vatikas can play an important role in enhancing dietary diversity by providing key micronutrients through local fruits and vegetables.

Way Forward:

- Poshan Vatikas are a good example of convergent action on-ground. Beyond the reward of locally available wholesome produce, it will reduce external dependency and make communities atmanirbhar for their nutritional security.

GLOBAL INNOVATION INDEX 2022

Why in news?

- Recently, the 'Global Innovation Index 2022', an annual report was released by the World Intellectual Property Organisation (WIPO).



India's progress:

- India rose to 40th among 132 countries in the Global Innovation Index 2022, jumping six places from a year ago. Earlier in 2020, India entered into the top 50 in 2020 and found a place in the top 40 in 2022.
- This was mainly due to an improvement in information and communication technologies (ICT) services exports, venture capital recipients' value as well as finance for start-ups.
- India's rank has risen by 41 places since 2015, when it was at the 81st spot. The country's rank stood at 46 in 2021 in the index that tracks innovation both in government policies and industry practices.
- Earlier in 2020, India entered into the top 50 in 2020 and found a place in the top 40 this year.

Remarks on India:

- India is the innovation leader in the lower middle-income group.
- It continues to lead the world in ICT services exports and holds top rankings in other indicators, including venture capital receipt value, finance for startups and scaleups, graduates in science and engineering, labor productivity growth and domestic industry diversification.

Top rankers:

- Switzerland has emerged as the world's most innovative economy for the 12th consecutive year.
- Switzerland, the US, Sweden, the UK and the Netherlands are the world's most innovative economies, with China on the threshold of the top 10.
- Other emerging economies are also showing consistently strong performance, including India and Turkey, both of which entered the top 40 for the first time.
- India has overtaken Vietnam (48th) as the top lower middle-income economy for innovation.

About GII 2022:

- The GII 2022 report, in its 15th edition is published by WIPO, in partnership with the Portulans Institute and with the support of its corporate partners including the Confederation of Indian Industry (CII), the Brazilian National Confederation of Industry (CNI),

Ecopetrol (Colombia), and the Turkish Exporters Assembly (TIM).

- The rankings were based on the areas of human and capital research, business sophistication, infrastructure and technology outputs among others.

SECURITY

TEJAS MARK-2 PROJECT

THE NEW TEJAS

The long-awaited indigenous fighter Tejas Mk II, which will be manufactured by HAL, will go into production by 2025-2026



17.5 ton

Tejas Mark II will be the same weight as the Mirage, Jaguar and Gripen

ADDITIONS THE NEW GEN

- Heavier stand-off weapon capacity
- State-of-the-art AESA radar
- Indigenously developed air-to-air missile Astra (with a range of 70km)

ALSO IN THE WORKS

Advanced medium combat aircraft (AMCA) given a go-ahead by IAF late last year

25-ton fighter will be powered by two engines capable of super-cruise speeds

Will have advanced tech to ensure minimum radar signatures

WHEN: Set to go into production after the Tejas LCA order of 123 aircraft to replace the IAF's ageing MiG-21s is completed

Why in news?

- Recently, the Cabinet Committee on Security (CCS) has cleared the Tejas Mark-2 project, a more capable version of the indigenous Tejas light combat aircraft (LCA).
- This is an important move not only towards the significant capability enhancement of IAF but a move closer to the Atmanirbhar Bharat (self-reliant) campaign.

About the Tejas Mark-2 project:

- The Tejas Mark-2 is believed to be a more potent version of the indigenous Tejas multirole combat jet. Tejas is a single engine and highly agile multi-role supersonic fighter manufactured by the state-run Hindustan Aeronautics Limited (HAL).
- The government has sanctioned around Rs 10,000 crore for the project, and the LCA Mk-2 is likely to take first flight in two years, setting the stage for its production and subsequent operational availability around 2028.

Salient features:

- The Tejas Mark-2 has been described as a 4.5-generation machine that will not only have 70 per cent indigenisation (as opposed to the 62 per cent of the Mark IA), but will incorporate more advanced technologies to be built in India.
- The jet will be fitted with more powerful GE-414 engines, giving it a longer combat range and greater capacity to carry weapons than the existing Tejas Mark-1 (GE-404 engines).
- While there is no change in the size of the wings, they have been pushed outwards, effectively increasing the fighter's wingspan by 300 mm.

- Additionally, the Tejas Mark-2 has a 21st century look. Ahead of the wings, a canard has been added, creating a resemblance with contemporary fighters such as the Rafale, Eurofighter or the Sukhoi-30MKI.
- The canard provides an additional control surface that creates a vortex, increasing the lifting capability and agility of the aircraft.

Weapon system:

- The Tejas Mark-2 will be equipped with superior radar, better avionics and electronics, and will be capable of carrying a higher weapons payload.
- Besides the weapon payload and the engine, the Tejas Mark-2 would have its internals rearranged, to make it more accessible and maintenance friendly.
- The jet will carry the indigenous Astra Mark 1 and Mark 2 missiles. It would also carry Rudram anti-radiation missiles.

Why the Tejas Mark-2 is important?

- The clearance for the Tejas Mark-2 comes as a huge boost for the Indian Air Force.
- The IAF currently has 30 fighter squadrons as against the sanctioned strength of 42, which is insufficient at a time when the country faces threats from both China and Pakistan.
- The LCA Mark-2 fighter will replace the Jaguar and Mirage 2000 fighters when they are phased out after 10 years.

Way Forward:

- The first high-speed trials of the jet will start in 2023 and its production is likely to start somewhere around 2025.

NEW NAVY ENSIGN INSPIRED BY CHHATRAPATI SHIVAJI



Why in news?

- Recently, the Prime Minister unveiled the Indian Navy's new Ensign 'Nishaan' at the commissioning of India's first indigenous aircraft carrier, INS Vikrant.
- The new ensign dropped the St George's Cross and incorporates the royal seal of Chhatrapati Shivaji Maharaj.

Background:

- Over the years, Naval ensign was changed many

- times. The first ensign of 1947 was changed in 1950. Later, it underwent changes during 2001, 2004 and 2014.
- The erstwhile Indian Naval Ensign included the National Flag in the upper left canton, red vertical and horizontal stripes and a golden yellow state emblem superimposed on the intersection of the red stripes.
 - The national motto 'Satyamev Jayate' engraved in Devanagari script was included underneath the State Emblem. This White ensign has been flown by all formations, ships and establishments of the Indian Navy till September 1, 2022.
 - After the need was felt for a transition, design inputs were invited from the entire Navy. Responses poured in from Naval personnel from all formations and various hierarchies, reflecting enthusiasm for the endeavour, and have helped in developing the new design of the Naval ensign.

New White Ensign:

- The White Ensign identified nation-wide with the Navy, now comprises of two main constituents - the National Flag in the upper left canton, and a Navy Blue - Gold octagon at the centre of the fly side (away from the staff).
- The Octagon is with twin golden octagonal borders encompassing the golden National Emblem (Lion Capital of Ashoka underscribed with 'Satyamev Jayate' in blue Devnagri script) resting atop an anchor; and superimposed on a shield.
- Below the shield, within the octagon, in a golden bordered ribbon, on a Navy Blue background, is inscribed the motto of the Indian Navy 'Sam No Varunah' in golden Devnagri script.
- The design encompassed within the octagon has been taken from the Indian Naval crest. The fouled anchor, which is also associated with colonial legacy, has been replaced with a clear anchor underscoring the steadfastness of the Indian Navy.

What does the Navy Blue Colour Indicate?

- The Navy Blue colour of the above octagonal shape depicts the blue water capabilities of the Indian Navy.
- The twin octagonal borders draw their inspiration from Seal of Chhatrapati Shivaji Maharaj, one of the prominent Indian kings with a visionary maritime outlook, who built a credible Naval Fleet that earned grudging admiration from European Navies operating in the region at the time.
- The octagonal shape also represents the eight directions (four cardinal and four inter cardinal), symbolising the Indian Navy's global outreach. The Octagon stands for good fortune, eternity, renewal and draws positive energy from all directions.

Way Forward:

- The new Naval White Ensign is thus, rooted in the glorious maritime heritage of India, as well as reflective of our Navy's present day capabilities.

- Formations, ships and establishments of the Indian Navy would be adopting the new Naval ensign, as also the new distinguishing flags, car flags and masthead pennants.

INDIAN NAVY LAUNCHES THIRD STEALTH FRIGATE 'TARAGIRI' UNDER PROJECT 17A



Why in news?

- 'Taragiri', the third stealth frigate of the Indian Navy's Project 17A, was launched in Mumbai recently.
- This ship has been built using an integrated construction methodology which involves hull block construction in different geographical locations and integration and erection on the slipway at the Mazagon Dock Shipbuilders (MDL).

Salient features:

- Vessel has an approximate launch weight of 3,510 tons
- The vessel is being launched with an approximate launch weight of 3,510 tons.
- The frigate is designed by the Indian Navy's in-house design organization, the Bureau of Naval Design.

Project 17A:

- The first ship of Project 17A, 'Nilgiri', was launched on 28 September, 2019, and is expected for sea trials in the first half of 2024.
- The second ship of the 'Udaygiri' class under the project was launched on 17 May, 2022. It is expected to start sea trials during the second half of 2024.
- The keel of the fourth and final ship was laid on 28 June.

Way Forward:

- The keel of 'Taragiri' was laid on 10 September, 2020. The ship is expected to be delivered by August 2025.

JAPAN-INDIA MARITIME BILATERAL EXERCISE - JIMEX 2022

Why in news?

- Recently, the sixth edition of Japan India Maritime Exercise 2022 (JIMEX 22) hosted by Indian Navy commenced in the Bay of Bengal.

Key Highlights:

- As part of the two phases of JIMEX, which involves exercises at sea and a harbour phase in Visakhapatnam, Japan was represented by two of its Maritime Self-Defense Force Ships (JMSDF) – Izumo, a helicopter carrier, and Takanami, a guided missile destroyer.
- India, meanwhile, brought three of its indigenously-built naval warships, two of which are Anti Submarine Warfare Corvettes in Kadmatt and Kavaratti, and a multi-purpose stealth frigate in the Sahyadri.



Significance:

- The sixth edition of JIMEX is not only significant due to India and Japan's involvement in the Quad.
- This edition marks the 10th anniversary of JIMEX, which began in Japan in 2012.
- It also coincides with the 70th anniversary of establishing of diplomatic relations between India and Japan.

Way Forward:

- JIMEX 22 seeks to consolidate the high degree of interoperability that exists between maritime forces of the two countries, through complex exercises in the surface, sub-surface and air domains.

IAF'S PROJECT CHEETAH



Why in news?

- Indian Air Force (IAF) is all set to introduce Project Cheetah, which will help weaponise Israeli drones in all defence wings via Indian manufacturing units.

What is Project Cheetah?

- Under the ambitious Project Cheetah, the Indian Air Force wants to upgrade its existing fleet of Israeli-

origin Heron unmanned aerial vehicles with better communication facilities and missiles which can target enemy positions from long range.

- The IAF is the main lead in the project under which the Israeli drones in the Navy and the Army are also planned to be upgraded with strike capabilities and better surveillance and reconnaissance pods.

Why upgrade?

- The three services for a long time have depended upon IAF Israeli-made Searcher II and Heron UAVs for reconnaissance and snooping purposes.
- With the upgrade in snooping capabilities, the forces on the ground would also be able to get pinpoint intelligence about hideouts in areas where men have to be involved in operations.
- The upgrades would also enable the ground stations to operate these aircraft from far-off distances and control them through a satellite communication system.
- The surveillance capabilities of the UAVs planned to be upgraded would be similar to the ones that have been acquired by the Indian Army and IAF under the emergency acquisition powers granted to the forces by the government in wake of the ongoing military stand-off.

About Heron UAV:

- Made in Israel, Heron Unmanned Aerial Vehicle is a medium-altitude UAV and can carry up to 250 kg of weight, including a thermographic camera, airborne ground surveillance, visible light, radar systems, etc.
- The Heron UAV is capable of returning to base autonomously in case of lost communication.

What's next?

- Heron drones of the three services, the Indian Air Force (IAF), Indian Army, and the Indian Navy will be upgraded to be armed with laser-guided bombs, air-to-ground, and air-launched anti-tank guided missiles.
- This project is in the last stage of decision-making.

NAVY LAUNCHES 'NISTAR' & 'NIPUN'



Why in news?

- Recently, two indigenously designed and built Diving Support Vessels (DSVs) of the Indian Navy, named 'Nistar' and 'Nipun' were launched in Visakhapatnam.

Indigenously:

- The DSVs are first-of-its-kind ships, indigenously designed and built at Hindustan Shipyard Ltd, Vishakapatnam.
- 'Nistar' and 'Nipun' were launched by achieving approximately 80 per cent indigenous content, a major step towards "self-reliance".
- The DSV project has generated local employment opportunities and promoted indigenisation which will boost India's economy.

Salient Features:

- The DSVs, equipped with an array of complex diving support systems and Deep Submergence Rescue Vessel (DSRV), will be deployed for deep sea diving and submarine rescue operations.
- Furthermore, the ships will be capable of conducting search and rescue operations and carrying out helicopter operations at sea.

INS Nistar:

- In its previous avatar as a Submarine Rescue Vessel, INS Nistar was commissioned in 1971 and played an instrumental role in conducting diving operations on the Pakistan Navy submarine, Ghazi, which sank outside Vishakhapatnam harbour during 1971 Indo-Pak war.

True testimonial to 'Aatmanirbharta':

- This project is being executed with support from Indian industry, primarily MSME firms who have supplied yard material, equipment and services. Shipyard is extensively using the GeM portal for procuring material and services for the project. More than 120 MSME vendors across India have actively participated in the project.
- The major recipient of the Navy's capital budget investment are Indian shipyards. Of the 45 ships and submarines presently under construction, 43 are being built at shipyards across the country.
- In addition to direct economic 'plough-back', these indigenous ship building projects also act as a catalyst for significant employment generation and skill development.

INDIA TO EXPORT PINAKA ROCKET LAUNCHERS, AMMUNITION TO ARMENIA

Why in news?

- Recently, India has signed a \$250 million deal to export arms and ammunition to Armenia, which is currently engaged in a tense stand-off with its neighbour Azerbaijan.
- India will be sending indigenously developed multi-barrel Pinaka launchers, anti-tank rockets, and other range of ammunitions to the former Soviet region.

Pinaka system:

- The Pinaka system has been developed by Defence

Research and Development Organisation (DRDO) and is manufactured by Indian private firms.

- The rocket system, which is currently in service with the Indian Army, can fire a salvo of 12 rockets in 44 seconds.

**Swathi radars:**

- Though this is the first time that India is exporting Pinaka missile system to another country, it has already exported weapons to Armenia.
- In 2020, India had bagged a \$43 million deal to supply four Swathi radars to Armenia.
- These are weapon locating radars that can track incoming artillery projectiles and pinpoint the location of enemy gun positions for counter-action.

India's defence exports:

- India has been looking to boost its arms exports and has taken various measures to enhance domestic production under its 'Make in India' policy.
- The Centre has set a target to sell weapon systems worth Rs 35,000 crore overseas by 2025.
- Notably, there has been an exponential increase in defence exports. In 2020-21, India exported equipment worth \$90 million compared to \$23 million in 2014-15.

Deal with Philippines:

- In January 2022, India inked a \$375 million deal with the Philippines to provide the BrahMos cruise missile to the country's navy.
- The Philippines navy will use this as an anti-ship shore-based missile that has a range of 290-km.
- BrahMos missile was jointly made by India's DRDO and Russia's NPO Mashinostroyeniya.

ENVIRONMENT

INDIA SUBMITS UPDATED NDCS TO UNITED NATIONS

Why in news?

- Ahead of the 27th International Climate Conference, India has reiterated its commitment to adopt a climate-friendly and cleaner path to combat climate change.
- Recently, India's environment ministry submitted its updated Nationally Determined Contributions (NDCs)

on climate change under the Paris Agreement to the United Nations Framework Convention on Climate Change (UNFCCC).



- India made the updates to the NDCs which were last submitted to the UNFCCC in 2015, for the period up to 2030.

Key Highlights:

- India has updated three out of eight NDCs.
- One of them is reducing emissions intensity of its GDP by 45 percent by 2030, from 2005 level.
- India said that it will put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation, including through a mass movement for 'LIFE'– 'Lifestyle for Environment' as a key to combating climate change.
- The third update is to achieve about 50 per cent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030, with the help of transfer of technology and low-cost international finance including from Green Climate Fund (GCF).
- Other NDCs include adopting a climate-friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development; creating an additional carbon sink of 2.5 to 3 billion tons of CO₂ equivalent through additional forest and tree cover by 2030; mobilizing domestic and new and additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.
- India also aims to better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.
- To build capacities, create domestic framework and international architecture for quick diffusion of cutting-edge climate technology in India and for joint collaborative R&D for such future technologies, is another NDC of India.

Net Zero:

- India's Prime Minister Narendra Modi had in COP26

in Glasgow announced that the country will become net zero by 2070.

- Recently, former United Nations General Secretary Ban Ki-Moon had said that 2070 is too far and that India should aim to become net-zero by 2050.

What's next?

- UNFCCC COP27 is scheduled to be held in November 2022 in Sharm El Sheikh, Egypt.

ANGAN 2.0



Why in news?

- Recently, a three-day international conference ANGAN 2022 (Augmenting Nature by Green Affordable New-habitat), second edition, titled "Making the Zero-Carbon Transition in Buildings" commenced.

Stakeholders:

- ANGAN 2.0, which is being organised by the Bureau of Energy Efficiency (BEE), Ministry of Power, in collaboration with Swiss Agency for Development & Cooperation (SDC) under the Indo-Swiss Building Energy Efficiency Project (BEEP).

Key Highlights:

- Around 75 eminent speakers, representing more than 15 countries and international organisations, have gathered to debate and discuss issues related to building energy efficiency and reducing carbon emission from buildings in 8 plenary and 8 thematic sessions.
- The objective of this conference is to promote a healthy ecosystem which was mentioned at COP 26 in Glasgow by the Prime Minister Narendra Modi on LiFE (Lifestyle And Environment) and Panchamrit, aiming to make India Net Zero by 2070.
- This conference also hosts an exhibition of various low carbon products, technologies and innovations applicable in the building sector.

NEERMAN award:

- The winners of the BEE's 1st National Energy Efficiency Roadmap for Movement towards Affordable and Natural habitat (NEERMAN) Awards were felicitated.
- These awards are institutionalised with the objective to acknowledge and encourage exemplary building

designs complying with BEE's Eco-Niwas Samhita (ENS) and Energy Conservation Building Code (ECBC).

- The NEERMAN award has seen participation of building projects across the country from Jammu & Kashmir to Andaman & Nicobar Islands.

Background:

- Indo-Swiss Building Energy Efficiency Project (BEEP) is a collaborative project between the Government of India and the Government of Switzerland.
- Over this period, BEEP has provided technical support to BEE in the formulation of Eco-Niwas Samhita (energy conservation building code for residential buildings), design of around 50 buildings and trained more than 5000 building sector professionals.

UNEP LAUNCHES GREEN FINS HUB



Why in news?

- The United Nations Environmental Programme (UNEP), along with UK-based charity Reef-World Foundation, recently launched the Green Fins Hub, a global digital platform to give sustainable marine tourism a 'major boost'.

Mandate:

- The platform will help diving and snorkelling operators worldwide to make simple, cost-efficient changes to their daily practices by utilising tried and tested solutions.
- It would also help them keep track of their annual improvements and communicate with their communities and customers.

Salient features:

- The Green Fins Community Forum will be for operators around the world to raise industry needs, discuss environmental issues and share lessons and ideas with like-minded industry leaders, non-profits and governments.
- For example, dive centres experiencing outbreaks of invasive species like the Crown-of-Thorns Seastar at their dive sites can use the forum to gain the resources and expertise to take immediate conservation action.
- The Green Fins Solutions Library will give access to over 100 proven environmental solutions to common daily operational challenges.

- The Action Plan Tracker will enable members to receive an annual sustainability action plan with set goals. An advanced user interface will allow them to track their progress over time.

Membership:

- Green Fins Hub will host two types of membership. One would be digital membership available for diving, snorkelling and liveboard operations globally.
- Throughout every year of membership, operators will receive environmental scores based on a detailed online self-evaluation and progress made on their action plans.
- Green Fins Certified Members will continue to be assessed annually and trained in person at their operation. The assessment process will continue to be based on set criteria using a scoring system (0-330 point system, with a low score implying low impact of a business on coral reefs).
- There will be a minimum threshold (>200 of a maximum environmental impact score) for becoming a Green Fins Certified Member and a ranking of bronze, silver or gold certified members according to performance.

Way Forward:

- Coral reefs, home to at least 25 per cent of marine life, are the mecca for marine-related tourism, contributing up to 40 per cent or more of the gross domestic product in some island nations.
- However, they are a most vulnerable ecosystem, especially to climate change with the difference between a global temperature rise of 1.5 or 2 degrees Celsius being existential for reefs.
- Increasing accessibility of best practice, knowledge and citizen science through the Green Fins Hub could be a game changer in ensuring a future for coral reefs and other fragile marine ecosystems.

SWACHH SAGAR SURAKSHIT SAGAR CAMPAIGN



Why in news?

- Recently, the largest coastal clean drive-up drive, on the occasion of International Coastal Clean-up Day (September 17) was flagged-off by Maharashtra Governor.

Participation:

- Indian Coast Guard (ICG) has conducted the International Coastal Cleanup drive in Mumbai.
- The ICG personnel alongwith more than 2000 children from various colleges and schools have cleaned the beaches at various locations of Mumbai like Juhu, Girgaon, Versova, Uttan, Madh Marve, Colaba, Bandra and Worli.

International Coastal Clean-up Day:

- The International Coastal Cleanup (ICC) day is conducted in various parts of the world in third week of September every year under the aegis of United Nations Environment Programme (UNEP) and South Asia Co-operative Environment Programme (SACEP) in South Asian Region.
- In 2022, the International Coastal Cleanup (ICC) Day has gained a positive momentum due to Prime Minister's appeal for mass cleanliness and sanitation drive 'Swachh Bharat Abhiyan' and celebrations of 'Azadi Ka Amrit Mahotsav' on completing 75 years of Independence.
- The aim was to conduct cleanliness drive all along 7,500 km of Indian coast line at 75 beaches for 75 minutes with special emphasis on Plastic Free Ocean to commemorate 75 years of Independence.

Collaboration in India:

- The Indian Coast Guard has been co-ordinating ICC activity in India since 2006 to generate awareness among coastal populace and students towards safe & clean beaches.
- In addition to Indian Coast Guard, the ICC-22 is being spearheaded by Ministry of Earth Sciences (MoES), Ministry of Environment Forest and Climate Change (MoEFCC), National Services Scheme (NSS), National Disaster Management Authority (NDMA) and various other central & state Govt. Departments and Non-Government Organisations (NGO).
- A mobile application called 'ECO-Mitram' has been launched by the Govt. Of India on 05 Jul 22 to take the drive to every individual and the over-whelming response being received is testimony to the commitment of our woke-citizens to become a part of ICC-22.

'PUNEET SAGAR ABHIYAN'**Why in news?**

- Recently, the National Cadet Corps (NCC) and United Nations Environment Programme (UNEP) signed a Memorandum of Understanding (MoU) in New Delhi to tackle the issue of plastic pollution and achieve the universal goal of clean water bodies through 'Puneet Sagar Abhiyan' and 'Tide Turners Plastic Challenge programme'.

**Objective:**

- The aim of the MoU between NCC and UNEP is to synergise and collate efforts towards engaging youth for promoting clean water bodies.
- The objective is to engage in capacity building and awareness on environmental sustainability through information sharing and training initiatives; promote opportunities for NCC cadets to participate in appropriate national & international platforms related to environment and climate change and engage in and develop joint initiatives of mutual intent pertaining to environment and climate change.

Tenure:

- The MoU, to remain in force for a period of three years, aims at consolidating, developing and detailing their cooperation and effectiveness to achieve the common objectives in the field of environment.

Pillar of India's climate change resolve:

- The 'Puneet Sagar Abhiyan' is among the slew of initiatives taken by the Government to realise the vision of Prime Minister's, which he referred to as 'Panchamrit' during the 26th United Nations Climate Change conference, COP26, held in Glasgow, Scotland between October 31 to November 13, 2021.
- The Prime Minister had presented five nectar elements as India's unprecedented contribution to deal with climate change. These are:
 - a) India will take its non-fossil energy capacity to 500 GW by 2030.
 - b) India will meet 50 per cent of its energy requirements from renewable energy by 2030.
 - c) India will reduce the total projected carbon emissions by one billion tonnes from now till 2030.
 - d) By 2030, India will reduce the carbon intensity of its economy by more than 45 per cent.
 - e) By 2070, India will achieve the target of Net Zero.

Spiralling Drive:

- The NCC had, in December 2021, launched 'Puneet Sagar Abhiyan', a nationwide flagship campaign, initially for one month, to clean sea shores of plastic & other waste material, while raising awareness about the importance of cleanliness.

- It was subsequently extended as a Pan-India round-the-year campaign to cover rivers and other water bodies as well.
- The NCC, the largest uniformed youth organisation in the world, mobilised its cadets to collect plastic and other waste material.
- Since the launch of 'Puneet Sagar Abhiyan', over 100 tonnes of plastic waste have been collected from nearly 1,900 locations by more than 12 lakh NCC cadets, alumni and volunteers, impacting 1.5 crore people. Of the approximately 100 tonnes of collected plastic waste, more than 60 tonnes have been handed over for recycling.

'Puneet Sagar Abhiyan' – a Tide Turner:

- Following the growing support and success of the campaign, the UNEP, engaged in this initiative through their 'Tide Turner Challenge Programme', decided to join hands with the NCC, with the aim to leverage the youth organisation's strengths.
- The UNEP has the mandate and knowledge base for addressing various issues relating to environment, including plastic pollution and has a programme for engaging youth.

INDIA'S 1ST AVALANCHE MONITORING RADAR INSTALLED IN NORTH SIKKIM



Why in news?

- The Indian Army and the Defence Geoinformatics and Research Establishment (DGRE) have jointly installed the Avalanche Monitoring Radar, first of its kind in India, in north Sikkim.
- The radar was inaugurated at one of the forward posts of the army at an altitude of 15,000 feet in north Sikkim.

Scope:

- The avalanche radar was made operational by Defence Research and Development Organisation's wing DGRE, which is involved in forecasting and mitigation of avalanche hazards faced by Indian Army in the Himalayan region.
- Besides being used for detection of avalanches, this radar can also be employed to detect landslides.

Salient features:

- This radar has the capability to detect avalanches within three seconds of their triggering and will assist in saving valuable life of troops and civilians as also vehicles in super high altitude areas.
- This radar uses a series of short micro wave pulses which are scattered at the target and can detect an avalanche in less than three seconds.
- The radar, which can permanently scan the targeted slope for avalanche release and track its path and its size in case it is triggered, can "see" through snow, fog as well as in the night, making it an all weather solution and covers an area of two sq/km obviating the requirement to place additional instruments in dangerous avalanche prone areas.
- The radar is also linked to an alarm system enabling automatic control and warning measures in case an avalanche is triggered.
- Images and videos of the event are automatically recorded for future analysis by the experts.

Way Forward:

- In an area where frequencies of avalanches are high, the radar will go a long way in safeguarding the life of troops deployed in hostile terrain and sub-zero temperatures while at the same time limiting damage to vehicles and equipment at such snowbound high-altitudes area.

RESTORING THAMIRABARANI RIVER



Why in news?

- The district administration of Tirunelveli in Tamil Nadu along with Bengaluru-based non-profit Ashoka Trust for Research in Ecology and the Environment (ATREE) are using what they term as a 'hyper local' approach to restore one of south Asia's oldest rivers, the Thamirabarani.
- Recently, the first phase of a Detailed Project Report (DPR) prepared by ATREE on World Rivers Day (September 25) was launched. The restoration project is called TamiraSES.

Uniqueness of Thamiraparani River:

- It is the only perennial river in Tamil Nadu.
- It originates in the Pothigai Hills of the Western Ghats in Tirunelveli district.

- The river flows through Tirunelveli and then neighbouring Thoothukudi and ends in the Gulf of Mannar at Punakayil. It thus originates and ends in the same state.
- The river supports wildlife such as the Nilgiri marten, slender loris, lion-tailed macaque, white spotted bush frog, galaxy frog, Sri Lankan Atlas moth and the great hornbill.

Historical value:

- Besides the ecosystem services it provides, the river also has historical value for the people of the state. It is mentioned extensively in Sangam Era literature.
- A study published in 2021 found that paddy and soil discovered in an urn during an archeological excavation near the river in Thoothukudi district's Sivakalai were at least 3,200 years old.

Threats:

- While the Thamirabarani landscape, in general, appears water-rich, it faced severe drought in 2016 despite the diverse water storage systems in place. In 2021, in a contrasting situation, Thamirabarani was in spate, but did not lead to any major disaster in the region.
- Settlements have been on the rise which has led to the shrinkage of agricultural land and water bodies.

The project:

- The TamiraSES project aims to restore the Social Ecological Systems of Tamiraparani river riverscape from head-waters to the estuary to enable conditions for native biodiversity to thrive and maintain and enhance multiple ecosystem services to local stakeholders.
- Five social ecological observatories will set up as part of first phase of the project. These will serve as pilots to scale up from the learnings from these sites.

What's next?

- The first phase of the project would be restricted to the borders of Tirunelveli.
- The project was an experiment since most river restoration projects nationally or globally relied on technical or nature-based solutions. But this project was all about community engagement. It is a bottom-up rather than a top-down approach.

SCIENCE & TECHNOLOGY

CERT-IN HOSTS CYBER SECURITY EXERCISE "SYNERGY"

Why in news?

- Recently, the Indian Computer Emergency Response Team (CERT-In) under Ministry of Electronics & IT in collaboration with Cyber Security Agency of Singapore (CSA), successfully designed & conducted the Cyber Security Exercise "Synergy".



- It was conducted for 13 Countries as part of the International Counter Ransomware Initiative-Resilience Working Group which is being led by India under the leadership of National Security Council Secretariat (NSCS).

Theme:

- The theme of the exercise was "Building Network Resiliency to counter Ransomware Attacks".

Key Highlights:

- The exercise scenario was derived from real life cyber incidents, in which a domestic level (limited impact) ransomware incident escalates to a global cyber security crisis.
- Exercise "Synergy" was hosted by CERT-In on its exercise simulation platform.
- Each State participated as a National Crisis Management Team having composition from different government agencies including National CERTs/CSIRTs, Law Enforcement Agencies (LEA), Communication & IT/ICT Ministry and Security agencies.
- The specific objective of the exercise was to Assess, Share and Improve strategies and practices among Member-States to build network resiliency against ransomware & cyber extortion attacks.

Outcome:

- Exercise "Synergy" was successful in meeting its objectives and provided insights for better coordination & cooperation among CRI Member States to build network resiliency and counter ransomware attacks.

MARS OXYGEN IN-SITU RESOURCE UTILIZATION EXPERIMENT (MOXIE)

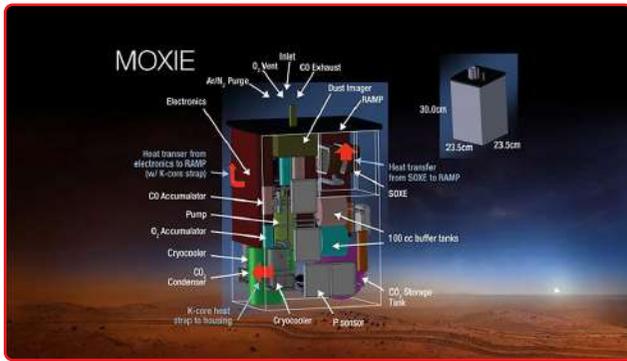
Why in news?

- A small box sent with the Perseverance rover of the National Aeronautics and Space Administration has produced oxygen in Mars with components from the planet's atmosphere, according to a new report.

Details:

- The Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE) by the Massachusetts Institute of Technology (MIT) works like a tree, splitting

carbon dioxide absorbed from the atmosphere to produce pure oxygen.



- The first successful conversion was two months after the rover landed on Mars in April 2021. Since then, seven rounds of experiments were successfully conducted with Moxie in various times of the day and year.

Why it matters?

- This is the first time material needed for human missions on Mars was generated with resources from the planet and not those carried from Earth.
- The instrument produced 6 grams of oxygen per hour, similar to a moderate-sized tree.
- The project can be scaled up ahead of human missions to continuously produce oxygen at the rate of several hundred trees. In this scale, it can also fuel the rocket to bring the astronauts back home.

How MOXIE works?

- Inside Moxie, Martian air is first filtered in and pressurised.
- It is then sent through the Solid Oxide Electrolyzer (SOXE), an instrument developed and built by OxEon Energy, that electrochemically splits the carbon dioxide-rich air into oxygen ions and carbon monoxide.
- The oxygen ions are isolated and recombined to form breathable, molecular oxygen (O2).
- Finally, the gas is measured and tested for purity before being released into the atmosphere.

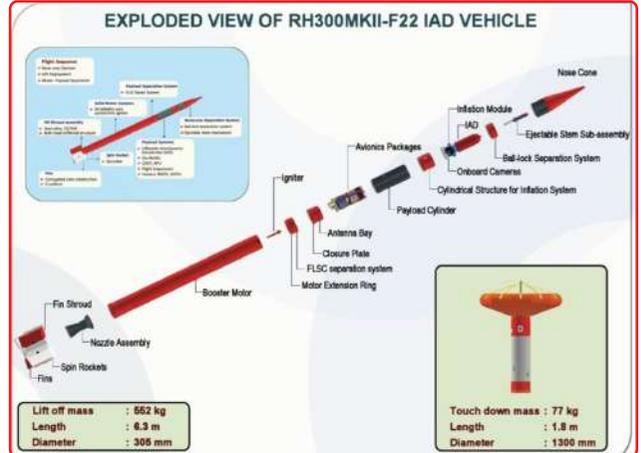
Way Forward:

- The atmosphere on the Red Planet varies greatly through the day and in different seasons. The density of the air can vary by a factor of two through the year, and the temperature can vary by 100 degrees.
- It is important to get a complete overview of Moxie's performance and damage assessment before it can be flagged off for use, the scientists wrote.
- They are yet to test the machine at dawn and dusk as well as in certain times of the Martian year.

INFLATABLE AERODYNAMIC DECELERATOR (IAD)

Why in news?

- Recently, the ISRO successfully demonstrated a new technology with Inflatable Aerodynamic Decelerator (IAD).
- An IAD, designed and developed by ISRO's Vikram Sarabhai Space Centre (VSSC), was successfully test flown in a 'Rohini' sounding rocket from Thumba Equatorial Rocket Launching Station (TERLS).



Details of the launch:

- The IAD is made out of Kevlar fabric, coated with Polychloroprene. Since it is made of fabric, IAD can be packed into a small volume of 15 liters, available in the nosecone of the RH300.
- The IAD was initially folded and kept inside the payload bay of the rocket.
- At around 84 km altitude, the IAD was inflated and it descended through atmosphere with the payload part of sounding rocket. The pneumatic system for inflation was developed by ISRO's Liquid Propulsion Systems Centre (LPSC).
- The IAD has systematically reduced the velocity of the payload through aerodynamic drag and followed the predicted trajectory.

Significance:

- This is the first time that an IAD is designed specifically for spent stage recovery. All the objectives of the mission were successfully demonstrated.
- The IAD has huge potential in variety of space applications like recovery of spent stages of rocket, for landing payloads on to Mars or Venus and in making space habitat for human space flight missions.

New elements tested:

This mission was a test bed for nine new elements developed in the Vikram Sarabhai Space Centre & LPSC, which includes the following:

- Inflatable Aerodynamic Decelerator & Inflation system
- Micro Video Imaging System
- Software Defined Radio Telemetry-Dual Transmitter (SDRT-DTx)
- Acoustics Processing Unit with mini-IMAS (Indigenous MEMS Acoustic Sensors)

- ⇒ New software for wind compensation for TERLS
- ⇒ Modified nosecone separation system
- ⇒ Modified FLSC separation system for RH300
- ⇒ Improved Is delay detonator for spin rocket separation
- ⇒ Thermally conducting and electrically insulating potting compound ATCAP-75-7030

Way Forward:

- ⇒ This demonstration opens a gateway for cost-effective spent stage recovery using the Inflatable Aerodynamics Decelerator technology and this IAD technology can also be used in ISRO's future missions to Venus and Mars.

P VIVAX STRAIN THREATENS INDIA'S PROGRESS TOWARDS MALARIA ELIMINATION BY 2030



Context:

- ⇒ India has made great strides in its fight against malaria but it continues to threaten millions in the country.
- ⇒ This is partially because of plasmodium vivax (P.vivax) which is recurrent, very difficult to treat and greatly disabling.
- ⇒ This strain is different, as the life cycle of P.vivax has an additional stage of placing dormant forms in the liver that can cause multiple malarial attacks over two years, making it one of the most epidemiologically and clinically complex diseases to treat.

Steps to be taken:

- ⇒ The maxim 'an ounce of prevention is better than a pound of cure', finds few better demonstrations than in malaria caused by P.vivax.
- ⇒ Vector control is the number one prevention and elimination strategy of these difficult infections. Use of insecticide-treated nets (ITNs), long-lasting insecticidal nets (LLINs) and indoor residual spraying (IRS) are other effective ways of preventing malaria caused by P.vivax.
- ⇒ Awareness campaigns are also central to fighting vivax malaria. There is a lack of awareness about the severity of the disease in India. Media coverage of acute vivax malaria, and malaria in general, has also been patchy. Reports of the severity of the disease and

information about preventive measures do not reach people at the grassroots at sufficient frequency.

ASHA workers:

- ⇒ Under the current policy, it is the responsibility of ASHA workers to drive awareness on matters of public health.
- ⇒ As ASHA workers are also responsible for immunization, community-based screening, risk assessment, and ensuring follow-up action – they need to understand why vivax malaria must be combatted with more rigor than ever before.
- ⇒ Therefore, the success of public health campaigns to eradicate malaria rests largely upon training ASHA workers on awareness and communication strategies to slow the spread of P.vivax.

Malaria drugs & resistance:

- ⇒ There are rapid elimination therapies that have been developed, like the drugs of blood schizonticides and hypnozoitocides. Together, these two drug classes are referred to as a 'radical cure' in malariology.
- ⇒ The partnership of chloroquine and primaquine has been the only pair of drugs with no drug-drug interactions and remains the most effective radical cure of vivax-caused malaria.
- ⇒ However, P.vivax is becoming resistant to chloroquine, which has led to the development of new blood schizonticide-primaquine partnerships. The difficulty of consistently finding new blood schizonticides as the disease evolves will limit the therapeutical options for the radical cure of vivax malaria.
- ⇒ Secondly, the only drug that's resistant to relapses of P.vivax is primaquine, a drug that causes mild, severe and fatal cases of acute hemolytic anemia in patients having an inborn deficiency of glucose-6-phosphate dehydrogenase (G6PD).
- ⇒ This complex disorder affects 400 million persons globally, with an average prevalence in malaria-endemic nations of 8%. There is technology to diagnose the G6PD deficiency where most of the patients live, but point-of-care testing needs to be strengthened.
- ⇒ The 14 days of daily dosing with primaquine has been designed with G6PD deficiency safety in mind.

Way Forward:

- ⇒ In India, since most of the population's healthcare needs are catered to by both the formal and informal private sector, it ultimately becomes even more important to ensure that the radical cure for P.vivax is properly administered.

AD5-NCOV, INHALED VERSION OF A COVID-19 VACCINE

Why in news?

- ⇒ Recently, China became the first country to approve a needle-free, inhaled version of a Covid-19 vaccine made by Tianjin-based CanSino Biologics Inc.



- China's National Medical Products Administration approved CanSino's Ad5-nCoV for emergency use as a booster vaccine.

Version of CanSino:

- The vaccine is a new version of CanSino's one-shot Covid drug, the first in the world to undergo human testing in March 2020.
- It has been used in China, Mexico, Pakistan, Malaysia and Hungary after being rolled out in February 2021.

Key Highlights:

- The vaccine, which uses a modified cold-causing virus to expose the immune system to the coronavirus, is similar to those developed by AstraZeneca Plc and Johnson & Johnson.
- The inhaled version can stimulate cellular immunity and induce mucosal immunity to boost protection without intramuscular injection.

Way Forward:

- Companies are looking into developing inhaled versions of vaccines to stimulate antibodies in nasal and airway tissues to defend against coronavirus.
- They are needle-free and can be self-administered, broadening their appeal to vaccine-hesitant people and potentially easing pressure on health-care resources.

INDIA'S FIRST NIGHT SKY SANCTUARY TO COME UP IN LADAKH, BOOST ASTRO TOURISM



Why in news?

- India's first night sky sanctuary will be established in Ladakh in a bid to boost Astro tourism in the country

and attract foreign researchers to work with high-altitude telescopes in the region.

Details:

- The Department of Science and Technology will set up the proposed Dark Sky Reserve at Ladakh's Hanle as part of the Changthang Wildlife Sanctuary.
- Hanle is located in Ladakh's cold desert region, away from any form of human disturbance with clear sky conditions and dry weather conditions that exist throughout the year
- The facility will be one of the world's highest-located sites for optical, infrared, and gamma-ray telescopes.
- The facility will also have activities aimed at boosting local tourism and the economy.

Stakeholders:

- A tripartite MoU was signed recently between the Union Territory Administration, Ladakh Autonomous Hill Development Council (LAHDC) Leh, and the Indian Institute of Astrophysics (IIA) for launching the Dark Space Reserve.
- All the stakeholders will jointly work towards the preservation of the night sky from unwanted light pollution and illumination, which is a serious threat to scientific observations and natural sky conditions.

What's next?

- With the announcement, a high-level delegation of scientists and officials from Central Leather Research Institute, Chennai will visit Ladakh by the end of this year to explore the possibility of setting up a regional branch of CLRI, as the UT has a very rich and wide variety of animals for leather research and the industry and to promote bio-economy of animal skin-derived products.
- The Charthang in Ladakh has over 4 lakh animals, mainly pashmina goats, besides sheep and yaks.

INDIA'S FIRST NASAL COVID VACCINE



Why in news?

- India may have a game-changer on its hands with the Drugs Controller General of India (DCGI) approving Bharat Biotech's intranasal COVID vaccine for restricted emergency use for those above 18.
- Bharat Biotech's ChAd36-SARS-CoV-S COVID-19

(Chimpanzee Adenovirus Vectored) recombinant nasal vaccine was approved.

How does it work?

- Bharat Biotech's nasal vaccine uses a chimpanzee cold virus to deliver a harmless copy of the coronavirus spike protein to the lining of the nose.
- The theory behind delivering the vaccine through intranasal route is that both influenza and COVID-19 follow the same pattern of infection – nose and mouth route into the lungs.
- It has been specifically formulated to allow intranasal delivery and has been developed in partnership with Washington University St Louis, which had designed and developed the recombinant adenoviral vectored constructs and evaluated them in preclinical studies for efficacy, as per the report.

What are its advantages?

- As the vaccine is easy to administer as it is non-invasive and does not require trained health care workers.
- It further eliminates needle-associated risks such as injuries and infections, has higher compliance and is scalable as far as manufacturing is concerned.
- Other advantages including the fact that the sprays don't need to be refrigerated and don't need to be administered by health professionals.

Trail outcomes:

- Bharat Biotech completed clinical trials of the nasal vaccine with about 4,000 volunteers and there is no side effect or adverse reaction reported so far.
- Bharat Biotech in August after completing the phase-III and booster dose trials for its intranasal Covid-19 vaccine, said it had conducted two separate trials for its intranasal Covid vaccine – one as a primary dose schedule and another as a booster dose, for subjects who have been double vaccinated with the two commonly administered Covid vaccines in India.
- The data from both Phase III human clinical trials have been submitted for approval to national regulatory authorities.

What's next?

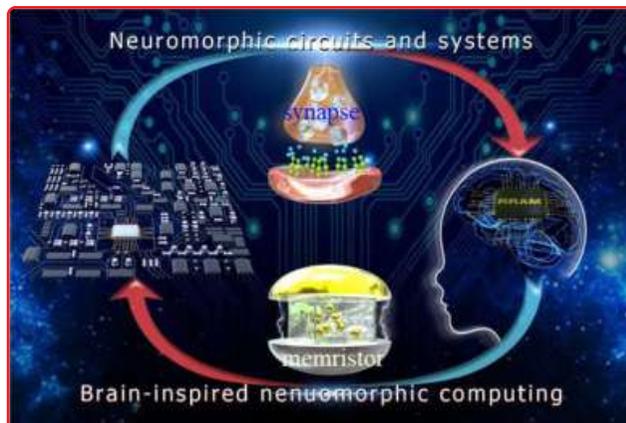
- If approved, this intranasal vaccine will make it easier to deploy in mass immunisation campaigns with an easy to administer formulation and delivery device. Vectored vaccines also enable faster development of targeted vaccines in response to emerging variants of concern.
- Any injectable vaccine only protects the lower level (of the body). That's why people vaccinated with injectable vaccines may still get RT-PCR positive, whereas the nasal jab protects the whole body.

MOLECULAR NEUROMORPHIC COMPUTING TECHNOLOGY

Why in news?

- In a move towards developing devices that can mimic

the workings of neurons in the brain, researchers from Indian Institute of Science, Bengaluru (IISc), have designed neuromorphic devices using organic materials that have not been used hitherto.



Background:

- Artificial Intelligence and machine learning can cause a veritable revolution in the working of the world today, yet their development is hindered by the fact that the present state of the art in electronics does not match up to what is needed.

Organic materials:

- Organic materials had been considered the poorest of different material types in making computing components because they were fragile and unstable.
- They established that organic materials can compute reliably and, in some aspects, are even better than inorganic materials.

The plastic brain:

- The human brain which inspired the researchers in their work vastly outperforms any artificial electronic analogues in terms of its learning, cognition and decision-making ability.
- Its remarkable performance uses up just 20 watt of power over a space of 1260 cc. Some of the properties that it exhibits which are desirable include interconnectedness and reconfigurability.

Challenges:

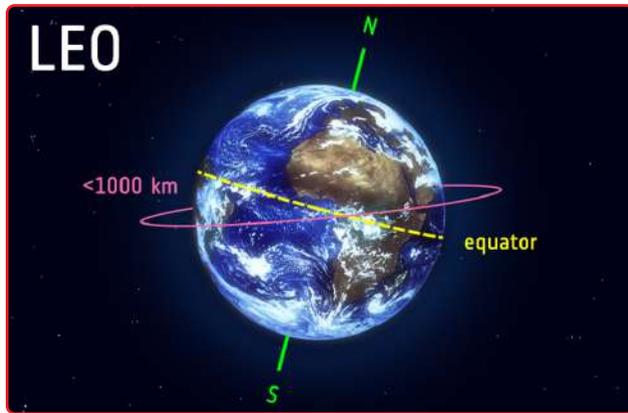
- Molecular materials are characterised by interactions between molecules and ions, which then present a multi-dimensional landscape of parameter space that can be tinkered with to develop suitable functionalities.
- The question was whether they could manipulate these many-body interactions to achieve plasticity and reconfigurability in the devices. They did this by measuring the current-voltage curves as a function of temperature over a wide range. They could capture functionalities spanning bipolar, unipolar, non-volatile, and volatile memristors.
- The challenge was that during low-temperature measurements, in molecular memristors, the

switching responses quenched, or flattened out as temperature was lowered.

Way Forward:

- ⇒ The researchers are fairly confident that they will be able to develop a functional neuromorphic platform based on metal complexes which could be world's first molecular neuromorphic technology.

REGULATION OF SATELLITES IN LOW EARTH ORBIT (LEO)



Context:

- ⇒ The Federal Communications Commission (FCC) in the United States will vote on major issues of space debris as more and more satellites reach Low Earth Orbit, congesting the already tightened space above Earth.
- ⇒ The organisation will aim to introduce new rules to address the growing risks of orbital debris.

What is LEO?

- ⇒ The Low Earth Orbit is normally at an altitude of less than 1000 kilometers but could be as low as 160 kilometers above Earth.
- ⇒ The American agency, FCC currently regulates operators of satellites in LEO to ensure spacecraft will re-enter Earth's atmosphere within 25 years following the completion of missions.

Key Highlights:

- ⇒ The new FCC rules could reduce the timeframe that is required to maintain satellites in orbit once their missions are complete, after which they have to re-enter into Earth's atmosphere for a fiery demise.
- ⇒ The new rules will be an update to the 2004 regulations calling for satellite post-mission disposal as soon as practicable but no more than five years.
- ⇒ The new rules would apply to both US-licensed satellites and systems, and non-US satellites seeking US market access.

Challenges of space debris:

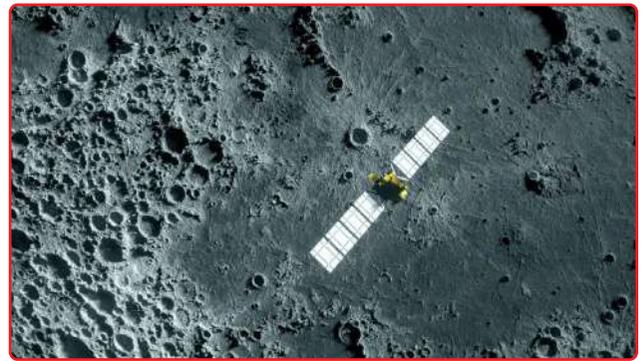
- ⇒ Defunct satellites, discarded rocket cores, and other debris now fill the space environment, creating challenges for future missions, there were 4,800 satellites currently operating in orbit.

- ⇒ As the number of objects in space increases, so too does the probability of collisions. At risk is more than the \$279 billion-a-year satellite and launch industries and the jobs that depend on them.
- ⇒ It also endangers satellite connectivity that is critical to modern life, including broadband in remote areas, navigation, and video.

Way Forward:

- ⇒ With small satellites and constellations being launched by companies like SpaceX, OneWeb and others, there is a growing demand from global countries to enhance space monitoring and tracking in order to safeguard space assets from collisions in Low Earth Orbit.

CHINA DISCOVERS A NEW MINERAL ON THE MOON



Why in news?

- ⇒ Recently, China announced the name of the new mineral as Changosite-(Y).
- ⇒ It was found in rock and dust samples retrieved from the moon by China's Chang'e-5 mission.
- ⇒ The mission was launched in 2020 and was China's first to return a lunar sample.

Details:

- ⇒ China has become only the third country to discover a new mineral on the moon.
- ⇒ U.S. and Russia are the other two countries to have done so till date.
- ⇒ It is the sixth new mineral humans have discovered on the moon.

Changosite-(Y):

- ⇒ A research team from the Beijing Research Institute of Uranium Geology carefully separated a single crystalline particle of the material from more than 140,000 lunar particles using hi-tech processes, including X-ray diffraction.
- ⇒ The particle was about 10 microns in diameter, or about one-tenth of a human hair.
- ⇒ Changosite-(Y) is a phosphate mineral found in lunar basalts.

Phosphate:

- ⇒ Phosphate is the natural source of phosphorous and is also found on Earth.

- ⇒ It is an element that provides a major chunk of the nutrients plants need for their growth.
- ⇒ While excess of it is damaging to the human body, it would play a key role in helping space faring heroes farm on the lunar surface.

Way Forward:

- ⇒ The discovery of Changosite-(Y) was a breakthrough in mineralogy research and will help understand the history and evolution of the moon, besides helping with deep space exploration.

INDIA'S FIRST COMMERCIAL SATELLITE BROADBAND SERVICE



Why in news?

- ⇒ Hughes Communications India (HCI) in collaboration with the Indian Space Research Organization (ISRO) officially launched its first high throughput satellite (HTS) broadband internet service in the country.
- ⇒ The company had been testing its operation in North India for the last year.

Mandate:

- ⇒ From northeast to desolate parts of Leh and Ladakh, the company, using ISRO's Ku-band capacity of GSAT-11 and GSAT-29 satellites has promised to deliver high-speed satellite broadband services to remote locations across India.

What is HTS?

- ⇒ High-throughput Satellite differs from a conventional satellite in the sense that it increases capacity when using the same amount of orbital spectrum while simultaneously reducing the cost per bit.
- ⇒ HTS provides much more bandwidth. It provides much lower-cost bandwidth, and it provides a much higher user experience.
- ⇒ HTS uses spot-beam to perform its operations, unlike traditional satellites which use a broad single beam or few beams. Spot beam technology allows to focus on a limited area and provides seamless and fast connectivity.
- ⇒ Hughes India uses its home-grown Jupiter system for both HTS and conventional satellite implementations worldwide. HCI is currently providing satellite broadband access to more than two lakh business and government sites across India.

Current operations of HTS:

- ⇒ Through the HTS technology, the company is already providing assistance to the Indian Army, and paramilitary forces patrolling the Line of Actual Control (LAC) and other remote border outposts.
- ⇒ Currently, cooperative banks, telecommunication 4G operators, and Small and Medium Enterprises (SMEs) are the customers of HTS service. At the moment, Hughes has 1 Gbps of capacity on HTS but expects to grow it to 10 Gbps to 100 Gbps in the future.

MEITY STARTUP HUB AND META LAUNCH XR STARTUP PROGRAM TO CREATE NEXT GENERATION STARTUPS IN EXTENDED REALITY TECHNOLOGIES



Why in news?

- ⇒ To create next-generation startups in extended reality (XR) technologies, MeitY Startup Hub (MSH), an initiative of the Ministry of Electronics & Information Technology (MeitY) and Meta, has launched an accelerator programme to support XR technology startups across India.

Focus:

- ⇒ This initiative will focus on skilling and building technological capabilities for the metaverse and will help shape the ecosystem for these emerging technologies, including Augmented Reality (AR) and Virtual Reality (VR) in the country.

Key Highlights:

- ⇒ The program will support 40 early-stage start-ups working in XR technologies with a grant of Rs 20 lakhs each.
- ⇒ Further, the Grand Challenge will encourage early-stage innovators in sectors like education, learning and skills, healthcare, gaming and entertainment, agri-tech and climate action, and tourism and sustainability.
- ⇒ The innovators will be provided support to upscale from the R&D phase to developing workable products and services.
- ⇒ At first 80 innovators will be shortlisted to attend a boot camp, out of which, a total of 16 innovators will be provided grants of Rs 20 lakhs each and further

support to help them develop Minimum Viable Product (MVP)/ prototypes.

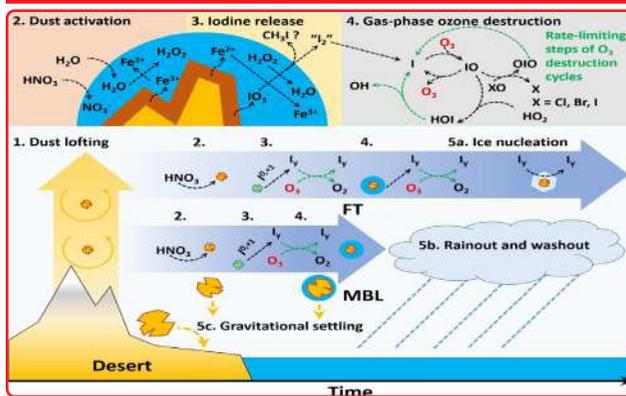
Stakeholders:

- The XR Startup Program will be implemented by four institutions - International Institute of Information Technology – Hyderabad Foundation, Hyderabad, Telangana (CIE IIIT-H); AIC SMU Technology Business Incubation Foundation (AIC-SMUTBI), Rangpo, Sikkim; Gujarat University Startup and Entrepreneurship Council (GUSEC), Ahmedabad, Gujarat and Foundation for Innovation and Technology Transfer (FITT), IIT Delhi, New Delhi.
- The XR Startup Program is supported by Meta's XR Programs and Research Fund.

Way Forward:

- An important milestone in the area of Metaverse, the initiative can also fuel the growth of investments in future technologies in line with the government vision for making India a trillion-dollar economy by 2025
- Young Indian Startups, especially from tier 2/3 cities, will play a significant role in emerging tech areas like Web 3.0, blockchain, AI, Metaverse, and will shape the future of technology and the internet for India and the world.

IODINE DESTROYING OZONE LAYER



Why in news?

- While climate change continues to affect the mainlands, the cold frigid regions of Antarctica and the Arctic are no different to it.
- While the role of chlorofluorocarbons (CFC) has been widely established, an international team of researchers has found Iodine, a new element that is damaging the Ozone over the Arctic.

Details:

- Over a hundred researchers from 20 countries, including the Indian Institute of Tropical Meteorology (IITM), Pune, in collaboration with Extreme Environments Research Laboratory, Switzerland, The Cyprus Institute, and NOAA Physical Sciences Laboratory, joined hands to analyse the changes in

the Arctic.

- The researchers found that the chemical reactions between Iodine and Ozone were the second highest contributor to the loss of surface Ozone.
- The observations were conducted by the researchers during the ship-based Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAIC) expedition.

What is Ozone?

- The Ozone layer is found in the troposphere, the lower 10 kilometers of the atmosphere, and in the stratosphere that extends 10-50 km above the ground.
- Ozone is a form of oxygen with molecules carrying three atoms instead of two and acts as a shield protecting us against harmful ultraviolet radiation from the Sun.
- The Ozone has been under attack from chlorine (chlorofluorocarbon, CFC) and bromine (halon) compounds that were largely being used in refrigerants, pesticides, solvents, and fire extinguishers. This led to the development of a major hole in the Ozone layer, which has since then closed.
- The main driver for this is the anthropogenic emissions of chlorofluorocarbons (CFCs). However, similar, but shorter-lived, ozone depletion events are seen close to the surface of the Earth, during these depletion events, ozone concentrations drop to nearly zero.

How is Iodine damaging Ozone?

- The researchers conducted observations from March to October 2020 in the high Arctic region and found that Iodine enhances springtime tropospheric Ozone depletion.
- They developed a chemical model to show that chemical reactions between Iodine and Ozone are the second highest contributor to the loss of surface Ozone.
- The study further suggests that the atmospheric increase in Iodine loading due to enhanced anthropogenic Ozone-induced ocean Iodine emissions, as well as the thinning and shrinking of Arctic sea ice expected in the near future, will probably lead to increases in Iodine emissions.

Way Forward:

- These results indicate that iodine chemistry could play an increasingly important role in the future and must be considered for accurate quantification of the ozone budget in the Arctic.
- The new findings are set to change the decades-old paradigm on the drivers of Arctic photochemical Ozone loss.

**INDIAN AND US FIRMS UNITE TO BUILD
SATELLITE WITH BOTH SYNTHETIC
APERTURE RADAR AND OPTICAL SENSORS**



Why in news?

- Three Indian aerospace firms (GalaxEye, Ananth Technologies and XDLINX Labs) have come together to unite with an American software platform provider (Antaris) to create an earth observation satellite that will have both optical sensors and a Synthetic Aperture Radar.

Geospatial imagery:

- Announcing the signing of a Memorandum of Understanding (MoU), the companies said that they were working towards creating the world's first geospatial imaging satellite featuring both SAR and Optical sensors.
- Geospatial imagery refers to the broad spectrum of work that aims to measure and visually analyze the earth from up above and understand various changes, natural processes, environmental phenomena etc.

Key Highlights:

- Under the terms of the agreement, Antaris will provide the SaaS technology platform required to design, simulate, build and manage the earth observation satellite from GalaxEye and its onboard Drishti sensor.
- Ananth Technologies will provide AIT (Assembly, Integration and Test) services and manufacturing capabilities.
- XDLINX Labs, will be responsible for the design of the spacecraft bus and supply chain integration services.

Scope:

- Typically, satellite constellation operators have deployed specialized satellites to capture specific types of data. Each image or data point is captured at a unique time from a unique location, making it difficult to correlate data from separate satellites.
- In this setup, the satellite would be able to function like a camera and click colour images of the earth, amid favourable weather conditions (during the day, clear skies etc.) and also click detailed black-and-white images using a Synthetic Aperture Radar, which can provide imaging during day& night and during all weather conditions.
- This satellite is expected to be launched by end of 2023.

Way Forward:

- The resulting datasets will have tremendous value for environmental, insurance and defence applications.

MAYA, WORLD'S FIRST CLONED WILD ARCTIC WOLF



Why in news?

- For the first time ever, a wild arctic wolf was successfully cloned by a China-based gene firm.
- The firm, Sinogene Biotechnology, released a video of Maya, the world's first cloned wild arctic wolf, 100 days after her birth in a Beijing lab.

Why it matters?

- The cloning of the Arctic wolf, also known as the white wolf or polar wolf, which is native to the High Arctic tundra of Canada's Queen Elizabeth Islands, is considered a milestone achievement in conserving rare and endangered species through cloning technology.

How it was cloned?

- Maya's donor cell came from the skin sample of a wild female arctic wolf.
- Its oocyte was from a female dog and its surrogate mother was a beagle.
- The cloning of the arctic wolf was accomplished by constructing over 130 new embryos from enucleated oocytes of a female dog and somatic cells of a wild female arctic wolf.
- This was followed by the transfer of over 80 embryos to the uteri of seven beagles, of which one was born as a healthy wolf.
- The selection of a dog as the wolf's surrogate was made because dogs share genetic ancestry with ancient wolves and it is more likely to succeed through cloning technology.

Background:

- Cloning, the process of creating copies of living organisms, including cells, tissues, etc, was first used to create an animal in 1996 by a Scottish scientist.
- The animal, a sheep named Dolly, was made using an udder cell from an adult sheep.

What's next?

- The cloned wolf Maya now lives with her surrogate beagle in a lab and later she will be delivered to the Harbin Polarland, Northeast China's Heilongjiang Province and displayed to the public.
- The cloning technology will help in breeding more rare and endangered animals.

UAE TO LAUNCH MAIDEN MOON MISSION RASHID



Why in news?

- After successfully launching its mission to Mars, the United Arab Emirates (UAE) is planning to launch its maiden moon mission in November 2022.

Details:

- Dubbed Rashid, the spacecraft will be launched from the Cape Canaveral spaceport in Florida.
- The probe will be launched onboard a SpaceX Falcon 9 rocket and will be deposited into lunar orbit by a Japanese space lander in March.

Key Highlights:

- The lunar mission is part of the UAE's broader strategy to become a major player in the field of space exploration.
- If the moon mission succeeds, the UAE and Japan would join the ranks of only the US, Russia, and China as nations that have put a spacecraft on the lunar surface.
- The Rashid rover is expected to study the lunar surface, mobility on the moon's surface, and how different surfaces interact with lunar particles.
- The 10-kilogram (22-pound) rover will carry two high-resolution cameras, a microscopic camera, a thermal imagery camera, a probe, and other devices.

Hope Probe:

- This will be the second big mission for the Emirates space agency, which garnered global attention when it launched the Hope probe and managed to place it in the Martian orbit in a maiden mission.
- The probe has been beaming back images and data from the Mars, which has revealed unique auroras.

What's next?

- Meanwhile, the UAE also has plans to develop the Middle East's most advanced commercial satellite to produce high-resolution satellite imagery.

- It has also set the ambitious goal of building a human colony on Mars by 2117.

APPLE IPHONE & ESIMS



Why in news?

- The recent iPhone 14 series is without a physical SIM slot and a user will have to rely on an eSIM in order to access mobile networks.

Background:

- Nor is Apple the first company to remove the physical SIM slot from its phones.
- Samsung Galaxy Z Fold, and Z Flip series do not have a physical SIM slot, including the units sold in India and require only an eSIM in order to work.
- Apple has supported eSIMs for a while (since iPhone XS and above), though dual eSIM support started with the iPhone 12 series. Till now users in the US had the option of using a regular SIM and an eSIM, but now they will have to stick to an eSIM.

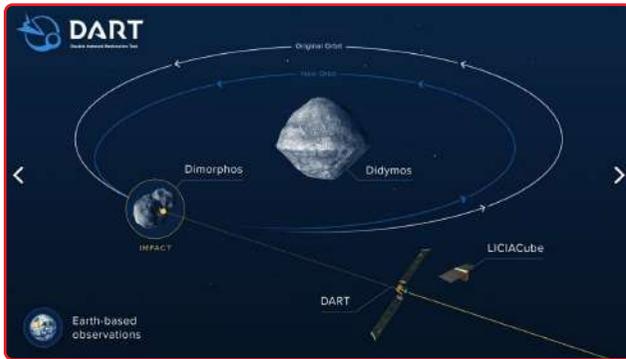
How does it work?

- An "eSIM is an industry-standard digital SIM supported by carriers".
- eSIM will offer more benefits, especially when travelling abroad because if your iPhone is stolen. That's because the thieves cannot remove the SIM and access that, especially if your iPhone is locked.

What about activating eSIMs when travelling abroad?

- This is where the convenience of a physical SIM might be missed. For those travelling abroad, figuring out how to obtain a local eSIM could be a problem.
- While the existing carrier will likely have international roaming, it will come with extra fees and sometimes the plans might be too expensive. In such cases, a physical SIM appears to have some advantages.
- But Apple says that users can purchase an eSIM from a local carrier in the country or region where they are travelling and set it up as well.
- The steps to activate the new eSIM will likely be the same, such as scanning the QR code provided by the carrier or using the carrier's app.

NASA SUCCESSFULLY CRASHES DART SPACECRAFT INTO ASTEROID DIMORPHOS



Why in news?

- NASA's DART spacecraft successfully crashed into the asteroid Dimorphos.
- The DART mission intentionally crashed on an asteroid to test a unique defence technology.
- The crash is aimed at giving Earth a defence tool against future asteroids headed our way.

What is DART?

- The DART stands for Double Asteroid Redirection Test.
- DART, launched by a SpaceX rocket in November 2021, made most of its voyage under the guidance of NASA's flight directors, with control handed over to an autonomous on-board navigation system in the final hours of the journey.
- The DART spacecraft developed by the Applied Physics Laboratory at Johns Hopkins University, was the size of a vending machine.

Key Highlights:

- The DART spacecraft, slammed into an innocuous asteroid at 22,500 kph, causing a gigantic slam to occur at 9.6 million kilometres away.
- The \$325 million mission was the first attempt to move any natural object in space.
- Dimorphos, the name of the 160-metre asteroid, means "twin" in Greek. It is actually a moonlet of Didymos, a rapidly spinning and five times larger asteroid.
- The spectacle was observed through telescopes from Earth and space pointed towards the same location in the sky. The primary goal of the collision was to change the asteroid's orbit.

Lethal near-Earth objects:

- As per NASA, much fewer than half of the projected 25,000 near-Earth objects in the lethal 140-metre range were found.
- As it stands, less than one per cent of millions of smaller asteroids have the potential to cause widespread destruction.

DRDO FLIGHT TESTS VSHORADS MISSILE



Why in news?

- Recently, the Defence Research and Development Organisation (DRDO) successfully flight tested the Very Short Range Air Defence System (VSHORADS) missile in Chandipur off the coast of Odisha.

What is VSHORADS?

- VSHORADS is a Man Portable Air Defence System (MANPAD) designed and developed indigenously by DRDO's Research Centre Imarat (RCI), Hyderabad in collaboration with other DRDO laboratories and Indian Industry Partners.
- VSHORADS missile incorporates many novel technologies including miniaturized Reaction Control System (RCS) and integrated avionics, which have been successfully proven during the tests.
- The missile is propelled by a dual thrust solid motor and is intended to counter low-altitude aerial threats at short ranges.

Outcome:

- Very Short Range Air Defence Missiles are critical for defending any major city or strategically important location.
- The design of the missile including launcher has been highly optimized to ensure easy portability.
- Both the flight tests have completely met the mission objectives.

Way Forward:

- This new missile equipped with modern technologies will give further technological boost to the Armed Forces.

SOCIAL ISSUES

DECLINE IN YOUNG POPULATION CAUSING DECLINE IN STUDENT ENROLMENT: NCERT

Why in news?

- Recently, an Educational Survey Division (ESD) of NCERT, releases a report titled, 'Projection and Trends of School Enrolment by 2025'.

Role of enrolment:

- Enrolment is a function of population. If there is less gap between enrolment figure and child population

of the respective age or age-group then growth in enrolment will be directly proportional to the growth in the child population of that respective age or age-group.



Basis of Data:

- It has taken into account the National Achievement Survey (NAS) conducted by the NCERT and figures of the annual Unified District Information System for Education (UDISE) data.
- The study considered NAS reports from 21 states where the population was more than 5 million in the 2011 Population Census of India, saying there is much fluctuation in the data of the North Eastern states and some statistics are not available.

Key Highlights:

- It has projected that the overall enrolment in schools will have declined by more than 14 per cent by 2025, beginning from 2011, with the enrolment of girls expected to decline by over 2 per cent more than that of boys.
- The enrolment of scheduled caste students would remain unchanged for the next 5-10 years, while the number of students from scheduled tribe will face stagnation after 2023-24.
- The report said that enrolment is a function of population, so a decline in the child population in the age groups of 6-11, 11-14, and 14-16 years is reflected in the enrolment at each stage.

Stage-wise projections:

- The growth in enrolment at the primary stage continued up to the year 2011. After 2011, the enrolment has declined and this will continue till 2025. During the period from 2011 to 2025, total enrolment will decrease by 14.37 per cent whereas enrolment of boys and girls will decrease by 13.28 per cent and 15.54 per cent, respectively.
- At the upper primary stage, the enrolment of boys, girls and the total percentage started to decline from 2016. During this period, enrolment decreased by 9.47 per cent (in total), 8.07 per cent (boys) and 10.94 per cent (girls).
- Similarly, decline in enrolment was also recorded at the secondary stage but here the decline started from 2020.

- In the social groups, scheduled castes and scheduled tribes, the decline in school enrolment pattern was very similar to India's enrolment pattern.

Significance:

- The NCERT report has studied trends since 1950, when the country had 2,171 schools with 2.38 crore students.
- The study is an outcome of the PAC programme's objective of projecting the school enrolment in the country from 2016-2025.
- It will help in identifying the possible trends in school enrolment for boys and girls as well as the marginalized groups of society for all the states and UTs in the country.

Way Forward:

- The analysis can give insights and help the government plan future education policies.
- This forms the basis for many investment decisions like opening of new schools, upgradation of existing schools, employment and deployment of teachers and the provisioning of infrastructure.

NCERT ISSUES GUIDELINES TO SCHOOLS FOR EARLY IDENTIFICATION OF MENTAL HEALTH PROBLEMS IN STUDENTS

Why in news?

- The guidelines for 'Early identification and intervention for mental health problems in school going children and adolescents' have been released by the National Council of Educational Research and Training (NCERT) following a mental health survey among school children.
- The survey report launched cited exams, results and peer pressure among major factors for stress and anxiety among school students.

Key Highlights:

- Setting up of a mental health advisory panel, school based mental health programme and pedagogical support to ensure mental well-being of students and engaging parents are among the guidelines issued by NCERT for schools.
- The schools should have a provision for identifying behaviour, substance use and self-harm, depression, and developmental concerns, provide first aid and make appropriate referrals.
- Most of the time mental health issues emerge at an early stage of life as half of all mental health conditions emerge by the time individuals are 14 years old and three-quarters by the age of 25, NCERT has recommended that apart from families and parents, teachers need to be informed about early flag signs as they too are the primary caregivers.

Mental health advisory panel:

- According to the manual, every school or groups of

schools should establish a mental health advisory panel.

- It should be chaired by the principal and have teachers, parents, students and alumni as members.
- It will create awareness, and also plan and enforce an age and gender appropriate annual school mental health programme.

Training of teachers:

- Teachers must be trained in identifying early signs in students for attachment issues, separation anxiety, school refusal, communication issues, anxiety patterns, depressive states, conduct related issues, excessive internet use, hyperactivity, intellectual disability, and learning disabilities.
- Teachers should talk about bullying cases in class and empower students by educating them regarding bullying.
- They should provide a confidential way for students to report any incident which is of concern to them.

Why focus is on schools?

- Schools generally are seen as spaces where communities of learners have been expected to develop in a safe and secure environment. School management, principal, teachers, other staff, and students all spend around 1/3 of a day and around 220 days in a year in schools across the states and UTs in India.
- For residential schools, the time spent by a student in the school community is even more. Therefore, it is the school's responsibility to ensure the safety, security, health, and well-being of all children in schools and hostels.

UN WARNS OF GLOBAL EMERGENCY AS NEARLY 345 MN PEOPLE FACE ACUTE STARVATION



Why in news?

- Recently, the U.N. World Food Program said the world is facing a global emergency of unprecedented magnitude, with up to 345 million people marching toward starvation and 70 million pushed closer to starvation by the war in Ukraine.

Details:

- It told the U.N. Security Council that the 345 million

people facing acute food insecurity in the 82 countries where the agency operates is 2 times the number of acutely food insecure people before the COVID-19 pandemic hit in 2020.

- About 50 million of those people in 45 countries are suffering from very acute malnutrition and are knocking on famine's door.

Factors responsible:

- The factors responsible are rising conflict, the pandemic's economic ripple effects, climate change, rising fuel prices and the war in Ukraine.
- Since Russia invaded its neighbour on Feb. 24, soaring food, fuel and fertilizer costs have driven 70 million people closer to starvation.
- Despite the agreement in July allowing Ukrainian grain to be shipped from three Black Sea ports that had been blockaded by Russia and continuing efforts to get Russian fertilizer back to global markets, there is a real and dangerous risk of multiple famines in 2022.

Nations facing food crisis:

- The Security Council was focusing on conflict-induced food insecurity and the risk of famine in Ethiopia, northeastern Nigeria, South Sudan and Yemen.
- But U.N. World Food Program warned about the food crisis in Somalia and also put Afghanistan high on the list.
- The widespread and increasing food insecurity in Africa is a result of the direct and indirect impact of conflict and violence that kills and injures civilians, forces families to flee the land they depend on for income and food, and leads to economic decline and rising prices for food that they can't afford.
- After more than seven years of war in Yemen, some 19 million people six out of 10 are acutely food insecure, an estimated 160,000 people are facing catastrophe, and 538,000 children are severely malnourished.

South Sudan:

- South Sudan faces its highest rate of acute hunger since its independence in 2011 from Sudan. About 7.7 million people, over 60% of the population, are facing critical or worse levels of food insecurity.
- Without a political solution to escalating violence and substantial spending on aid programs, many people in South Sudan will die, he warned.

Ethiopia:

- In northern Ethiopia's Tigray, Afar and Amhara regions, more than 13 million people need life-saving food. A survey in Tigray in June that found 89% of people food insecure, more than half of them severely so.

Nigeria:

- In northeast Nigeria, the U.N. projects that 4.1 million people are facing high levels of food insecurity,

including 588,000 who faced emergency levels between June and August.

KRITAGYA 3.0



Why in news?

- Indian Council of Agricultural Research with its National Agricultural Higher Education Project and Crop Science Division is organizing Hackathon 3.0 "KRITAGYA" on promoting 'speed breeding for crop improvement'.

Details:

- Through National Education Policy-2020, this program will provide an opportunity to students/faculties/entrepreneurs/innovators and others to showcase innovative approaches and technology solutions to promote innovation for crop improvement.
- It will also encourage greater adoption of technology enabled solutions in the country.

KRITAGYA:

- KRI for Krishi meaning Agriculture, TA for Taknik meaning Technology and GYA for Gyan meaning Knowledge.
- In this competition, students, faculty and innovators/entrepreneurs from any university/technical institute across the country can apply and participate in the program as a group.

INDICATOR	SRS 2014	SRS 2019	SRS 2020
Crude Birth Rate (CBR)	21.0	19.7	19.5
Total Fertility Rate	2.3	2.1	2.0
Early Neonatal Mortality Rate (ENMR) – 0- 7 days	20	16	15
Neonatal Mortality Rate (NMR)	26	22	20
Infant Mortality Rate (IMR)	39	30	28
Under 5 Mortality Rate (U5MR)	45	35	32

- The participating group shall consist of maximum 4 participants, with not more than one faculty and / or more than one innovator or entrepreneur.
- Participating students can collaborate with local start-ups, students from technology institutes and can win up-to INR 5 Lakhs.

Background:

- During 2020-21 and 2021-22 NAHEP in association

with Agricultural Engineering and Animal Science Divisions of ICAR organized Hackathon 1.0 and 2.0 to promote the innovation in Farm Mechanization and in Animal Science, respectively.

- This event is also extending the support to winners for further development in their concept propositions, its scalability and future plan in collaboration with Agri Business Incubators, MSMEs and other investors through support of ICAR.

National Agricultural Higher Education Project:

- ICAR commenced National Agricultural Higher Education Project with the assistance of World Bank (WB) in November 2017.
- The overall objective of NAHEP is to support participating Agricultural Universities (AUs) and ICAR in providing more relevant and higher quality education to the students.

INDIA ACHIEVES SIGNIFICANT LANDMARKS IN REDUCTION OF CHILD MORTALITY

Why in news?

- Recently, the Sample Registration System (SRS) Statistical Report 2020 was released by Registrar General of India (RGI).
- In a significant milestone, India has achieved landmark achievement in further reduction of child mortality rates.
- As per the report, India has been witnessing a progressive reduction in IMR, U5MR and NMR since 2014 towards achieving the Sustainable Development Goals (SDG) targets by 2030.

Following a steady downward trend, IMR, U5MR and NMR have further declined:

Under 5 Mortality Rate (U5MR):

- Under 5 Mortality Rate (U5MR) for the country has shown significant decline of 3 points (Annual Decline Rate: 8.6%) from 2019 (32 per 1000 live births in 2020 against 35 per 1000 live births in 2019). It varies from 36 in rural areas to 21 in urban areas.
- U5MR for Female is higher (33) than male (31). There has been a decline of 4 points in male U5MR and 3 points in female U5MR during the corresponding period.
- Highest decline of U5MR is observed in the State of Uttar Pradesh (5 points) and Karnataka (5 points).

Infant Mortality Rate (IMR):

- Infant Mortality Rate (IMR) has also registered 2-point decline to 28 per 1000 live births in 2020 from 30 per 1000 live births in 2019 (Annual Decline Rate: 6.7%).
- The Rural-Urban difference has narrowed to 12 points (Urban 19, Rural-31).
- No gender differential has observed in 2020 (Male -28, Female - 28).

Neonatal Mortality Rate:

- Neonatal Mortality Rate has also declined by 2 points from 22 per 1000 live births in 2019 to 20 per 1000 live births in 2020 (Annual Decline Rate: 9.1%).
- It ranges from 12 in urban areas to 23 in rural areas.

As per SRS 2020 Report,

- Six (6) States/ UT have already attained SDG target of NMR (<=12 by 2030): Kerala (4), Delhi (9), Tamil Nadu (9), Maharashtra (11), Jammu & Kashmir (12) and Punjab (12).
- Eleven (11) States/UT have already attained SDGs target of U5MR (<=25 by 2030): Kerala (8), Tamil Nadu (13), Delhi (14), Maharashtra (18), J&K (17), Karnataka (21), Punjab (22), West Bengal (22), Telangana (23), Gujarat (24), and Himachal Pradesh (24).

CULTURE

ASI FINDS REMAINS OF BUDDHIST CAVES, TEMPLES IN BANDHAVGARH TIGER RESERVE



Why in news?

- Recently, the Archaeological Survey of India has found ancient caves and temples, remains of Buddhist structures and mural inscriptions bearing names of cities like Mathura and Kaushambi in old scripts during its recent exploration at Bandhavgarh in Madhya Pradesh.

Details:

- An ASI team covered nearly 170 sq km falling in the area of the famous Bandhavgarh Tiger Reserve that is not accessible to public during the over a month-long exploration of the region.
- The exploration at the place undertook for the first since 1938 exploration by archaeologist N P Chakravarti.

Key Findings:

- During the exercise, ASI reported many ancient sculptures, including large monolithic sculptures of various avatars of Vishnu like 'Varaha' and 'Matsya', and "board games made in natural caves".
- A votive stupa and a Buddhist pillar fragment containing miniature stupas carving, which roughly date back to 2nd-3rd century AD have been documented.

- The noteworthy feature is the names of old cities like Mathura and Kaushambi, located in Uttar Pradesh, found in ancient inscriptions.
- Coins belonging to Mughal-era and Sharqi dynasty of Jaunpur Sultanate have also been found.

Kalachuri period:

- A total of 35 temples have been documented, nine earlier and 26 temples or remains of temple of Kalachuri period in the latest exploration.
- Of the caves, 26 are newly documented, dating to 2nd century BC to 5th century AD period and mostly Buddhist in nature, while 50 were reported earlier.
- Two new Shaiva maths of Kalachuri period (9th-11th century AD) and two new stupas have also been documented.
- Also, remains of Mahayana sect of Buddhism like chaitya-shaped doors and cells containing stone beds have also come to light.
- Besides, 46 new sculptures also documented, 10 were already reported earlier prior to this exploration this year.

Brahmi inscriptions:

- Twenty-four Brahmi inscriptions dated from 2nd-5th century AD have been documented.
- Mathura's name was mentioned in Brahmi script, Bajpai said, adding, inscriptions are also in Nagari and Shankhalipi.
- Besides, names of Mathura and Kaushambi, Pavata (Parvata), Vejabharada and Sepatanaairikaa are also mentioned in various inscriptions.
- Names of important kings mentioned in the old inscriptions include, Maharaja Shri Bhimsena, Maharaja Pothasiri and Maharaja Bhattadeva.

About Bandhavgarh:

- It resides on the extreme north eastern border of Madhya Pradesh and the northern edges of the Satpura mountain ranges.
- In 1968, it was notified as a national park and in 1993 was declared a tiger reserve- under the Project Tiger Network at the neighbouring Panpatha Sanctuary.
- It was ruled by major dynasties including Sengars, the Kalchuris, and the Baghels (believed to rule the regions for the longer period).

UNESCO LAUNCHES LIST DOCUMENTING 50 ICONIC INDIAN HERITAGE TEXTILES

Why in news?

- Recently, the UNESCO released a list of 50 exclusive and iconic heritage textile crafts of India.

Why it matters?

- 'Handmade for the 21st Century: Safeguarding Traditional Indian Textile' lists the histories and legends behind the textiles, describes the complicated and secret processes behind their making, mentions

the causes for their dwindling popularity, and provides strategies for their preservation.



- According to UNESCO, one of the major challenges to the safeguarding of Intangible Cultural Heritage in the South Asia is lack of proper inventory and documentation. The publication, which aims to bridge this gap, brings together years of research on the 50 selected textiles.
- In addition to acting as a sample of endangered textile crafts, the UNESCO publication also includes recommendations for the protection and revitalization of these textile crafts, that cover both the broad-spectrum of issues extending from policy to grass-root based micro-interventions.

Iconic handicrafts:

- Toda embroidery and Sungadi from Tamil Nadu, Himroo weaves from Hyderabad and Bandha tie and dye weaving from Sambalpur in Odisha were some of the textiles that made the cut.
- Some of the iconic handcrafted textiles documented from North India are Khes from Panipat, Chamba rumals from Himachal Pradesh, Thigma or wool tie and dye from Ladakh and Awadh Jamdani from Varanasi.
- From the south, Ilkal and Lambadi or Banjara embroidery from Karnataka, Sikalnayakanpet Kalamkari from Thanjavur have been included.
- Kunbi weaves from Goa, Mashru weaves and Patola from Gujarat, Himroo from Maharashtra and Garad-Koirial from West Bengal also find a place among the 50 iconic textiles.

Way Forward:

- India must consider expanding its register of elements inscribed in the UNESCO Representative List of the Intangible Cultural Heritage of Humanity by nominating one of the textile crafts featured in this publication.

MISCELLANEOUS

QUEEN ELIZABETH II, BRITAIN'S MONARCH FOR 70 YEARS, PASSED AWAY

Why in news?

- Queen Elizabeth II, Britain's longest-reigning monarch passed away recently.
- Charles, who is her eldest son and the former Prince of Wales, will now be leading the country as its new King, as per the protocol.



Background:

- Since assuming the throne after the death of her father on 6 February, 1952, Elizabeth had been a symbol of stability as Britain negotiated the end of empire, the dawn of the information age and the mass migration that transformed the country into a multicultural society.
- Elizabeth has been Queen of Britain and more than a dozen other countries since 1952, including Canada, Australia and New Zealand, and earlier 2022 marked her 70th year on the throne with four days of national celebrations in June.

Operation London Bridge:

- The plan to deal with the death of the head of state in Britain was termed Operation London Bridge.
- The London Bridge plan, factored in the eventuality of her passing at Balmoral.
- The part of the plan for her death at her favourite castle in Scotland was codenamed 'Operation Unicorn'.
- These protocols are actually a detailed script for key logistical matters and procedures, including the funeral procession.
- The plan terms the day after her death as D+1 and the day of her funeral as D+10 (D-day plus 10 days). During this period, the British parliament will suspend business for these 10 days after relaying a condolence message.

Immediately after death:

- As per the plan, after informing the British PM, the information about the Queen's death has already been conveyed to other governments where she was the head of state, and then to 38 other nations of the Commonwealth.

Timeline of the queen's life and reign:

- April 21, 1926 - Elizabeth was born at 2.40 a.m. at 17 Bruton Street, London, and christened on May 29 that year in the private chapel at Buckingham Palace.

- Dec. 11, 1936 - She became heir apparent, aged 10, when her uncle Edward VIII abdicated and her father became King George VI.
- Nov. 20, 1947 - She married navy lieutenant Philip Mountbatten, a Greek Prince, at London's Westminster Abbey. They had four children: Prince Charles (born in 1948), Princess Anne,(1950), Prince Andrew (1960) and Prince Edward (1964).
- February 1952 - Princess Elizabeth and her husband Prince Philip, set out on a tour of Africa and Asia in place of her ailing father, King George VI. News of the king's death reaches her in Kenya on Feb. 6, meaning she is the first sovereign in more than 200 years to accede to the throne while abroad.
- June 2, 1953 - Queen Elizabeth is crowned at Westminster Abbey in the first televised coronation service.
- Nov. 24, 1953 - The Queen's first Commonwealth tour begins covering a distance of 43,618 miles.
- 1977 - The queen marks her Silver Jubilee - 25 years as monarch - with a tour of Commonwealth countries and lavish celebrations in Britain.
- 1991 - The queen tours the United States and becomes the first monarch to address Congress.
- 1992 - Her 40th year on the throne, which she calls her 'annus horribilis' (horrible year), is marked by marital upsets and public dissent.
- 1995 - In March, the queen makes the first address by a British monarch to a South African parliament since 1947.
- May 2011- Queen makes four-day state visit to Ireland, the first by a British monarch since Ireland won its independence from London in 1921.
- Feb. 6, 2022 - Queen marks her 70th year on the throne, using the occasion to give her blessing to Charles's second wife Camilla being called Queen Consort when he becomes king.

INDIA WINS UN AWARDS FOR LARGE-SCALE INITIATIVE AGAINST HYPERTENSION UNDER NHM

Why in news?

- In a significant achievement and recognition to country's efforts against hypertension, India has won an UN award for its "India Hypertension Control Initiative (IHCI)", a large-scale hypertension intervention under National Health Mission.
- IHCI has been recognized for its exceptional work within India's existing primary healthcare system.

Details:

- A collaborative initiative of Ministry of Health and Family Welfare, Indian Council of Medical Research (ICMR), State Governments and World Health Organization-India, IHCI has won the '2022 UN Interagency Task Force, and WHO Special Programme on Primary Health Care Award' at the UN General

Assembly side event held on 21st September 2022 at New York, USA.

- The award recognizes outstanding commitment and action of India to:
 - a) prevent and control Non-Communicable Diseases (NCDs) and
 - b) deliver integrated people-centric primary care.
- The UN Task Force has identified organisation which has multisectoral approach in prevention and control of NCDs and multisectoral action with demonstrated results at primary care for prevention and control of NCDs and related Sustainable Development Goals (SDGs).

India Hypertension Control Initiative (IHCI):

- IHCI has been able to leverage and strengthen the existing healthcare delivery system, hypertension control interventions under National Health Mission and improve the linkages between populations-based screening initiative with health care.
- The initiative was launched in 2017 and expanded in a phased manner to cover more than 130 districts across 23 states.
- Under the initiative, more than 34 lakh people with hypertension are taking treatment in government health facilities, including Ayushman Bharat Health Wellness Centres (HWCs). The project strategies are easily scalable within the health system.
- The strategies include a simple drug-dose-specific standard treatment protocol, ensuring adequate quantity of protocol medications, decentralization of care with follow-up and refills of medicines at Health Wellness Centres, task sharing involving all health staff and a powerful real-time information system which can track every patient for follow-up and blood pressure control.
- Under IHCI, nearly half of those who were treated had blood pressure under control.

Significance:

- Significance of the initiative can be adjudged from the fact that one in four adults in India has high blood pressure.
- The control of hypertension at primary care system level will contribute to reducing deaths due to heart attacks, stroke and kidney failures.

Linkages of IHCI:

- The IHCI complements the National Programme for Prevention and Control of Diabetes, Cardiovascular Disease and Stroke (NPCDCS) of the Ministry of Health & Family Welfare, Government of India.
- IHCI accelerates the achievement of targets of the Government of India by ensuring a continuum of care and giving a boost to the ongoing "Ayushman Bharat" programme.

MALAWI FIRST COUNTRY IN SOUTHERN AFRICA TO ELIMINATE TRACHOMA: WHO

Why in news?

- Malawi has become the first country in southern Africa to eliminate trachoma, the World Health Organization (WHO) announced recently.
- This makes Malawi the fourth country in WHO's Africa region to achieve this milestone after Ghana (June 2018), Gambia (April 2021) and Togo (May 2022).

What is trachoma?

- Trachoma is the world's leading infectious cause of blindness and is one of the conditions known as neglected tropical diseases.
- It is a public health problem in 44 countries and is responsible for the blindness or visual impairment of about 1.9 million people.
- Around 136 million people live in trachoma endemic areas and are at risk of trachoma blindness.

Path to elimination:

- Trachoma starts off as a bacterial infection and can be easily treated. Overtime, it causes the eyelashes to be pushed inwards into the eye. So with every blink, they brush against the eyeball.
- This advanced form of trachoma is called trichiasis. Over time, if it's not treated, trichiasis can lead to blindness.
- The disease thrives where there are water shortages, poor sanitation and infestations of flies, which are considered physical vectors of the disease.

Global Trachoma Mapping Project:

- The Malawi Ministry of Health used the opportunity provided by the Global Trachoma Mapping Project to map 25 districts suspected of being trachoma-endemic.
- The mapping survey aimed to:
 - Determine the prevalence of active trachoma (TF) in 1-9-year-old children, and the prevalence of trachomatous trichiasis (TT) in adults aged 15 years and above.
 - Guide the implementation of a trachoma program in any evaluation unit found to have prevalences of TF or TT higher than the elimination threshold set by WHO.
- Mapping was carried out between 2013 and 2015, using the standard GTMP protocols and the total population in suspected trachoma endemic districts was nine million

Task Force:

- A task force was formed involving all the key trachoma elimination stakeholders in Malawi.
- In 2014, the taskforce drew up a five-year trachoma action plan to implement the SAFE strategy to eliminate trachoma in the six endemic districts.
- The WHO-recommended SAFE strategy aims to stop the spread of blinding trachoma through surgery, antibiotics, facial cleanliness and environmental improvements.

Trachoma free nations:

- As of March 7, 2022, 14 countries had reported achieving trachoma elimination goals.
- These countries are Cambodia, China, Gambia, Ghana, Iran, Iraq, Lao People's Democratic Republic, Mexico, Morocco, Myanmar, Nepal, Oman, Saudi Arabia and Togo.

ASHA PAREKH TO BE HONOURED WITH DADASAHEB PHALKE AWARD, 2020**Why in news?**

- Recently, the Ministry of Information and Broadcasting announced that the 52nd Dadasaheb Phalke Award for the year 2020 will be accorded to legendary actress Ms Asha Parekh.

About Asha Parekh:

- Asha Parekh is a renowned film actress, director and producer and an accomplished Indian classical dancer.
- Starting her career as a child actor she made her debut as lead heroine in Dil Deke Dekho and has gone on to act in over 95 movies.
- She has acted in celebrated films like Kati Patang, Teesri Manzil, Love in Tokyo, Aya Saawan Jhoom Ke, Aan Milo Sajna, Mera Gaon Mera Desh.
- She was conferred the Padma Shri in 1992. She has also served as the head of Central Board for Film Certification from 1998-2001.

About Dadasaheb Phalke Award:

- The Dadasaheb Phalke Award is India's highest award in the field of cinema.
- It is presented annually since 1969 at the National Film Awards ceremony by the Directorate of Film Festivals, an organisation set up by the Ministry of Information and Broadcasting.
- The award comprises a Swarna Kamal (Golden Lotus) medallion, a shawl, and a cash prize of ₹1,000,000.
- It is given in the memory of Dadasaheb Phalke, who is regarded as the 'father of Indian cinema', having made the first Hindi movie, Raja Harishchandra.
- In 2019, it was awarded to Rajinikanth.



PRACTICE QUESTION FOR UPSC PRELIMS EXAM

1. Recently, Russia halted gas supplies for three days to Europe via Nord Stream 1. Consider the following statement:
 1. It is the biggest pipeline transporting natural gas between Russia and Europe via Germany.
 2. It runs from Vyborg in Russia to Greifswald in Germany.
 3. Russia has completely cut off supplies to France, Spain and Italy.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

2. Consider the following statement:
 1. Energy price is highest in whole of Europe.
 2. Russian threats to choke this gas supply to Europe present an economic threat to Germany.
 3. Germany had decided to build Nord Stream 2 to double the supply from Russia.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

3. Consider the following statement:
 1. Supreme Court held that the activities of the BCCI can be termed as a "shop".
 2. The ESI Act is welfare legislation enacted by the Centre.
 Choose the correct option from the codes given below:

a) 1 Only	b) 2 Only
c) 1 and 2	d) None of the above

4. PM Modi will unveil the new naval ensign that will replace the current flag that has Saint George's Cross with the tricolour in the top left corner. Consider the following statement:
 1. Saint George was a Christian warrior during third crusade.
 2. The Cross of Saint George is a red cross on a white background.
 3. The first ensign of the Indian Navy carried the symbol of the UK's Imperial Legislative Council.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

5. Consider the following statement regarding anti-radiation pills:
 1. Potassium iodide (KI) tablets provide some protection in cases of radiation exposure.
 2. The tablet help block absorption and subsequent concentration, of radioactive iodine in the thyroid gland.
 3. Anti-radiation pills provide 100% protection.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

6. Consider the following statement regarding Tejas Mark-2:
 1. It is an indigenous multirole combat jet.
 2. It is a 4.5-generation fighter jet.
 3. It is a double engine fighter jet.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

7. Recently, India's environment ministry submitted its updated Nationally Determined Contributions (NDCs) on climate change under the Paris Agreement. Consider the following highlights:
 1. India has updated one out of eight NDCs.
 2. Reducing emissions intensity of its GDP by 45 percent by 2030, from 2005 level.
 3. To achieve about 50 per cent cumulative electric power installed capacity from non-fossil fuel-based energy.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

8. Consider the following statement regarding the functioning of The Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE):
 1. Solid OXide Electrolyzer (SOXE) electrochemically splits the carbon dioxide-rich air into oxygen ions and carbon monoxide.
 2. The oxygen ions are isolated and recombined to form breathable, molecular oxygen (O₂).
 Choose the correct option from the codes given below:

a) 1 Only	b) 2 Only
c) 1 and 2	d) None of the above

- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
31. Consider the following statement regarding UNESCO Global Network of Learning Cities (GNLC):
1. It is an international network consisting of cities that successfully promote lifelong learning across their communities.
 2. A track record of good practices and policy initiatives are key prerequisites for becoming a learning city.
 3. From India, Allahabad, Kolkata and Banaras joined UNESCO GLNC.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
32. Consider the following statement regarding "Diamond Rain":
1. Scientists have discovered this phenomenon recently in Mars.
 2. It is the extremely high pressure, which squeezes hydrogen and carbon.
 3. It is found in the interior the planets to form solid diamonds that sink slowly further into the interior.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
33. Consider the following statement regarding India's first Nasal COVID Vaccine:
1. Bharat Biotech's nasal vaccine uses a chimpanzee cold virus to deliver coronavirus spike protein to the lining of the nose.
 2. The vaccine is non-invasive and does not require trained health care workers.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
34. Consider the following statement regarding the India- Bangladesh ties in the field of connectivity:
1. Inauguration of the Maitree Shetu over River Feni.
 2. Mitali Express, connecting New Jalpaiguri, India with Dhaka.
 3. Recently inaugurated Padma rail-road bridge in Bangladesh
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
35. Consider the following statement regarding Ramon Magsaysay Award:
1. After the death of President Ramon Magsaysay in 1957, the Rockefeller Brothers Fund (RBF) established the Ramon Magsaysay Awards.
 2. Later, the Fund set up the Ramon Magsaysay Award Foundation.
 3. The category of 'emergent leadership' was removed from the list of categories.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
36. Recently, the Union Cabinet approved a policy for long-term leasing of railway land for the PM Gati Shakti programme. Consider the key features:
1. Extent land lease to 35 years.
 2. Enable the integrated development of infrastructure and more cargo terminals.
 3. It will increase the land lease to six percent.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
37. Recently, the Union Cabinet approved to sign MoU between Ministry of Education of India and UAE on cooperation in the field of Education. Consider the following statement:
1. The new MoU will not incorporate changes brought in by the National Education Policy 2020 in India's education ecosystem.
 2. It aims to promote Exchange of Information Education, Capacity Development of Technical and vocational Education and Training (TVET) teaching staff
 3. It will rejuvenate educational cooperation and increase academic mobility between India and UAE.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
38. Consider the following statement:
1. Maitree Super Thermal Power Plant in Bangladesh was built by India under Concessional Financing Scheme.
 2. Rupsha rail bridge built under the concession Line of Credit (LOC) provided by India.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
39. Recently, the Union Minister of Commerce and Industry launched the US Startup SETU in the Bay Area of San Francisco. Consider the following statement:
1. The initiative would connect start-ups in India to US-based investors.
 2. The interaction will be supported through the mentorship portal under the Startup India initiative MAARG.

PRACTICE QUESTION FOR UPSC MAINS EXAM

1. Critically analyse the Electricity Amendment Bill 2022. Why are States alleging that the proposed Bill is unconstitutional? Who are the main opponents of the Bill?
2. What do you think about freedom of civil servants to express their personal views on matters of law and governance? Does an IAS officer has a right to express himself in a legitimate and decent manner? Support your answer with valid reasons.
3. At a time when the international security context is unpredictable and the need for meaningful dialogue and subsequent concrete implementation of plans for the reduction of nuclear weapons and the path to disarmament is more relevant than ever, discuss role and challenges surrounding the Non-Proliferation of Nuclear Weapons (NPT) Treaty.
4. Give a brief note on provisions related to bail of a women accused under Section 437 of the Code of Criminal Procedure (CrPC)? What are the other provisions under criminal law in India that are 'favourable' to women accused?
5. India and Bangladesh are poised for greater ties in domains of trade, connectivity, energy and water sharing. What are the developments and challenges on this front in recent India and Bangladesh ties?
6. Q: For years lead positions in public health have been restricted to those with a medical background ignoring the role of health professionals working at the grassroots level'. Keeping in mind the above statement discuss how public health is multi-disciplinary in nature, requiring specific set of competencies.
7. 'Given poverty and inequality in India, the policymakers must reaffirm the value and necessity of welfare programmes and the urgent need to expand them'. Comment.
8. What is Wikipedia and its model for functioning? What are the mechanisms Wikipedia uses to ensure that users do not have unrestricted editorial privilege?
9. In the wake of varied consequences of Covid-19 globally, discuss the role of a Global Pandemic Treaty under the umbrella of the World Health Organization to mitigate future challenges?
10. 'The powers of the British monarchy is now largely symbolic and ceremonial, the British monarch reigns but does not rule'. Discuss
11. Recently, India-Bangladesh signed their first water sharing agreement since the landmark Ganga Waters Treaty, 1996. What is Kushiyara River treaty and why it is more important for Bangladesh?
12. 'Recently, India-Japan 2+2 Ministerial Dialogue held in Tokyo, focused on deepening strategic and defence partnership. The dialogue is significant in the context of recent developments in Indo-Pacific and growing convergences of interests of both nations'. Discuss.
13. 'India will be hosting the G20 and SCO summits in 2023, which poses various challenges and opportunities for India's foreign policy and diplomacy on the global stage'. Comment.
OR
"India's G20 Presidency would place India on the global stage, and provide an opportunity for India to place its priorities and narratives on the global agenda." Comment.
14. 'India is very youthful, but the youth need employability and the responsibility to felicitate it lies on the academia and industries. India's score for industry-academia collaboration indicator of Global Innovation Index (GII) has declined over years'. In the light of this statement, highlight the need for increasing the efficiency of processing patent applications and wider academia-industry collaboration in India.
15. 'The problem of water scarcity has gained a lot of importance due to the potential damage it can inflict. It may lead to rural-urban disputes in India due to rising urbanization and water scarcity'. Comment.
16. Highlight the role of Department Related Parliamentary Standing Committees in the process of lawmaking. Discuss some of the corrective actions to increase their efficacy and their relevance.
17. 'Lower fertility rates can be viewed as both a cause and consequence of economic development'. Illustrate.
18. 'The future role of the monarchy in Commonwealth realms is likely to come under renewed scrutiny following the death of the Queen'. Comment
19. 'Equal pay for work of equal value is necessary to close the gender pay gap'. What is the status of gender pay gap in India pre and post pandemic? What initiatives has been taken by policymakers in India to close the existing gap?
20. 'The Nordic model of social democracy offers lessons to the developing world, including countries like India despite the myriad complexities of diversities'. Elaborate
21. Discuss how India is moving towards a 'new version' of Non-alignment or multi-alignment. What are the advantages and challenges posed by India's new foreign policy?
22. Should there be a separate hearing for sentencing after a court has passed a conviction order on a capital offence? Where have courts and the law differed on this question?

23. Do you think India needs a uniform law for inner party elections?
OR
Analyse the role of inner party elections in Indian political system. Discuss the related provisions in the Constitution of India and power of Election Commission.
24. 'A multi-stakeholder approach that includes actors such as the government, private sector, and community needs to be adopted to improve the air quality in India'. Elaborate.
25. What are Rare Earth Elements (REE) and their strategic importance?
OR
Give a brief note on India's potential to emerge as a rare earths supplier and way forward.
26. 'India's recent push for United Nations Security Council (UNSC) reform at the 77th Session of the United Nations General Assembly incorporates institutional accountability and a wider representation of the developing countries'. Comment.
27. What is India's modified incentive scheme for the chip-making sector? How is it different from the earlier policy? What are the difficulties faced by the industry?
28. Discuss how strengthening bilateral ties between India and Egypt could lead to improved multilateral cooperation in the Middle Eastern and North African (MENA) region. What are the shared concerns and common interests of India and Egypt?
29. What is the role of Centre for Bay of Bengal Studies (CBS) set up by India at Nalanda University. What are the challenges and strategies to overcome them for the sustainable development of the Bay of Bengal region?
30. Give a brief note on the draft Indian Telecommunication Bill, 2022. What will be the effects of including OTT communication services within the definition of "telecommunication services"?

PRACTICE QUESTION FOR UPSC PRELIMS EXAM

ANSWER KEY

- | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1. (a) | 2. (b) | 3. (c) | 4. (d) | 5. (a) | 6. (a) | 7. (b) | 8. (c) | 9. (d) | 10. (a) |
| 11. (a) | 12. (b) | 13. (c) | 14. (d) | 15. (a) | 16. (a) | 17. (b) | 18. (c) | 19. (d) | 20. (a) |
| 21. (a) | 22. (b) | 23. (c) | 24. (d) | 25. (a) | 26. (a) | 27. (b) | 28. (c) | 29. (d) | 30. (a) |
| 31. (a) | 32. (b) | 33. (c) | 34. (d) | 35. (a) | 36. (a) | 37. (b) | 38. (c) | 39. (d) | 40. (a) |
| 41. (a) | 42. (b) | 43. (c) | 44. (d) | 45. (d) | 46. (a) | 47. (b) | 48. (c) | 49. (d) | 50. (a) |
| 51. (a) | 52. (b) | 53. (c) | 54. (d) | 55. (a) | 56. (a) | 57. (b) | 58. (c) | 59. (d) | 60. (a) |
| 61. (a) | 62. (b) | 63. (c) | 64. (d) | 65. (c) | 66. (a) | 67. (b) | 68. (c) | 69. (d) | 70. (a) |
| 71. (a) | 72. (b) | 73. (c) | 74. (d) | 75. (a) | 76. (a) | 77. (b) | 78. (c) | 79. (d) | 80. (a) |
| 81. (a) | 82. (b) | 83. (c) | 84. (d) | 85. (a) | 86. (a) | 87. (b) | 88. (c) | 89. (d) | 90. (a) |
| 91. (a) | 92. (b) | 93. (c) | 94. (d) | 95. (a) | 96. (a) | 97. (b) | 98. (c) | 99. (d) | 100. (a) |
| 101. (a) | 102. (b) | 103. (c) | 104. (d) | 105. (a) | 106. (a) | 107. (b) | 108. (c) | 109. (d) | 110. (a) |
| 111. (a) | 112. (b) | 113. (c) | 114. (d) | 115. (a) | 116. (a) | 117. (b) | 118. (c) | 119. (d) | 120. (a) |
| 121. (a) | 122. (b) | 123. (c) | 124. (d) | 125. (a) | 126. (a) | 127. (b) | 128. (c) | 129. (d) | 130. (a) |
| 131. (a) | 132. (b) | 133. (c) | 134. (d) | 135. (a) | 136. (a) | 137. (b) | 138. (c) | 139. (d) | 140. (a) |
| 141. (a) | 142. (b) | 143. (c) | 144. (d) | 145. (a) | 146. (a) | 147. (b) | 148. (c) | 149. (d) | 150. (a) |



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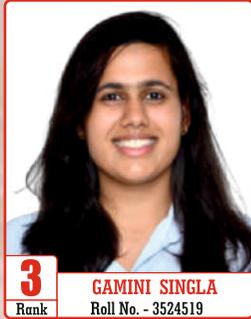
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