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Contents

Polity and Governance	1
● Connect Karo 2021	1
● Swachh Survekshan Grameen 2021	2
● Shikshak Parv 2021	3
● Digital Agriculture.....	4
● E-ILP Platform: Manipur	5
● Delegation of Financial Powers to Defence Services, 2021 Rules	6
● Common Services Centres (CSC)	6
● Karbi Anglong Agreement	7
● Virtual Courts.....	8
● Grant in Aid for Rural Local Bodies.....	9
● Eat Right Station Certification	9
● Task Force for Coal-Based Hydrogen Production	10
Economic Scenario	12
● IRDAI (Trade Credit Insurance) Guidelines, 2021	12
● Renewable Energy & Land Use in India	13
● Differentiated GST Regime	14
● Production Linked Incentive (PLI) Scheme for Textiles Sector	14
● India-US Trade Issues: Free Trade Agreement	15
● Container Shortage.....	16
● Account Aggregator System	17
● Additional Tier 1 Bonds	18
● Atmanirbhar Corner in Indian Missions.....	19
● Quarterly Bulletin of Periodic Labour Force Survey (PLFS).....	19
● No Entity Can Store Card Data: RBI	20
● Financial Stability and Development Council (FSDC) Meeting	21
● Rule for Taxing Contributions to EPF.....	21
● Special Drawing Rights: IMF	22
● Revisiting Draft e-Commerce Rules	23
● Sharp Economic Recovery	24
● Crypto Finance.....	25
● Creating Methanol from Coal.....	26
● Transport and Marketing Assistance Scheme	27
● T+1 Settlement System for Shares: SEBI.....	28
International Relations.....	30
● Climate Action and Finance Mobilisation Dialogue: India-US	30
● US-India Strategic Clean Energy Partnership (SCEP).....	31
● Upcoming Quad Meeting	31
● India-Australia First 2+2 Dialogue.....	32
● Resolution 2593 on Taliban: UNSC	33

● 13 th BRICS Summit	34
● Food Emergency in Sri Lanka	35
● India-Croatia Relations	36
● 6 th Eastern Economic Forum	37
● Durand Line: Afghanistan and Pakistan	38
● China's New Sea-Road-Rail Link to Indian Ocean	40
Social Issues	42
● World Social Protection Report: ILO	42
● Transforming India's Food Systems	43
● Tuberculosis	44
● Dementia	45
● Poshan 2.0	46
● Rising Complaints of Crimes Against Women: NCW	47
● Restraining Mosquito Populations with CRISPR	49
Science & Technology	49
● Robots in Warfare	50
● Blue Straggler Stars	51
● Hycean Worlds: Exoplanets	52
● Coronal Mass Ejections	53
● Lunar Science Workshop 2021: ISRO	54
● Engineer's Day	55
● Improved Air Quality of Indian Cities	57
Environment & Ecology	57
● IUCN World Conservation Congress	58
● Impact of Global Warming on Permafrost	59
● Raptor Species under Threat	60
● Threat to Bhitarkanika National Park: Odisha	61
● State of the World's Trees Report: BGCI	62
● State Animal and Bird: Ladakh	63
● Crocodylian Species in India	64
● India's Tallest Air Purifier: Chandigarh	65
● Groundwater Conservation	66
● Report on Weather Disasters: WMO	67
● Land Sink & Emissions	68
● Behler Turtle Conservation Award	69
● Deepor Beel: Eco-Sensitive Zone	70
● Unviability of New Coal-Based Power Plants	71
● Groundswell Report: World Bank	71
History	74
● Thamirabarani Civilisation: Tamil Nadu	74
● V. O. Chidambaram Pillai	75
● Napoleon Bonaparte	76
● Swami Vivekananda	77
● Mahakavi Subramania Bharati	78

● Acharya Vinoba Bhave.....	79
● Udham Singh	80
● Battle of Saragarhi	81
● Raja Mahendra Pratap Singh	81

Geography82

● Changing Rainfall Pattern in North East India.....	82
● Lithium.....	83
● Sand and Dust Storms Risk Assessment in Asia and the Pacific	84
● Footprints of 3 Dinosaur Species: Rajasthan	85
● Impact of Climate Change on El Nino and La Nina	86

Art and Culture.....88

● Hindi Diwas.....	88
● Panj Piare.....	89
● World Heritage Institute of Training and Research – Asia Pacific	90
● C-295 Aircraft Deal	91
● Security.....	91
● LCA-Mk2 and AMCA	92
● Ceasefire With NSCN(K) Niki Group.....	93
● SIMBEX 2021	95
● DefExpo-2022	95

Miscellaneous96

● Index of Industrial Production.....	96
● Mobile X-Ray Container Scanning System: Paradip Port.....	97
● ATL Space Challenge 2021.....	98
● World’s Northernmost Island.....	98
● Hare Krishna Movement: ISKCON	99
● River Bhogdoi	100
● Manda Buffalo: Odisha	101
● International Fund for Agricultural Development	101
● Maiden Navy Exercise: India-Algeria	102
● Covid-19 Endemicity.....	102
● AUSINDEX 2021	103
● Right to Sit	103
● Pashmina Shawls: Kashmir	104
● River Umngot: Meghalaya	104
● PISA (Program for International Student Assessment): OECD.....	105
● Fukutoku-Okanoba Volcano: Japan.....	105
● ZAPAD 2021: Russia.....	106
● 63 rd Ramon Magsaysay Award.....	106
● World University Rankings 2022:Times Higher Education	107
● NIRF Rankings 2021	108
● Pilibhit Tiger Reserve: Uttar Pradesh.....	108

Polity and Governance

Highlights

- Connect Karo 2021
- Swachh Survekshan Grameen 2021
- Shikshak Parv 2021
- Digital Agriculture
- E-ILP Platform: Manipur
- Delegation of Financial Powers to Defence Services, 2021 Rules
- Common Services Centres (CSC)
- Karbi Anglong Agreement
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- Grant in Aid for Rural Local Bodies
- Eat Right Station Certification
- Task Force for Coal-Based Hydrogen Production

Connect Karo 2021

Why in News

Recently, the Union Home Minister addressed the 'Connect Karo 2021' - Towards Equitable, Sustainable Indian Cities' Event.

Key Points

➤ About:

- It is part of a global series of events that World Resources Institute (WRI) India organizes and hosts, to bring together Indian and global leaders, and other stakeholders committed towards designing inclusive, sustainable and climate forward Indian cities.

- WRI India is an independent charity, legally registered as the India Resources Trust.

- Connect Karo sees presenters from various fields — air pollution, electric mobility, urban planning, urban water resilience, climate mitigation, and public transit among others — sharing their insights and research findings.

➤ Importance of Cities:

○ Contribution to GDP:

- By 2030, almost 70% of the national Gross Domestic Product (GDP) will come from cities as rapid urbanisation facilitates efficiencies of agglomerations.

- The best-performing cities globally contribute five times more to national GDP than comparable Indian cities.

○ Impact of Covid-19:

- By 2030, the urban population in India will almost double to 630 million and to facilitate this level of growth it is needed to upgrade the urban infrastructure considerably and the impact of Covid-19 on our cities has made this even more significant.

○ Help in Fighting Climate Change:

- As the recent Intergovernmental Panel on Climate Change (IPCC) report suggests, cities are the major contributors as well as worst affected from climate change, hence, cities will be the battlegrounds for the fight against climate change.

- Even Sustainable Development Goals (SDG) 11 includes investment in public transport, creating green public spaces, and improving urban planning and management in participatory and inclusive ways.

Note:

➤ UNESCO Creative Cities Network:

- It was created in 2004 and aims towards a common objective of placing creativity and cultural industries at the heart of their development plans at the local level and cooperating actively at the international level.

Note:

- The network covers seven creative fields: crafts and folk arts, media arts, film, design, gastronomy, literature and music.
- **World Cities Culture Forum:**
 - It was established in London in 2012. It enables the policy makers of member cities to share research and intelligence, and explores the vital role of culture in their future prosperity.
 - No Indian city is part of this forum.

Swachh Survekshan Grameen 2021

Why in News

Recently, the Jal Shakti Ministry launched Swachh Survekshan Grameen 2021 or rural cleanliness survey 2021 under Swachh Bharat Mission (Grameen) Phase-II.

- Before this, the Swachh Survekshan Grameen had been carried out by the Ministry in 2018 and 2019.
- The Swachh Survekshan Urban 2021 is to be announced. It was introduced by the Ministry of Housing and Urban Affairs (MoHUA) in 2016.

Key Points

- **Swachh Survekshan Grameen 2021:**
 - **About:**
 - Assesses the state of hygiene, cleanliness and sanitation in rural India as a part of the Centre's initiative to award Open Defecation Free (ODF) Plus status to villages.
 - ODF-plus status aims to ensure management of solid as well as liquid waste and is an upgradation of ODF status in which construction of adequate toilets was required so that people did not have to defecate in the open.
 - It is carried out by an expert agency.
 - **Coverage:**
 - As part of the 2021 rural cleanliness survey, as many as 17,475 villages spanning across 698 districts would be covered.
 - **Weightage to Different Elements:**
 - Direct Observation of sanitation at public places -30%

- Citizen's Feedback-35%
- Service Level Progress on sanitation related parameters -35%

➤ Swachh Bharat Mission (Grameen) Phase-II:

- **About:**
 - It emphasizes the sustainability of achievements under phase I and to provide adequate facilities for Solid/Liquid & plastic Waste Management (SLWM) in rural India.
- **Implementation:**
 - It will be implemented from 2020-21 to 2024-25 in a mission mode with a total outlay of Rs. 1,40,881 crores.
- **Funding Pattern:**
 - The fund sharing pattern between Centre and States will be 90:10 for North-Eastern States and Himalayan States and UT of J&K; 60:40 for other States; and 100% for other Union Territories.
 - Funding Norms for SLWM have been rationalized and changed to per capita basis in place of the number of households.

Swachh Bharat Mission

- **About:**
 - To accelerate the efforts to achieve universal sanitation coverage, the Prime Minister of India had launched the Swachh Bharat Mission on 2nd October 2014.
 - Under the mission, all villages, Gram Panchayats, Districts, States and Union Territories in India declared themselves "Open-Defecation Free" (ODF) by 2nd October 2019, the 150th birth anniversary of Mahatma Gandhi, by constructing over 100 million toilets in rural India.
 - SBM is being implemented by the Ministry of Housing and Urban Affairs (M/o HUA) and by the Ministry of Jal Shakti for urban and rural areas respectively.
 - In the Union Budget 2021-22, the Swachh Bharat Mission (Urban) 2.0 was announced to be implemented over five years – 2021 till 2026 – with an outlay of Rs. 1.41 lakh crore.
 - Swachh Bharat Mission (Grameen) Phase-II was launched in 2020.
 - It further led to Jal Jeevan Mission (JJM) for addressing water security.

Note:

- **Schemes as part of SBM:**
 - **GOBAR-DHAN (Galvanizing Organic Bio-Agro Resources) Scheme:** Launched by the Ministry of Jal Shakti in 2018 and aims to **augment income of farmers** by converting biodegradable waste into compressed biogas (CBG).
 - **Individual Household Latrines (IHHL): Individuals get around 15 thousand** for the construction of toilets.
 - **Swachh Vidyalaya Abhiyan:** The **Ministry of Education** launched the Swachh Vidyalaya Programme with an objective to provide separate toilets for boys and girls in all government schools within one year.

Shikshak Parv 2021

Why in News

The Shiksha Parv is **being celebrated by the Ministry of Education from 5th-17th September** to recognize the contributions of teachers and to take **New Education Policy (NEP) 2020** a step forward.

- The Prime Minister **launched multiple key initiatives in the education sector** on the occasion.

New Education Policy (NEP) 2020	
<p>FOR SCHOOLS From 10+2 to 5+3+3+4: Current 10+2 structure in which policy covered schooling from Class 1 to 10 (age 6-16) and then Class 11-12 (age 16-18) gives way to 5 years of foundational education, 3 of preparatory, 3 of middle & 4 years of secondary schooling</p> <p>Multi-Stream: Flexibility to choose subjects across streams; all subjects to be offered at two levels of proficiency</p> <p>Diluted Board: Board exams to test only core competencies; could become modular (object and subjective) and will be offered twice a year</p> <p>Multilingual: 3-language policy to continue with preference for local language medium of instruction till class 8</p> <p>Bag-Less Days: School students to have 10 bag-less days in a year during which they are exposed to a vocation of choice (i.e. informal internship)</p>	<p>FOR COLLEGES SAT-Like College Test: National Testing Agency to conduct common college entrance exam twice a year</p> <p>4-Year Bachelor: 4-year multi-disciplinary bachelor's programme to be preferred; mid-term dropouts to be given credit with option to complete degree after a break</p> <p>No Affiliation: Over next 15 years colleges will be given graded autonomy to give degrees, affiliation with universities to end, so would deemed university status</p> <p>Fee Cap: Proposal to cap fee charged by private institutions of higher learning</p> <p>Going Global: Top-rated global universities to be facilitated to come to India, top Indian institutions to be encouraged to go global</p>

Key Points

- **Five Initiatives Launched:**
 - **Indian Sign Language Dictionary:**
 - It was launched for the Children and persons with hearing impairments. It has 10,000 words in it.
 - **Talking Books:**
 - These are audiobooks for the visually impaired.
 - **School Quality Assessment and Accreditation Framework (SQAA):**

- SQAA is a **quality initiative proposed by the Central Board of Secondary Education (CBSE)** to provide global parameters of attainment as standards in schools affiliated to it.
- It would **address the deficiency of the absence of a common scientific framework** for dimensions like curricula, pedagogy, assessment, infrastructure, inclusive practices and governance process.
- **NISHTHA Teachers' Training programme for NIPUN Bharat:**
 - **National Initiative for School Heads' and Teachers' Holistic Advancement (NISHTHA)** is a capacity building programme for improving the quality of school education through integrated teacher training.
 - **NIPUN (National Initiative for Proficiency in Reading with Understanding and Numeracy) Bharat Scheme** was launched to create an enabling environment **to ensure universal acquisition of foundational literacy and numeracy**, so that every child achieves the desired learning competencies in reading, writing and numeracy by the end of Grade 3, by 2026-27.
- **Vidyanjali 2.0 Portal:**

- For facilitating education volunteers, donors and **CSR (Corporate Social Responsibility)** contributors for school development.
 - Vidyanjali Scheme is one of the innovative schemes that **focus towards the improvement of literacy by offering volunteer teachers** in government schools. It was **launched in 2017**.

Teachers' Day

- On **5th September**, Teachers' Day is celebrated every year throughout India in memory of **Dr. Sarvapalli Radhakrishnan** on his birth anniversary.
- **World Teachers' Day** is celebrated on **5th October** annually **to commemorate the anniversary of the adoption of the 1966 ILO/UNESCO Recommendation** concerning the Status of Teachers.
 - This instrument sets forth the rights and responsibilities of teachers, and standards for their initial preparation and further education, recruitment, employment, teaching and learning conditions.

Note:

Dr. Sarvepalli Radhakrishnan

- He was **born in a family in Tiruttani (Tamil Nadu) in 1888**. He had been a teacher, philosopher, author and politician.
- He was the **first Vice President of India (1952–1962)** and the **second President of India** from 1962 to 1967.
- He was awarded **knighthood in 1931**. In 1954, he was awarded **Bharat Ratna**, the highest civilian award in India. He got honorary membership of the **British Royal Order of Merit in 1963**.

Digital Agriculture

Why in News

Recently, the **Ministry of Agriculture and Farmers Welfare** signed 5 Memorandums of Understanding (MOUs) with private companies for taking forward **Digital Agriculture**.

- These pilot projects are **part of the Digital Agriculture Mission** and will **draw on the National Farmers Database** which already includes 5.5 crore farmers identified using existing national schemes.

Key points

- **Digital Agriculture:**
 - **About:** Digital Agriculture is **"ICT (Information and Communication Technologies) and data ecosystems** to support the development and delivery of timely, targeted information and services to make farming profitable and sustainable while delivering safe nutritious and affordable food for all."
 - **Examples:**
 - **Agricultural biotechnology** is a range of tools, including traditional breeding techniques, that alter living organisms, or parts of organisms, to make or modify products; improve plants or animals; or develop microorganisms for specific agricultural uses.
 - **Precision agriculture (PA)** is an approach where inputs are utilised in precise amounts to get increased average yields, compared to traditional cultivation techniques such as agroforestry, intercropping, crop rotation, etc. It is based on using ICTs.

- Digital and wireless technologies for data measurement, Weather monitoring, Robotics/ drone technology, etc.

- **Benefits:**

- Increases agriculture productivity.
- Prevents soil degradation.
- Reduces chemical application in crop production.
- Efficient use of water resources.
- Disseminates modern farm practices to improve the quality, quantity and reduced cost of production.
- Changes the socio-economic status of farmers.

- **Challenges:**

- **High Capital Costs:** It discourages the farmers to adopt digital methods of farming.
- **Small Land Holdings:** Indian farms are very small in size and 1-2 acres farm plots are the most common. Also, agricultural land leasing under various arrangements is widely prevalent in India.
- **Renting and Sharing Practices:** Due to both limited financial resources and small farm plots, renting and sharing platforms rather than outright purchase for equipment and machinery like tractors, harvesters etc.
- **Illiteracy in Rural Area:** The lack of basic computer literacy hinders the fast development of e-Agriculture.

- **Related Government Initiatives:**

- **AgriStack:** The **Ministry of Agriculture and Farmers Welfare** has planned creating 'AgriStack' - a collection of technology-based interventions in agriculture. It will create a unified platform for farmers to provide them end to end services across the agriculture food value chain.
- **Digital Agriculture Mission:** This has been **initiated for 2021 -2025** by the government for projects based on new technologies like artificial intelligence, block chain, remote sensing and GIS technology, use of drones and robots etc.
- **Unified Farmer Service Platform (UFSP):** UFSP is a combination of Core Infrastructure, Data, Applications and Tools that enable seamless interoperability of various public and private IT systems in the agriculture ecosystem across the

Note:

country. UFSP is envisaged to play the following role:

- Act as a **central agency** in the agri ecosystem (like **UPI** in the e Payments)
 - Enables Registration of the **Service Providers** (public and private) and the **Farmer Services**.
 - Enforces **various rules and validations** required during the service delivery process.
 - Acts as a **Repository of all the applicable standards**, API's (Application Programming Interface) and formats.
 - Act as a **medium of data exchange** amongst various schemes and services to enable comprehensive delivery of services to the farmer.
- **National e-Governance Plan in Agriculture (NeGP-A):** A **Centrally Sponsored Scheme**, it was **initially launched in 2010-11 in 7 pilot States**, which aims to achieve rapid development in India through use of ICT for timely access to agriculture related information to the farmers.
 - In **2014-15**, the scheme was further extended for all the remaining States and 2 UTs.
 - **Other Digital Initiatives:** **Kisan Call Centres, Kisan Suvidha App, Agri Market App, Soil Health Card (SHC) Portal**, etc.

E-ILP Platform: Manipur

Why in News

Recently, the Chief Minister of **Manipur** virtually launched the **e-ILP platform** for **effective regulation of the Inner Line Permit (ILP) system** in the state.



- The ILP system came into **effect in Manipur on 1st January 2020**.
- In Manipur, **four types of permits are issued** - temporary, regular, special and labour permits.

Key Points

➤ Background of ILP System:

- Under the **Bengal Eastern Frontier Regulation Act, 1873**, the British framed regulations restricting the entry and regulating the stay of outsiders in designated areas.
- This was to **protect the Crown's own commercial interests** by preventing "British subjects" (Indians) from trading within these regions.
- In **1950**, the Indian government **replaced "British subjects" with "Citizen of India"**.
- This was to address local concerns about **protecting the interests of the indigenous people** from outsiders belonging to other Indian states.

➤ About:

- ILP is a document that **Indian citizens from other states are required to possess** in order to enter states like **Arunachal Pradesh, Mizoram, Nagaland and Manipur**.
- It is **issued by the concerned State Government** and can be **issued for travel purposes solely**.
- Such states are exempted from provisions of the **Citizenship Amendment Act (CAA)**.
 - The CAA, which relaxes eligibility criteria for certain categories of migrants from three countries seeking Indian citizenship, exempts certain categories of areas, including those protected by the Inner Line system.

➤ Rules for Foreigners:

- Foreigners need a **Protected Area Permit (PAP)** to visit tourist places which are different from ILPs needed by domestic tourists.
 - Under the **Foreigners (Protected Areas) Order 1958**, all areas falling between the '**Inner Line**', as defined in the said order, and the International Border of the State have been declared as a Protected Area.
 - A **foreign national is normally not allowed** to visit a Protected/Restricted Area unless it is established to the satisfaction of the Government that there are extraordinary reasons to justify such a visit.

Note:

Delegation of Financial Powers to Defence Services, 2021 Rules

Why in News

Recently, the **Ministry of Defence** has released the **Delegation of Financial Powers to Defence Services (DFPDS), 2021 rules**.

- The primary focus of the enhanced delegation of financial powers is to **overcome procedural delays, bring about greater decentralisation and operational efficiency**.
- The DFPDS 2021 rules is **another big step in defence reforms** to strengthen security infrastructure.

Key Points

- **Key Highlights of DFPDS 2021:**
 - **Financial Powers Devolved to Field Formations:**
 - Enhanced the **delegation of revenue procurement powers** for the Army, Navy and Air Force.
 - **10% increase** in Delegated Financial Powers of Vice Chiefs of Services.
 - Financial powers have also been delegated to **new officers among the services, depending on requirements**.
 - **Focus on Operational Preparedness:**
 - Under the new rules, **critical equipment can be hired for short periods** as compared to purchases or a long-term lease, which are not only considerably expensive but also take a long time.
 - Enhanced delegation of financial powers is to **empower Field Commanders and below** to procure equipment/war-like stores in a speedy manner for urgent operational necessities and meeting essential sustenance requirements.
 - **Promoting Ease of Doing Business:**
 - Up to three times increase in funding related to Indigenisation/R&D to achieve '**Atmanirbhar Bharat**'.

Common Services Centres (CSC)

Why in News

Recently, the **Common Services Centres (CSC)** has received approvals to manage and **operate Passport Seva Kendra kiosks in rural areas**.

Key Points

- **About CSC:**
 - It is an initiative of the **Ministry of Electronics & IT (MeitY)**.
 - The CSC is a **strategic cornerstone of the National e-Governance Plan (NeGP)**, approved by the Government in May 2006, as part of its commitment in the **National Common Minimum Programme** to introduce **e-governance on a massive scale**.
 - The **objective** of CSCs is to provide **high quality and cost-effective video, voice and data content and services**, in the areas of e-governance, education, health, telemedicine, entertainment as well as other private services.
 - The Scheme **creates a conducive environment for the private sector and NGOs** to play an active role in implementation of the CSC Scheme, thereby becoming a partner of the government in development of rural India.
 - The **PPP (Public Private Partnership)** model of the CSC scheme **envisages a 3-tier structure** consisting of the:
 - **CSC operator** (called Village Level Entrepreneur or VLE);
 - **Service Centre Agency (SCA)**, that will be responsible for a division of 500-1000 CSCs; and
 - **State Designated Agency (SDA)** identified by the State Government responsible for managing the implementation in the entire State.
- **CSC and Digital India:**
 - **Digital India** is a **flagship programme of India** with a vision to transform India into a digitally empowered society and knowledge economy.
 - CSCs enable the three vision areas of the Digital India programme:
 - Digital infrastructure as Utility to Every Citizen.
 - Governance and services on demand.
 - Digital empowerment of citizens.

Note:

- **CSC 2.0:**
 - It was **launched in 2015**, expanding the programme's outreach to **all gram panchayats** in the country. At least **one CSC** is envisaged in **each of the 2.5 lakh Gram Panchayats**.
 - CSC 2.0 is a **service delivery oriented entrepreneurship model** with a large bouquet of services made available for the citizens through optimum utilization of infrastructure already created in the form of State Wide Area Network (SWAN), State Service Delivery Gateway (SSDG), e-District, State Data Centre (SDC), and **(National Optical Fiber Network (NOFN)/BharatNet**.

Karbi Anglong Agreement

Why in News

Recently, a **tripartite agreement** among **five insurgent groups of Assam, the Centre and the state government** was signed.

- This agreement is in synergy with the vision of **Insurgency free prosperous North East**, that envisages all-round development of northeast, peace and prosperity.



Key Points

- **About the Karbi Anglong Crisis:**
 - Located in central Assam, **Karbi Anglong is the state's largest district** and a **melting pot of ethnicities and tribal groups** — Karbi, Dimasa, Bodo, Kuki, Hmar, Tiwa, Garo, Man (Tai speakers), Rengma Naga. Its diversity also generated different outfits

and fuelled an insurgency that did not allow the region to develop.

- The Karbis are a **major ethnic group of Assam**, dotted by several factions and splinters. The history of the Karbi group has been **marked by killings, ethnic violence, abductions and taxation since the late 1980s**.
- **Insurgent groups** of Karbi Anglong district like People's Democratic Council of Karbi Longri (PDCK), Karbi Longri NC Hills Liberation Front (KLNLFF), etc. **originated from the core demand of forming a separate state**.
- Some of the **other demands** of the militant groups are:
 - Inclusion of some areas into **Karbi Anglong Autonomous Council (KAAC)**,
 - Reservation of seats for **Scheduled Tribes**,
 - More powers to the council,
 - Inclusion of Karbi language in the **Eighth Schedule**,
 - Financial package of Rs 1,500 crore.

Note

- The **Karbi Anglong Autonomous Council (KAAC)** is an **autonomous district council**, protected under the **Sixth Schedule of the Indian Constitution**.

➤ Highlights of the Karbi-Anglong Peace Agreement:

- **Karbi Outfits Surrendered:** 5 militant organizations (KLNLFF, PDCK, UPLA, KPLT and KLF) laid down arms and more than 1000 of their armed cadres have given up violence and joined the mainstream of society.
- **Special Development Package:** A special development package of Rs. 1000 crore will be allocated over five years by the Central Government and the Assam Government to take up special projects for the development of Karbi areas.
- **More Autonomy to KAAC:** This agreement will transfer as much autonomy as possible in exercising their rights to the Karbi Anglong Autonomous Council, without affecting the territorial and administrative integrity of Assam.
 - Overall, the present agreement proposes to give more legislative, executive, administrative and financial powers to the KAAC.
- **Rehabilitation:** A provision has been made in this agreement to rehabilitate the cadres of armed groups.

Note:

- **Development of Local People:** The Government of Assam will set up a **Karbi Welfare Council** to focus on the **development of the Karbi people living outside the KAAC area.**
 - This agreement will also ensure the protection of the culture, identity, language, etc. of the Karbi people and all-round development of the region.
 - The **Consolidated Fund of the State** will be amended to meet the resources of the KAAC.

Virtual Courts

Why in News

Recently, **Chief Justice of India (CJI) N.V. Ramana** has expressed his dissatisfaction towards the newly put open court software in the **Supreme Court** for **virtual hearings.**

- The dissatisfaction emanates from the problem of disconnections, resonance of voices during virtual hearings.

Key Points

- **About:**
 - **Virtual Courts or e-Courts** is a concept aimed at **eliminating the presence of litigants or lawyers in the court and adjudication of the case online.**
 - It requires an Online environment and an Information and Communication Technology (ICT) enabled infrastructure.
 - In the wake of the **Coronavirus Pandemic in 2020**, the Supreme Court (SC) exercising its **plenary power under Article 142** passed directions for all courts across the country to **extensively use video-conferencing for judicial proceedings.**

e-Courts Project

- It was conceptualized on the basis of the "National Policy and Action Plan for Implementation of Information and Communication Technology (ICT) in the Indian Judiciary-2005" submitted by e-Committee, Supreme Court of India with a vision to transform the Indian Judiciary by ICT enablement of Courts.
- The e-Courts Mission Mode Project, is a pan-India Project, monitored and funded by the Department of Justice, Ministry of Law and Justice, for the District Courts across the country.

- Earlier, an **Artificial Intelligence (AI)** based portal '**SUPACE**' was launched by the CJI in the judicial system aimed at assisting judges with legal research.
- Also, the SC has released the **Draft Model Rules for Live-Streaming and Recording of Court Proceedings.**
- **Advantages:**
 - **Affordable Justice:** The expansion of e-Courts will ensure easy access to justice at affordable courts to all sections of society.
 - **Faster Delivery of Justice:** The proliferation of e-Courts will make litigation faster, given that required logistics are provided.
 - **Transparency:** e-Courts can overcome the challenges and make the service delivery mechanism transparent and cost-efficient.
 - Litigants can view the status of their case online through various channels created for service delivery.
 - **Integration of Judiciary:** Data sharing between different courts and various departments will also be made easy as everything would be available online under the integrated system.
 - This would be beneficial for both improving the court processes and rendering citizen-centric services.
- **Challenges:**
 - **Operational Difficulties:** Virtual Courts witness technical interruptions during hearings owing to poor connectivity, echoes and other disruptions.
 - Other issues might involve the litigant's lack of confidence in the process due to lack of proximity.
 - **Hacking and Cybersecurity:** On the top of technology, **cybersecurity** will be a huge concern too.
 - **Infrastructure:** Challenges can erupt due to insufficient infrastructure and non-availability of electricity and internet connectivity in most of the Talukas/villages.
 - **Maintaining e-Courts record:** The paralegal staff is not well equipped and trained to effectively handle document or record evidence, and make them readily accessible to the litigant, to the council as well as to the court.

Note:

Grant in Aid for Rural Local Bodies

Why in News

Recently, the **Ministry of Finance** has released an amount of Rs. 13,385.70 crore to 25 States for providing grants to the **Rural Local Bodies**.

- This **Grant-in-aid** is the **1st installment of Tied grants** of the year 2021-22.
- The grants have been released as per the recommendations of the **15th Finance Commission**.

Key Points

- **Finance Commission (FC) Grants:**
 - The **Union Budget** provides **funds to local bodies, state disaster relief funds** and **compensates any revenue loss** to states after devolution of taxes on the recommendation of FC.
 - The **73rd Constitutional Amendment**, 1992 requires both the Centre and states to help Panchayati Raj institutions to evolve as a **unit of self-governance** by assigning them funds, functions and functionaries.
 - The 15th FC has recommended **over 1 lakh 42 thousand crore rupees** tied to Panchayats for water & sanitation during the period 2021-22 to 2025-26.
- **Tied vs United Grant:**
 - Out of the total Grant-in-aid allocated for Panchayati Raj institutions, **60% is 'Tied Grant'**. Tied grants are meant to ensure availability of additional funds to the Rural local bodies over and above the funds allocated by the Centre for **improving the sanitation and maintenance of Open-Defecation Free (ODF) status** and **supply of drinking water, rain water harvesting and water recycling** under the **Centrally Sponsored Schemes**.
 - **Remaining 40% is 'Untied Grant'** and is to be utilized at the discretion of the Panchayati Raj institutions for location specific needs, except for payment of salaries.
- **Allocation of Resources:** The **States are required to transfer the grants to the Rural local bodies within 10 working days** of their receipt from the Union Government.

- **Any delay beyond 10 working days requires the State Governments to release the grants with interest.**

Finance Commission (FC)

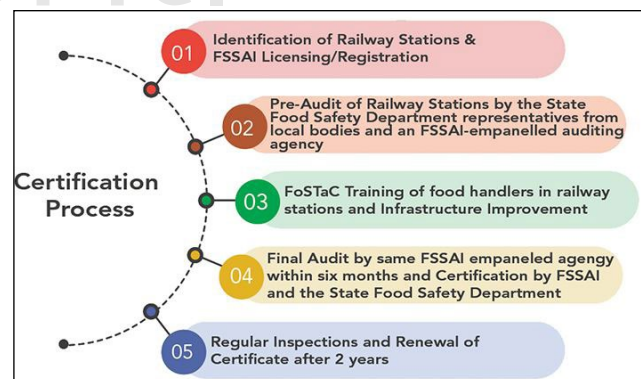
- The **FC** is a **constitutional body** that **determines the formula for distributing the tax proceeds between the Centre and states**, and among the states as per the constitutional arrangement and present requirements.
- Under **Article 280** of the Constitution, the **President of India** is required to constitute a FC **at an interval of five years** or earlier.
- The **15th FC** was constituted in November 2017, under the chairmanship of **NK Singh**.
 - Its recommendations will cover a period of five years from the year 2021-22 to 2025-26.

Eat Right Station Certification

Recently, **Chandigarh Railway Station** has been awarded a **5-star Eat Right Station certification**. It is the **fifth station** in India to get this recognition.

- The other four stations are **Anand Vihar Terminal Railway Station (Delhi)**, **Chhatrapati Shivaji Terminus (Mumbai)**, **Mumbai Central Railway Station (Mumbai)** and **Vadodara Railway Station**. The certification is part of the **'Eat Right India' movement**.

Key Points



About:

- The **'Eat Right Station' certification** is awarded by **Food Safety and Standards Authority of India (FSSAI)** to railway stations that set benchmarks (As per the Food Safety and Standards Act, 2006) in **providing safe and wholesome food to passengers**.

Note:

- FSSAI is an **autonomous statutory body** established under the **Food Safety and Standards Act, 2006**.
- The station is awarded a **certificate upon a conclusion of an FSSAI-empanelled third-party audit agency** with ratings from **1 to 5**.
- **Eat Right Movement:**
 - An **initiative of FSSAI** to transform the country's food system in order to ensure safe, healthy and sustainable food for all Indians. Its tagline is '**Sahi Bhojan, Behtar Jeevan**'.
 - It is aligned to the **National Health Policy 2017** with its focus on preventive and promotive healthcare and flagship programmes like **Ayushman Bharat, POSHAN Abhiyaan, Anaemia Mukh Bharat** and **Swachh Bharat Mission**.
 - It adopts a **judicious mix of regulatory, capacity building, collaborative, and empowerment approaches** to ensure food safety.
- **Related Initiatives:**
 - **State Food Safety Index:**
 - FSSAI has developed it to measure the performance of States on five parameters of food safety - Human Resources and Institutional Data, Compliance, Food Testing - Infrastructure and Surveillance, Training & Capacity Building and Consumer Empowerment.
 - **Eat Right Awards:**
 - Instituted by FSSAI to recognize the **contribution of food companies and individuals** to empower citizens to choose safe and healthy food options.
 - **Eat Right Mela:**
 - Organised by FSSAI, it is an outreach activity for citizens to nudge them towards eating right.

Task Force for Coal-Based Hydrogen Production

Why in News

Recently, the Union Government constituted a **Task force and Expert committee** to prepare a road map for **coal-based hydrogen production (Black Hydrogen)**.

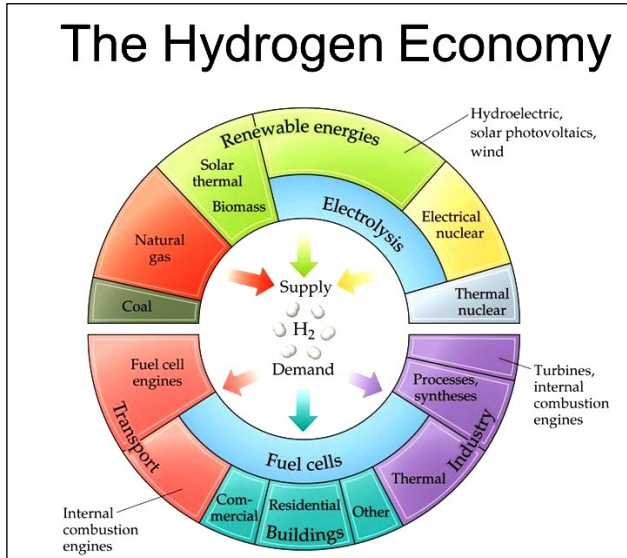
- The Task Force is also responsible for **coordination** with the **Coal Gasification Mission** and **NITI Aayog**.

Key Points

- **Coal-Based Hydrogen Production:**
 - **About:**
 - Coal (one of the **Hydrocarbon Fuels**) is one of the important sources of hydrogen making apart from natural gas and renewable energy through **Electrolysis**.
 - **However**, Coal has not been encouraged in hydrogen production because of the fear of **Carbon Emission** while extracting hydrogen via coal.
 - Almost 100% of hydrogen produced in India is through natural gas (Grey Hydrogen).
 - **Benefit:**
 - Cost of hydrogen produced from coal can be **cheaper and less sensitive to imports**.
 - **Challenge:**
 - Production of hydrogen from coal will have challenges in terms of **high emissions** and **CCUS (Carbon capture, utilisation and storage)** will play an important role.
 - **Carbon monoxide and carbon dioxide** formed during the coal to hydrogen process have to be trapped and stored in an environmentally sustainable manner (CCS and CCUS).
- **Hydrogen Economy:**
 - It is an economy that **relies on hydrogen as the commercial fuel** that would deliver a substantial fraction of a nation's energy and services.
 - Hydrogen is a **zero-carbon fuel** and is considered **an alternative to fuel and a key source of clean energy**. It can be produced from **renewable sources of energy such as solar and wind**.
 - It is an **envisioned future** where **hydrogen is used as fuel for vehicles, energy storage and long-distance transport of energy**. The different pathways to use hydrogen economy includes hydrogen production, storage, transport and utilization.
 - In 1970, the term '**Hydrogen Economy**' was coined by **John Bockris**. He mentioned that a hydrogen economy can replace the current hydrocarbon-based economy, leading to a cleaner environment.

Note:

The Hydrogen Economy



➤ Present Scenario:

- The current global demand for hydrogen is **70 million metric tons**, most of which is being produced from fossil fuels- **76% from natural gas** and **23% from coal** and remaining from the electrolysis of water-- consumes 6% of the global natural gas and 2% of the global coal.
 - This results in CO₂ emissions of around 830Mt/year out of which only 130Mt/year is being captured and used in the fertilizer industry.
- Currently, **much of the hydrogen produced is used for oil refining (33%), ammonia (27%), methanol production (11%), steel production (3%)** and others.



drishti

Note:

Economic Scenario

Highlights

- IRDAI (Trade Credit Insurance) Guidelines, 2021
- Renewable Energy & Land Use in India
- Differentiated GST Regime
- Production Linked Incentive (PLI) Scheme for Textiles Sector
- India-US Trade Issues: Free Trade Agreement
- Container Shortage
- Account Aggregator System
- Additional Tier 1 Bonds
- Atmanirbhar Corner in Indian Missions
- Quarterly Bulletin of Periodic Labour Force Survey (PLFS)
- No Entity Can Store Card Data: RBI
- Financial Stability and Development Council (FSDC) Meeting
- Rule for Taxing Contributions to EPF
- Special Drawing Rights: IMF
- Revisiting Draft e-Commerce Rules
- Sharp Economic Recovery
- Crypto Finance
- Creating Methanol from Coal
- Transport and Marketing Assistance Scheme
- T+1 Settlement System for Shares: SEBI

IRDAI (Trade Credit Insurance) Guidelines, 2021

Why in News

Recently, the **Insurance Regulatory and Development Authority of India (IRDAI)** has issued revised guidelines for **trade credit insurance**.

Key Points

➤ Trade Credit Insurance:

○ About:

- Trade credit insurance **protects businesses against the risk of non-payment for goods and services**.
- It **usually covers a portfolio of buyers and indemnifies** an agreed %age of an invoice or invoices that remain unpaid as a result of protracted default or insolvency.
- It contributes to the **economic growth of a country** by facilitating trade and helps improve economic stability by addressing trade losses because of payment risks.

○ Coverage:

- It can be issued to **sellers or suppliers of goods or services, factoring companies** as defined in

the **Factoring Regulation Act, 2011** and banks and financial institutions.

- **For banks and financial institutions and factoring companies**, it covers the loss on account of non-receipt of payment from a buyer, due to **commercial or political risks**, against the bills and invoices purchased or discounted.

- **Commercial risks** include insolvency or extended default of the buyer, rejection by the buyer after delivery subject to conditions of contract, and rejection before shipment and non-receipt of payment on account of the collecting bank's failure.

- **Political risk cover is available only in case of buyers outside India** and will include occurrence of war between the buyer's country and India and also war, hostilities, civil war, rebellion, revolution, insurrection or other disturbances in the buyer's country.

➤ Applicability:

- These guidelines will apply to **all insurers transacting general insurance business**, registered under the **Insurance Act, 1938**.
- However, **ECGC Ltd** (formerly Export Credit Guarantee Corporation of India Ltd) is exempted from the application of these guidelines.

➤ Benefits of the Move:

Note:

- It will facilitate general insurance companies to **help businesses manage country risk, open up access to new markets** and manage non-payment risk associated with trade financing portfolios.
- It will also enable general insurance companies to offer trade credit insurance with **customised covers to improve businesses** for the **Micro, Small and Medium Enterprises (MSMEs)**, considering the evolving insurance risk needs of these enterprises.

Renewable Energy & Land Use in India

Why in News

Recently, a report named **Renewable Energy and Land Use in India by Mid-Century** suggested that **careful planning today can maximise the benefits** and minimise the costs of India's history-making **energy transition**.

- It was released by the Institute for **Energy Economics and Financial Analysis (IEEFA)** which examines issues related to energy markets, trends and policies.
- It's mission is to **accelerate the transition to a diverse, sustainable and profitable energy economy**.

Key Points

- **Land-Use for Renewables:**
 - India will use **significant stretches of land by 2050** to install renewable energy generation capacities.
 - Around **50,000-75,000 square kilometres** of land will be used in 2050 for **solar energy** generation and for an additional **15,000-20,000 sq km** for **wind energy** projects.
 - In India, **electricity generation has to compete with alternative uses for land** such as agriculture, **urbanisation**, human habitation and nature conservation, unlike Europe or the US.
- **Co-Existence:**
 - Properly managed **renewable generation can co-exist with other land uses**, and, unlike coal-based power, it does not fundamentally change land during use or following its ultimate decommissioning.
- **Carbon Emission:**
 - The resulting land cover changes, including indirect effects, will likely **cause a net release of carbon up to 50 grams of carbon dioxide per kilowatt-hour (gCO₂ / kwh)**.

- The amount of carbon release will **depend on the region, scale of expansion, solar technology efficiency and land management practices** at solar parks.

➤ Effect on Ecosystems:

- Land use for renewable energy may **put a pressure on a variety of ecosystems**. Generally the terms **zero impact areas, barren land, unused land** or the official designation of **wasteland** imply that such areas have no value.
 - Open Natural Ecosystems (ONE), classified as wastelands, covered around 10% of India's land surface.
 - The **largest stretches** are found in Rajasthan, Madhya Pradesh, Maharashtra, Andhra Pradesh and Gujarat.
- However some of these have the **"highest densities and diversity of large mammalian fauna"** and also support livelihoods of local populations.
 - Earlier the **Supreme Court** directed all power lines of solar power units passing through **Great Indian Bustard** habitats in Rajasthan and Gujarat to be laid underground - as the overhead transmission lines could threaten the endangered species.

➤ Suggestions:

- **Reduce Environmental Damage:**
 - **Optimising the size of land used, its location** and impact on human habitation, agriculture and conservation of natural resources to **reduce environmental damage**.
- **Minimizing Land Use:**
 - Minimising total land-use requirements for renewable energy by **promoting offshore wind, rooftop solar and solar on water bodies**.
- **Land Assessment:**
 - Identification and assessment of land for renewable generation by **limiting undue regional concentration and developing environmental and social standards** for rating potential sites.
 - Policy makers and planners should **exclude ONE with high density habitats** when considering location of renewable energy projects.
- **Incentivising Agri Voltaics:**
 - Attention on Indian agri-voltaics sector — securing benefits to farmers and **incentivising**

Note:

agri voltaics uptake where crops, soils and conditions are suitable and yields can be maintained or improved.

- **Agri voltaics** combine the agricultural use of land with the production of electric energy by photovoltaics.

Differentiated GST Regime

Why in News

The **Goods and Services Tax (GST) Council** is likely to consider a **ministerial group's report** on introducing a **differentiated regime for sectors** where tax evasion is very high.

- Tax Evasion is an **illegal way to minimize tax liability through fraudulent techniques** like deliberate understatement of taxable income or inflating expenses. It is an **unlawful attempt to reduce one's tax burden**.

GST Council

- It is a **constitutional body (Article 279A)** for making recommendations to the Union and State Government on issues related to **Goods and Services Tax**.
- The GST Council is **chaired by the Union Finance Minister** and other members are the Union State Minister of Revenue or Finance and Ministers in-charge of Finance or Taxation of all the States.
- It is **considered as a federal body** where both the centre and the states get due representation.

Key Points

- **Background:**
 - The GST council had earlier constituted a **Group of Ministers (GoM)** to consider demands of some States to tax the **sectors with high tax evasion based on production capacity** rather than output (i.e. Special Composition schemes)
 - Capacity based tax is based on **manufacturing capacity rather than production**.
 - Some examples of sectors with high tax evasion include **brick kilns, sand mining, and gutkha and pan masala production**.
 - For instance, **Rs. 830 crore of evasion was detected** at a single pan masala unit earlier in 2021.

Concerns:

- Capacity based tax **goes against the very structure of GST** as one of the objectives was to **ensure buoyancy in revenues with increase in sales volumes**.
 - It could also open the **floodgates for such demands from other sectors**, like **textiles**.
- In terms of **implementation also** it will not be easy and it may **not even yield the desired result of curbing evasion**, the main reason for which is extremely high tax rates.
- Such a shift would be **detrimental to the fundamental idea of GST** and send out the wrong signal to honest taxpayers. It would introduce **added complexity in the GST structure**.

Production Linked Incentive (PLI) Scheme for Textiles Sector

Why in News

Recently, the Union cabinet has approved the **Production Linked Incentive (PLI) scheme** for the textile sector.

- PLI scheme for Textiles is part of the **overall announcement of PLI Schemes** for 13 sectors made earlier during the **Union Budget 2021-22**, with an outlay of **Rs. 1.97 lakh crore**.
- PLI for Textiles along with **RoSCTL, RoDTEP** and **other measures** of Government in the sector e.g. providing raw material at competitive prices, skill development etc will herald a new age in textiles manufacturing.

Key Points

- **PLI Scheme:**
 - In order to **boost domestic manufacturing and cut down on import bills**, the union government in March 2020 introduced a **PLI** scheme that **aims to give companies incentives** on incremental sales from products manufactured in domestic units.
 - **Apart from inviting foreign companies** to set shop in India, the scheme also aims to **encourage local companies** to set up or **expand existing manufacturing units**.

Note:

- The Scheme has **also been approved for sectors** such as automobiles, **pharmaceuticals, IT hardware including laptops, mobile phones & telecom equipment, white goods, chemical cells, food processing**, etc.

HOW DOES THE INCENTIVE WORK

It is a kind of subsidy to the sector

Is a direct	Amount	Is based on
payment from the budget to goods made in India	varies from sector to sector	disadvantage /disability faced by a sector

- **Features of PLI for Textile Sector:**
 - Aims to **promote the production of high value Man-Made Fibre (MMF) fabrics, garments and technical textiles.**
 - **Incentives worth Rs 10,683 crore** will be provided on production to the sector **over a span for 5 years.**
 - Incentives to eligible producers in **two phases:**
 - **First:** Any person or company **willing to invest a minimum of Rs 300 crore in plant, machinery, equipment and civil works** (excluding land and administrative building cost) to produce products of MMF fabrics, garments and products of technical textiles will be eligible to participate.
 - **Second:** Investors **willing to spend a minimum of Rs 100 crore** under the same conditions (as in the case of the first phase) shall be eligible to apply.
- **Expected Benefits:**
 - **Increase in Investment and Employment:**
 - It will lead to fresh investment of more than Rs.19,000 crore, cumulative turnover of over Rs. 3 lakh crore and additional employment opportunities of more than 7.5 lakh jobs in this sector and several lakhs more for supporting activities.
 - The **textiles industry predominantly employs women**, therefore, the scheme will empower women and increase their participation in the formal economy.
 - **Priority to Backward Areas:**
 - In addition, priority will be given for **investment in Aspirational Districts, Tier 3, Tier 4 towns,**

and rural areas and due to this priority, Industry will be **incentivized to move to backward areas.**

- This scheme will positively impact especially States like **Gujarat, UP, Maharashtra, Tamil Nadu, Punjab, AP, Telangana, Odisha** etc.

Textile Industry

- **Textiles & garments industry** is a **labour intensive sector** that employs **45 mn people** in India and is **second only to the agriculture sector** in terms of employment.
- It is **one of the oldest industries in the Indian economy**, and is a storehouse and carrier of traditional skills, heritage and culture.
- It can be divided into **two segments-**
 - The **unorganised sector** is small scale and uses traditional tools and methods. It consists of **handloom**, handicrafts and **sericulture** (production of silk).
 - The **organised sector** uses modern machinery and techniques and consists of the spinning, apparel and garments segment.

India-US Trade Issues: Free Trade Agreement

Why in News

Recently, the **new (Joe Biden) US administration** has indicated that it is **no longer interested in securing a bilateral Free Trade Agreement (FTA) with India.** The **US is India's largest trading partner**, and one with whom it has a **significant trade surplus.**

- This calling off of the **US-India mini-trade deal** provides **an opportunity for India to holistically review its stance on global trade.**

Key Points

- **Free Trade Agreement (FTA):**
 - **About:**
 - It is a **pact between two or more nations to reduce barriers to imports and exports** among them. Under a free trade policy, goods and services can be bought and sold across international borders with **little or no government tariffs, quotas, subsidies, or prohibitions** to inhibit their exchange.

Note:

- The concept of free trade is the **opposite of trade protectionism or economic isolationism.**
- **India and FTAs:**
 - After **India opted out of the Regional Comprehensive Economic Partnership (RCEP)** in November 2019, the 15-member FTA grouping that includes Japan, China and Australia, FTAs went into cold storage for India.
 - But in May 2021 came the announcement that **India-EU** talks, which had stalled in 2013, would be resumed. This was followed by the news that **FTAs with other countries like the UAE, Australia and Britain**, too, are in various stages of discussion.
- **About US-India Mini-Trade Deal:**
 - **India's Demands:**
 - Resumption of export benefits to certain domestic products under the **Generalised System of Preferences (GSP).**
 - **Greater market access** for its products from sectors like agriculture, automobile, auto components and engineering.
 - **US' Demands:**
 - **Greater market access** for its farm and manufacturing products, dairy items and medical devices.
 - The office of the **US Trade Representative (USTR)** has underlined India's measures to restrict companies from sending personal data of its citizens outside the country as a **"key" barrier to digital trade.**
 - USTR report also highlights that India's move to impose **data equalisation levy** on foreign e-commerce firms discriminates against American companies.
 - The US has also raised concerns over the **high trade deficit** with India.
- **Other Major India-US Trade Issues:**
 - **Tariffs:** **India** has been referred to by the US as **"tariff king"** that imposes "tremendously high" import duties.
 - In **June 2019**, the **Trump administration decided to terminate India's benefits** under the GSP scheme.
 - Removal from the GSP list amidst rising trade tensions **prompted India to finally impose retaliatory tariffs on several American imports.** This made the US approach the **WTO (World Trade Organisation)** against India.
 - **Intellectual Property (IP):** The two sides differ on how to balance **IP** protection to incentivize innovation and support other policy goals, such as access to medicines.
 - India remains on the **"Special 301" Priority Watch List for 2021**, based on such concerns as its treatment of patents, infringement rates, and protection of trade secrets.
 - **Services:** India also continues to seek a **"totalization agreement"** to coordinate social security protection for workers who split their careers between the two countries.
- **Issues in India's Foreign Trade Policy:**
 - **Poor Manufacturing Sector:** In the recent period, manufacturing holds a **share of 14% in India's GDP.**
 - For advanced and developed nations like Germany, the US, South Korea and Japan, the comparable figures are 19%, 11%, 25% and 21%, respectively.
 - For emerging and developing countries like China, Turkey, Indonesia, Russia, Brazil, the corresponding figures are 27%, 19%, 20%, 13%, 9%, respectively, and for low income countries the share is 8%.
 - **Unfavorable FTA's:** In the past decade, India signed FTAs with the **Association of Southeast Asian Nations (ASEAN)**, the Republic of Korea, Japan, and Malaysia.
 - However, it is largely believed that India's trade partners have gained more from these agreements than India.
 - **Protectionism:** The **Atmanirbhar Bharat campaign** has exacerbated the view that India is increasingly becoming a protectionist closed market economy.

Container Shortage

Why in News

Recently, there is an ongoing major **container shortage** which is **impacting international trade** in a big way.

Note:

Key Points

- **Reasons for the Shortage:**
 - **Low Number of Shipping Vessels:**
 - The **reduction in the number of shipping vessels** operating as a result of the **Covid-19 pandemic** has led to fewer empty containers being picked up.
 - **Congestion:**
 - Long waiting times at key ports such as those in the US due to **congestion on Chinese ports** are also contributing to lengthening turnaround time for containers.
- **Global Impact:**
 - A sustained **global economic recovery** has added to the impetus to trade. The **lack of availability of containers and the faster than expected recovery** in international trade has **pushed up freight rates significantly**.
 - It has led to **freight rates rising by over 300%**.
- **Impact on India:**
 - Indian **exporters are facing major delays in their**

shipments and consequent **liquidity issues** as they have to wait longer to receive payment for exported goods.

- **Liquidity** refers to the ease with which an asset, or security, can be converted into ready cash without affecting its market price.

- **Structural problems such as the high turnaround time** for ships in India also adds to the problem

➤ Step Taken by the Government:

- The **Central Board of Indirect Taxes and Customs** has directed its officers to **expeditiously dispose of the unclaimed, uncleared, and confiscated goods that are holding up containers**, a move aimed at easing availability of containers for exporters.

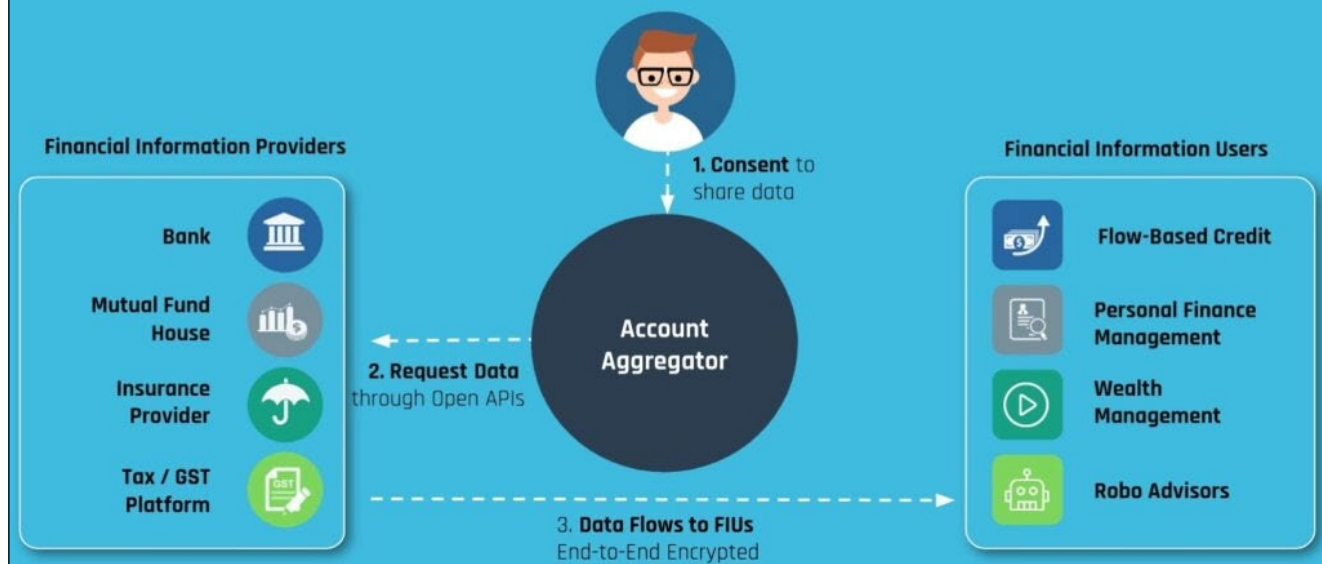
Account Aggregator System

Why in News

Recently, **eight major banks have joined the Account Aggregator (AA) network** that will enable customers to easily access and share their financial data.

The Account Aggregator

will facilitate consented sharing of financial information in real-time



Key Points

- **About:**
 - An AA is a framework that simply facilitates **sharing of financial information in a real-time and data-**

blind manner (Data flow through AA are encrypted) **between regulated entities** (Banks and NBFCs).

- The **RBI (Reserve Bank of India) in 2016 approved AA as a new class of NBFC (Non Banking Financial**

Note:

Companies), whose primary responsibility is to facilitate the transfer of user's financial data with their explicit consent.

- AAs enable **flow of data between Financial Information Providers (FIPs) and Financial Information Users (FIUs)**.
- The architecture of AA is **based on the Data Empowerment and Protection Architecture (DEPA) framework**.
 - DEPA is an architecture that lets users securely access their data and share the same with third parties.
- **Significance:**
 - **For Consumers:**
 - The AA framework allows customers to avail various financial services from a host of providers on a single portal based on a consent method, under which the consumers can choose what financial data to share and with which entity.
 - It permits users to control who gets access to their data, track and log its movement and reduce the potential risk of leakage in transit.
 - **For Banks:**
 - As an addition to India's digital infrastructure, it will allow banks to access consented data flows and verified data. This will help banks reduce transaction costs, which will enable them to offer lower ticket size loans and more tailored products and services to their customers.
 - **Reduce Frauds:**
 - AA reduces the fraud associated with physical data by introducing secure digital signatures and end-to-end encryption for data sharing.

Additional Tier 1 Bonds

Why in News

Recently, **State Bank of India (SBI)** has raised **Rs. 4,000 crore** of the **Basel compliant Additional Tier 1 (AT1) bonds** at coupon rate of 7.72%.

- This is the **first AT1 Bond issuance in the domestic market** post the **new SEBI regulations**.
- This is also the **lowest pricing ever offered on such debt** issued by any Indian bank since the implementation of **Basel III capital rules** in 2013.

Bonds

- Bonds are units of **corporate debt** issued by **companies and securitized as tradable assets**.
- A bond is referred to as a **fixed-income instrument** since bonds traditionally paid a fixed interest rate (coupon) to debtholders. **Variable or floating interest rates** are also now quite common.
- **Bond prices are inversely correlated with interest rates:** when rates go up, bond prices fall and vice-versa.
- They **have maturity dates** at which point the principal amount must be paid back in full or risk default.

Key Points

- **About:**
 - AT1 bonds, also called **perpetual bonds**, **carry no maturity date** but have a call option. The issuer of such bonds **may call or redeem the bonds if it is getting money at a cheaper rate**, especially when interest rates are falling.
 - They are like **any other bonds issued by banks and companies**, but pay a slightly **higher rate of interest compared to other bonds**.
 - Banks issue these bonds to **shore up their core capital** base to meet the Basel-III norms.
 - These bonds are also **listed and traded on the exchanges**. So, if an AT-1 bondholder needs money, he **can sell it in the secondary market**.
 - Investors **cannot return these bonds to the issuing bank** and get the money. i.e there is **no put option available to its holders**.
 - **Banks issuing AT-1 bonds can skip interest payouts** for a particular year or even reduce the bonds' face value.
- **Regulated By:**
 - **AT-1 bonds are regulated by the Reserve Bank of India (RBI)**. If the RBI feels that a bank needs a rescue, it can simply ask the bank to write off its outstanding AT-1 bonds without consulting its investors.

Basel III Norms

- It is an **international regulatory accord** that introduced a set of reforms designed to improve the regulation, supervision and risk management within the banking sector, post 2008 financial crisis.

Note:

- Under the Basel-III norms, banks were asked to **maintain a certain minimum level of capital** and not lend all the money they receive from deposits.
- According to Basel-III norms, banks' regulatory capital is divided into **Tier 1 and Tier 2**, while Tier 1 is subdivided into **Common Equity Tier-1 (CET-1) and Additional Tier-1 (AT-1) capital**.
 - Common Equity Tier 1 capital includes **equity instruments where returns are linked to the banks' performance** and therefore the performance of the share price. They have no maturity.
 - Together, **CET and AT-1 are called Common Equity**. Under Basel III norms, minimum requirement for Common Equity Capital has been defined.
- Tier 2 capital consists of **unsecured subordinated debt** with an **original maturity of at least five years**.
 - According to the **Basel norms**, if minimum **Tier-1 capital falls** below 6%, it allows for a write-off of these bonds.

Atmanirbhar Corner in Indian Missions

Why in News

Tribal Cooperative Marketing Development Federation of India (TRIFED) in collaboration with the **Ministry of External Affairs** will set up an **Atmanirbhar Bharat corner** in 100 Indian Missions/ Embassies across the world.

- The **first Atmanirbhar Bharat corner** was inaugurated at the Indian Embassy in **Bangkok, Thailand**, on **Independence Day**.
- **TRIFED** is a **national-level apex organization** functioning under the administrative control of the **Ministry of Tribal Affairs**. It is **involved in schemes** such as **Van Dhan Programme, MSP for MFP and TRIFOOD**.

Key Points

- **Atmanirbhar Bharat Corner:**
 - The corner will be an **exclusive space to promote GI (Geographical Indication) tagged tribal art and craft products** besides natural and organic products.
- **Geographical Indication:**
 - The Geographical Indication, which has been recognized by the **World Trade Organization (WTO)**,

is used to denote the **geographical territory** from where a product, be it an agricultural produce, natural product or manufactured, and also conveys assurance of qualities or attributes that are unique to that specific geographic region.

- India became a **signatory to this convention**, when, as a member of the WTO, it enacted the **Geographical Indications (Registration and Protection Act), 1999**, which came into effect from September 2003.
 - This Act is **administered** by the Controller General of Patents, Designs, and Trademarks, who is also the Registrar of Geographical Indications.
 - The Geographical Indications Registry for India is **located in Chennai**.
 - The registration of a geographical indication is **valid for a period of 10 years**. It can be renewed from time to time for a further period of 10 years each.
- **Other Related Initiatives:** **Aadi Mahotsav**, Go Tribal campaign, TRIBES India, etc.

Quarterly Bulletin of Periodic Labour Force Survey (PLFS)

Why in News

Recently, the **National Statistical Office (NSO)** released the quarterly bulletin of Periodic Labour Force Survey (PLFS) for October-December 2020.

- This dataset **differs from the Annual Report of Periodic Labour Force Survey**, which covers both rural and urban areas. Unemployment data for urban areas is released quarterly.
- NSO is the central statistical agency of the Government mandated under the Statistical Services Act 1980 under the **Ministry of Statistics and Programme Implementation**.

Key Points

- **Highlights of Quarterly Bulletin:**
 - The **Unemployment rate** for ages 15 and above in urban areas rose to 10.3% in October-December 2020 as compared to 7.9% in the corresponding months a year ago.

Note:



- The **labour force participation rate** for ages 15 and above in urban areas was 47.3% in October-December quarter of 2020, down from 47.8% in the same period a year ago.
- The **Worker Population Ratio** for ages 15 and above in urban areas was 42.4% in October-December quarter of 2020, down from 44.1% in the same period a year ago.

➤ **About Periodic Labour Force Survey:**

- Considering the importance of availability of labour force data at more frequent time intervals, **National Statistical Office (NSO) launched Periodic Labour Force Survey (PLFS) in April 2017.**
- The **objective** of PLFS is primarily twofold:
 - To estimate the key employment and unemployment indicators (viz. Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate) in the short time interval of three months for the urban areas only in the 'Current Weekly Status' (CWS).
 - To estimate employment and unemployment indicators in both usual Status and CWS in both rural and urban areas annually.
- **Three Annual Reports of PLFS** corresponding to the periods July 2017 - June 2018, July 2018 - June 2019 and July 2019 - June 2020 have been released.
- **Nine Quarterly Bulletins** of PLFS corresponding to the quarters covered during the period December 2018 to December 2020 have been released.

Key Terminologies

- **Labour Force Participation Rate (LFPR):** LFPR is defined as the percentage of persons in the labour force (i.e. working or seeking or available for work) in the population.
- **Worker Population Ratio (WPR):** WPR is defined as the percentage of employed persons in the population.
- **Unemployment Rate (UR):** UR is defined as the percentage of persons unemployed among the persons in the labour force.
- **Activity Status:** The activity status of a person is determined on the basis of the activities pursued by the person during a specified reference period.
 - **Usual Status:** The activity status determined on the basis of the reference period of the last 365 days preceding the date of survey, is known as the usual activity status of the person.

- **Current Weekly Status (CWS):** The activity status determined on the basis of a reference period of the last 7 days preceding the date of survey is known as the Current Weekly Status (CWS) of the person.

No Entity Can Store Card Data: RBI

Why in News

Recently, the **Reserve Bank of India (RBI)** has given new directions in relation to storage of bank\card data by entities or other merchants.

- It has directed that **no entity or merchant, other than card issuers and card networks, should store card details.** It will reduce the frauds that occur by sharing card details.

PROCESS TO GET MORE TEDIOUS?

<ul style="list-style-type: none"> ➤ E-tailers & payment gateways currently offer to store card details, including the 16-digit number ➤ RBI's ban on storing card data would require e-commerce firms to opt for tokenisation or ask customers to enter the card number ➤ Tokenisation refers to payment networks linking card data to a token, which is given to the merchant ➤ This token can be used for payments but only by the specified merchant 	<ul style="list-style-type: none"> ➤ The new rule will become the norm for all card-based transactions in e-commerce from Jan 2022 ➤ According to a source, the threat of ransomware attacks have increased manifold ➤ Online firms won't be able to store card info & debit recurring payments (won't affect billers added with bank directly) ➤ It is thought RBI's move is aimed at increasing customer safety & improving data security
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Key Points

- **About:**
 - With effect from January 2022, **no entity in the card transaction or payment chain**, other than the card issuers and card networks, **should store the actual card data.** Any such **data stored previously will be removed.**
 - It has also **extended tokenization of Card-on-File (CoF)** by card issuers.
 - It has permitted **card issuers to offer card tokenization services as Token Service Providers (TSPs).**
 - The facility of tokenisation will be offered by the TSPs only for the cards issued by or affiliated to them.

Note:

- **Tokenization:**
 - Tokenization refers to **replacement of actual card details with an alternate code called the “token”**, which will be unique for a combination of card, token requestor and device.
 - The **token is used to perform card transactions in contactless mode** at point-of-sale terminals, quick response and code payments.
- **Card-on-File:**
 - A CoF transaction is a **transaction where a cardholder has authorised a merchant to store the cardholder’s Mastercard or Visa payment details**.
 - The cardholder then authorises that same merchant to bill the cardholder’s stored Mastercard or Visa account.
 - **E-commerce** companies and airlines and supermarket chains normally store card details in their system

Financial Stability and Development Council (FSDC) Meeting

Why in News

Recently, the Finance Minister chaired the 24th meeting of the **Financial Stability and Development Council (FSDC)**.

- The council **discussed** issues relating to management of **stressed assets**, strengthening institutional mechanisms for financial stability analysis, issues related to **IBC (Insolvency and Bankruptcy Code)**, data sharing mechanisms of government authorities, internationalisation of the Indian rupee and pension sector related issues.

Key Points

- **Establishment:**
 - A **non-statutory apex council under the Ministry of Finance** constituted by the Executive Order in 2010.
 - The **Raghuram Rajan committee (2008)** on financial sector reforms first proposed the creation of FSDC.
- **Composition:**
 - It is chaired by the Finance Minister and its **members include** the heads of all Financial Sector Regulators (**RBI, SEBI, PFRDA & IRDA**), Finance

Secretary, Secretary of Department of Economic Affairs (DEA), Secretary of Department of Financial Services (DFS), and Chief Economic Adviser.

- In 2018, the government reconstituted FSDC to include the Minister of State responsible for the Department of Economic Affairs (DEA), Secretary of Department of Electronics and Information Technology, Chairperson of the **Insolvency and Bankruptcy Board of India (IBBI)** and the Revenue Secretary.
- **FSDC sub-committee** is headed by the **Governor of RBI**.
- The Council can **invite experts to its meeting if required**.
- **Functions:**
 - To **strengthen and institutionalize the mechanism** for maintaining financial stability, enhancing inter-regulatory coordination and promoting financial sector development.
 - To **monitor macro-prudential supervision of the economy**. It assesses the functioning of the large financial conglomerates.

Rule for Taxing Contributions to EPF

Why in News

Recently, the Finance Ministry has notified the rules for taxing interest income on contributions made to the **Employees’ Provident Fund (EPF)**.

Employees’ Provident Funds Scheme

- EPF is the main scheme under the **Employees’ Provident Funds and Miscellaneous Act, 1952**.
- This scheme **offers the institution of provident funds for factory employees and other establishments**.
- The **employee and employer each contribute 12% of the employee’s basic salary** and dearness allowance towards EPF.
 - The **Economic Survey 2016-17** had suggested that **employees be allowed to choose** whether or not to save 12% of their salary into EPF or keep it as take home pay.
- As per current laws, **a person mandatorily becomes a member of EPF** if his **monthly salary does not exceed Rs. 15,000**.

Note:

Key Points

- **Background:**
 - In February 2021, the **Budget** proposed that **tax exemption** will **not be available** on interest income on **Provident Fund** (PF) contributions **exceeding Rs 2.5 lakh in a year**.
 - In March 2021, the **government introduced an amendment** to the **Finance Bill, 2021** in which it **proposed to double the cap on contribution from Rs 2.5 lakh to Rs 5 lakh** for tax-exempt interest income, if the contribution is made to a fund where there is no contribution by the employer.
 - With this, the **government provided relief for contributions made to the General Provident Fund** that is available only to government employees and there is no contribution by the employer.
- **New Rules:**
 - Interest income on **contributions made to the EPF beyond Rs. 2.5 lakh** (for private sector employees) and **Rs.5 lakh** (for government sector employees) **will be taxed**.
 - Beginning this Fiscal Year (FY) 2021-22, the **government will tax interest on contributions made in excess of these limits**, with separate accounts to be maintained within the provident fund account for 2021-22 and subsequent years for taxable contribution and non-taxable contribution made by an individual.
 - A **Fiscal Year (FY)**, also known as a **budget year**, is a period of **time used by the government and businesses for accounting purposes** to formulate annual financial statements and reports.
 - The **Central Board of Direct Taxes (CBDT)** has **inserted Rule 9D** in the **Income-Tax Rules, 1962**, according to which **income through interest accrued during the previous year that is not exempt** (over Rs 2.5 lakh for private and Rs 5 lakh for government employees) **shall be computed as the interest accrued during the previous year** in the taxable contribution account.
- **Perpetuity of Tax:**
 - As per the notification, the interest income on the additional contribution (over Rs 2.5 lakh for private and Rs 5 lakh for government employees) for a year **will get taxed every year**.

- This means that if one's annual contribution to PF in FY 2021-22 is Rs 10 lakh, the interest income on Rs 7.5 lakh will get taxed not only for FY 2021-22 but also for all subsequent years.

➤ Need:

- The Budget proposal had noted that the **government has found instances where some employees are contributing huge amounts** to these funds and are getting the benefit of tax exemption at all stages — contribution, interest accumulation and withdrawal.
- With an **aim to exclude High Net-Worth individuals (HNIs)** from the benefit of high tax-free interest income on their large contributions, the government has proposed to impose a threshold limit for tax exemption.

Special Drawing Rights: IMF

Why in News

Recently, the **International Monetary Fund (IMF)** has made an **allocation of Special Drawing Rights (SDR) 12.57 billion** (equivalent to around \$17.86 billion at the latest **exchange rate**) to India.

- Now, the **total SDR holdings of India stand at SDR 13.66 billion**.

Key Points

➤ Special Drawing Rights (SDR):

- The SDR is **neither a currency nor a claim on the IMF**. Rather, it is a **potential claim on the freely usable currencies of IMF members**. SDRs can be exchanged for these currencies.
- The SDR serves as the **unit of account of the IMF** and some other international organizations.
- The currency value of the SDR is determined by summing the values in US dollars, based on market exchange rates, of a SDR basket of currencies.
- The SDR **basket of currencies** includes the **US dollar, Euro, Japanese yen, pound sterling and the Chinese renminbi** (included in 2016).
- The SDR currency value is **calculated daily** (except on IMF holidays or whenever the IMF is closed for business) and the valuation basket is **reviewed and adjusted every five years**.

Note:

- **Quota (the amount contributed to the IMF)** of a country is denominated in SDRs.
 - Members' **voting power is related directly** to their quotas.
 - IMF **makes the general SDR allocation to its members** in proportion to their existing quotas in the IMF.
- **India's foreign exchange reserves** also incorporate SDR other than gold reserves, foreign currency assets and Reserve Tranche in the IMF.

Revisiting Draft e-Commerce Rules

Why in News

Amid criticism from industries and some sections of government, the Department of Consumer Affairs is learnt to be revisiting some provisions pertaining to **draft e-commerce rules, 2021**.

- Earlier, the **Ministry of Consumer Affairs, Food, and Public Distribution** notified and made effective the provisions of the **Consumer Protection (E-Commerce) Rules, 2020** under the **Consumer Protection Act, 2019**.
- Further, the Department for Promotion of Industry and Internal Trade (DPIIT) has issued orders appointing an advisory committee for its **Open Network for Digital Commerce (ONDC)** project that is aimed at curbing "digital monopolies".
 - This is in the direction of **making e-commerce processes open source**, thus creating a platform that can be utilised by all online retailers.

Key Points

- **Key Provisions of Draft e-Commerce Rules 2021:**
 - **Mandatory Registration:** There is a need for mandatory registration for e-commerce entities with the Department of Promotion for Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry.
 - E-commerce entity means persons who own, operate or manage a digital or electronic facility or platform for electronic commerce.
 - **Limiting Flash Sales:** Conventional e-commerce flash sales are not banned. Only specific flash sales or back-to-back sales which limit customer

choice, increase prices and prevent a level playing field are not allowed.

- **Compliance Officer:** The e-commerce sites are also directed to ensure appointment of Chief Compliance Officer (CCO) and a nodal contact person for 24x7 coordination with law enforcement agencies.
- **Restricting Related Parties:** To tackle growing concerns of preferential treatment, the new rules propose to ensure none of the related parties are allowed to use any consumer information (from the online platform) for 'unfair advantage'.
- **Clause of Country of Origin:** The entities will also have to identify goods based on their country of origin and provide a filter mechanism at a pre-purchase stage for customers.
 - They will also have to offer alternatives to these imported goods to provide a "fair opportunity" to domestic sellers.
- **Reporting Cybersecurity Issues:** All e-commerce entities must provide information within 72 hours on any request made by an authorised government agency, probing any breach of the law including cybersecurity issues.
- **Major Issues Pertaining to Draft Rules:**
 - **Definition of 'Related Party':** The draft rules state that "**none of an e-commerce entity's 'related parties** can be enlisted as a seller for sale to consumers directly.
 - This "broad definition" of 'related party' can **potentially include all entities** such as those involved in logistics, any joint ventures, etc.
 - Due to this, it will be **difficult not only for foreign players like Amazon and Flipkart, but even homegrown companies** to have their various brands such as 1mg, Netmeds, Urban Ladder, etc. sell on their **super-apps**.
 - **Issue over Fall-back Liability:** Industry players have argued that on the one hand the **FDI (Foreign Direct Investment)** policy prohibits companies such as Amazon and Flipkart from having control over the inventory sold on their platforms.
 - On the other hand, the rules introduced the concept of **fall-back liability, which makes the e-commerce firms liable** in case a seller on their platform fails to deliver goods or services due to negligent conduct, which causes loss to the customer.

Note:

- **Overreaching Jurisdiction:** The **NITI Aayog** has raised concerns that many of the provisions in draft rules were “beyond the realm” of consumer protection.
 - This creates a perception of “overreach” by the Consumer Affairs Department.
- **Case of Tight Regulation:** Some of the proposed provisions like having a compliance officer, adherence to law enforcement requests, etc., follow in the footsteps of the **Information Technology (Intermediary) Rules, 2021**.
 - These IT rules are facing legal challenges in several High courts.
 - Thus, the rules reflect the increasing Government’s will to exercise greater oversight over all online platforms.

Sharp Economic Recovery

Why in News

Recently, the **National Statistical Office** data has revealed that the **Indian economy grew at a record pace of 20.1% in April-June 2021**, as compared to the corresponding period last year.

- Last year, **Gross domestic product (GDP) contracted 24.4% in the same period**, when the national lockdown due to the Covid-19 pandemic had nearly halted all economic activities.

Key Points

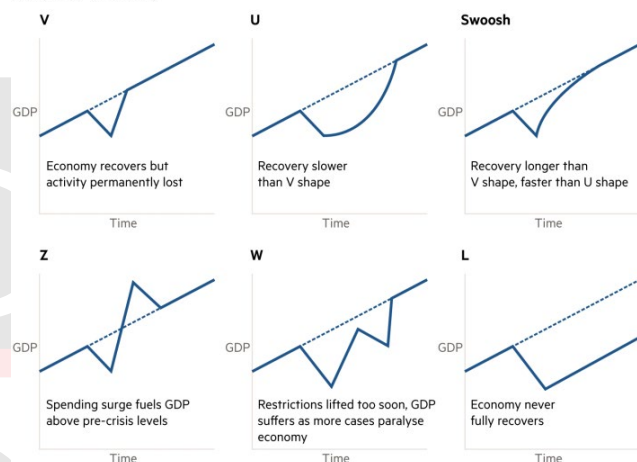
- **About Economic Recovery:**
 - The first quarter’s high growth rate, **has come despite a brutal second wave of the pandemic** which peaked in April-May 2021.
 - The sharp increases were **largely due to the low base (-24.4%) of the first quarter of 2020-21**.
 - This growth **reaffirms the government’s prediction of an imminent V-shaped recovery** made last year.
 - However, despite phenomenal economic recovery, **the GDP in the first quarter is still 9.2% lower than the GDP in the same period during the pre-Covid year 2019-20**.
 - Amongst sectors, **manufacturing and construction imparted a significant push to the economy** in April-June, growing 49.63% and 68.3% respectively, over April-June 2020.

- However, the **services sector continued to lag**.
- **Sectors** including ‘agriculture, forestry and fishing’ and ‘electricity, gas, water supply and other utility services’ are **above the levels of the pre-Covid year of 2019-20**.

➤ V-shaped Economic Recovery:

- A V-shaped recovery is **characterized by a quick and sustained recovery in measures of economic performance after a sharp economic decline**.
- Such recoveries are generally spurred by a significant shift in economic activity caused by rapid readjustment of consumer demand and business investment spending.

Shape of recovery



Measuring Total Output of Economy

- Total Output in an economy can be **measured by two ways:**
 - **Measuring total demand:** Gross Domestic Product (GDP)
 - **Measuring total supply:** Gross Value Added (GVA)
- **About GDP:**
 - It is the total monetary value of final goods and services, those that are bought by the final user and produced in a country in a given period of time.
 - The GDP data show what is happening to the **four engines of economic growth** in any economy. These four engines are:
 - Private Final Consumption Expenditure (C)
 - Investment (I)
 - Government Final Consumption Expenditure (G)
 - Net Exports” (NX) (Exports-Imports)

Note:

○ $GDP = C + I + G + NX$

➤ **About GVA:**

- It looks at how much value was added (in money terms) in different productive sectors (such as Agriculture, Electricity, etc.) of the economy.
- It tells **which specific sectors are doing well** and which are struggling to add value.

➤ **Difference Between GDP And GVA:**

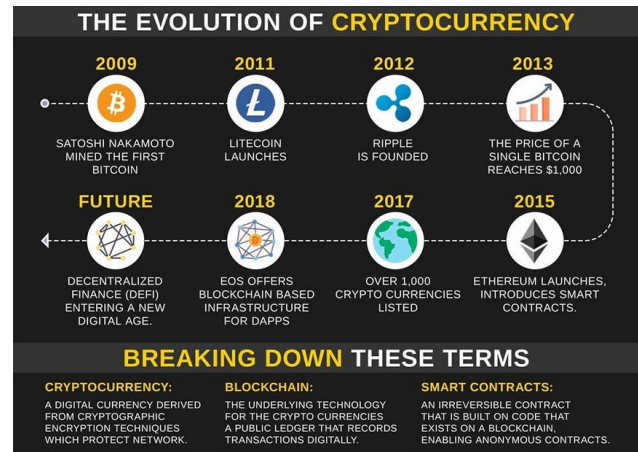
- On the face of it, the total output **should be the same** in the case of **measuring Total Demand or Total Supply**.
- However, every economy has a **government, which imposes taxes and also provides subsidies**.
- As such, **GDP is “derived” by taking the GVA data and adding the taxes** on different products and then **subtracting all the subsidies** on products.
- In other words, **$GDP = (GVA) + (\text{Taxe s earned by the government}) - (\text{Subsidies provided by the government})$** .
- The difference between these two absolute values **will provide a sense of the role the government played**.
 - If the government earned more from taxes than what it spent on subsidies, **GDP will be higher than GVA**.
 - If, on the other hand, the government provided subsidies in excess of its tax revenues, the **absolute level of GVA would be higher than the absolute level of GDP**.

Crypto Finance

Why in News

The development of **Bitcoin** and other **Cryptocurrencies** in a decade has changed the definition of money and generated a parallel universe of **Alternative Financial Services (AFS)**.

- The development has allowed **crypto businesses to move into traditional banking territory**.
- AFS is a term often used to describe the array of **financial services offered by providers that operate outside** of federally insured banks and thrifts.



Key Points

- **Alternative Services Offered by Crypto:**
 - **About:** Most notably, **lending and borrowing**.
 - **Advantages over Banks:** Investors can **earn interest on their holdings of digital currencies** - often a lot more than they could on cash deposits in a bank - or **borrow with crypto as collateral** to back a loan.
 - **Reason:** By law, **banks are required to have reserves** to ensure that even if some loans go bad, customers can still withdraw funds, whereas **crypto banks do not have the same reserve requirements** and the institutions they lend to can take risky activities.
 - **Risks:** Deposits are **not guaranteed** by the central bank's backed **Deposit Insurance Corp**. Cyberattacks, extreme market conditions, or other operational or technical difficulties could lead to a temporary or permanent halt on withdrawals or transfers.
- **Stablecoin:**
 - They are **cryptocurrencies pegged to stable assets**, commonly the dollar. They are meant to **provide the steady value of government-issued money** in digital form for blockchain transactions, but they are **issued by private entities**.
 - Crypto is very volatile, making it less practical for transactions like payments or loans. **That's where stablecoins come in**.
 - Stablecoin issuers are supposed to hold and monitor reserves as government institutions do. But there is **no guarantee they actually hold the one-to-one dollar backing they claim**.

Note:

➤ Central Bank Digital Currency:

- It is the virtual format of a **fiat currency** (issued by the government and regulated by a central authority such as a central bank) for a particular nation or region.
- Central bankers are examining the **potential for issuance of a government-issued cryptocurrency**. That would theoretically offer the convenience of crypto with the reliability of money controlled by a central bank.
- Many countries, including the **US and India, are considering developing a central bank digital currency**.

➤ Decentralized Finance:

- Decentralized finance, or DeFi, loosely describes an **alternative finance ecosystem where consumers transfer, trade, borrow and lend cryptocurrency**, theoretically independently of traditional financial institutions and the regulatory structures.
- The DeFi movement aims to **“disintermediate” finance**, using computer code to **eliminate the need for trust and middlemen** from transactions.
- DeFi platforms are **structured to become independent from their developers and backers over time** and to ultimately be governed by a community of users.

➤ Benefits of Crypto Finance:

- **Financial Inclusion:**
 - Innovators argue that crypto fosters financial inclusion. Consumers can earn unusually high returns on their holdings, unlike at banks.
- **Quick and Cheap Transactions:**
 - Crypto finance gives people **long excluded by traditional institutions the opportunity to engage in transactions quickly, cheaply** and without judgment.
 - As crypto **backs their loans, the services generally require no credit checks**, although some take customer identity information for tax reporting and anti-fraud purposes.
 - On a DeFi protocol, **users’ personal identities are generally not shared**, since they are judged solely by the value of their crypto.

Creating Methanol from Coal

Why in News

Recently, the **first Indigenously Designed High Ash Coal Gasification Based Methanol Production Plant** has been opened in Hyderabad.

- With this, Government owned engineering firm **BHEL (Bharat Heavy Electricals Limited)** has successfully demonstrated a facility to create methanol from high ash Indian coal.

Key Points

➤ About:

- **Methanol is utilized as a motor fuel**, to power ship engines, and to generate clean power all over the world. **However**, the majority of worldwide methanol **production is derived from natural gas**, which is a relatively easy process.
- Since **India doesn’t have much of the natural gas reserves**, producing methanol from imported natural gas leads to outflow of foreign exchange and is uneconomical because of higher prices.
- The **next best option is to utilise India’s abundant coal**. However, due to the high ash percentage of **Indian coal**, most internationally accessible technology will not be adequate.
- To address this issue, BHEL successfully demonstrated a facility to create 0.25 TPD (Ton per Day) Methanol from high ash Indian coal using a 1.2 TPD Fluidized bed gasifier.
 - The methanol purity of the crude methanol produced is between 98 and 99.5%.
- This is part of **NITI Aayog’s ‘Methanol Economy’ programme** that is aimed at reducing India’s oil import bill, greenhouse gas (GHG) emissions, and converting coal reserves and municipal **solid waste** into methanol.
- Also this in-house capability will **assist India’s coal gasification mission** and coal-to-hydrogen production for **Hydrogen Mission**.
- **NITI Aayog’s Methanol Economy Programme:**
 - **About Methanol:** Methanol is a **low carbon, hydrogen carrier fuel produced from** high ash coal, agricultural residue, CO₂ from thermal power

Note:

plants and natural gas. It is the best pathway for meeting India's commitment to **COP 21 (Paris Agreement)**.

- **Methanol vis-a-vis-Petrol and Diesel:** Although slightly lower in energy content than petrol and diesel, methanol can replace both these fuels in the transport sector (road, rail and marine), energy sector (comprising boilers, process heating modules, tractors and commercial vehicles) and retail cooking (replacing LPG [partially], kerosene and wood charcoal).
- **Environmental and Economic Impact:**
 - Blending of 15% methanol in gasoline can result in **at least 15% reduction in the import of gasoline/crude oil**. In addition, this would bring down GHG emissions by 20% in terms of particulate matter, NOx, and SOx, thereby improving the urban air quality.
 - The Methanol Economy will also create close to 5 million jobs through methanol production/application and distribution services.
 - Additionally, Rs 6000 crore can be saved annually by **blending 20% DME (Di-methyl Ether, a derivative of methanol) in LPG**. This will help the consumer in saving between Rs 50-100 per cylinder.
- **Initiatives Taken:**
 - The **Bureau of Indian Standards** has notified **20% DME blending with LPG**, and a notification for M-15, M-85, M-100 blends has been issued by the Ministry of Road, Transport and Highways.
 - In **October 2018**, Assam Petrochemicals launched **Asia's first canister-based methanol cooking fuel programme**. This initiative is in line with the Prime Minister's vision of striving towards the provision of a clean, cost-effective and pollution-free cooking medium.
 - **Five methanol plants** based on high ash coal, five DME plants, and one natural gas-based methanol production plant with a capacity of 20 MMT/annum, **in a joint venture with Israel**, have been planned to be set up.
 - Three boats and seven cargo vessels are being built by the Cochin Shipyard Limited for **Inland Waterways Authority of India** to use **methanol as a marine fuel**.

Transport and Marketing Assistance Scheme

Why in News

Recently, the **Ministry of Commerce and Industry** has revised the **Transport and Marketing Assistance (TMA) scheme** for specified agriculture products.

- It will be effected on or after 1st April, 2021, up to 31st March, 2022.

Key Points

- **About:**
 - It was **launched in 2019**, for providing **financial assistance for the transport and marketing of agricultural products to boost exports** of such commodities to certain countries in Europe and North America.
 - In the year 2018, the government approved an **Agriculture Export Policy** with an aim to double the shipments to USD 60 billion by 2022.
 - **APEDA** (Agricultural and Processed Food Products Export Development Authority) works towards expanding the export potential of Indian agricultural and food products.
 - Under the TMA, the **government reimburses a certain portion of freight charges and provides assistance** for the marketing of agricultural produce.
 - The assistance, at notified rates, will be available for export of eligible agriculture products to the permissible countries, as specified from time to time.
 - The **revised scheme has included dairy products** among other agriculture products in its purview and **increased the rates of assistance**.
 - Rates of assistance have been increased, by 50% for exports by sea and 100% through the air.
 - TMA would be reimbursed through the Regional Authorities of **DGFT (Directorate General of Foreign Trade)**.
- **Objective:**
 - To **provide assistance for the international component** of freight and marketing of agricultural produce.

Note:



- To mitigate the disadvantage of higher cost of transportation of export of specified agriculture products due to trans-shipment.
- To promote brand recognition for Indian agricultural products in the specified overseas markets.

Agriculture Export Policy 2018

- The vision of Agriculture Export Policy is to harness the export potential of Indian agriculture, through suitable policy instruments, to make India global power in agriculture and raise farmers income.
- The Policy was approved with the objective,
 - To diversify the export basket, destinations and boost high value and value-added agricultural exports including a focus on perishables.
 - To promote novel, indigenous, organic, ethnic, traditional and non-traditional Agri products exports.
 - To provide an institutional mechanism for pursuing market access, tackling barriers and dealing with sanitary and phytosanitary issues.
 - Enable farmers to get the benefit of export opportunities in the overseas market.

Agricultural and Processed Food Products Export Development Authority

- APEDA is a non-trading, statutory body established by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act passed by the Parliament in December, 1985.
- It functions under the Ministry of Commerce and Industry. The Authority has its headquarters in New Delhi.
- It has been mandated with the responsibility of export promotion and development of the scheduled products viz. fruits, vegetables, meat products, dairy products, alcoholic and non-alcoholic beverages etc.
- It has also been entrusted with the responsibility to monitor import of sugar.
- In 2017, APEDA launched a mobile app- "Farmer Connect" to allow farmers to apply online to facilitate their farm registration, tracking the status of application & approvals by State Government and Lab sampling by authorized Laboratories.

T+1 Settlement System for Shares: SEBI

Why in News

Recently, **Securities and Exchange Board of India (SEBI)** allowed **stock exchanges to start the T+1 system** as an option in place of T+2 for completion of share transactions.

- It has been introduced **on an optional basis in a move to enhance liquidity.**
- **SEBI** is a statutory body established in 1992 in accordance with the provisions of the Securities and Exchange Board of India Act, 1992.

Settlement System

- In the securities industry, the **trade settlement period refers to the time between the trade date** that an order is executed in the market **and the settlement date** when a trade is considered final.
 - On the **last day of the settlement period**, the **buyer becomes the holder** of record of the security.

Key Points

- **About:**
 - If the stock exchange opts for the T+1 settlement cycle for a scrip, it will have to **mandatorily continue with it for a minimum 6 months.**
 - A scrip is a substitute or alternative to legal tender that entitles the bearer to receive something in return.
 - Thereafter, **if it intends to switch back to T+2, it will do so by giving one month's advance notice** to the market. Any subsequent switch (from T+1 to T+2 or vice versa) will be subject to a minimum period.
- **T+1 vs T+2 Settlement:**
 - In T+2, if an investor sells shares, the settlement of the trade takes place in two working days (T+2) and the broker who handles the trade will get the money on the third day, but will credit the amount in the **investor's account only by the fourth day.**
 - In effect, the investor will get the money only after three days.
 - In T+1, settlement of the trade takes place in one

Note:

working day and the **investor will get the money on the following day.**

- The move to T+1 will not require large operational or technical changes by market participants, nor will it cause fragmentation and risk to the core clearance and settlement ecosystem.

➤ **Benefits of T+1 Settlement:**

- **Reduced Settlement Time:** A shortened cycle not only reduces settlement time but **also reduces and frees up the capital** required to collateralise that risk.
- **Reduction in Unsettled Trade:** It also **reduces the number of outstanding unsettled trades** at any instant, and thus decreases the unsettled exposure to Clearing Corporation by 50%.
 - The narrower the settlement cycle, the **narrower**

the time window for a counterparty *insolvency/bankruptcy* to impact the settlement of a trade.

- **Reduction in Blocked Capital:** Further, the **capital blocked in the system to cover the risk of trades will get proportionately reduced** with the number of outstanding unsettled trades at any point of time.
 - **Reduction in Systemic Risks:** A shortened settlement cycle will help in reducing systemic risk.
- **Concerns of Foreign Investors:**
- Foreign investors have concerns **about operational issues** they would face while operating from **different geographies - time zones**, information flow process, and foreign exchange problems.
 - They will also find it **difficult to hedge their net India exposure in dollar terms** at the end of the day under the T+1 system.



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Note:



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International Relations

Highlights

- *Climate Action and Finance Mobilisation Dialogue: India-US*
- *US-India Strategic Clean Energy Partnership (SCEP)*
- *Upcoming Quad Meeting*
- *India-Australia First 2+2 Dialogue*
- *Resolution 2593 on Taliban: UNSC*
- *13th BRICS Summit*
- *Food Emergency in Sri Lanka*
- *India-Croatia Relations*
- *6th Eastern Economic Forum*
- *Durand Line: Afghanistan and Pakistan*
- *China's New Sea-Road-Rail Link to Indian Ocean*

Climate Action and Finance Mobilisation Dialogue: India-US

Why in News

Recently, US Special Presidential Envoy for Climate, along with India's Union Minister for Environment, Forests and **Climate Change** launched the **Climate Action and Finance Mobilisation Dialogue (CAFMD)** between the two countries.

- India has so far **abstained from committing to a net zero goal** but is on a **climate pathway that is compatible** with keeping global temperatures to below 2 degree celsius by the end of the century.

Key Points

- **About:**
 - It is **one of the two tracks of the India-US Climate and Clean Energy Agenda 2030** partnership launched at the **Leaders' Summit on Climate** in April 2021.
 - Earlier, the **revamped US-India Strategic Clean Energy Partnership SCEP** (first track) was launched.
 - It will provide both countries an **opportunity to renew collaborations on climate change** while **addressing financing aspects and deliver climate finances** primarily as grants and concessional finance as envisaged under the **Paris Agreement**.

- It will also **help to demonstrate how the world can align swift climate action** with inclusive and resilient economic development, taking into account national circumstances and sustainable development priorities.

➤ Pillars to the CAFM:

- **Climate Action Pillar:**
 - It would have **joint proposals looking at ways in which emissions could be reduced** in the next decade.
- **Finance Pillar:**
 - Through this the **US will collaborate in attracting capital and enhancing the enabling environment** to deploy 450 GW of renewable energy capacity in India and demonstrate and scale innovative clean energy technologies and promote bilateral clean energy investment and trade.
- **Adaptation and Resilience:**
 - The two countries will collaborate in building capacities to **"measure and manage climate risks"**.
- **Opportunities for India:**
 - There's never been a better time to invest in the energy transition. **Renewable energy is cheaper than ever.**
 - In fact, **it is cheaper to build a solar farm in India than anywhere else** on the planet.
 - Investors are now moving to clean energy all around the world and **the energy transition is already rebounding after the worst of the pandemic** and is now on track to smash the pre-pandemic record of 8.4 billion USD invested in one year.

Note:

- The **International Energy Agency** forecasts that if India seizes the clean energy opportunity, it could become the world's largest market for batteries and solar panels.
 - Currently **India's installed power capacity is projected to be 476 GW by 2021-22** and is expected to rise to at least **817 GW by 2030**.

US-India Strategic Clean Energy Partnership (SCEP)

Why in News

Recently, the revamped **US-India Strategic Clean Energy Partnership SCEP** was launched during the ministerial meeting of the Petroleum and Natural Gas Ministry with the US Ministry of Energy.

- The SCEP was launched in accordance with the **US - India Climate and Clean Energy Agenda 2030 Partnership** announced by both countries at the **Leaders' Summit on Climate** held earlier this year (2021).

Key Points

- **US-India Agenda 2030 Partnership:**
 - The aim is to create stronger **bilateral cooperation on actions** in the current decade to meet the goals of the **Paris Agreement**.
 - The Partnership will proceed along **two main tracks**: the Strategic Clean Energy Partnership and the Climate Action and Finance Mobilization Dialogue.
 - India elevated the India-US energy dialogue to a **strategic energy partnership** in 2018.
- **Revamped Strategic Clean Energy Partnership (SCEP):**
 - Addition of a fifth Pillar on **Emerging Fuels (cleaner energy fuels)**.
 - With this, the **SCEP inter-governmental engagement** now spreads across **five pillars of cooperation** - Power and Energy Efficiency, Responsible Oil and Gas, Renewable Energy, Sustainable Growth and Emerging Fuels.
 - Support India in achieving its goal of installing **450GW of renewable energy capacity by 2030**.
 - A new **India-U.S. Task Force on Biofuels** was also announced.
- **Reviewed India-US Civil Nuclear Energy Cooperation:**
 - The Indo-US nuclear cooperation agreement was **signed in 2008**.

- A major aspect of the Deal was that the **Nuclear Suppliers Group (NSG)** gave a special waiver to India that enabled it to sign cooperation agreements with a dozen countries.

Transformation of the Gas Task Force:

- It will be the **India-US Low Emissions Gas Task Force**.
- It will focus on addressing India's natural gas policy, technology, and regulatory barriers by promoting efficient and market-driven solutions aimed at meeting India's growing energy demand, and greenhouse gas emission reduction targets.

Institutionalism of India Energy Modeling Forum:

- Six Task Forces were constituted for carrying out **research and modelling in different areas**.
- There will be deliberations on Energy Data Management, Low Carbon Technologies and Just Transition in the Coal Sector.

Expanded the Scope of (PACE)-R Initiative:

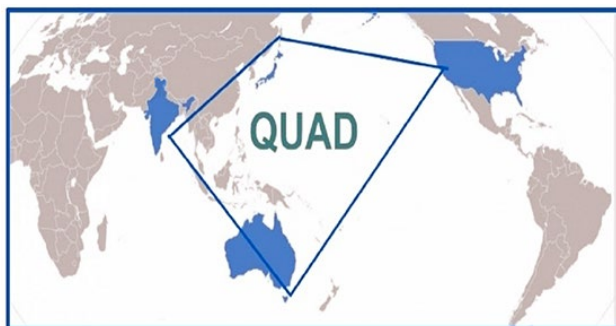
- Agreed to include **smart grid and grid storage** as part of the second phase of the **Partnership to Advance Clean Energy (PACE)-R initiative** anchored on the Indian side by the Department of Science & Technology.

Upcoming Quad Meeting

Why in News

Recently, the US announced that the **first in-person meeting of the Quad countries** is going to be held in New York, US. The heads of all the **four countries** (India, Japan, Australia, and the US) are going to attend the meeting.

- Reacting to the upcoming summit, **China criticized the Quad** and said the formation of "exclusive cliques (circles)" targeting other countries runs counter to the trend of the times and is "doomed to fail".



Note:

Key Points

➤ Formation of the Quad:

- Following the **Indian Ocean Tsunami** (2004), India, Japan, Australia, and the US created an informal alliance to collaborate on disaster relief efforts.
- In **2007**, then PM of Japan, Shinzo Abe, formalised the alliance, as the **Quadrilateral Security Dialogue** or the Quad.
- The Quad was **supposed to establish an Asian Arc of Democracy but was hampered** by a lack of cohesion amongst its members and accusations that the group was nothing more than an **anti-China bloc**.
- In **2017**, faced again with the rising threat of China, the four countries **revived the Quad**, broadening its objectives and creating a mechanism that aimed to slowly establish a rules-based international order.
- In **2020**, the trilateral **India-US-Japan Malabar naval exercises expanded to include Australia**, marking the first official grouping of the Quad since its resurgence in 2017.
 - Further, it was the **first joint military exercises among the four countries** in over a decade.
- In March **2021**, the **Quad leaders met virtually** and later released a joint statement titled '**The Spirit of the Quad**,' which outlined the group's approach and objectives.

➤ Objectives of the Quad:

- According to the 'Spirit of the Quad', the group's primary objectives **include** maritime security, combating the Covid-19 crisis, especially vis-à-vis vaccine diplomacy, addressing the risks of climate change, creating an ecosystem for investment in the region and boosting technological innovation.
- However, despite the Quad's seeming commitment to a broad range of issues, its **main focus area is still considered to be countering China**.
- Quad members have also indicated a willingness to **expand the partnership through a so-called Quad Plus** that would include South Korea, New Zealand, and Vietnam amongst others.

➤ Quad and its Linkage with China:

- **Each of the Quad members are threatened by China's actions in the South China Sea** and its attempts to extend its sphere of influence through initiatives such as the **One Belt One Road Project**.

- The US has long been concerned about the **global competition with China** and have maintained that China aims to subvert the international rules-based order.
- Japan and Australia are likewise both concerned about China's expanding presence in the South and **East China Seas**.
- India has its own long pending **border issues with China**.
- On the other hand, **China sees the existence of the Quad as part of a larger strategy to encircle China** and has pressured countries like Bangladesh to avoid cooperating with the group.
 - The Chinese foreign ministry accused the group of openly **inciting discord among regional powers in Asia**.

➤ Issues Related to Quad:

- **Undefined Vision:** Despite the potential for cooperation, the Quad remains a mechanism without a defined strategic mission.
 - The Quad is not structured like a typical multilateral organisation and lacks a secretariat and any permanent decision-making body.
 - Additionally, unlike **NATO**, the Quad does not include provisions for collective defence, instead choosing to conduct joint military exercises as a show of unity and diplomatic cohesion.
- **Maritime Grouping:** The entire focus on the Indo-Pacific makes the Quad a maritime, rather than a land-based grouping, raising questions whether the cooperation extends to the Asia-Pacific and Eurasian regions.
- **India's Aversion of Alliance System:** The fact that India is the only member that is averse to a treaty alliance system, has slowed down the progress of building a stronger Quadrilateral engagement.

India-Australia First 2+2 Dialogue

Why in News

Recently, the foreign and defence ministers of India and Australia held the first India-Australia 2+2 Ministerial Dialogue in New Delhi.

Note:

- The inaugural dialogue is held in pursuant to the elevation of India-Australia bilateral relations to **comprehensive strategic partnership** during the India-Australia **Leaders' virtual summit** in 2021.



Key Points

- **Focus on Indo-Pacific:** To maintain an open, free, prosperous and rules-based Indo-Pacific region (in line with the **United Nations Convention on the Law of the Sea (UNCLOS)**).
 - To support India's **Indo-Pacific Oceans' Initiative**.
 - Need for renewed efforts by the **Quad member countries** to expand cooperation in the region.
- **Focus on Supply Chain Resilience Initiative:** To work together through multilateral, regional and plurilateral mechanisms to diversify supply chains between trusted and reliable trading partners for critical health, technology and other goods and services.
 - In this context, they welcomed the launch of the **Supply Chain Resilience Initiative** by the Trade Ministers of India, Australia and Japan.
- **Keeping-up with the Momentum:** Decided to meet at least once every two years in this format to keep up the momentum.
- **Shared Vision on Afghanistan:** Displayed a common approach to the Afghan crisis, after the recent **Taliban takeover of Afghanistan**.
 - India held that the policy is summed up by the **United Nations Security Council Resolution 2593**.
 - UNSC Resolution 2593, emphasises most of all, that Afghanistan must not allow its soil to be used in any manner by any body for terrorism.
- **Countering Terrorism:** To continue to work together on counter terrorism; countering of radicalization and on the proposed UN **Comprehensive Convention on International Terrorism**.
- **Strengthening Bilateral Relationship:** Discussed strengthening their relationship in bilateral trade, vaccines, defence production, community links, maritime security, cyber and climate cooperation.
- **Cooperation on Covid-19:** Agreement was reached to deepen cooperation in vaccine manufacturing, including under the Quad framework, and to deliver high quality vaccines to their Indo-Pacific partners.
 - Researchers of both countries are working together to advance Covid-19 screening and study the future health effects of the virus through projects funded by the **Australia-India Strategic Research Fund**.
- **Defence Relationship:** Australia has invited India for participation in future **Talisman Sabre exercises** which will raise interoperability while both sides explore longer term reciprocal arrangements in logistics support.
- **Economic Agreements:** There was renewed support expressed for finalization of bilateral **Comprehensive Economic Cooperation Agreement**.
 - Apart from this, both countries also pitched for early resolution of the issue of taxation of offshore income of Indian firms under the India Australia **Double Taxation Avoidance Agreement**.
- **Others:** While reaffirming support for the Indian candidacy for permanent membership of the UNSC, grants of Australian \$ 1 million to the **International Solar Alliance**, and Australian \$10 million to the **Coalition for Disaster Resilient Infrastructure** (both India-led initiatives).

'2+2' Dialogue

- 2+2 Ministerial is the highest-level institutional mechanism between the two countries.
- It is a format of dialogue where the defence/foreign ministers or secretaries meet with their counterparts from another country.
- India holds such talks with Australia, Japan and the USA.

Resolution 2593 on Taliban: UNSC

Why in News

Recently, the India-led **United Nations Security Council (UNSC)** adopted a **Resolution 2593 on Taliban**.

Note:



- The resolution, **sponsored by France, UK and the US**, was adopted with 13 members, including India, voting in favour, **none against it**.
 - Two permanent and veto-wielding members **Russia and China abstained**.
- The adoption of the resolution is a **strong signal from the Security Council and the international community on its expectations** in respect of Afghanistan.

Key Points

- **About:**
 - Reiterates the **importance of combating terrorism in Afghanistan**, including those individuals and entities designated pursuant to **resolution 1267 (1999)**
 - Called for the **Taliban to facilitate safe passage** for people wanting to leave Afghanistan, allow humanitarians to access the country, **uphold human rights**, including for women and children and inclusive and **negotiated political settlement**.
- **Russia and China's Abstention:**
 - **Russia** abstained as the **resolution wasn't specific enough about terror threats**, did not speak of the "brain drain" effect of evacuating Afghans and **did not address the economic and humanitarian consequences** of US freezing the Afghan government's US accounts following the Taliban takeover.
 - **China** shared some of Russia's concerns. It believes that the **current chaos was a direct consequence of Western countries' "disorderly withdrawal"**.
 - China is of the view that **it is necessary for the international community to engage with the Taliban**, and actively provide them with guidance.
 - Russia and China wanted all the terrorist groups, especially **Islamic State (ISIS)** and the **Uighur East Turkestan Islamic Movement (ETIM)** to be named specifically in the document.
- **India's Recent Steps:**
 - India has directed a **high-level group** composed of EAM (External Affairs Minister), **NSA (National Security Adviser)** and senior officials to **focus on the immediate priorities of India**.
 - The group is **seized of issues pertaining to the**

safe return of stranded Indians to India and is **assuring that the territory of Afghanistan is not used in any manner for terrorism** directed against India.

- Recently, **India's ambassador to Qatar met with the head of the Taliban's political office**.
 - It is the first time the government has publicly acknowledged such a meeting which came at **the request of the Taliban**.
 - The Taliban leader assured that **all the issues would be positively addressed**.
- **Afghanistan's Representation in Multilateral Organizations:**
 - With uncertainty hanging over the international representation of Afghanistan under the Taliban, **a question has risen over the membership of the country in the South Asian Association for Regional Cooperation (SAARC)**.
 - The question on representation of Afghanistan at the SAARC has come up especially since a similar issue is yet to be addressed by the **United Nations**.
 - SAARC is already **facing many issues** and the current situation of Afghanistan has further increased the problems for it.
 - Afghanistan was admitted into the SAARC as the **eighth member in 2007**.
 - Conventionally, **countries do not lose membership of regional or global platforms because of a domestic political change**.
 - However, a similar question is also likely to come up in the Kathmandu-based intergovernmental organisation the **International Centre for Integrated Mountain Development (ICIMOD)**.

13th BRICS Summit

Why in News

- Recently, the **Prime Minister chaired the annual summit** of the **BRICS** which was held virtually.
- The **theme** for the Summit was 'BRICS@15: Intra-BRICS cooperation for continuity, consolidation and consensus'.

Note:

Key Takeaways

Reforming Multilateral System Leaders endorsed the joint statement on strengthening and reforming the multilateral system adopted by five foreign ministers, and agreed on the principles of strengthening and reforming the multilateral system	UNSC Reforms Summit called for reforms of the principal organs of the United Nations, including instilling new life in the discussions on reforming the UN Security Council	Space & Climate Cooperation Agreement on space agencies and remote sensing will help enhance research capabilities in global climate change, disaster management, environment protection, prevention of food and water scarcity. Leaders expressed commitment to fully implement UNFCCC, its Kyoto Protocol and Paris Agreement	Agriculture Cooperation Agricultural Research Platform launched. Action Plan 2021-2024 for Agricultural Cooperation adopted	Green Tourism Green tourism to promote measures which can shape a more resilient, sustainable and inclusive tourism sector
18th BRICS SUMMIT 		Focus Areas Intra-Brics trade to boost cooperation among customs departments New Development Bank's progress in expanding membership: Bangladesh, UAE and Uruguay		

Key Points

- **PM's Address:**
 - Highlighted the **achievement of several new initiatives during India's Chairship this year (2021)**, i.e. an Agreement on cooperation in the field of remote-sensing satellites; a virtual BRICS vaccine Research & Development Centre; BRICS Alliance on Green Tourism, etc.
 - Highlighting the **leading role that BRICS countries** can play in the **post-Covid global recovery**, Prime Minister **called for enhanced BRICS cooperation** under the motto of 'Build-back Resiliently, Innovatively, Credibly and Sustainably'.
- **Adopted BRICS Counter Terrorism Action Plan:**
 - It defines the approach and actions of the BRICS countries towards areas of Counter Terrorism cooperation which includes: Countering Radicalization and Online Terrorist Threats, Border Management, Information/ Intelligence Sharing, etc.
- **Adopted Delhi Declaration:**
 - The declaration **called for reforms of the principal organs** of the **United Nations** including that of the **UN Security Council (UNSC)**.
 - It is the **first time that BRICS** has taken a **collective position** on '**Strengthening and Reforming Multilateral Systems**'.
 - It also called for an "**inclusive intra-Afghan dialogue**" for stability in **Afghanistan**.
 - Apart from Afghanistan, the BRICS leaders also took up the **conflicts in Myanmar**, Syria, the **tension in the Korean peninsula**, **Israel-Palestine violence** and other territorial disputes.
- **On Covid-19:**
 - Noted the proposal made by **India and South Africa** at the **World Trade Organisation (WTO)** for the waiver of the **Trade-Related Aspects of Intellectual Property Rights (TRIPS)** mechanism to ensure a rapid expansion of the **Covid-19 vaccine** production around the world.

BRICS

- BRICS is an **acronym** for the grouping of the world's leading emerging economies, namely **Brazil, Russia, India, China, and South Africa**.
 - In **2001**, the **British Economist Jim O'Neill** coined the term BRIC to describe the four emerging economies of Brazil, Russia, India, and China.
 - The grouping was **formalised** during the first meeting of BRIC Foreign Ministers' in **2006**.
 - **South Africa was invited to join BRIC in December 2010**, after which the group adopted the acronym BRICS.
- The BRICS brings together five of the largest developing countries of the world, representing 41% of the global population, 24% of the global GDP and 16% of the global trade.
- The **chairmanship of the forum is rotated annually** among the members, in accordance with the acronym B-R-I-C-S.
 - India is the chair for 2021.
- During the **Sixth BRICS Summit in Fortaleza (Brazil) in 2014**, the leaders signed the Agreement establishing the **New Development Bank (NDB - Shanghai, China)**. They also signed the **BRICS Contingent Reserve Arrangement** to provide short-term liquidity support to the members.

Food Emergency in Sri Lanka**Why in News**

Recently, **Sri Lankan President**, has declared an **economic emergency** to contain rising food prices, a **depreciating currency**, and rapidly depleting **forex reserves**.

- The emergency was declared under the **Public Security Ordinance on the supply of essential goods**.



Note:

Key Points

- **Factors Responsible for Sri Lankan Economic Crisis:**
 - **Underperforming Tourism Industry:** The tourism industry, which represents over 10% of the country's Gross Domestic Product and brings in foreign exchange, has been hit hard by the coronavirus pandemic.
 - As a result, forex reserves have dropped from over \$7.5 billion in 2019 to around \$2.8 billion in July 2021.
 - **Depreciating Currency:** With the supply of foreign exchange drying up, the amount of money that Sri Lankans have had to shell out to purchase the foreign exchange necessary to import goods has risen.
 - Due to this, the value of the Sri Lankan rupee has depreciated by around 8% so far this year.
 - **Rising Inflation:** Sri Lanka depends heavily on imports to meet even its basic food supplies, such as sugar, dairy products, wheat, medical supplies.
 - So the price of food items has risen in tandem with the depreciating rupee.
 - **Diminishing Inflow of Foreign Currency:** The pandemic has affected all major sources of foreign exchange earnings like exports, worker remittances, etc.
 - **Food Shortage:** Sri Lankan Government's recent decision to ban import of chemical fertilizers and adopt an "organic only" approach.
 - This overnight shift to organic fertilizers could impact food production severely.
- **Measures Taken Under Emergency Crisis:**
 - The emergency provisions **allow the government to dictate retail prices for essential food items** and seize stocks from traders.
 - The emergency law **enables authorities to detain people without warrants**, seize property, enter and search any premises, suspend laws and issue orders that cannot be questioned in court.
 - Further, officials who issue such orders are also immune from lawsuits.
 - The **military will oversee the action** which gives power to officials to ensure that essential items are sold at government-guaranteed prices.

➤ Criticism of the Move:

- The danger is that given the present government's propensity to stifle dissent, emergency regulations **would be used to curb protests and other democratic action.**
- Sri Lanka **does not have a universal public distribution system or ration cards** that can ensure essential goods reach all consumers.
 - The current regulations do not address its fundamental economic problem, and instead pose the risk of creating black market.
- There are **concerns over the increasing militarization** of state institutions.
- This economic emergency in Sri Lanka is very different from the **Financial emergency** under the Indian Constitution.

India-Croatia Relations

Why in News

Recently, Foreign Ministers of India and Croatia held a meeting. Both countries asserted that they share a lot of common positions on issues like the **Indo-Pacific, the situation in Afghanistan, combating terrorism** and shared economic interests.



Key Points

➤ Highlights of the Meeting:

- Tourism is a very important area and both shall strive to expand air connectivity.
- There are a lot of opportunities in the pharmaceuticals, digital and infrastructure sectors like railways.

Note:

- Several topics of mutual interest, including **EU-India relations**, the situation in Afghanistan, economic and cultural cooperation and post-Covid recovery, were also discussed.

➤ **About India-Croatia Relations:**

- Croatia is an **important Central European country** from the point of view of its geo-strategic location, membership of the European Union and **NATO**, as well as being a significant Gateway to Europe through the Adriatic coastline.
- Relations between India and Croatia have been **friendly since the days of the former Yugoslavia**.
 - The **Breakup of Yugoslavia** occurred as a result of a series of political upheavals and conflicts during the early 1990s.
 - Disintegration gave birth to **six new countries namely:** Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia.
- Indian PM Jawaharlal Nehru and Yugoslavia's President Josip Broz Tito were also pioneers of the **Non-Aligned Movement**.
- Croatian people have a deep interest in India. The Indology department in the University of Zagreb has existed for over six decades and an **Indian Council for Cultural Relations (ICCR)** Hindi chair

was set up there a decade ago.

6th Eastern Economic Forum

Why in News

Recently, the Prime Minister of India (PM) addressed the plenary session of the 6th **Eastern Economic Forum (EEF)** via video-conferencing.

- The PM highlighted the importance of India-Russia relations and potential areas of cooperation in line with the '**Special and Privileged Strategic Partnership**'.

Key Points

➤ **Highlights of PM's Address:**

- Applauded Russia's vision for the development of the **Russian Far East region** and **reiterated India's commitment** (as part of its "**Act East Policy**") of **being a reliable partner** of Russia in this regard.
- Highlighted the **significance of health and pharma sectors** as important areas of cooperation that have emerged during the pandemic.
- Referred to **other potential areas of economic cooperation** including diamond, coking coal, steel, timber etc.



Note:

➤ **About Eastern Economic Forum:**

- EEF was **established by the decree of the President of the Russian Federation in the year 2015.**
- It **takes place each year in Vladivostok**, a city in Russia.
- It serves as a platform for the **discussion of key issues** in the world economy, regional integration, and the development of new industrial and technological sectors, as well as of the **global challenges facing Russia and other nations.**
- The Forum's **business programme** includes a number of business dialogues with leading partner countries in the Asia-Pacific region, and with **ASEAN**, a key integration organization of dynamically developing nations in Southeast Asia.
- Over the years, it has **emerged as an international platform** for discussing the strategy for developing political, economic and cultural ties between Russia and Asia Pacific.

➤ **Importance of India-Russia Relations:**

- **Balancing China:** The **Chinese aggression in the border areas** of eastern Ladakh, brought India-China relations to an inflection point, but also demonstrated that Russia is capable of contributing to defusing tensions with China.
 - Russia organized a **trilateral meeting** among the foreign ministers of Russia, India, and China following deadly clashes in the Galwan Valley in the disputed territory of Ladakh.
- **Emerging New Sectors of Economic Engagement:** Apart from traditional areas of cooperation such as weapons, hydrocarbons, nuclear energy (Kudankulam), space (**Gaganyaan**) and diamonds, new sectors of economic engagement are likely to emerge — mining, agro-industrial, and high technology, including robotics, nanotech, and biotech.
 - India's footprint in the Russian Far East and in the **Arctic** is set to expand. Connectivity projects may get a boost too.
- **Reviving Eurasian Economic Union:** Russia seeks to leverage India's soft power to gain legitimacy in the success of the Eurasian Economic Union, and re-establishing its hegemony, as it existed during the cold war era.
- **Combating Terrorism:** India and Russia are working to close the gap on **Afghanistan** and are calling for

early finalization of the **Comprehensive Convention on International Terrorism.**

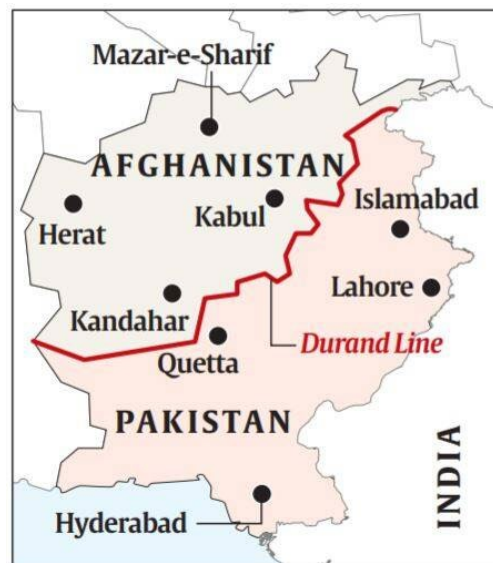
- **Support at Multilateral Forums:** Additionally, Russia supports India's candidacy for permanent membership of a reformed **United Nations Security Council** and of the **Nuclear Suppliers Group.**
- **Diplomacy:** Russia has been a long-time friend of India; it not only provided India arms to maintain a formidable military profile but also gave invaluable diplomatic support on a variety of regional issues.
- **Defence Cooperation:** Although India has consciously diversified its new defence purchases from other countries, the bulk of its defence equipment (60 to 70%) is still from Russia.
 - **BrahMos Missile System** as well as the licensed production in India of **SU-30 aircraft and T-90 tanks**, are examples.
 - **Indra Exercises** - Joint Tri-Services (Army, Navy, Air Force) Exercises.

Durand Line: Afghanistan and Pakistan

Why in News

Recently, Taliban has said that **Afghans oppose the fence erected by Pakistan along the Durand Line.**

- The **fencing of the 2,640 km land border with Afghanistan** began in **March 2017** after a spate of attacks from across the porous border.



Note:

Key Points

- Established in the **Hindu Kush** in 1893, it runs through the **tribal lands between Afghanistan and British India**. In modern times it has marked the **border between Afghanistan and Pakistan**.
- It is a legacy of the **19th century Great Game** between the Russian and British empires in which Afghanistan was **used as a buffer by the British against a feared Russian expansionism to its east**.
- The agreement demarcating what became known as the **Durand Line** was signed between the **British civil servant Sir Henry Mortimer Durand and Amir Abdur Rahman**, then the **Afghan ruler in 1893**.
- Abdur Rahman became king in 1880, two years after the **end of the Second Afghan War** in which the **British took control of several areas** that were part of the Afghan kingdom. His agreement with **Durand demarcated the limits of his and British India's "spheres of influence" on the Afghan "frontier" with India**.
- The **seven-clause agreement recognised a 2,670-km line**, which stretches from the border with **China to Afghanistan's border with Iran**.
- It also put on the British side the **strategic Khyber Pass**.
 - It is a mountain pass in the **Hindu Kush**, on the **border between Pakistan and Afghanistan**.
 - The pass was for long of great commercial and strategic importance, the route by which successive invaders entered India, and was garrisoned by the British intermittently between 1839 and 1947.
- The line cut through **Pashtun tribal areas**, leaving villages, families, and land divided between the two "spheres of influence".
 - With independence in 1947, **Pakistan inherited the Durand Line**, and with it also the **Pashtun rejection of the line**, and Afghanistan's refusal to recognise it.
 - When the **Taliban seized power in Kabul the first time**, they rejected the Durand Line. They also strengthened Pashtun identity with an Islamic radicalism to produce the Tehreek-e-Taliban Pakistan, whose terrorist attacks since 2007 left the country shaken.

Other Important Boundary Lines

- **McMahon Line:**



- Named after the **British Indian Army officer Lieutenant Colonel Sir Arthur Henry McMahon**, who was also an **administrator in British India**, the McMahon line is a demarcation that **separates Tibet and north-east India**.
- It was proposed by **Colonel McMahon** as the boundary between **Tibet, China, and India** at the **Shimla Convention of 1914**.
- It runs from the **eastern border of Bhutan along the crest of the Himalayas** until it reaches the **great bend in the Brahmaputra River** where that river emerges from its **Tibetan course into the Assam Valley**.
- It was accepted by **Tibetan authorities and British India**, and is now acknowledged by the **Republic of India as the official boundary**.
- China, however, **disputes the validity of the McMahon line**.
- It claims that **Tibet isn't a sovereign government**, and therefore **any treaty made with Tibet stands invalid**.
- The alignment of the **Line of Actual Control (LAC)** in the eastern sector is along the **1914 McMahon Line**.
 - The LAC is the demarcation that **separates Indian-controlled territory from Chinese-controlled territory**.
- **Radcliffe Line:**
 - It divided **British India into India and Pakistan**.
 - It is named after the architect of this line, **Sir Cyril Radcliffe**, who was also the chairman of the **Boundary Commission (1947)**.
 - The Radcliffe Line was drawn **between West Pakistan (now Pakistan) and India on the western side** and

Note:

between India and East Pakistan (now Bangladesh) on the eastern side of the subcontinent.

- The western side of the Radcliffe Line still serves as the Indo-Pakistani border and the eastern side serves as the India-Bangladesh border.



China's New Sea-Road-Rail Link to Indian Ocean

Why in News

Recently, a new sea-road-rail link providing Chengdu (China) with access to the Indian Ocean via Yangon (Myanmar) was opened.

- The trade corridor is China's first to link western China with the Indian Ocean.



Key Points

➤ About New Trade Corridor:

- The new trade corridor passage connects the logistics lines of Singapore, Myanmar and China, and is currently the most convenient land and sea channel linking the Indian Ocean with southwest China.
- China also has plans to develop another port in Kyaukphyu in the Rakhine state, Myanmar including a proposed railway line from Yunnan (China) directly to the port, but the progress there has been stalled by unrest in Myanmar.
- China plans to develop this region in Myanmar as a 'border economic cooperation zone' under the Belt and Road Initiative.
- It is expected to become the lifeblood of international trade for China, while providing a source of income for Myanmar.
- This trade corridor is another direct Chinese outlet to the Indian ocean.
 - The first one being at the Gwadar port in Pakistan.
- This trade route is also China's alternative to the "Malacca Dilemma".
 - Malacca Dilemma is a word coined in 2003, by the then Chinese President Hu Jintao.
 - This refers to China's fear of a maritime blockade at the Straits of Malacca. Since most of China's oil imports pass through the Straits of Malacca, a maritime blockade here could paralyze China's economy.



➤ About Gwadar Port:

- Gwadar is being developed as part of the CPEC to the far western Xinjiang region.

Note:

- Gwadar has long been touted as the site for a Chinese base suitable for **People's Liberation Army Navy (PLAN)** operations.
- China pursues a **“strategic strongpoint”** concept whereby **strategically sited foreign ports containing terminals and commercial zones** operated by Chinese firms can be used by its military.
- Such “strongpoints” offer the potential for China to form a network of supply, logistics and intelligence hubs along the **perimeter of the Indian Ocean**.
 - This is referred to as the **String of Pearls theory**.
- Gwadar is important to China for **three reasons**:
 - One is establishing **direct transport links to the Indian Ocean** via the CPEC.
 - The second factor is that Gwadar helps anchor or **stabilise western China, a region where China feels vulnerable to Islamic agitation**.



- Further, Gwadar is just 400 km from the important **Hormuz Strait** (linking Persian Gulf with the Gulf of Oman and the Arabian sea), through which 40% of Chinese imported oil flows.

➤ Implications for India:

- China's economic stakes in the Bay of Bengal and this new trade corridor signifies a larger maritime presence and naval engagement in the region which in turn **reinforces the string of pearls policy by China**.
- Apart from **this trade corridor** and **China Pakistan Economic Corridor (CPEC)**, China is also planning the **China-Nepal Economic Corridor (CNEC)** which will link Tibet to Nepal.
 - The endpoints of the project will touch the boundaries of the Gangetic plain.
 - Thus three corridors signify the economic as well as strategic rise of China in the Indian subcontinent.

➤ Counter Steps Already Taken by India:

- **Supply Chain Resilience Initiative**
- **Chabahar Port** in Iran's East.
- **Act East Policy**
- **Malabar Exercise**
- **Quad Initiative**
- **Developing North-Eastern India**
- **Indo-Pacific Oceans Initiative**

Note:

Social Issues

Highlights

- World Social Protection Report: ILO
- Transforming India's Food Systems
- Tuberculosis
- Dementia
- Poshan 2.0
- Rising Complaints of Crimes Against Women: NCW

World Social Protection Report: ILO

Why in News

Recently, a [International Labour Organization](#) report titled 'World Social Protection Report 2020–22' has revealed that, **globally 4.1 billion people are living without any social safety net of any kind.**

- The report highlighted that the pandemic response was uneven and insufficient. Thereby, Covid-19 has further underscored the critical importance of achieving **universal social protection.**

Key Points

- **Social Security (Concept):**
 - It is a **comprehensive approach** designed to prevent deprivation, **give assurance to the individual of a basic minimum income for himself and his dependents** and to protect the individual from any uncertainties.
 - Social protection **includes** access to health care and income security measures related especially to old age, unemployment, sickness, disability, work injury, maternity or the loss of the main breadwinner in a family, as well as extra support for families with children.
- **Highlights of the Report:**
 - **Global Population with Social Protection:** In 2020, **only 46.9% of the global population benefitted from at least one protection** under the ambit of social security.

- **Challenges Put Forward by Covid-19 Pandemic:** Pervasive challenges such as high levels of economic insecurity, persistent poverty, rising inequality, extensive informality and a fragile social contract have been exacerbated by Covid-19.
- **Persisting Inequalities:** There are significant regional inequalities in social protection, with **Europe and Central Asia having the highest rates of coverage** - 84% of people are covered by at least one benefit.
 - The Americas are also above the global average, with 64.3%, while Asia and the Pacific (44%), the Arab States (40%), and Africa (17.4%) have marked coverage gaps.
- **Disparity in Social Security Expenditure:** Countries spend on average 12.9% of their GDP on social protection (excluding health), but this figure masks staggering variations.
 - High-income countries spend on average 16.4%, upper-middle-income countries 8%, lower-middle income countries 2.5%, and low-income countries 1.1%.
- **Limited Protection to Women, Children And Disabled Peoples:** Globally, the vast majority of children still have no effective social protection coverage – only one in four children (26.4%) receives a social protection benefit.
 - Just 45% of women with newborns receive a cash maternity benefit.
 - Only one in three people with severe disabilities (33.5%) worldwide receive a disability benefit.
- **Limited Unemployment Protection:** A mere 18.6% of unemployed workers worldwide have effective coverage for unemployment and thus actually receive unemployment benefits.

Note:



- This remains the least developed branch of social protection.
- **Barriers to Accessing Healthcare:** Significant progress has been made in increasing population coverage. However, barriers to accessing healthcare remain in the form of:
 - Out-of-pocket payments on health services, Physical distance, Quality and acceptability of health services, Long waiting times, Opportunity costs such as lost working time, etc.

Transforming India's Food Systems

Why in News

Sustainability of **Food Systems** is going to be crucial in the years to come due to **climate change**.

- India also **has to transform its food systems**, which have to be inclusive and sustainable for higher farm incomes and nutrition security.
- Earlier, the **United Nations' report on the Food System**, suggested that today's food systems are heavily afflicted by power imbalances and inequality, and do not work for most women.

Key Points

- **Food Systems:**
 - According to the **Food and Agriculture Organisation (FAO)**, food systems encompass the entire range of actors involved in:
 - Production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded.
- **Challenges in India's Food Systems:**
 - **Effect of Green Revolution:**
 - Although there has been significant progress in the country's agricultural development due to the **Green Revolution**, It has also led to **water-logging, soil erosion, groundwater depletion** and the **unsustainability of agriculture**.

- **Current Policies:**
 - Current policies are still based on the **deficit mindset of the 1960s**. The procurement, **subsidies and water policies are biased** towards rice and wheat.
 - Three crops (rice, wheat and **sugarcane**) corner 75 to 80% of irrigated water.
- **Malnutrition:**
 - The **NFHS-5** shows that **under-nutrition has not declined** in many states even in 2019-20. Similarly, obesity is also rising.
 - The cost of the EAT-Lancet **dietary recommendations for rural India ranges between USD 3 and USD 5 per person per day**. In contrast, **actual dietary intake** is around **USD 1 per person per day**.

➤ **Steps Needed to Transform India's Food Systems:**

- **Crop Diversification:**
 - Diversification of cropping patterns towards millets, pulses, oilseeds, horticulture is needed for more equal distribution of water, sustainable and **climate-resilient agriculture**.
- **Institutional Changes in Agri-Sector:**
 - **Farmer Producer Organisations (FPOs)** should help get better prices for inputs and outputs for small holders.
 - **E-Choupal** is an example of technology benefiting small farmers.
 - Women's empowerment is important particularly for **raising incomes and nutrition**.
 - Women's cooperatives and groups like **Kudumbashree** in Kerala would be helpful.
- **Sustainable Food Systems:**
 - Estimates show that the food sector emits around 30% of the world's **greenhouse gases**.
 - Sustainability has to be achieved in **production, value chains and consumption**.
- **Health Infrastructure & Social Protection:**
 - The Covid-19 pandemic has uncovered the weak well being infrastructure in international locations like India, notably in rural areas and a few areas.
 - Inclusive food systems also need strong social protection programmes. India has long experience in these programmes. Strengthening

Note:

India's **National Rural Employment Guarantee Act, Public Distribution System (PDS)**, nutrition programmes like **Integrated Child Development Scheme (ICDS)**, **Mid-Day Meal** programmes, can improve income, livelihoods and nutrition for the poor and vulnerable groups.

○ **Non-Agriculture Sector:**

- The role of non-agriculture is equally important for sustainable food systems. **Labour-intensive manufacturing and services can reduce pressure on agriculture** as income from agriculture is not sufficient for small holders and informal workers.
- Therefore strengthening rural **Micro, Small and Medium-sized Enterprises (MSMEs)** and food processing is part of the solution.

Tuberculosis

Why in News

Centenary celebration is being observed for the **Bacille Calmette-Guérin (BCG)** vaccine, which is presently the **sole vaccine** available for the prevention of **Tuberculosis (TB)**.

Key Points

➤ **About:**

- TB is **caused by a bacterium called Mycobacterium tuberculosis**, belonging to the Mycobacteriaceae family consisting of about 200 members.
 - Some of Mycobacteria cause diseases like TB and **Leprosy** in humans and others infect a wide range of animals.
- In humans, TB **most commonly affects the lungs** (pulmonary TB), but it can also affect other organs (extra-pulmonary TB).
- TB is a **very ancient disease** and has been documented to have **existed in Egypt as early as 3000 BC**.
- TB is a **treatable and curable disease**.

➤ **Transmission:**

- TB is **spread from person to person through the air**. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air.

➤ **Symptoms:**

- Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.

➤ **Global Impact of TB:**

- In 2019, 87% of new TB cases occurred in the 30 high TB burden countries.
- Eight countries accounted for **two thirds of the new TB cases**:
 - India, Indonesia, China, Philippines, Pakistan, Nigeria, Bangladesh and South Africa.
 - **India reported 1.8 million TB cases** between January and December 2020 as compared to 2.4 million the year before.
- In 2019, **MDR-TB remained a public health crisis** and a health security threat.
 - **MultiDrug Resistant Tuberculosis (MDR-TB)** is a strain of TB that cannot be treated with the two most powerful first-line treatment anti-TB drugs. **Extensively Drug Resistant Tuberculosis (XDR-TB)** is a form of TB caused by bacteria that are resistant to several of the most effective anti-TB drugs.

➤ **BCG Vaccine:**

- BCG was developed by two Frenchmen, Albert Calmette and Camille Guerin, **by modifying a strain of Mycobacterium bovis** (that causes TB in cattle). It was **first used in humans in 1921**.
- In **India**, BCG was **first introduced in a limited scale in 1948** and became **a part of the National TB Control Programme** in 1962.
- In addition to its primary use as a vaccine against TB, it **protects against respiratory and bacterial infections of the newborns**, and other mycobacterial diseases like **Leprosy and Buruli's ulcer**.
- It is also used as an **immunotherapy agent** in cancer of the urinary bladder and malignant melanoma.
- **One intriguing fact** about BCG is that it works well in some geographic locations and not so well in others. Generally, **the farther a country is from the equator, the higher is the efficiency**.
 - It has a high efficacy in the UK, Norway, Sweden and Denmark; and little or no efficacy in countries on or near the equator like India, Kenya and Malawi, where the burden of TB is higher.

Note:

➤ Related Initiatives:

○ Global Efforts:

- The **WHO (World Health Organisation)** has launched a joint initiative “**Find. Treat. All. #EndTB**” with the **Global Fund** and **Stop TB Partnership**.
- WHO also releases the **Global Tuberculosis Report**.

○ India's Efforts:

- **National Strategic Plan (NSP)** for Tuberculosis Elimination (2017-2025), **The Nikshay Ecosystem** (National TB information system), **Nikshay Poshan Yojana (NPY-** financial support), **TB Harega Desh Jeetega Campaign**.
- Currently, two vaccines **VPM (Vaccine Projekt Management) 1002** and **MIP (Mycobacterium Indicus Pranii)** have been developed and identified for TB, and are under **Phase-3 clinical trial**.

Dementia

Why in News

Recently, the **WHO (World Health Organisation)** released a report ‘**Global status report on the public health response to dementia**’.

- It takes stock of progress made to date towards the 2025 global targets for dementia laid out in the WHO’s ‘**Global Dementia Action Plan**’ published in 2017.

Key Points

➤ About:

- It is a **syndrome** – usually of a chronic or progressive nature – that leads to **deterioration in cognitive function** (i.e. the ability to process thought) beyond what might be expected from the **usual consequences of biological ageing**.
- It **affects** memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgement.
 - However, the **consciousness is not affected**.
- 65% of total deaths **due to dementia are women**, and disability-adjusted life years (DALYs) due to dementia are roughly 60% higher in women than in men.

➤ Symptoms:

- **Memory loss, Difficulties with thinking**, Visual perception, Self-management, Problem solving or language and the ability to focus and pay attention.
- **Personality changes**, like depression, agitation, paranoia, and mood swings.

➤ Causes:

- When **brain cells are damaged** then dementia may occur. It can be **caused by a head injury, a stroke, a brain tumour** or due to **HIV infection**.

➤ Treatment:

- There is **currently no treatment available to cure dementia**, though numerous new treatments are being investigated in various stages of clinical trials.

➤ Global Scenario:

- Dementia is currently the **seventh leading cause of death** among all diseases and one of the **major causes of disability** and dependency among older people worldwide.
- More than **55 million people** (8.1% of women and 5.4% of men over 65 years) are **living with dementia**.
- This number is estimated to rise to 78 million by 2030 and to 139 million by 2050.
- WHO’s **Western Pacific Region has the highest number of people with dementia** (20.1 million), followed by the European Region (14.1 million).

➤ WHO's Efforts:

- **Global Action Plan on the Public Health Response to Dementia 2017-2025:**
 - It provides a comprehensive blueprint for addressing dementia.
- **Global Dementia Observatory:**
 - It is an international surveillance platform to **facilitate monitoring and sharing of information** on dementia policies, service delivery, epidemiology and research.
- **Guidelines on Risk Reduction of Cognitive Decline and Dementia:**
 - It provides **evidence-based recommendations** on interventions for reducing modifiable risk factors for dementia.
- **Mental Health Gap Action Programme:**
 - It is a resource for **generalists, particularly in low- and middle-income countries**, to help them provide first-line care for mental, neurological and substance use disorders.

Note:

- **Indian Initiatives:**
 - **Alzheimer's and Related Disorders Society of India:**
 - It calls for the government to have its plan or policy on dementia which must be implemented in all states and funded and monitored by the health ministry.
 - **National Health Mission:**
 - It envisages achievement of universal access to equitable, affordable & quality health care services that are accountable and responsive to people's needs.

Poshan 2.0

Why in News

Recently, the **Ministry for Women and Child Development** inaugurated **Poshan 2.0** and urged all **Aspirational Districts** to establish a **Poshan Vatika (nutrition garden)** during the **Nutrition Month (Poshan Mah)** from 1st September.

- A month-long celebration of the **POSHAN Abhiyan** mission places special attention on **Severe Acute Malnourished (SAM)** children.

Key Points

- **About:**
 - It is an umbrella scheme covering the **Integrated Child Development Services (ICDS)** (Anganwadi Services, Poshan Abhiyan, Scheme For Adolescent Girls, National Creche Scheme).
 - It was announced in **Union Budget 2021-22** by merging **supplementary nutrition programmes and the POSHAN Abhiyan**.
 - It was launched to strengthen nutritional content, delivery, outreach and outcome, with renewed focus on **developing practices that nurture health, wellness and immunity to disease and malnutrition** in the country.
- **Poshan Maah:**
 - Month of September is celebrated as POSHAN Maah since 2018 to **improve nutritional outcomes for children, adolescent girls, pregnant women, and lactating mothers**.
 - It includes a month-long activities focussed on antenatal care, optimal breastfeeding, **Anaemia**,

growth monitoring, girls education, diet, **right age of marriage**, hygiene and sanitation and eating healthy (**Food Fortification**).

- The activities focus on **Social and Behavioural Change Communication (SBCC)** and are based on Jan Andolan Guidelines.
 - SBCC is the strategic use of communication approaches to promote changes in knowledge, attitudes, norms, beliefs and behaviours.
- **Poshan Vatika:**
 - It's main objective is **to ensure supply of nutrition through organically home grown vegetables** and fruits simultaneously ensuring that the soil must also remain healthy.
 - Plantation drives for Poshan Vatikas would be taken up by all the stakeholders in the **space available at anganwadis, school premises and gram panchayats**.
- **POSHAN Abhiyaan:**
 - Also called National Nutrition Mission, was launched by the government on the occasion of the **International Women's Day** on **8th March, 2018**.
 - The Abhiyaan targets **to reduce Stunting, undernutrition, Anemia** (among young children, women and adolescent girls) and reduce low birth weight by **2%, 2%, 3% and 2% per annum respectively**.
 - It also targets to **bring down stunting among children in the age group 0-6 years from 38.4% to 25% by 2022**.
- **Scenario of Malnutrition in India:**
 - According to a 2010 **World Bank** report, India suffered an economic loss of Rs 24,000 crore due to lack of toilets. And that the health impact on the economy was 38 million dollars.
 - According to an ASSOCHAM study of the year 2018, the **GDP (Gross Domestic Product)** suffered a decline of 4% due to malnutrition.
 - The report also found that **children suffering from malnutrition** after growing up **earn 20% less** than those who have had healthy childhoods.
 - The number of **SAM children** in the country was earlier **80 lakh**, which has now come down to 10 lakh.
- **Related Government Initiatives:**
 - **Anemia Mukh Bharat Abhiyan**

Note:



- **Mid-day Meal (MDM) scheme**
- **The National Food Security Act (NFSA), 2013**
- **Pradhan Mantri Matru Vandana Yojana (PMMVY)**

Malnutrition

- It refers to **deficiencies, excesses or imbalances in a person's intake of energy and/or nutrients**. The term malnutrition addresses 3 broad groups of conditions:
 - **Undernutrition:** It includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age).
 - **Micronutrient-related:** It includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess;
 - **Overweight:** Obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes and some cancers).
- The **Sustainable Development Goal** (SDG 2: Zero hunger) aims to **end all forms of hunger and malnutrition by 2030**, making sure all people – especially children – have access to sufficient and nutritious food all year round.

Rising Complaints of Crimes Against Women: NCW

Why in News

Recently, the **National Commission for Women (NCW)** informed that there was a **rise of 46% in complaints of crimes against women** in the first eight months of 2021 over the corresponding period of last year.

- NCW was set up as a statutory body in January 1992 under the **National Commission for Women Act, 1990**. Its mission is to **strive towards enabling women to achieve equality and equal participation** in all spheres of life.
- In October 2020, the **Supreme Court** said that crimes against women continued in a **never-ending cycle** in India.

Key Points

- **About:**
 - **Crime Heads (No. of Complaints):**
 - **Against Right to live with dignity > Domestic violence**> Harassment of married women or

dowry harassment> Outraging modesty of women or molestation> Rape and attempt to rape> **Cyber crimes**.

State-Wise Data:

- **Uttar Pradesh** (10,084)> **Delhi** (2,147)> **Haryana** (995)> **Maharashtra** (974).

Violence against Women

About:

- The **United Nations** defines violence against women as **“any act of gender-based violence that results in, or is likely to result in, physical, sexual, or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life.”**
- Violence against women is a **social, economic, developmental, legal, educational, human right, and health (physical and mental) issue**.
- Since the outbreak of **Covid-19**, emerging data and reports from those on the front lines, have shown that all types of violence against women and girls, particularly domestic violence, has intensified.

Reasons:

- **Gender Disparity** is one of the deep rooted cause of violence against women that put women at risk of several forms of violence.
- **Non-Retaliatio**n, **Absence of laws** addressing their rights comprehensively and **Ignorance of the existing statutes**.
- **Societal attitude, stigma** and conditioning also made women vulnerable to **domestic violence** and these are the main factors for under-reporting of cases.

Impact:

- The adverse **psychological, sexual and reproductive health consequences** of violence against women and girls affect women at all stages of their life.
- For example, **early-set educational disadvantages** not only represent the primary obstacle to universal schooling and the right to education for girls; down the line they are also to blame for restricting access to higher education and even translate into **limited opportunities for women in the labour market**.

Note:



➤ **Global Initiatives:**

- **The Spotlight Initiative:** The **European Union (EU)** and the **United Nations (UN)** have embarked on a new, global, multi-year initiative focused on eliminating all forms of Violence Against Women and Girls (VAWG).
 - It is so named as it brings focused attention to this issue, moving it into the spotlight and placing it at the centre of efforts to achieve gender equality and women's empowerment.
- **International Day for the Elimination of Violence against Women** - 25th November.
- **UN Women** is the **United Nations** entity dedicated to gender equality and the empowerment of women.

➤ **Indian Initiatives:**

- **Constitutional Safeguards:**
 - **Fundamental Rights:**

- It guarantees all Indians the **right to equality (Article 14)**, no discrimination by the State on the basis of gender (**Article 15(1)**) and special provisions to be made by the State in favour of women (**Article 15(3)**).

- **Fundamental Duties:**

- It ensures that practices derogatory to the dignity of women are prohibited under **Article 51 (A)**.

- **Legislative Framework:**

- **Protection of Women from Domestic Violence Act, 2005**
- **The Dowry Prohibition Act, 1961**
- **The Sexual Harassment of Women at Workplace (Prevention, Prohibition, and Redressal) Act, 2013**
- **The Protection of Children from Sexual Offences (POCSO), 2012**



drishti

Note:

Science & Technology

Highlights

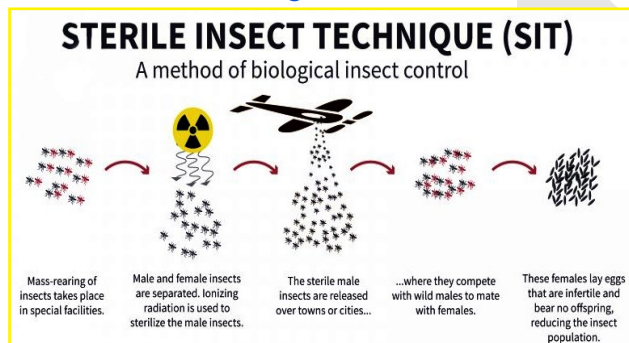
- Robots in Warfare
- Blue Straggler Stars
- Hycean Worlds: Exoplanets
- Coronal Mass Ejections
- Lunar Science Workshop 2021: ISRO
- Engineer's Day
- Improved Air Quality of Indian Cities

Restraining Mosquito Populations with CRISPR

Why in News

Recently, researchers have created a system that **restrains populations of mosquitoes** by leveraging advancements in **Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR)**-based **genetic engineering**.

- Mosquitoes infect millions each year with debilitating diseases such as **dengue** and **malaria**.

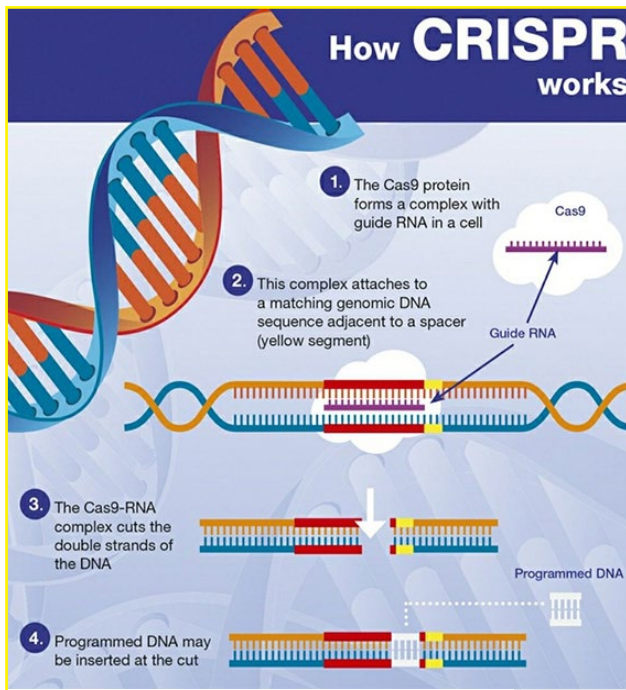


Key Points

- **Sterile Insect Technique:**
 - SIT is an **environmentally safe and proven technology to suppress wild populations**.
- To further advance its utility, a novel **CRISPR-based technology, termed precision-guided Sterile Insect Technique (pgSIT)** is described.
- **pgSIT:**
 - It is a **new scalable genetic control system that uses a CRISPR-based approach** to engineer deployable mosquitoes that can suppress populations.
 - **Males don't transmit diseases** so the idea is to **release more and more sterile males**.

- The population of mosquitoes can be suppressed **without relying on harmful chemicals and insecticides**.
- It **alters genes linked to male fertility**—creating sterile offspring—and female flight in *Aedes aegypti*, the mosquito species responsible for spreading diseases including **dengue fever**, **chikungunya** and **Zika**.
- pgSIT mechanistically relies on a **dominant genetic technology that enables simultaneous sexing and sterilization**, facilitating the release of eggs into the environment ensuring only sterile adult males emerge.
 - The system is **self-limiting and is not predicted to persist** or spread in the environment, two safety features that should enable acceptance for this technology.
- pgSIT **eggs can be shipped to a location threatened by mosquito-borne disease** or developed at an on-site facility that could produce the eggs for nearby deployment.
- Once the pgSIT eggs are released in the wild, sterile **pgSIT males will emerge and eventually mate with females**, driving down the wild population as needed.
- **CRISPR:**
 - It is a **gene editing technology**, which replicates **natural defence mechanisms in bacteria to fight virus attacks**, using a special protein called **Cas9**.
 - CRISPR-Cas9 technology **behaves like a cut-and-paste mechanism on DNA strands** that contain genetic information. The **specific location** of the genetic codes that need to be changed, or edited, is **identified on the DNA strand**, and then, using the **Cas9 protein, which acts like a pair of scissors**, that location is cut off from the strand.

Note:



- A DNA strand, when broken, has a natural tendency to repair itself. Scientists **intervene during this auto-repair process**, supplying the desired sequence of genetic codes that binds itself with the broken DNA strand.
- CRISPR-Cas9 is a simple, effective, and incredibly precise technology with potential to revolutionise human existence in future.
- **Emmanuelle Charpentier of France and Jennifer A Doudna of the USA** were awarded the **2020 Nobel Prize in Chemistry** for developing CRISPR/Cas9 genetic scissors.

Robots in Warfare

Why in News

Recently, **Israel Aerospace Industries** unveiled a remote-controlled **armed robot 'REX MKII'**, which can patrol battle zones, track infiltrators and open fire.

- The use of robots in the war involves dealing with **ethical dilemmas**.
- The **proponents** say that such semi-autonomous machines **allow armies to protect their soldiers**, while **critics** fear this marks another **dangerous step toward robots making life-or-death decisions**.

Key Points

- **About the REX MKII:**
 - The robot can gather **intelligence for ground troops, carry injured soldiers and supplies in and out of battle, and strike nearby targets**.
 - The Israeli military is currently using a smaller but **similar vehicle called the Jaguar** to patrol the border with the **Gaza Strip**.
 - Unmanned ground vehicles are being increasingly used by other armies, including those of the United States, Britain and Russia.
 - Their tasks include logistical support, the removal of mines and firing weapons.
 - An alternative **Smart Wall** has been proposed to replace the physical and armed patrolling with advanced surveillance technology at the USA-Mexico border.
- **Arguments in Favour of Use of Robots in War:**
 - **No Physiological Limitations:** Autonomous robots, because they are not physiologically limited, can operate without sleep or food, perceive things that people do not, and move in ways that humans cannot.
 - The use of a broad range of robotic sensors is better equipped for battlefield observations than human sensory abilities.
 - **Operational Benefits to the Military:** The robots provide following benefits: faster, cheaper, better mission accomplishment; longer range, greater persistence, longer endurance, higher precision; faster target engagement; and immunity to chemical and biological weapons.
 - **Ability to Act Conservatively:** Robots do not need to protect themselves in cases of low certainty of target identification.
 - Autonomous armed robotic vehicles do not need to have self-preservation as a foremost drive, if at all.
 - They can be used in a self-sacrificing manner if needed and appropriate, without reservation by a commanding officer.
 - **Minimising Loss of Human Life:** Reducing loss of human lives forms one of the core principles of ethics of war, which can be accomplished by the use of the robots.

Note:

- **Arguments Against the Use of Robots in War:**
 - **Lowering Threshold of Entry into War:** The use of robot soldiers will cheapen the cost of war, making future wars more likely.
 - The threshold of entry into warfare may be lowered as we will now be risking machines and fewer human soldiers.
 - This could violate the conditions of just warfare.
 - **Errors in Targeting:** Such weapons are worrisome because they can't be trusted to distinguish between combatants and civilians or make proper calls about the harm attacks may do to nearby civilians.
 - **Ignoring Conventions of War:** Machines cannot understand the value of human life, which in essence undermines human dignity and violates human rights laws.
 - Therefore, machines are likely to commit atrocities and violate the basic rules of war like the Hague Conventions, and other declarations delimiting how a war should be fought.
 - **Persistent Risks:** There will always be risks like proliferation of the technology to other nations and terrorists.
 - Also, the robotic machines are prone to cyber-security attacks or hacking and they can be used against their own people.
- **Security Management in India:**
 - **CIBMS Project:** The Indian government has been pushing for technological solutions through the **Comprehensive Integrated Border Management System (CIBMS)** project. The purpose is to integrate technology with the existing systems to facilitate better detection and interception by the man behind the machine.
 - **National Counter Rogue Drones Guidelines 2019** : To deal with possible security challenges from rogue drones to key installations like nuclear power plants and military bases.

Blue Straggler Stars

Why in News

Recently, in the **first-ever comprehensive analysis of blue stragglers**, Indian researchers have proposed a **hypothesis for evolution of blue straggler stars**.

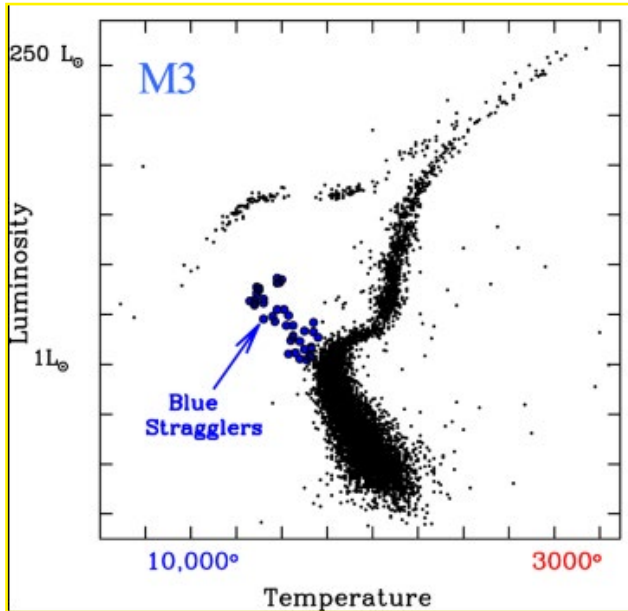
- Blue stragglers is a class of stars on open or globular clusters that **stand out as they are bigger and bluer than the rest of the stars**.

Key Points

- **About Blue Straggler Stars:**
 - These are **unusually hot and bright stars found in the cores of ancient star clusters known as globulars**.
 - A clue to their origin is that they are **only found in dense stellar systems**, where distances between stars are extremely small (a fraction of a light year).
 - **Allan Sandage** (an astronomer with Carnegie Observatories in Pasadena, California) **discovered blue stragglers in the globular cluster M3 in 1952-53**.
 - Most are located at least several thousand light-years away from the sun, and most are around 12 billion years old or more.
 - The **Milky Way's largest and brightest globular is Omega Centauri**.
- **Peculiarity about Blue Stragglers:**
 - Blue straggler stars **appear to violate standard theories of stellar evolution**.
 - A bunch of stars born at the same time from the same cloud form a star cluster. Star formation happens in interstellar molecular clouds: opaque clumps of very cold gas and dust.
 - Under standard stellar evolution, as time passes, **each star evolves differently depending on its mass**, in which **all stars born at the same time should lie on a clearly defined curve in the Hertzsprung-Russell diagram**.
 - Hertzsprung-Russell diagram **plots the temperature of stars against their luminosity** or the colour of stars against their absolute magnitude. It **shows a group of stars in various stages of their evolution**.
 - By far the **most prominent feature is the main sequence**, which runs from the upper left (hot, luminous stars) to the bottom right (cool, faint stars) of the diagram.
- In **case of blue straggler**, they evolve and move off the main sequence creating a bend in their track, **known as the turnoff**.
 - Since blue stragglers often lie well off this curve, they **may undergo abnormal stellar evolution**.

Note:

- They appear to be lagging behind most of the other stars in the cluster in its evolution toward a cooler, reddish state.



➤ About the Hypothesis:

- Indian researchers have found that:
 - Half of the blue stragglers are formed through mass transfer from a close binary companion star.
 - One third are likely formed through collisions of two stars.
 - Remains are formed through interactions of more than two stars.
- For this Hypothesis, the researchers utilised the **Gaia telescope of the European Space Agency**.
- For further study, Ultraviolet Imaging Telescope on **AstroSat**, India's first dedicated space observatory, as well as the **3.6 m Devasthal Optical Telescope in Nainital** will be used.
- The study **will help improve understanding of these stellar systems** to uncover exciting results in studies of large stellar populations, including galaxies.

Hycean Worlds: Exoplanets

Why in News

Recently, some astronomers have identified a new class of **exoplanets** – **Hycean worlds**.

Key Points

➤ About:

- The word **Hycean** comes from the words **hydrogen and ocean**. Planet-wide **oceans and hydrogen-rich atmospheres** might cover these worlds.
- They are also uniquely alien, **up to 2.6 times the diameter of Earth**, with **temperatures up to 200 degrees celsius and thick hydrogen atmospheres**. This places them somewhere **between Earth and giant planets** like Neptune or Uranus.
 - With no analogs in the Solar System, these planets are variedly classed as **super-Earths** or **mini-Neptunes** depending on inferences about their bulk compositions based on their densities.
- These planets, unlike most mini-Neptunes, **may have solid surfaces**, like Earth. Many of the known Hycean candidates are **larger and hotter than Earth**, but still would be able to host large oceans.
- Some Hyceans orbit so close to their stars that they're **tidally locked**, with one hot dayside and one eternally dark nightside. And some orbit very far away, receiving very little stellar radiation. But **life could exist even on such extreme Hyceans**.

- **Tidal locking** is the name given to the situation when an object's orbital period matches its rotational period.

➤ Significance:

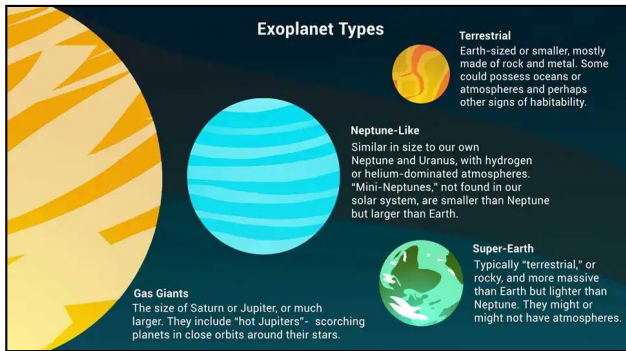
- The **conditions** on such planets might be **similar to some of the more extreme aquatic environments on our planet**, but could theoretically still **support at least microbial life**.
- Hycean worlds could greatly accelerate the search for life elsewhere. In some ways **they are reminiscent of Earth**, largely or even completely covered by oceans.
 - Hycean worlds could **support life different from that on Earth**.

➤ Exoplanets:

- An exoplanet or extrasolar planet is a planet **outside the Solar System**. The **first** confirmation of detection of exoplanets occurred in **1992**.
 - More than 4,400 exoplanets have been discovered till now.
- They are very **hard to see directly with telescopes**. They are hidden by the **bright glare of the stars they orbit**. So, astronomers use other ways to

Note:

detect and study exoplanets such as looking at the effects these planets have on the stars they orbit.



Coronal Mass Ejections

Why in News

Indian Scientists, along with international collaborators, have **measured the magnetic field of an eruption from the Sun's atmosphere** (solar corona), offering a rare peek to the interior of the Sun.

- **Coronal Mass Ejection (CME) is one of the biggest eruptions from the Sun's surface** that can contain a billion tons of matter accelerated to several million miles per hour into space.

Key Points

➤ About the Research:

- Scientists from the **Indian Institute of Astrophysics (IIA) studied the weak thermal radio emission associated with the erupted plasma for the first time**, measuring the magnetic field and other physical conditions of the eruption.
 - IIA is an autonomous institute of the **Department of Science & Technology (DST)**, at Gauribidanur, Karnataka.
- The team **studied the plasma from the Coronal Mass Ejection (CME)** that happened on 1st May, 2016.
 - Plasma is also known as the **fourth state of matter**. At high temperatures, electrons are ripped from atom's nuclei and become a plasma or an ionised state of matter.
- The emissions were detected with the help of radio telescopes of the IIA, along with some space-based telescopes that **observed the Sun in extreme ultraviolet and white light**.

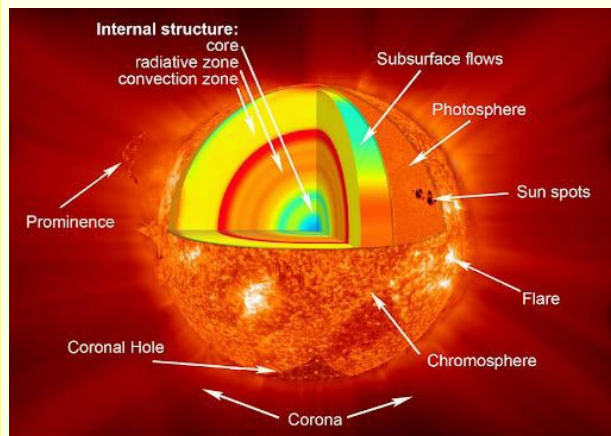
- They were also **able to measure the polarisation of this emission**, which is indicative of the direction in which the electric and magnetic components of the waves oscillate.
- **About the Coronal Mass Ejections:**
 - The Sun is an extremely active object, **spewing out vast quantities of gas and plasma** in many violent events.
 - A class of such eruptions are **Coronal Mass Ejections (CMEs)**.
 - CMEs are the **most powerful explosions happening in the solar system**.
 - The underlying cause of CMEs is not well understood. Astronomers agree, however, that the **sun's magnetic field plays a major role**.
 - Though CMEs can occur anywhere on the Sun, it is primarily those which originate from regions near the centre of the visible solar surface (**called the photosphere**) that are important for study, since they may propagate directly towards the Earth.
 - This field of research helps to understand **Space Weather**.
 - When a really strong CME blows past the Earth, it can **damage the electronics in satellites and disrupt radio communication networks** on Earth.
 - When the plasma cloud hits our planet, a **geomagnetic storm** follows.
 - A geomagnetic storm is a **major disturbance of Earth's magnetosphere** (space controlled by earth's magnetic field) that occurs when there is a very efficient exchange of energy from the solar wind into the space environment surrounding Earth.
 - They can trigger intense light in the sky on Earth, called **auroras**.
 - Some of the energy and small particles travel down the magnetic field lines at the north and south poles into Earth's atmosphere.
 - There, the particles interact with gases in the atmosphere resulting in beautiful displays of light in the sky.
 - The aurora in Earth's northern atmosphere is called an **aurora borealis** or northern lights. Its southern counterpart is called an **aurora australis** or the southern lights.

Note:



Anatomy of the Sun

- **The Sun's Core** - Energy is generated via thermonuclear reactions creating extreme temperatures deep within the Sun's core.
- **The Radiative Zone** - Energy moves slowly outward, taking more than 1,70,000 years to radiate through this layer of the Sun.
- **The Convection Zone** - Energy continues to move toward the surface through convection currents of the heated and cooled gas.
- **The Chromosphere** - This relatively thin layer of the Sun is sculpted by magnetic field lines that restrain the electrically charged solar plasma. Occasionally larger plasma features, called prominences, form and extend far into the very tenuous and hot corona, sometimes ejecting material away from the Sun.
- **The Corona** - The ionized elements within the corona (or solar atmosphere) glow in the x-ray and extreme ultraviolet wavelengths. Space Instruments can image the Sun's corona at these higher energies since the photosphere (lowest layer of the solar atmosphere) is quite dim in these wavelengths.
- **Coronal Streamers** - The outward flowing plasma of the corona is shaped by magnetic field lines into tapered forms called coronal streamers, which extend millions of miles into space.
- Sunspots are areas that appear dark on the surface of the Sun. They appear dark because they are cooler than other parts of the Sun's surface.



Lunar Science Workshop 2021: ISRO

Why in News

Recently, the Lunar Science Workshop 2021, was conducted by **Indian Space Research Organisation (ISRO)** to commemorate the **completion of two years of operation of Chandrayaan-2 orbiter** in lunar orbit.

- According to the ISRO, the observations of the Chandrayaan-2 orbiter payloads have yielded **discovery-class findings**.
- The **Chandrayaan-3 mission** is likely to be launched late next year.

Key Points

- **About the Chandrayaan-2:**
 - **Lunar Exploration:** It is the second spacecraft in the Indian series of Lunar exploration satellites.
 - It comprised an **orbiter, lander named Vikram** and **rover named Pragyan** to explore the unexplored **South Polar region** of the Moon.
 - **Launch:** It was launched on **22nd July, 2019** from the Sriharikota spaceport by **GSLV Mk-III**.
 - It was inserted into a lunar orbit in August, 2019.
 - The orbiter and lander modules were separated as two independent satellites in September, 2019.
 - **Failure of Lander:** Vikram lander's descent was as planned and normal performance was observed up to an altitude of 2.1 km from Lunar surface in September, 2019.
 - Subsequently, **communication from the lander** was lost and the lander had a hard landing on the lunar surface.
 - The **six-wheeled Pragyan rover** was accommodated inside the Vikram lander.
 - A successful soft-landing would have made India the fourth country after the erstwhile Soviet Union, the United States, and China to do so.
 - **Role of Orbiter:** The orbiter, placed in its intended orbit around the Moon, provided the understanding of the Moon's evolution and mapping of minerals and water molecules in polar regions, using its eight advanced scientific instruments.

Note:

- The precise launch and optimised mission management have ensured a **long life of almost seven years for the orbiter** instead of the planned one year.
- **Findings of Chandrayaan-2 Orbiter:**
 - **Detection of Argon-40:** The **mass spectrometer CHandra's Atmospheric Compositional Explorer 2 (CHACE 2)** conducted first-ever in-situ study of the composition of the lunar neutral exosphere from a polar orbital platform.
 - It detected and studied the **variability of the Argon-40** at the middle and higher latitudes of the Moon, **depicting the radiogenic activities** in the mid and higher latitudes of the Lunar interior.
 - **Detection of Chromium and Manganese:** **Chandrayaan-2 Large Area Soft X-ray Spectrometer (CLASS)** payload has detected minor elements of chromium and manganese through remote sensing.
 - **Observations of Microflares of the Sun:** The observations of microflares of the Sun, during the **quiet-Sun period**, which provide important clues on the **coronal heating** problem of the Sun, were made by the **Solar X-ray Monitor (XSM) payload**.
 - **Detection of the Hydration Features:** The first-ever unambiguous detection of the hydration features of the Moon was achieved by Chandrayaan-2 with its **Imaging Infra-Red Spectrometer (IIRS) payload**, which captured clear signatures of **Hydroxyl** and **water-ice** on the lunar surface.
 - **Detection of the Subsurface Water-ice:** The **Dual Frequency Synthetic Aperture Radar (DFSAR)** instrument detected signatures of the subsurface water-ice, and achieved high resolution mapping of the lunar morphological features in the polar regions.
 - **Imaging the Moon:** Imaging the moon from 100 km lunar orbit with "best-ever" achieved resolution of 25 cm with its **Orbiter High Resolution Camera (OHRC)**.
 - **Geological Findings:** The **Terrain Mapping Camera (TMC 2)** of Chandrayaan-2, which is conducting imaging of the Moon at a global scale, has found interesting geologic signatures of **lunar crustal shortening**, and **identification of volcanic domes**.

- **Study of Moon's Ionosphere:** The **Dual Frequency Radio Science (DFRS)** experiment onboard Chandrayaan-2 has studied the ionosphere of the Moon, which is generated by the solar photo-ionisation of the neutral species of the lunar exosphere.

Note:

- The '**PRADAN**' portal is hosted by **Indian Space Science Data Centre (ISSDC)**, the nodal centre of data archive for ISRO missions.
- The data from the Chandrayaan-2 mission is being released for the wider public use through the PRADAN portal.

Engineer's Day

Why in News

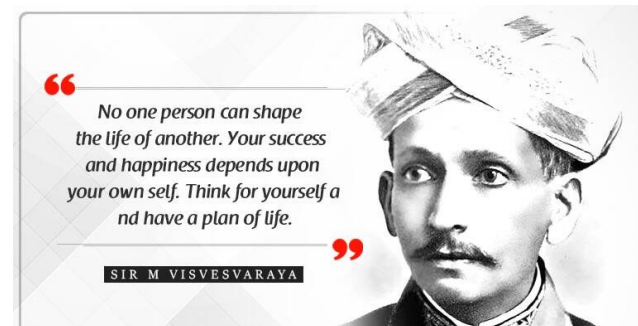
Every year on **15th September**, India along with Sri Lanka and Tanzania celebrate National Engineer's day to recognise and honour the **achievements of the great engineer Mokshagundam Visvesvaraya**.

- The day is observed to **commemorate the great work of engineers** and to encourage them for improvement and innovation.
- It is different from the **World Engineers' Day** celebrated annually by **UNESCO** on 4th March .

Key Points

➤ About Mokshagundam Visvesvaraya:

- Born in Karnataka in **1861**, he studied Bachelor of Arts (BA) from the University of Mysore and then **studied civil engineering from the College of Science in Pune** and went on to become one of the most eminent engineers in the country.



- He was an **engineering pioneer of India** whose genius **reflected in harnessing of water resources and building and consolidation of dams** across the country.

Note:

- His work was becoming so popular that the **Government of India sent him to Aden (Yemen) to study water supply and drainage systems in 1906-07.**
 - He designed a project based on his study which was implemented in Aden.
- He served as the **Chief Engineer of Mysore State in 1909** and as the **Diwan of the princely state of Mysore in 1912**, a position he held for seven years.
 - As the Diwan, he made an immense contribution towards the overall development of the state.
- He was **knighted as a Knight Commander** of the British Indian Empire by King George V for his contributions to the public good in **1915**.
- He was an Engineer who had **planned the Indian Economy in 1934**.
- He was awarded an Honorary Membership of **London Institution of Civil Engineers** for an unbroken 50 years.
- He was conferred India's highest honour, the **Bharat Ratna in 1955**.
- He **died in 1962 in Bengaluru, Karnataka**.
- **Books Written by him:**
 - 'Reconstructing India' and 'Planned Economy of India'.
- **Major Contributions:** During the course of his professional life, he has contributed a lot towards society by being part of several notable construction projects in **Mysore, Hyderabad, Odisha** and **Maharashtra**.
 - He was the **chief engineer responsible for the construction of the Krishna Raja Sagara Dam** in Mysore.
 - This work of his was instrumental in converting the barren lands into fertile grounds for farming.
 - He was instrumental in designing and patenting a system of **automatic weir floodgates** in Khadakwasla reservoir in Pune in 1903.
 - After the devastating floods (Musi River) in **Hyderabad in 1908**, he designed a **drainage system** to protect the city from these floods in the future.
 - He is the one who **designed a plan for road construction between Tirumala & Tirupati**.
 - He played a key role in developing a system to **protect Visakhapatnam port from sea erosion**.
 - He also commissioned several new **Railway lines in Mysore state**.
 - He had designed and carried out the **waterworks for the Municipality of Sukkur in 1895**.
 - He is also **credited with the development of the Block System** which would prevent the wasteful flow of water in dams.
 - He was **responsible for founding** the Mysore soap factory, the Mysore Iron & steel works (Bhadravathi), Sri Jayachamarajendra Polytechnic Institute, The Bangalore Agricultural University, and the State Bank of Mysore.



Note:



drishti

Environment & Ecology

Highlights

- IUCN World Conservation Congress
- Impact of Global Warming on Permafrost
- Raptor Species under Threat
- Threat to Bhitarkanika National Park: Odisha
- State of the World's Trees Report: BGCI
- State Animal and Bird: Ladakh
- Crocodylian Species in India
- India's Tallest Air Purifier: Chandigarh
- Groundwater Conservation
- Report on Weather Disasters: WMO
- Land Sink & Emissions
- Behler Turtle Conservation Award
- Deepor Beel: Eco-Sensitive Zone
- Unviability of New Coal-Based Power Plants
- Groundswell Report: World Bank

Improved Air Quality of Indian Cities

Why in News

Recently, the Minister of Environment, Forest and Climate Change, while speaking at the **International Day of Clean Air For Blue Skies**, informed that the number of cities with **improved air quality** had increased.

- On the occasion, he also inaugurated the **first functional Smog Tower at Anand Vihar** in Delhi and launched **Portal for Regulation of Air-pollution or 'Prana'**.
- Earlier, a **Smog Tower was installed** in Delhi's Connaught Place and India's **Tallest Air Purifier** was also inaugurated in Chandigarh.

Key Points

- **Air Quality Status:**
 - **In 2020:**
 - Cities with **improved air quality had increased to 104 in 2020 from 86 in 2018.**
 - **From 2015-2019:**
 - **Particulate Matter (PM) 10 levels:** 23 cities marking a "decreasing trend", 239 cities a "fluctuating trend" & 38 cities an "increasing trend".
 - **PM 2.5 levels:** 11 cities showed a decreasing trend, 79 cities a fluctuating trend and 9 cities an increasing trend.
- **Reason for Improvement:**
 - **Covid-19** related lockdown had resulted in a "temporary improvement" of air quality in many

cities **due to closure of industries, fewer vehicles plying, drop in construction activities and absence of human activities.**

- Government **initiatives to tackle air pollution** also helped in improving air quality in recent years.
- **Prana Portal:**
 - It was launched under the **National Clean Air Programme (NCAP)** in Non-Attainment Cities (NAC), cities which didn't meet **Ambient Air Quality Standards** under NCAP.
 - It is targeted to **achieve 20-30% reduction in particulate matter (PM10 and PM2.5) concentrations** across the country by 2024.
 - It will support tracking of physical as well as financial status of **city air action plan implementation, and disseminate information** on air quality to the public.
- **Related Initiatives:**
 - **System of Air Quality and Weather Forecasting and Research:**
 - Known as "SAFAR", for greater metropolitan cities of India to provide location specific information on air quality in near real time.
 - **Air Quality Index:**
 - **AQI** is a tool for effective communication of air quality status to people in terms, which are easy to understand.
 - **Graded Response Action Plan for Delhi and NCR** has been prepared for implementation under different AQI categories.
 - AQI has been developed for **eight pollutants** viz. PM2.5, PM10, Ammonia, Lead, nitrogen oxides, sulfur dioxide, ozone, and carbon monoxide.

Note:



- **For Reducing Vehicular Pollution:**
 - The introduction of **BS-VI vehicles**, push for **Electric Vehicles (EVs)**, **Odd-Even** as an emergency measure and construction of the Eastern and Western Peripheral Expressways to reduce vehicular pollution.
- **New Commission for Air Quality Management:**
 - It is made for better coordination, research, identification, and resolution of problems related to air quality in the National Capital Region (NCR) and adjoining areas.
- Subsidy to farmers for buying **Turbo Happy Seeder (THS)** which is a machine mounted on a tractor that cuts and uproots the stubble, in order to reduce stubble burning.

Particulate Matter

➤ About:

- Also called **particle pollution**, a term for a **mixture of solid particles and liquid droplets found in the air**. It **causes respiratory problems and also reduces visibility**.
- **It includes:**
 - **PM10:** inhalable particles, with diameters that are generally 10 micrometers and smaller; and
 - **PM2.5:** fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.

➤ Sources of PM:

- Some are emitted directly from a source, such as **construction sites, unpaved roads, fields, smokestacks or fires**.

IUCN World Conservation Congress

Why in News

The world's largest and most inclusive environmental decision-making forum '**IUCN World Conservation Congress 2020**' (postponed from June 2020 to September 2021) is being held in **Marseille, France**.

- It took critical policy decisions to address conservation priorities including the ongoing biodiversity crisis.
- The **International Union for the Conservation of Nature (IUCN)** conducts the World Conservation Congress which is held **every four years** in a different location around the globe. The **first** was conducted **in the United States in 1948**.

Key Points

➤ Global Indigenous Agenda:

- It calls for the secure recognition and respect for collective indigenous rights and governance of lands, territories, waters, coastal seas and natural resources.
- It was **developed by IUCN's Indigenous Peoples Organisation Members**.
- It lays out 10 high-level proposals and outcomes relating to **five themes**: Indigenous governance; biodiversity conservation; climate action; post-Covid-19 recovery efforts and food security; and global policy setting.

➤ IUCN Red List Update:

- **No. of Species on Nine Categories:** The updated **Red List** says that despite global improvement at the species level, the number of species that are at high risk continues to grow.
 - Some 902 species are officially **extinct**. 30% of the species that it assessed (138,374) face the threat of extinction.
 - Some 80 species are **extinct in the wild**, 8,404 are **critically endangered**, 14,647 are **endangered**, 15,492 are **vulnerable** and 8,127 are **near threatened**.
 - Some 71,148 species are of **least concern**, while 19,404 are **data deficient**.
 - The ninth category is '**Not Evaluated**' - species not assessed by the IUCN.
- **Komodo Dragons:** Indonesia's **Komodo dragon** (*Varanus komodoensis*) is the world's largest living lizard and it has been moved from **vulnerable to endangered**.
 - The species is increasingly threatened by the impacts of climate change, with rising sea levels expected to shrink its tiny habitat by at least 30% over the next 45 years.
- **Tuna Species:** Four of the seven most commercially fished tuna species have shown signs of recovery.
 - **Atlantic bluefin tuna** (*Thunnus thynnus*) moved from endangered to least concern.
 - **Southern bluefin tuna** (*Thunnus maccoyii*) moved from critically endangered to endangered.
 - **Albacore** (*Thunnus alalunga*) and **yellowfin tunas** (*Thunnus albacares*), both moved from near threatened to least concern.

Note:

- Other tuna species like the **bigeye tuna** (*Thunnus obesus*) remain vulnerable while the **skipjack tuna** (*Katsuwonus pelamis*) remains least concerned.
 - The **Pacific bluefin tuna** (*Thunnus orientalis*) moved from vulnerable to near threatened due to the availability of newer stock assessment data and models.
- **Sustainable Tourism Initiative:**
- The programme, which is funded by Germany and includes **implementing partners such as United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Worldwide Fund for Nature (WWF)**.
 - It will use **tourism as an instrument** to contribute to sustainable development in developing and emerging countries.
 - To pilot the initiative, IUCN will work with **two World Heritage sites and five other protected areas** in **Peru** and **Vietnam** to increase the resilience of the community-based tourism sector to future disruptions.
- **Other Recent Updates:**
- **Raptor Species under Threat:** According to an analysis by the IUCN and BirdLife International, around 30% of the 557 raptor species around the world are threatened by extinction to some degree.
 - **Behler Turtle Conservation Award:** Recently, Indian biologist Shailendra Singh has been awarded the Behler Turtle Conservation Award for bringing three critically endangered turtle conservation species back from the brink of extinction.
 - Co-presented by Turtle Survival Alliance (TSA), IUCN Tortoise and Freshwater Turtle Specialist Group, Turtle Conservancy, and Turtle Conservation Fund.

Impact of Global Warming on Permafrost

Why in News

According to the latest **IPCC report**, increasing **global warming** will result in reductions in **Arctic permafrost** and the **thawing of the ground is expected to release greenhouse gases** like methane and carbon dioxide.



Key Points

- **Permafrost:**
 - Permafrost is any ground that **remains completely frozen** - 32°F (0°C) or colder - **for at least two years straight**.
 - These permanently frozen grounds are **most common in regions with high mountains and in Earth's higher latitudes** - near the North and South Poles.
 - Permafrost covers about **15% of the land area of the globe**.
 - Although the ground is frozen, **permafrost regions are not always covered in snow**.
 - Landscapes with large stretches of permafrost are often called **tundra**. The word tundra is a Finnish word referring to a **treeless plain**. Tundra is found at high latitudes and at high altitudes, where the **permafrost has a very thin active layer**.
- **Concerns Regarding Melting Permafrost:**
 - **Affects Infrastructure:**
 - It **will affect countries** where roads or buildings were constructed on permafrost.
 - **Release of Greenhouse Gases:**
 - It entombed and froze the organic material in the ground.
 - If the ground begins to thaw, this material will **become available for microorganisms to break down**.

Note:

- In some environments, the microorganisms will release carbon dioxide, and in others release methane which is about 25 to 30 times more potent as a greenhouse gas than carbon dioxide.
- **Change from Carbon Storehouse to Carbon Emitters:**
 - Some permafrost regions have changed from being a **carbon storehouse to being places that are net emitters of carbon.**
- **Increase in the Number of Forest Fires:**
 - This year Russia witnessed a **forest fire** whose total area was the size of Portugal. Usually, after a fire, one expects the forest to grow back in the next 50 years to 60 years. This restores the carbon stock in the ecosystem.
 - **But in the tundra**, the peat is where the organic material is and this takes a very long time to accumulate. So if peat is burned and released into the atmosphere, then it will take centuries to restore that carbon stock at ground level.
- **Releasing New Bacteria or Viruses:**
 - The **environment now is so much more suitable than during the Ice Age** for not just human life, but also the evolution or development of viruses and bacteria.
 - So, the chances of emerging new bacteria or viruses cannot be ignored.
- **Steps to be Taken:**
 - **Stop Rapid Climate Change:** In order to **curtail climate change** and save the permafrost, it is indispensable that **global CO₂ emissions be reduced by 45% over the next decade**, and that they **fall to zero after 2050.**
 - **Slow Down Erosion:** The scientific journal Nature suggested building a **100-metre-long dam** in front of the Jakobshavn glacier (Greenland), the worst affected by Arctic melting, to contain its erosion.
 - **Combine Artificial Icebergs:** Indonesian architect has won an award for his project Refreeze the Arctic, which consists of collecting water from melted glaciers, desalinating it and refreezing it to create large hexagonal ice blocks.
 - **Increase Their Thickness:** Some researchers propose a solution to manufacture more ice. Their proposal consists of collecting ice from below the glacier through pumps driven by wind power to spread it over the upper ice caps, so that it will freeze, thus strengthening the consistency.

- **People's Awareness:** The tundra and the permafrost beneath it may seem far away, but no matter where we live, the everyday choices we make contribute to climate change.
 - By reducing our carbon footprint, investing in energy-efficient products, and supporting climate-friendly businesses, legislation, and policies, we can help preserve the world's permafrost and avert a vicious cycle of an ever-warming planet.

Raptor Species under Threat

Why in News

According to recent research, **around 30% of the 557 raptor species** around the world **are threatened by extinction** to some degree.

- It is an analysis by the **International Union for the Conservation of Nature (IUCN)** and **BirdLife International** (a global partnership of conservation organisations (NGOs)).

Key Points:

➤ Raptor Species:

- **About:** A raptor is a **bird of prey**. A bird of prey is a **carnivore (meat eater)** that kills and eats mammals, reptiles, amphibians, insects, rodents as well as other birds.
 - All raptors have a hooked beak, strong feet with sharp talons, keen eyesight, and a carnivorous diet.
- **Significance:**
 - Raptors prey on a wide range of vertebrates and thus, **facilitate long-distance seed dispersal**. This indirectly increases seed production and **pest control**.
 - Birds of prey are **predators at the top of the food chain**; because threats like pesticides, habitat loss, and climate change have the most dramatic impact on top predators, these are referred to as **indicator species**.
- **Population:** Indonesia has the most raptor species, followed by Colombia, Ecuador and Peru.
- **Examples:** Owls, **vultures**, hawks, falcons, **eagles**, kites, **buteos**, accipiters, harriers, and osprey.

Note:

➤ Cause of Threat:

- **Use of Diclofenac:** Some **vulture populations** have declined by over 95% in Asian countries such as **India** because of the widespread use of **diclofenac**.
 - Diclofenac is a **non-steroidal anti-inflammatory** drug.
- **Deforestation:** The population of **Philippine eagles**, the largest variety of eagles in the world, decreased rapidly in the last decades due to extensive deforestation.
 - The Philippine Eagle is **Critically Endangered** under IUCN Red List.
- **Shooting and Poisoning:** In **Africa**, **vulture populations** have decreased by an average of 95% in rural areas over the last 30 years as the result of shooting and poisoning through feeding on carcasses of livestock treated with diclofenac.
- **Habitat Loss and Degradation:** The **Annobon scops-owl**, restricted to Annobon Island off West Africa, was recently classified as '**critically endangered**' under the IUCN Red List because of rapid habitat loss and degradation.

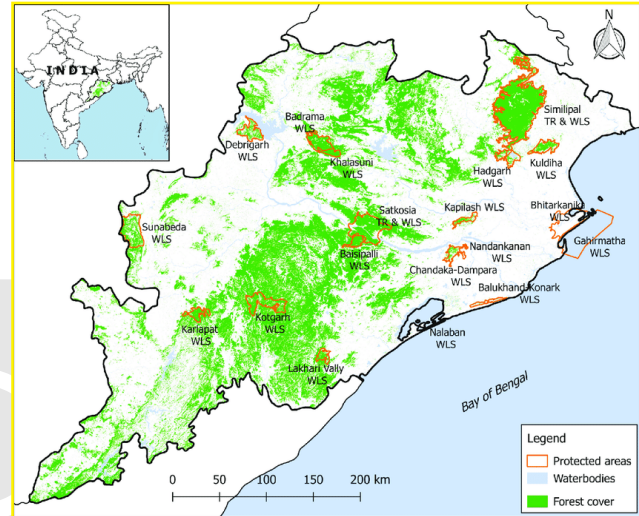
➤ Conservation Efforts:

- **Raptors MoU (Global):** The Memorandum of Understanding on the **Conservation of Migratory Birds of Prey in Africa and Eurasia** is also known as Raptors MoU.
 - It is an agreement under **Convention on the Conservation of Migratory Species of Wild Animals (CMS)**. **CMS or Bonn Convention** provides a global platform for the conservation and sustainable use of migratory animals and their habitats.
 - It is **not legally binding**.
- **India's Conservation Efforts:**
 - **India is a signatory to Raptors MoU.**
 - For the conservation of vultures, India has launched a **Vulture Action Plan 2020-25**.
 - India is also a part of the **SAVE (Saving Asia's Vultures from Extinction)** consortium.
 - The **Jatayu Conservation Breeding Centre in Pinjore (Haryana)** is the world's largest facility within the state's Bir Shikargah Wildlife Sanctuary for the breeding and conservation of Indian vulture species.

Threat to Bhitarkanika National Park: Odisha

Why in News

Recently, some environmental activists pointed out that Odisha's **Bhitarkanika National Park**, is **under severe threat** due to planned diversion of freshwater from the **Brahmani river basin**.



Key Points

➤ Concerns:

- Excess water allocation for industries, which is likely to **reduce fresh water discharge to the sea**.
- The **lack of normal flow of fresh water would increase saline ingress** upstream, it would **affect the local flora and fauna** as well as the livelihoods of the farmers and fishermen dependent upon the Brahmani and the Kharasrota (tributary of the Brahmani).
- There could be a quantum increase in the **man-crocodile conflict** since the estuarine crocodiles would leave the core sanctuary area and migrate upstream once salinity increases.
- The reduction in water discharge will **reduce the mangroves** and without the mangroves, the Gahirmatha Marine Sanctuary will become a marine desert.
 - Nutrients from Bhitarkanika are flushed out to the **Gahirmatha Marine Sanctuary**, which attracts the world's largest population of **Olive Ridley sea turtles** for congregation and nesting.

Note:

➤ Bhitarkanika National Park:

○ About:

- It has the **second-largest mangrove forest in India** and is a **Ramsar site**. It was declared as a Bhitarkanika National Park in the year of **1988**.
- Bhitarkanika is **located in the estuary of Brahmani, Baitarani, Dhamra, and Mahanadi river** systems. It is located in **Kendrapara district of Odisha**.
- It is **one of Odisha's finest biodiversity hotspots** and is famous for its mangroves, migratory birds, turtles, estuarine crocodiles, and countless creeks.
- It is said to house **70% of the country's estuarine or saltwater crocodiles**, conservation of which was started way back in 1975.

○ Protected Areas: The Bhitarkanika is represented by 3 Protected Areas which are:

- Bhitarkanika National Park.
- Bhitarkanika Wildlife Sanctuary.
- Gahirmatha Marine Sanctuary.

➤ River Brahmani:

- It is a river in **northeastern Odisha state**, eastern India. Formed by the **confluence of the Sankh and South Koel rivers** in southern Bihar state, the Brahmani flows for **300 miles**.
- It winds generally south-southeast past Bonaigarh and Talcher and then turns east to **join northern branches of the Mahanadi River**, which then empties into the **Bay of Bengal at Palmyras Point**.
- It is **one of the few rivers that cut across the Eastern Ghats**, and it has formed a **minor gorge at Rengali**, where a dam has been built.



State of the World's Trees Report: BGCI

Why in News

Recently, **Botanic Gardens Conservation International (BGCI)** launched the **State of the World's Trees Report**.

- The report warns that almost a **third of the world's tree species are at risk of extinction**, while **hundreds are on the brink of being wiped out**.
- **BGCI is a membership organisation**, representing botanic gardens in more than 100 countries around the world. It is an **independent UK charity established in 1987** to link the botanic gardens of the world in a global network for plant conservation.

Key Points

➤ Species Under Threat:

- 17,500 tree species which is some **30% of the total** – are at risk of extinction, while **440 species have fewer than 50 individuals left in the wild**.
 - **11% of the flora or plant life of every country** was made up of threatened species.
- Overall the **number of threatened tree species** is double the number of threatened mammals, birds, amphibians and reptiles combined.

➤ Most At-Risk Trees:

- Among the most at-risk trees are species including **magnolias** and **dipterocarps** – which are commonly found in Southeast Asian rainforests. **Oak trees, maple trees** and **ebonies** also face threats.

➤ Countries with Highest Risk:

- Thousands of varieties of trees in the **world's top six countries** for tree-species diversity are at risk of extinction.
- The **greatest** single number is in **Brazil**, where 1,788 species are at risk. The other five countries are **Indonesia, Malaysia, China, Colombia and Venezuela**.
 - There were also **27 countries** that had **no threatened species** of trees.

➤ Island Trees:

- Though megadiverse countries see the greatest numbers of varieties at risk of extinction, **island tree species are more proportionally at risk**.
- This is particularly concerning because **many islands have species of trees that can be found nowhere else**.

Note:

➤ Major Threats:

- The **top three threats** facing tree species are **crop production, timber logging and livestock farming**, while **climate change** and **extreme weather** are emerging threats.
- At least **180 tree species are directly threatened by rising seas** and severe weather, especially island species such as **magnolias** in the Caribbean.

➤ Need of Saving Trees:

○ Support System:

- Trees **help support the natural ecosystem** and are considered **vital for combating global warming and climate change**.
- The extinction of a single tree species could cause a **domino effect**, catalysing the loss of many other species.

○ Act as Buffer:

- They **store 50% of the world's terrestrial carbon** and provide a **buffer from extreme weather**, such **hurricanes** and **tsunamis**.

○ Habitat & Food:

- Many threatened tree species provide the **habitat and food for millions** of other species of birds, mammals, amphibians, reptiles, insects and microorganisms.

➤ Suggestion for Policymakers:

○ Extend Protection:

- Extend protected area coverage for threatened tree species that are currently not-well represented in protected areas.

○ Conservation:

- Ensure that all globally threatened tree species, where possible, are conserved in botanic garden and seed bank collections.

○ Increase Funding:

- Increase availability of Government and corporate funding for threatened tree species.

○ Expand Schemes:

- Expand tree planting schemes, and ensure the targeted planting of threatened and native species.

○ Increase Collaboration:

- Increase global collaboration to tackle tree extinction, by participating in international efforts.

State Animal and Bird: Ladakh

Why in News

Recently, Ladakh has adopted **Snow Leopard** and **Black-Necked Crane**, as State animal and State bird, two years after it was carved out as a separate **Union Territory (UT)** from the erstwhile State of J&K (Jammu and Kashmir).

Key Points

➤ Snow Leopard:

○ About:

- **Snow leopards (*Panthera uncia*) act as an indicator of the health of the mountain ecosystem** in which they live, due to their position as the **top predator in the food web**.



○ Habitat:

- Mountainous regions of central and southern Asia. In India, their geographical range encompasses:
 - **Western Himalayas:** Jammu and Kashmir, Himachal Pradesh.
 - **Eastern Himalayas:** Uttarakhand and Sikkim and Arunachal Pradesh.
- **Snow Leopard capital of the world:** Hemis, Ladakh.
 - **Hemis National Park** is the biggest national park in India and also has a good presence of Snow Leopard.

○ Threats:

- Reduction in prey populations.
- **Illegal poaching** and **increased human population** infiltration into the species habitat.
- **Illegal trade** of wildlife parts and products.

Note:

○ **Protection Status:**

- **IUCN:** Vulnerable.
- **CITES:** Appendix I
- **Wildlife (Protection) Act 1972:** Schedule I
- It is also listed in the **Convention on Migratory Species (CMS)**, affording the highest conservation status to the species, both globally and in India.

➤ **Black-Necked Crane:**

○ **About:**

- The black-necked crane (*Grus nigricollis*), also known as Tibetan crane, is a **large bird and medium-sized crane**.



- **Both the sexes** are almost of the **same size** but **male is slightly bigger** than female.
- A conspicuous **red crown** adorns the head.

○ **Habitat:**

- The high altitude wetlands of the **Tibetan plateau**, Sichuan (China), and eastern **Ladakh** (India) are the main breeding ground of the species; the **birds spend winter at lower altitudes**.
- In **Bhutan and Arunachal Pradesh**, it only comes **during the winters**.

○ **Threats:**

- **Damage to the eggs** and chicks, caused by feral dogs.
- Loss of habitat due to **human pressure (Development Projects)** on the wetlands.
- Increased **grazing pressure on the limited pastures** near the wetlands.

○ **Protection Status:**

- **IUCN Red List:** Near Threatened
- **CITES:** Appendix I
- **Indian Wildlife (Protection) Act, 1972:** Schedule I

Ladakh

- It was established as a **Union Territory (UT)** of India on 31st October 2019, following the enactment of the **Jammu and Kashmir Reorganization Act**.
 - Before that, it was part of the **Jammu and Kashmir state**.
- It is the **largest and the second least populous** union territory of India.
- It extends from the **Siachen Glacier** in the **Karakoram Range** to the north to the main Great Himalayas to the south.
 - The eastern end, consisting of the uninhabited **Aksai Chin Plains**, is claimed by the Indian Government as part of Ladakh, and has been under Chinese control since 1962.
- The **largest town in Ladakh is Leh**, followed by **Kargil**, each of which headquarters a district.
 - The Leh district contains the **Indus, Shyok and Nubra river valleys**.
 - The Kargil district contains the **Suru, Dras and Zaskar river valleys**.
- Earlier, in 2020 Indian and Chinese troops were engaged in a temporary and short duration **face-off** along the **Line of Actual Control (LAC)** at Naku La (Sikkim) and near Pangong Tso Lake (**Eastern Ladakh**).
 - However, recently India and China have agreed in principle to **disengage at a key patrol point in eastern Ladakh**.



Crocodylian Species in India

Why in News

Recently, **Odisha's Kendrapara district** has earned the distinction of being the **only district in India where all three species of crocodiles, salt-water, gharial and mugger, are found**.

Note:

Key Points

➤ Mugger or Marsh Crocodile:

○ Description:

- An egg-laying and hole-nesting species, also known to be dangerous.



○ Habitat:

- Mainly restricted to the Indian subcontinent where it may be found in a number of freshwater habitat types and also in coastal saltwater lagoons and estuaries.
- It is already extinct in Bhutan and Myanmar.

○ Threats:

- Habitat destruction, fragmentation, and transformation, fishing activities and use of crocodile parts for medicinal purposes.

○ Protection Status:

- **IUCN List of Threatened Species:** Vulnerable
- **CITES:** Appendix I
- **Wildlife Protection Act, 1972:** Schedule I

➤ Estuarine or Saltwater Crocodile:

○ Description:

- Considered as the **Earth's largest living crocodile species**, infamous globally as a known man-eater.

○ Habitat:

- Found in Odisha's **Bhitarkanika National Park**, the **Sundarbans** in West Bengal and the **Andamans and Nicobar Islands**.
- Also found across Southeast Asia and northern Australia.

○ Threats:

- Illegal hunting, habitat loss, and antipathy toward the species because of its reputation as a man-eater.

○ Protection Status:

- **IUCN List of Threatened Species:** Least Concern
- **CITES :** Appendix I (except the populations of Australia, Indonesia and Papua New Guinea, which are included in Appendix II).
- **Wildlife Protection Act, 1972 :** Schedule I

➤ Gharial:

○ Description:

- Sometimes called gavials, are a **type of Asian crocodilian** distinguished by their long, thin snouts which resembles a pot (ghara in Hindi).
- The population of Gharials is a **good indicator of clean river water**.
- Known to be a **relatively harmless, fish-eating species**.

○ Habitat:

- Mostly found in **fresh waters of the Himalayan rivers**.
- The **Chambal river** in the northern slopes of the Vindhya mountains (Madhya Pradesh) is known as the **primary habitat** of gharials.
- Other Himalayan rivers like **Ghagra**, Gandak river, Girwa river, Ramganga river and the Sone river are **secondary habitats**.

○ Threats:

- Illegal sand mining, poaching, increased river pollution, dam construction, massive-scale fishing operations and **Floods**.

○ Protection Status:

- **IUCN List of Threatened Species:** Critically Endangered
- **CITES:** Appendix I
- **Wildlife Protection Act, 1972:** Schedule I

➤ Conservation Efforts:

- Odisha has announced a **cash award of Rs. 1,000** to conserve gharials in **Mahanadi River Basin**.
- The **Crocodile Conservation Project** was launched in 1975 in different States.

India's Tallest Air Purifier: Chandigarh

Why in News

India's **tallest air purifier** will be inaugurated in Chandigarh on the **International Day of Clean Air for Blue Skies**.

Note:



- Earlier, in August 2021 country's first 'smog tower' was inaugurated in Connaught Place, New Delhi.

Key Points

➤ About:

- It is a **24 meter long** outdoor air purification tower and is capable of purifying the air of a **radius of around 1 km**.
- It will also **show the quality index of the air it inhales** and the quality index of the air it will **exhale**. It functions through electricity.
 - **Air purifiers** are structures designed as large-scale air purifiers to **reduce air pollution particles**.
- Chandigarh is one of the **non-attainment cities in the country according to National Clean Air Programme (NCAP)** norms, which means it has over a five-year period not consistently met the **National Ambient Air Quality Standards (NAAQS)** for harmful PM 10 (particulate matter that is 10 microns or less in diameter), PM 2.5 or NO₂ (nitrogen dioxide).
 - After remaining "satisfactory" and "moderate" during the lockdown period and a few months after, the **Air Quality Index (AQI)** had again turned "poor" for the first time in November 2020.

➤ International Day of Clean Air for Blue Skies:

- The **United Nations General Assembly (UNGA)** in December 2019, adopted a resolution by which **7th September** became the International Day of Clean Air for blue skies.
- It aims to **prioritize the need for healthy air** for all while keeping conversations broad enough to encompass other critical issues such as **climate change, human and planetary health** as well as the **Sustainable Development Goals**.
- The resolution was adopted in recognition of the **necessity to bring down the number of casualties and ailments** from pollutants like chemicals in the air, water and soil **by the year 2030**.
- For **2021** the theme is **Healthy Air, Healthy Planet**.

Groundwater Conservation

Why in News

India is **majorly dependent on groundwater for irrigation** and is pumping out the lion's share of the global volume of groundwater. Around **70% of food production in India** is done with the help of irrigation wells.

- However, this **over-dependence on groundwater** is leading to a groundwater crisis. There is a need for a holistic action plan for groundwater conservation.

Key Points

➤ About:

- The **UNESCO** World Water Development Report, 2018 states that **India is the largest extractor of groundwater in the world**.
- In India, construction of **irrigation wells does not require any clearance** and no records are maintained of abandoned wells.
 - Several hundred wells are constructed in India every day and even more are abandoned when they run dry.
- The **contribution of groundwater to national gross domestic product is never measured**.
- According to the **Central Ground Water Board (CGWB, Ministry of Jal Shakti)**, with 230 billion metre cube of groundwater drawn out each year for irrigating agriculture lands in India, many parts of the country are experiencing rapid depletion of groundwater.
 - The total estimated groundwater depletion in India is in the range of 122–199 billion metre cube.

➤ Reasons for Groundwater Depletion:

- **Increased demand** for water for domestic, industrial and agricultural needs and limited surface water resources.
- **Limited storage facilities** owing to the hard rock terrain, along with the added disadvantage of lack of rainfall, especially in central Indian states.
- **Green Revolution** enabled water intensive crops to be grown in drought prone/ water deficit regions, leading to over extraction of groundwater.
 - Frequent pumping of water from the ground without waiting for its replenishment leads to quick depletion.
- **Subsidies on electricity** and high **MSP (Minimum Support Price)** for water intensive crops.
- **Water contamination** as in the case of pollution by landfills, septic tanks, leaky underground gas tanks, and from overuse of fertilizers and pesticides leading to damage and depletion of groundwater resources.

Note:

- **Inadequate regulation of groundwater** encourages the exhaustion of groundwater resources without any penalty.
- **Deforestation, unscientific methods of agriculture, chemical effluents from industries, lack of sanitation** also lead to pollution of groundwater, making it unusable.
- **Government Initiatives for Groundwater Conservation:**
 - **Atal Bhujal Yojana**
 - **National Aquifer Mapping and Management Programme**

Report on Weather Disasters: WMO

Why in News

Recently, the **World Meteorological Organization (WMO)**, has released a report, which stated that **weather disasters killed 2 million in the last 50 years.**

- WMO has published 'Atlas of Mortality and Economic Losses from Weather, Climate and Water Extremes, from 1970 to 2019'.
- WMO is a specialized agency of the United Nations.

Key Points

- **Findings of the Report:**
 - **No. of Disasters:** The number of disasters **has increased by a factor of five over the 50-year period**, driven by climate change, more extreme weather and improved reporting.
 - From 1970 to 2019, **weather, climate and water hazards accounted for 50% of all disasters**, 45% of all reported deaths and 74% of all reported economic losses.
 - More than **91% of these deaths occurred in developing countries.**
 - Droughts, storms, floods and extreme temperature were the **leading causes.**
 - **Decreasing Number of Deaths:** Due to improved early warning systems and disaster management, the number of deaths **decreased almost threefold between 1970 and 2019.**
 - **Spiralling Costs:** During the 50-year period, US\$ 202 million dollars in damage occurred on average every day. Economic losses **have increased sevenfold from the 1970s to the 2010s.**

- **Storms**, the most prevalent cause of damage, resulted in the largest economic losses around the globe.
- **Climate Change Footprints:** The number of **weather, climate and water extremes are increasing and will become more frequent and severe** in many parts of the world as a result of climate change.
 - **More water vapor in the atmosphere** has exacerbated extreme rainfall and flooding, and the **warming oceans** have affected the frequency and extent of the most intense tropical storms.
 - This has augmented the **vulnerability of low-lying megacities, deltas, coasts and islands** in many parts of the world.
- **Failure of Sendai Framework:** The report also warned that the failure to reduce disaster losses as set out in the **2015 Sendai Framework** is putting at risk the ability of developing countries to eradicate poverty and to achieve other important **Sustainable Development Goals (SDGs).**
 - **Sendai Framework 2015** was adopted at the Third United Nations World Conference on Disaster Risk Reduction, held in 2015 in Sendai, Miyagi, Japan.
 - The present Framework applies to the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risks.
- **Recommendations:**
 - **Need for Adaptability:** **Only half of WMO's 193 member countries have multi-hazard early warning systems** and severe gaps in weather and hydrological observing networks exist in Africa, some parts of Latin America and in Pacific and Caribbean island States.
 - Thus, there is a need to install early warning systems in developing and under-developed countries.
 - **Comprehensive Disaster Risk Management:** Need for a greater investment in comprehensive **disaster risk management** to ensure that climate change adaptation is integrated in national and local disaster risk reduction strategies.

Note:



- **Review Hazard Exposure:** The report further recommends countries to review hazard exposure and vulnerability considering a changing climate to reflect that tropical cyclones may have different tracks, intensity and speed than in the past.
- **Proactive Policies:** It also calls for the development of integrated and proactive policies on slow-onset disasters such as drought.
- **Recent Initiatives Taken by India:**
 - **Coalition for Disaster Resilient Infrastructure (CDRI)**
 - **National Disaster Management Authority (NDMA)**
 - **National Disaster Management Plan (NDMP)**

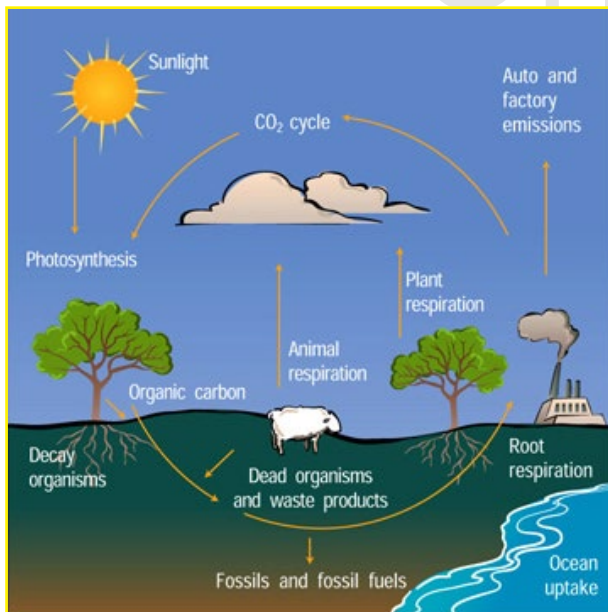
Land Sink & Emissions

Why in News

Despite caution from scientists, policymakers and corporations still assume that **natural carbon sinks like land and oceans will mop up their fossil fuel emissions.**

Key Points

- **Land Sink:**
 - Land is a **critical component of the climate system**, actively **engaged in the flows of carbon, nitrogen, water, and oxygen** - essential building blocks for life.
 - **Greenhouse Gases** (GHGs such as carbon dioxide) follow a natural cycle - they are constantly released into the atmosphere and are removed from it via natural 'sinks' such as the land and oceans.



- Plants and healthy ecosystems have an **unparalleled capacity to absorb carbon through photosynthesis** and store it in living biomass.
 - About 56 % of the carbon dioxide (CO₂) emitted by humans is absorbed by the oceans and land.
 - About 30 % by land and the rest by oceans.
- **Recognition of Role of Land:**
 - The role of land (forests and agricultural land) as a mitigation pathway to reduce CO₂ emissions was **recognised by the United Nations Framework Convention on Climate Change (UNFCCC)** in 1992.
 - The **Kyoto Protocol** in 1997 **endorsed** the notion that not only should governments employ policies to enhance the land carbon sink capacities of their territories but also that such **mitigation could be set against requirements for reductions in emissions** from fossil fuel consumption.
- **Related Data:**
 - Land use accounted for 13% of anthropogenic CO₂ emissions during 2007-2016, according to a report by The **Intergovernmental Panel on Climate Change** (IPCC) in 2019.
 - But it also **provided a net sink of around 11.2 gigatonnes** of carbon dioxide per year, equivalent to 29% of the total CO₂ emissions in the same period.
 - This means, **29-30% human-driven CO₂ emissions have been soaked up by the world's land sinks** during the past three decades.
- **Concerns:**
 - **Rising Heat Levels:**
 - Increased heat levels are adding to the **moisture stress in forests and leading to widespread burning.**
 - So, on the one hand, forests are being **cut for different economic activities, reducing their role as sinks** for the CO₂ released from fossil fuel burning.
 - On the other hand, as temperatures increase, the forests will shrink further.
 - **Anthropogenic and Natural Factors:**
 - Human-induced factors such as **deforestation and natural factors** such as climate variability in sunshine, temperature and rainfall can cause a variation in the strength of the land carbon sink.

Note:

- **Rising CO₂ Concentration:**
 - **Climate Change 2021 Report: IPCC** states that CO₂ emissions are the highest in at least two million years. Humans have emitted 2,400 billion tonnes of CO₂ since the late 1800s.
- **Suggestions:**
 - **Growing Trees:**
 - The world is not on track to reduce GHG emissions at the scale needed to avert a temperature rise of 1.5°C over pre-industrial levels.
 - The solution, then, is to **find ways in which emissions can be removed** from the atmosphere and growing trees becomes part of this package.
 - **Get off Fossil Fuels:**
 - There is a **need to use land especially in this interim of moving from fossil fuels to Renewables**; but in the end fossil fuels must be gotten rid of.
 - **Artificial Carbon Sequestration:**
 - The **artificial carbon trapping** technologies efficiently **capture carbon in large amounts**, convert it and also store it for thousands of years.
 - The technique is based on passing air through a stack of charged electrochemical plates.
 - The technology aims to **make coal a viable, technical, environmental and economic case** for the future.
- **Related Initiatives:**
 - **Bonn Challenge:**
 - **Bonn Challenge** is a global effort to bring **150 million hectares of the world's deforested and degraded land into restoration by 2020**, and 350 million hectares by 2030.
 - **UN Decade on Ecosystem Restoration:**
 - In March 2019, the **United Nation General Assembly** declared 2021-2030 as the UN Decade on Ecosystem Restoration to **“prevent, halt and reverse the degradation of ecosystems worldwide”**.
 - **LEAF Coalition:**
 - It is **an effort** led by the US, the UK and Norway to **mobilise at least USD 1 billion for financing countries** committed to protecting their tropical forests.

Behler Turtle Conservation Award

Why in News

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

- There are **29 species of freshwater turtles and tortoises** in the country.

Key Points

- **About Behler Turtle Conservation Award:**
 - **Established in 2006**, it is a **major annual international award** honoring excellence in the field of **tortoise and freshwater turtle conservation** and biology, and **leadership in the chelonian conservation** and biology community.
 - Also referred to as the **“Nobel Prize” of Turtle Conservation**.
 - **Co-presented** by Turtle Survival Alliance (TSA), **IUCN** Tortoise and Freshwater Turtle Specialist Group, Turtle Conservancy, and Turtle Conservation Fund.
 - In the present context, the **three critically endangered turtles** are being conserved as a part of TSA India's research, conservation breeding and education programme in different parts of the country.
 - The **Northern River Terrapin** (Batagur baska) is being conserved at the **Sunderbans**;
 - The **Red-crowned Roofed Turtle** (Batagur kachuga) at **Chambal**;
 - The **Black Softshell Turtle** (Nilssonina nigricans) at different temples in Assam.
- **Northern River Terrapin:**
 - **Habitat:**
 - The **Sundarbans eco-region** is their natural habitat.
 - **Protection Status:**
 - **IUCN Red List:** Critically Endangered
 - **CITES:** Appendix I
 - **Wildlife (Protection) Act, 1972:** Schedule I
 - **Threats:**
 - Exploited for local subsistence and ritualistic consumption as well as some regional trade, including supply to the Calcutta markets in the 19th and 20th centuries.

Note:



➤ Red-crowned Roofed Turtle:

- **Habitat:**
 - Historically, the species was widespread in the Ganga River, both in India and Bangladesh. It also occurs in the Brahmaputra basin.
 - Currently in India, the **National Chambal River Gharial Sanctuary** is the only area with a substantial population of the species.
- **Protection Status:**
 - **IUCN Red List:** Critically Endangered
 - **CITES:** Appendix II
 - **Wildlife (Protection) Act, 1972:** Schedule I
- **Threats:**
 - Loss or degradation of habitat due to pollution and large scale development activities like water extraction for human consumption and irrigation and irregular flow from the upstream dams and reservoirs.

➤ Black Softshell Turtle:

- **Habitat:**
 - They are found in ponds of temples in northeastern India and Bangladesh.
 - Its distribution range also includes the Brahmaputra River and its tributaries.
- **Protection Status:**
 - **IUCN Red List:** Critically Endangered
 - **CITES:** Appendix I
 - **Wildlife (Protection) Act, 1972:** No legal protection
- **Threats:**
 - Consumption of turtle meat and eggs, silt mining, encroachment of wetlands and change in flooding pattern.

Deepor Beel: Eco-Sensitive Zone

Why in News

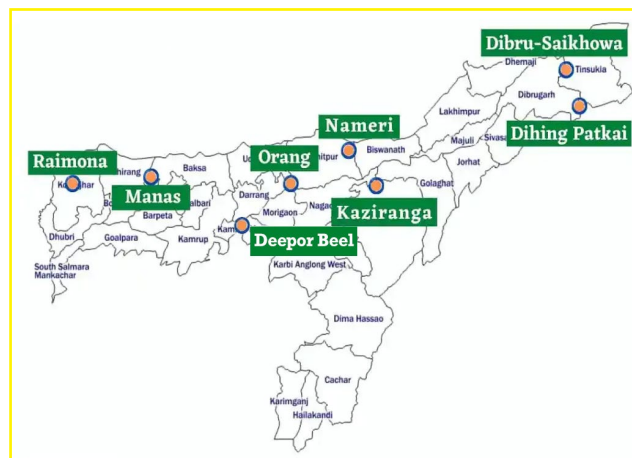
The **Ministry of Environment, Forest and Climate Change (MoEFCC)** has notified the **Eco-sensitive zone** of the **Deepor Beel Wildlife Sanctuary (Assam)**.

- Earlier, **Kaziranga National Park** became the **first in the country to use satellite phones** and **Dehing Patkai and Raimona** were **designated as National Parks**.

Key Points

➤ Deepor Beel:

- **About:**
 - It is **one of the largest freshwater lakes in Assam** and the **State's only Ramsar site** besides being an **Important Bird Area** by Birdlife International.
 - It is **located towards the southwest of Guwahati city, Assam** and is the erstwhile water channel of **River Brahmaputra**.
 - The lake expands up to 30 sq. km in summer and reduces to about 10 sq. km in the winter. The **wildlife sanctuary** measures 4.1 sq. km within this wetland (beel).
- **Importance:**
 - It **constitutes a unique habitat for aquatic flora and avian fauna**.
 - It has both **biological and environmental importance** besides being the **only major storm-water storage basin** for Guwahati city.
 - It provides a **means of livelihood** for a number of local families.
 - Recently, six young girls from the fishing community from Assam have developed a biodegradable and compostable yoga mat called **'Moorhen Yoga Mat'**.
- **Concerns:**
 - It's **water has become toxic** and it has **lost many of its aquatic plants that elephants** would feed on.
 - It has for decades been **threatened by a railway track** — set to be doubled and electrified — on its southern rim, a garbage dump, and encroachment from human habitation and commercial units.



Note:

Unviability of New Coal-Based Power Plants

Why in News

According to a recent report prepared by two independent think tanks, EMBER and Climate Risk Horizons, India **does not require additional new coal capacity** to meet expected power demand growth by Financial Year (FY) 2030.

Key Points

➤ Highlights of the Report:

- India's **peak power demand would reach 301 GW by 2030**, if it grows at an annual growth rate of 5% (which is also in line with projections made by the **Central Electricity Authority**), **India's planned solar capacity can cover much of it**.
- Therefore, **adding new coal plants will lead to "zombie" units** – ones which will exist, but not be operational.
- Further, India can **free up nearly Rs 2.5 lakh crore** by not investing in these surplus plants.
- Once incurred, these wasted investments **will lock DISCOMs** (power distribution companies) and **consumers into expensive contracts** and **jeopardise India's Renewable Energy goals** by adding to the system's overcapacity.
- Further, it will **lead to the loss of annual savings of Rs 43,219 crore** that India makes by investing in renewables and storage.
- Thus, the report concludes that more coal capacity beyond what's already under construction isn't needed to meet the aggregate demand growth by FY 2030.

➤ Factors Responsible for Solar Energy Over Coal Based Power Plants:

- The disruption in the power sector owing to replacement of thermal based generation with Solar energy generation is possible with the **downward trend of cost of solar panels**.
 - Moreover, the **newer technology options** like battery energy storage systems will further promote solar energy.
- The world is **focusing on environmental issues**, especially climate change and therefore the idea of growing sustainably has taken centre stage globally.

- Towards realizing the objective of carbon free energy, India has set for itself a target of installed capacity of **175 GW from Renewable Energy Sources (RE)** by March 2022.

- In pursuance of this, India has established the **International Solar Alliance** and proposed **One Sun One World One Grid**.

- Government Policy of active promotion of Solar energy through schemes like **PM KUSUM, Rooftop Solar Scheme**, etc.

➤ Importance of Continuing Coal Based Power Plants:

- According to **BP Energy Outlook 2019**, coal's share in India's primary energy consumption will decline from 56% in 2017 to **48% in 2040**.
 - However, that is **still nearly half of the total energy mix** and way ahead of any other source of energy. Thus, it is not easy to replace coal very easily.
- **Issues related to land acquisition, funding and policy** continue to come in the way of renewable energy plans.
- Apart from the power sector, **other critical sectors** like steel and aluminium also depend on coal based power.
- Further, the capacity value of the coal based power plants is critical to meet **instantaneous peak load**, and to meet load **when renewable energy is unavailable**.
- Further, India had initially set a 2017 deadline for thermal power plants to install **Flue Gas Desulphurization (FGD) units** that cut emissions of sulphur dioxides. But that was postponed to varying deadlines for different regions, ending in 2022.

Groundswell Report: World Bank

Why in News

Recently, the updated **Groundswell report** released by the **World Bank** indicated that **climate change could force 216 million people across six world regions to move within their countries by 2050**.

- Hotspots of **internal climate migration** can emerge as early as 2030 and continue to spread and intensify by 2050.

Note:



Key Points

➤ About the Report:

- **First Groundswell Report:** It was published in 2018 and used a robust and novel modeling approach to understand the scale, trajectory, and spatial patterns of future climate migration within countries, with a focus on three regions: Sub-Saharan Africa, South Asia, and Latin America.
- **Second Groundswell Report:** It builds on the first report, applying the same approach to three new regions: the Middle East and North Africa, East Asia and the Pacific, and Eastern Europe and Central Asia.
 - Qualitative analyses of climate-related mobility in countries of the Mashreq (i.e eastern part of the Arab World) and in Small Island Developing States (SIDS) are also provided.
- **Significance:**
 - The two reports' combined findings provide, for the first time, a global picture of the potential scale of internal climate migration across the six World Bank regions.

➤ Findings:

- **Internal Climate Migrants:** As many as 216 million people could be internal climate migrants across the six World Bank regions (by 2050). This represents almost 3% of these regions' total projected population.
 - **Sub-Saharan Africa:** 85.7 million internal climate migrants (4.2% of the total population);
 - **East Asia and the Pacific:** 48.4 million (2.5%);
 - **South Asia:** 40.5 million (1.8%);
 - **North Africa:** 19.3 million (9 %);
 - **Latin America:** 17.1 million (2.6%); and
 - **Eastern Europe and Central Asia:** 5.1 million (2.3%).
- **Most Vulnerable Region:** The scale of internal climate migration will be largest in the poorest and most climate-vulnerable regions.
 - **Sub-Saharan Africa:** The most vulnerable region due to desertification, fragile coastlines and the population's dependence on agriculture - would see the most migrants.

- **North Africa:** It is predicted to have the largest proportion of climate migrants (9%).

- This is due to a great extent to severe water scarcity, as well as the impacts of sea-level rise on densely populated coastal areas and in the Nile Delta.

- **South Asia:** In South Asia, Bangladesh is particularly affected by flooding and crop failures, accounting for almost half of the predicted climate migrants, with 19.9 million people, including an increasing number of women, moving by 2050.

➤ Policy Recommendations:

○ Reduce Emission:

- Five years after the Paris Agreement, the world is still headed for at least 3°C of warming by 2100.
- Ambitious action to curb global emissions is critical to reducing the burden of climate change impacts on key resources, livelihood systems, and urban centers that may drive people to migrate in distress.

○ Inclusive and Resilient Development Pathways:

- **Integrating internal climate migration in development planning** is critical to address the poverty factors that make people particularly vulnerable to climate change impacts, such as a lack of viable livelihood options and lower quality assets.

○ Plan for Each Phase of Migration: Planning for internal climate migration means accounting for all phases of migration - before, during, and after moving.

- Before migration, adapt-in-place solutions can help communities stay in place where local adaptation options are viable and sensible.
- During migration, policies and investments can enable mobility for people who need to move away from unavoidable climate risks.
- After migration, planning can ensure that both sending and receiving areas are well equipped to meet the needs and aspirations of their populations.

○ Investments: More investments are needed in research at scale, including new, more granular data sources and differentiated climate change impacts, to better contextualize and understand internal climate migration at the regional and country level.

Note:

Global Efforts to Address Climate Change and Migration Challenges	
Cancun Adaptation Framework (2010):	<ul style="list-style-type: none"> ➤ The United Nations Framework Convention on Climate Change (UNFCCC) formally incorporates mobility in the context of climate change in the 2010 Cancun Adaptation Framework, calling on countries for “measures to enhance understanding, coordination and cooperation with regard to climate induced displacement, migration, and planned relocation,” while “taking into account their common but differentiated responsibilities”.
UNFCCC Task Force on Displacement (2013):	<ul style="list-style-type: none"> ➤ The UNFCCC Task Force on Displacement, established under the Warsaw Mechanism. ➤ The Warsaw International Mechanism for Loss and Damage focuses on preparing for and addressing loss and damage from both sudden-onset and slow onset climate change impacts, including effects on mobility.
Paris Agreement (2015):	<ul style="list-style-type: none"> ➤ The Preamble of the Paris Agreement states that the “Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on migrants”.
Sendai Framework for Disaster Risk Reduction (2015-30):	<ul style="list-style-type: none"> ➤ The Sendai Framework outlines targets and priorities for action to prevent and reduce disaster risks, including through governance, investment in disaster reduction for resilience, and disaster preparedness, recovery, rehabilitation, and reconstruction.
	<ul style="list-style-type: none"> ➤ It articulates the need to include migrants in disaster risk reduction and management in three places.
UN Global Compact on Refugees (2016):	<ul style="list-style-type: none"> ➤ Provides specific commitments to address the drivers of environmental mobility and develop policies aimed at ensuring greater protection for those affected by these movements.
UN Global Compact for Safe, Orderly, and Regular Migration (2018):	<ul style="list-style-type: none"> ➤ Recognizes the need to strengthen joint analysis and sharing of information to better map, understand, predict, and address migration movements, such as those that may result from sudden-onset and slow-onset natural disasters and the adverse effects of climate change, as well as develop adaptation and resilience strategies, taking into account the potential implications on migration.
UNFCCC 24th Conference of Parties Decision (2018):	<ul style="list-style-type: none"> ➤ The COP24 Decision, informed by a report from the UNFCCC Task Force on Displacement, invites UNFCCC parties to facilitate orderly, safe, regular and responsible migration and mobility in the context of climate change, by considering the needs of migrants and displaced persons, communities of origin, transit and destination, and by enhancing opportunities for regular migration pathways, including through labor mobility.



Note:



History

Highlights

- *Thamirabarani Civilisation: Tamil Nadu*
- *V. O. Chidambaram Pillai*
- *Napoleon Bonaparte*
- *Swami Vivekanada*
- *Mahakavi Subramania Bharati*
- *Acharya Vinoba Bhave*
- *Udham Singh*
- *Battle of Saragarhi*
- *Raja Mahendra Pratap Singh*
- *Changing Rainfall Pattern in North East India*

Thamirabarani Civilisation: Tamil Nadu

Why in News

The **Thamirabarani civilisation in Tamil Nadu** is at least **3,200 years old**, reveals **carbon dating** done on organic material retrieved from archeological excavations in **Sivakalai, Thoothukudi district**.

- • **Carbon Dating:** The determination of the age or date of organic matter from the relative proportions of the carbon isotopes carbon-12 and carbon-14 that it contains.



Key Points

- **Thamirabarani River:**
 - The **shortest river in the state (Tamil Nadu)**, the Thamirabarani starts in **Pothigai hills of the Western Ghats in the Ambasamudram taluk**, flows

through Tirunelveli and Thoothukudi districts and empties at **Korkai** (Tirunelveli district) into the **Gulf of Mannar** (Bay of Bengal).

➤ Significance of the Findings:

- It could lead to evidence that there was a **city civilisation (Porunai River (Thamirabarani) civilization) in south India as long back as 3,200 years ago**, the later part of the **Indus Valley Civilisation**.
- Also, **archaeological excavations** would be carried out in **other States and countries in search of Tamil roots**.
 - In the first phase, studies would be undertaken at the **ancient port of Muziris, now known as Pattanam, in Kerala**, to establish the ancientness and culture of the **Chera empire**.
 - Research would be conducted at **Quseir al-Qadim and Pernica Anekke in Egypt**, which were once part of the Roman empire, as well as in **Khor Rori in Oman**, to establish the Tamils' trade relations with these countries. Potsherds bearing Tamil scripts have been found in these countries.
 - Studies would also be conducted in Southeast Asian countries, such as Indonesia, Thailand, Malaysia and Vietnam, where **King Rajendra Chola had established supremacy**.
 - The three ruling houses of Tamil India, the **Pandyas, Cheras, and Cholas**, fought for supremacy of southern India and Sri Lanka. These dynasties promoted early literature on the Indian subcontinent and built important Hindu temples.

Note:

- **Sangam literature**, which was written over a period of six centuries (3rd BCE – 3rd CE) contains references to various Chola, Chera and Pandya kings.
- **Other Recent Findings:**
 - A silver punch marked coin was recently **excavated from Keezhadi** (Tamil Nadu) which bore the symbols of the sun, the moon, the taurine and other geometrical patterns.
 - Studies on this found the **coin to date back to the 4th century BC**, which is before the time of the **ancient Maurya empire** (321-185 B.C.E).
 - Archaeological excavations are **being done at numerous places** such as Kodumanal, Keeladi, Korkai, Sivakalai, in Tamil Nadu.
 - As per the carbon dating of artefacts, the **Keeladi civilisation** dates back to 6th century BC.

V. O. Chidambaram Pillai

Why in News

Recently, the Prime Minister paid tribute to V. O. Chidambaram Pillai, the legendary freedom fighter on his **150th birth anniversary**.

- He was popularly **known as Kappalottiya Tamilan** (The Tamil Helmsman) and **Sekkizuththa Semmal** (scholarly gentry who suffered at the oil press).



Key Points

- **Birth:**
 - **Vallinayagam Olaganathan Chidambaram Pillai (VOC)** was born **5th September 1872** to an eminent lawyer Olaganathan Pillai and Paramyee Ammai in Ottapidaram, Tirunelveli district of Tamil Nadu.
- **Early Life:**
 - VOC **graduated from Caldwell College, Tuticorin**. Before beginning his law studies, he worked for a brief period as the **taluk office clerk**.
 - His **tussle with the judge** forced him to seek fresh pastures **at Tuticorin in 1900**.
 - **Until 1905, professional and journalistic activities** consumed most of his energy.
- **Entry in Politics:**
 - VOC entered politics **in 1905 following the partition of Bengal**.
 - Towards the end of 1905, VOC visited Madras and was drawn closer to the **Swadeshi Movement** initiated by **Bal Gangadhar Tilak** and **Lala Lajpat Rai**.
 - VOC was **drawn towards Ramakrishna Mission** and came into contact with Subramania Bharati and the Mandayam family.
 - It was not until the **arrival of VOC at Tuticorin (Present day Thoothukudi)** that the **Swadeshi movement** in Tirunelveli district began to gather force and momentum.
- **Role Played in Freedom Movement:**
 - By **1906**, VOC won the support of merchants and industrialists in Tuticorin and Tirunelveli for the idea of **establishing a Swadeshi merchant shipping outfit** by the name of the **Swadeshi Steam Navigation Company (SSNCo)**.
 - He **established many institutions** like Swadeshi Prachar Sabha, Dharmasanga Nesavu Salai, National Godown, Madras Agro-Industrial Society Ltd and Desabimana Sangam.
 - VOC and Siva were aided in their efforts by a number of Tirunelveli-based lawyers, who formed an **organisation called the Swadeshi Sangam, or 'National Volunteers'**.
 - The nationalist movement acquired a secondary character with the **beginning of the Tuticorin Coral Mills strike (1908)**.

Note:

- Even prior to **Gandhiji's Champaran Satyagraha** (1917), VOC took up the cause of the working class in Tamil Nadu, and thus he is a **forerunner to Gandhiji in this respect**.
- VOC, along with other leaders, resolved to take out a mammoth procession on the morning of 9th March 1908 to celebrate the **release of Bipin Chandra Pal from jail and to hoist the flag of Swaraj**.
- **Writings:** Meyyaram (1914), Meyyarivu (1915), Anthology (1915), Thirukural with literary notes of Manakudavar (1917), Tholkappiam with literary notes of Ilampooranar (1928), Autobiography (1946).
- **Death:** V.O.C died on **18th November 1936** in the **Indian National Congress Office** at Tuticorin as was his last wish.

Napoleon Bonaparte

Why in News

A newly discovered hat with DNA evidence proving it belonged to Napoleon Bonaparte has gone on display at an auction house in Hong Kong.



Key Points

- **Brief Profile:**
 - Born on 15th August, 1769, in **Ajaccio**, on the Mediterranean island of Corsica.
 - Also known as **Napoleon I**.
 - A **French military leader and emperor** who conquered much of Europe in the **early 19th century**.
 - Crowned himself **emperor in 1804**.
 - **Died** on 5th May, 1821, on the **island of St. Helena**.

➤ Rise of Napoleon Bonaparte:

- **French Revolution:** Napoleon Bonaparte rapidly rose through the ranks of the military during the French Revolution .
 - He is considered a **child of the French Revolution (1789-1799)**.
 - As a young leader he quickly **showed his support for the Jacobins**, a far-left political movement and the most well-known and popular political club from the French Revolution.
 - He fought in the French Revolutionary Wars and was **promoted to brigadier general in 1793**.
- **Treaty of Campo Formio (1797):** After victories against the Austrians in northern Italy, he negotiated the Treaty of Campo Formio.
- **Battle of the Nile (1798):** He attempted to conquer Egypt (1798–99) but was defeated by the British under Horatio Nelson in the Battle of the Nile.
- **The Coup of 18 Brumaire (1799):** In this event, Napoleon was part of a group that successfully overthrew the French Directory.
 - The Directory was replaced with a three-member Consulate, Napoleon became first consul, making him France's leading political figure.
- **Battle of Marengo (1800):** Napoleon's forces defeated one of France's perennial enemies, the Austrians, and drove them out of Italy.
 - The victory helped cement Napoleon's power as first consul.
 - Additionally, with the **Treaty of Amiens in 1802**, the war-weary British agreed to peace with the French (although the peace would only last for a year).
- **The Reign of Napoleon Bonaparte:**
 - **Napoleonic Wars:** From 1803 to 1815, France was engaged in the Napoleonic Wars, a series of major conflicts with various coalitions of European nations.
 - **Louisiana Purchase:** In 1803, partly as a means to raise funds for future wars, Napoleon sold France's Louisiana Territory in North America to the newly independent United States for \$15 million, a transaction that later became known as the Louisiana Purchase.
 - **Battle of Trafalgar:** In October 1805, the British wiped out Napoleon's fleet at the Battle of Trafalgar.

Note:

- However, in December of that same year, Napoleon achieved what is considered to be one of his greatest victories at the **Battle of Austerlitz**.
 - His army defeated the Austrians and Russians.
 - The victory resulted in the **dissolution of the Holy Roman Empire** and the **creation of the Confederation of the Rhine**.
- **Reforms Initiated By Napoleon:**
 - **Napoleonic Code:** On 21st March, 1804, Napoleon instituted the Napoleonic Code, otherwise known as the French Civil Code, parts of which are still in use around the world today.
 - It **forbade privileges based on birth, allowed freedom of religion**, and stated that **government jobs must be given to the most qualified**.
 - It included **criminal code, military code & code of civil procedure** and **commercial code**.
 - The Napoleonic Code followed Napoleon's new constitution, which created the **first consul**.
 - First consul was a position which amounted to nothing less than a dictatorship.
 - **Abolished Serfdom and Feudalism:** Napoleon Bonaparte abolished "serfdom and feudalism" in the country in order to make the people free.
 - **Serfdom**, a condition in medieval Europe in which a tenant farmer was bound to a hereditary plot of land and to the will of his landlord.
 - **Feudalism** was the system in 10th-13th century European medieval societies where a social hierarchy was established based on local administrative control and the distribution of land into units (fiefs).
 - **Education:** Napoleon set up an elaborate system of schools, called lycées, which is still in use, and was a proponent for universal education.
- **Fall of Napoleon:**
 - **Continental System:** It was the blockade designed by Napoleon to paralyze Great Britain through the destruction of British commerce; it proved largely ineffective and eventually led to Napoleon's fall.
 - **Peninsular War (1807–1814):** It was the military conflict fought by Spain, the United Kingdom and Portugal against the invading and occupying forces of France for control of the **Iberian Peninsula** during the **Napoleonic Wars**.

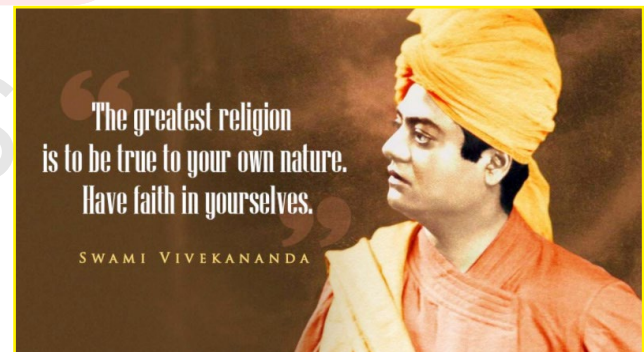
- **Invasion of Russia:** Napoleon hoped to compel Tsar Alexander I of Russia to cease trading with British merchants through proxies in an effort to pressure the United Kingdom to sue for peace. The official political aim of the campaign was to liberate Poland from the threat of Russia.
 - The **great French dominion collapsed** rapidly after the disastrous invasion of Russia in 1812. Napoleon failed to conquer Russia in 1812 for several reasons: faulty logistics, poor discipline, disease, and not the least, the weather.
 - Napoleon was defeated in 1814 and exiled to the island of Elba, before returning and was **finally defeated in 1815 at Waterloo**.

Swami Vivekananda

Why in News

Recently, the Prime Minister of India **recalled Swami Vivekananda's iconic 1893 speech at Chicago** and said its spirit has the potential to create a more just, prosperous, and inclusive planet.

- **Swami Vivekananda**, is regarded as a one of the finest spiritual leaders and intellects India has produced.



Key Points

- **Birth:** He was born as Narendranath Datta on 12th January, 1863.
 - **National Youth Day** is held every year to observe the birth anniversary of Swami Vivekananda.
 - In 1893, upon the request of Maharaja Ajit Singh of the Khetri State, he took the name 'Vivekananda.'
- **Contributions:**
 - Introduced the world to the Indian philosophies of **Vedanta and Yoga**.

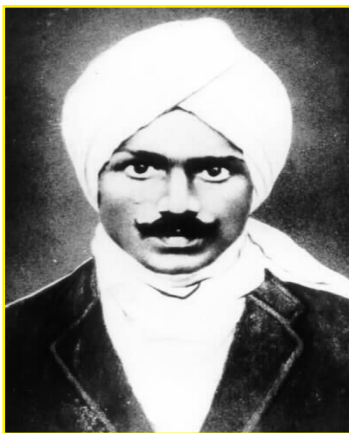
Note:

- He preached ‘neo-Vedanta’, an interpretation of Hinduism through a Western lens, and believed in **combining spirituality with material progress**.
- Laid the greatest emphasis on education for the regeneration of our motherland. Advocated a **man-making character-building education**.
- Best known for his **speech at the World Parliament of Religion in Chicago in 1893**.
- Spelt out the four pathways of attaining moksha from the worldly pleasure and attachment in his books - **Raja-yoga, Karma-yoga, Jnana-yoga and Bhakti-yoga**.
- **Netaji Subhas Chandra Bose** had called Vivekananda the “**maker of modern India**.”
- **Associated Organisations:**
 - He was the chief **disciple of the 19th-century mystic Ramakrishna Paramhansa** and established the Ramakrishna Mission in 1897.
 - Ramakrishna Mission is an organization which works in the area of value-based education, culture, health, women’s empowerment, youth and tribal welfare and relief and rehabilitation.
 - In 1899, he **established the Belur Math**, which became his permanent abode.
- **Death:** He died at Belur Math in 1902. Belur Math, **located in West Bengal**, is the headquarters of Ramakrishna Math & Ramakrishna Mission.

Mahakavi Subramania Bharati

Why in News

Recently, the Vice-President paid tributes to **Mahakavi Subramania Bharati** on his **100th death centenary**.



Key Points

- **Birth:** 11th December 1882, in Ettayapuram, Madras Presidency.
- **Brief Profile:** Indian writer of the **nationalist period (1885-1920)** who is regarded as the **father of the modern Tamil style**.
 - Also known as ‘**Mahakavi Bharathiyar**’.
 - His **strong sense of social justice** drove him to fight for self-determination.
- **Involvement during Nationalist Period:**
 - After 1904, he **joined the Tamil daily newspaper Swadesamitran**.
 - This exposure to political affairs led to his involvement in the extremist wing of the **Indian National Congress (INC)** party.
 - In order to proclaim its revolutionary ardour, Bharathi had the **weekly newspaper named ‘India’** printed in red paper.
 - It was the **first paper in Tamil Nadu** to publish political cartoons.
 - He also published and edited a few other journals like “**Vijaya**”.
 - **Attended the annual sessions of INC** and discussed national issues with extremist leaders like Bipin Chandra Pal, **B.G. Tilak** and V.V.S. Iyer.
 - His participation and **activities in Benaras Session (1905) and Surat Session (1907)** of the INC impressed many national leaders for his patriotic fervour.
 - Published the sensational “**Sudesa Geethangal**” in 1908.
 - Bharati’s reaction to the Russian Revolutions of 1917, in a poem entitled “**Pudiya Russia**” (“**The New Russia**”), offers a fascinating example of the poet’s political philosophy.
 - He was **forced to flee to Pondicherry (now Puducherry)**, a French colony, where he lived in exile from 1910 to 1919.
 - During this time, **Bharati’s nationalistic poems and essays** were popular successes.
- **Important Works:** Kannan pāṭṭu (1917; Songs to Krishna), Panchali sapatham (1912; Panchali’s Vow), Kuyil pāṭṭu (1912; Kuyil’s Song), Pudiya Russia and Gnanaratham (Chariot of Wisdom).

Note:

- Many of his English works were **collected in Agni and Other Poems and Translations and Essays and Other Prose Fragments (1937)**.
- **Death:** 11th September 1921.
- **International Bharati Festival:**
 - The **International Bharati Festival 2020** was organised by the Vanavil Cultural Centre (Tamil Nadu) which marked his **138th birth anniversary**.
 - **Scholar Shri Seeni Viswanathan** received the **Bharathi Award for the year 2020**.

Acharya Vinoba Bhave

Why in News

Recently, the Prime Minister paid rich tributes to **Acharya Vinoba Bhave** on his birth Anniversary.

Key Points

- **Birth:**
 - Vinayak Narahari Bhave, born on 11th September 1895, **Gagode, Bombay Presidency** (now in Maharashtra).
 - **Eldest son** of Narahari Shambhu Rao and Rukmini Devi.
 - His mother had a **major influence on him**. He was inspired by her to read 'The Gita'.
- **Brief Profile:**
 - One of **India's best-known social reformers** and a widely venerated disciple of **Mohandas K. (Mahatma) Gandhi**. Founder of the **Bhoodan Yajna ("Land-Gift Movement")**.
- **Association with Gandhi:**
 - Attracted towards the **principles and ideologies of Mahatma Gandhi** and considered Gandhi his guru, from both a **political and spiritual point of view**.
 - Abandoned his high school studies in 1916 to join **Gandhi's ashram (ascetic community) at Sabarmati**, near Ahmedabad.
 - Gandhi's teachings led **Bhave to a life of austerity** dedicated to improving Indian village life.
- **Role in Freedom Struggle:**
 - Took part in programs of **non-cooperation** and especially the **call for use of Swadeshi goods** instead of foreign imports.

- In 1940, he was chosen as the **first Individual Satyagrahi** (an Individual standing up for Truth instead of a collective action) against British Raj by Gandhi in India.
- Bhave was imprisoned several times during the 1920s and '30s and served a five-year prison sentence in the '40s for leading nonviolent resistance to British rule. He was given the **honorific title acharya ("teacher")**.
- **Role in Social Work:**
 - Worked tirelessly towards **eradicating social evils** like inequality.
 - Influenced by the examples set by Gandhi, he took up the cause of people who were **referred to as Harijans by Gandhi**.
 - He **adopted the term Sarvodaya from Gandhi** which simply means "Progress for All".
 - The Sarvodaya movement under him implemented various programs during the 1950s, the chief among which is the **Bhoodan Movement**.
- **Bhoodan Movement:**
 - In the year 1951, the Harijans of the **Pochampalli village of Telangana** requested him to provide them with **around 80 acres of land to make a living**.
 - Vinoba asked the landlords of the village to come forward and save the Harijans. and a landlord got up and offered the required land. This incident added a **new chapter in the history of sacrifices and non-violence**.
 - It was the beginning of the **Bhoodan (Gift of the Land) movement**.
 - The **movement continued for thirteen years** and Vinoba toured the **length and breadth of the country**, a total distance of 58741 Km.
 - He was successful in collecting around 4.4 million acres of land, of which around 1.3 million was distributed among poor landless farmers.
 - The movement attracted admiration from all over the world and was commended for being the only experiment of his kind to incite voluntary social justice.

Note:



➤ Religious Work:

- In 1923, he brought out 'Maharashtra Dharma', a monthly in Marathi, which had his essays on the Upanishads.
- He set up a number of Ashrams to promote a simple way of life, devoid of luxuries that took away one's focus from the Divine.
- Established the **Brahma Vidya Mandir in 1959**, a small community for women, aiming at self-sufficiency on the lines of Mahatma Gandhi's teachings.
- He took a **strong stand on cow slaughter** and declared to go on fast until it was banned in India.

➤ Literary Work:

- His important books include: Swarajya Sastra, Geeta Pravachane, Teesri Shakti or The Third Power etc.

➤ Death:

- Died in 1982, Wardha, Maharashtra.

➤ Awards:

- Vinoba Bhave was the **first international figure to receive the Ramon Magsaysay Award** in 1958. He was awarded **Bharat Ratna** posthumously in 1983.

Udham Singh

Why in News

Amid criticism of the renovated **Jallianwala Bagh** memorial, some people raise questions over the statue of **Shaheed Udham Singh** installed at the Bagh.

Key Points

➤ About:

- Born in Sunam in Punjab's Sangrur district in 1899, also referred to as **Shaheed-i-Azam Sardar Udham Singh** which means 'Great Martyr'.
- He is regarded as one of the foremost revolutionaries of the **Indian Freedom Struggle**.
- Following the **Jallianwala Massacre** on 13th April 1919, he got profoundly **involved in revolutionary activities** and politics. He was deeply influenced by **Bhagat Singh**.
- He joined the **Ghadar Party** in 1924 to organise overseas Indians with the purpose of overthrowing colonial rule.

- In 1927, while returning to India with associates and weapons to carry out revolutionary activities, he was arrested for illegal possession of firearms and sentenced to five years in prison.

- On **13th March, 1940**, Singh shot **Michael O'Dwyer** instead of **General Dyer** at a meeting of the East India Association and the Royal Central Asian Society at Caxton Hill.

- General Dyer, who ordered open firing on people protesting against the **Rowlatt Act**.

- He was **sentenced to death and was hanged on 31st July, 1940** at Pentonville Prison in London.

➤ Ghadar Party:

- It was an **Indian revolutionary organisation**, with the aim to **liberate India from British rule**.

- 'Ghadar' – also written as 'Ghadr' in English – is an **Urdu word for rebellion**.

- The party was **formed in the United States in 1913, by migrant Indians, mostly Punjabis**. However, the party also included Indians from all parts of India.

- Motive was to wage a **nationwide armed struggle against British colonialism** in India.

- The party was established as the **Hindi Association of Pacific Coast** under the leadership of **Lala Har Dayal** with **Baba Sohan Singh Bhakna** as its president.

- The party is **known for setting the foundation for future Indian revolutionary movements** and served as a stepping stone for independence.

- **Most members** of the Ghadar party came from the **peasantry** who first began **migrating from Punjab to cities in Asia** like Hong Kong, Manila and Singapore at the dawn of the 20th century.

- Later, with the rise in the lumber industry in Canada and the US, many moved to North America, where they thrived – but also became victims of institutionalised racism.

- The Ghadar movement '**inspired to transpose egalitarian values (Egalitarianism) of American culture in the social framework of colonial India**'.

- **Egalitarianism** is a doctrine based on the notion of equality, namely, that all people are equal and deserve equal treatment in all things.

Note:



drishti

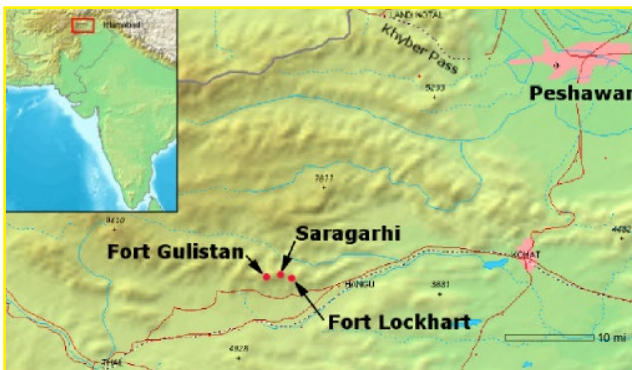
Battle of Saragarhi

Why in News

Recently, **12th September** marked the **124th anniversary of the Battle of Saragarhi**.

Key Points

- The Battle of Saragarhi is considered **one of the finest last stands in the military history of the world**.
- **Saragarhi** was the **communication tower between Fort Lockhart and Fort Gulistan**. The two forts in the rugged **North West Frontier Province (NWFP)**, now in Pakistan, were built by **Maharaja Ranjit Singh** but renamed by the British.
 - Saragarhi helped to link up the two important forts which housed a large number of British troops in the rugged terrain of NWFP.
- **Twenty-one soldiers were pitted against over 8,000 Afridi and Orakzai tribals** but they managed to hold the fort for seven hours.
 - Though Saragarhi was usually manned by a platoon of 40 soldiers, on that fateful day, it was being held by only 21 soldiers from 36th Sikh Regiment (now 4th Sikh in Indian Army) and a **non-combatant called Daad**, a Pashtun who did odd jobs for the troops.
- Though heavily outnumbered, the soldiers of 36th Sikhs, **led by Havildar Ishar Singh**, fought till their last breath, killing 200 tribals and injuring 600.
- In 2017, the Punjab government decided to observe Saragarhi Day on 12th September as a holiday.
- Even today the **Khyber** Scouts regiment of the Pakistani army mounts a guard and salutes the Saragarhi memorial close to Fort Lockhart.



Raja Mahendra Pratap Singh

Why in News

Recently, the Prime Minister laid the foundation stone of **Raja Mahendra Pratap Singh (1886-1979) State University in Aligarh, Uttar Pradesh**.

Key Points

- **Brief Profile: Born in Hathras (UP) in 1886**, he was a **freedom fighter, revolutionary, writer, social reformer, and internationalist**.
 - He was well versed in eight different languages and practised different religions.
- **Promoted Education:** In **1909**, he gave up his own residence in Mathura to be converted into a technical school named **Prem Mahavidyalaya**.
 - It is said to have been the **country's first polytechnic**.
- **Contribution to the Freedom Struggle:**
 - In **1913**, he took part in **Gandhi's campaign in South Africa**.
 - He established a **"Provisional Government of India (Bagh-e-Babur)" in Kabul** in the middle of **World War-I in 1915**.
 - He **declared himself president**, and his fiery fellow revolutionary **Maulana Barkatullah of Bhopal, prime minister**, of the Provisional Government.
 - He is said to have **met Vladimir Lenin in 1919**, two years after the Bolshevik Revolution (in Russia).
 - In **1925**, he **went on a mission to Tibet and met the Dalai Lama**. He was primarily on an unofficial economic mission on behalf of Afghanistan, but he also wanted to expose the British brutalities in India.
 - The Raja **finally returned to India a year before Independence**, and immediately began work with Mahatma Gandhi.
- **Others:**
 - In **1929**, he launched the **World Federation** (which later became the force behind the **United Nations**) in Berlin. He was **nominated for the 1932 Nobel Peace Prize**.
 - In free India, he diligently **pursued his ideal of panchayati raj**.
 - He **entered Lok Sabha** as an Independent candidate from Mathura **in 1957**.



Note:

Geography

Highlights

- Changing Rainfall Pattern in North East India
- Lithium
- Sand and Dust Storms Risk Assessment in Asia and the Pacific
- Footprints of 3 Dinosaur Species: Rajasthan
- Impact of Climate Change on El Nino and La Nina

Changing Rainfall Pattern in North East India

Why in News

Recently, an analysis showed a changing rainfall pattern in North East (NE) India because of **Climate Change**.

- The **National Action Plan on Climate Change (NAPCC)** was launched in 2008 by the Prime Minister's Council on Climate Change. It identifies measures that promote India's development objectives while also yielding co-benefits for addressing climate change effectively.



Key Points

- **About:**
 - NE normally receives **heavy rainfall** during the **Monsoon** months (June-September), but has **changed its course in recent years**.

- The rains come in quick bursts and **Flood** the region, followed by **elongated dry periods** that border on **drought**.

- A research paper published in 2018 found that the **monsoon rainfall in NE decreased by 355 mm between 1979 and 2014**.

- Out of this, 30-50 mm decrease was due to a **reduction in local Moisture levels**.

- Because of its unique topology and steep slopes suddenly giving way to plains, the region is **prone to river course changing**.

- NE is mostly hilly and is an **extension of the Indo-Gangetic Plains**, the region is **highly sensitive to changes in regional and global climate**.

- Pre-monsoon and monsoon are the rainy seasons of northeast India.

- In most of the NE states the rainfall during monsoon has **declined in two decades** below the **Long Period Average (LPA)**.

- The **number of rainy days decreased** in most districts to the north of the **Brahmaputra**.

- This means that increased rainfall now happens over fewer days, increasing chances of river flooding.

➤ Factors Causing Rainfall Patterns Change:

- **Moisture and Drought Together:**

- An aspect of warming that influences rainfall is **drying of the land**, which increases the frequency and intensity of **dry periods and Droughts**.

- Increase in **moisture and the drying up together change the rainfall** patterns in unpredictable ways.

Note:



- **Increased Snowfall in the Eurasian Region:**
 - Increased snowfall in the Eurasian region also impacts monsoon rainfall in NE India as the excessive snowfall in **Eurasia** causes **cooling of the atmosphere of the region**, which triggers events eventually **leading to a weak summer monsoon season there**.
- **Change in Pacific Decadal Oscillation (PDO):**
 - Sea surface temperatures over the subtropical **Pacific Ocean**, which vary in a cycle and each phase of which lasts a decade. The peak comes every 20 years and is known as the **Pacific Decadal Oscillation (PDO)**.
 - It may have an impact on the monsoon rainfall in NE.
 - PDO is also being **influenced by global warming** as it decreases the difference of temperatures among the layers of the ocean.

➤ **Sunspot Epoch:**

- During the monsoon, rainfall patterns in NE differed **significantly from one Sunspot epoch to another**, suggesting differential intensification of the seasonal trough of low pressure over the country.
 - **Sunspot Epochs** are alternating periods of increased and decreased activity on the Sun's surface that influence the climate of Earth.

➤ **Impact:**

- The changing rainfall pattern, especially during the monsoon season, **affects the flow of rivers, extent of snow cover and health of mountain springs**, which in turn have an **impact on livelihoods, especially agriculture and fishing, forest flora growth, animal and bird habitat** (and behaviour) and other ecosystem aspects.
 - There is some evidence of rivers **such as Subansiri, Dibang** (tributaries of Brahmaputra) and **Brahmaputra** changing courses in unexpected ways.
- Extreme rainfall events being caused by global warming trigger **a cascade of events such as accelerated Soil Erosion along the hill slopes devoid of forest cover**. This increases surface run-off of rivers and changes their course.

Lithium

Why in News

Various **provinces of Argentina** are building **mining logistics** nodes and access roads, lowering tax rates and rationalizing rules for the sector **to attract investment in the Lithium metal**.

- Rising global lithium demand and surging prices have drawn increased interest in the so-called '**lithium triangle**' that spans parts of **Argentina, Bolivia and Chile**.
- Lithium has become the new '**white gold**' as the demand for high performing **rechargeable batteries** is rising.



Key Points

- **Properties of Lithium:**
 - It is a chemical element with the symbol **Li**.
 - It is a **soft, silvery-white metal**.
 - Under standard conditions, it is the **lightest metal and the lightest solid element**.
 - It is **highly reactive and flammable**, and must be stored in mineral oil.

Note:



- It is an **alkali metal** and a **rare metal**.
 - The **alkali metals** consist of the chemical elements lithium, sodium, potassium, rubidium, caesium, and francium. Together with hydrogen they constitute group 1, which lies in the s-block of the periodic table.
 - **Rare Metals (RM)** include Niobium (Nb), Tantalum (Ta), Lithium (Li), Beryllium (Be), Cesium (Cs) etc. and Rare Earths (RE) include Lanthanum (La) to Lutetium (Lu) besides Scandium (Sc) and Yttrium (Y).
 - These metals are **strategic in nature with wide application in the nuclear and other high tech industries** such as electronics, telecommunication, information technology, space, defense etc.

➤ **Uses:**

- Lithium metal is used to make **useful alloys**.
 - For example, **with lead to make 'white metal' bearings** for motor engines, **with aluminium to make aircraft parts**, and **with magnesium to make armour plates**.
- In Thermonuclear reactions.
- To make electrochemical cells. Lithium is an important component in **Electric Vehicles**, Laptops etc.

➤ **Countries with Largest Reserves:**

- Chile > Australia > Argentina

➤ **Lithium in India:**

- Researchers at the Atomic Minerals Directorate (under India's Atomic Energy Commission) have estimated lithium reserves of **14,100 tonnes in a small patch of land surveyed in Southern Karnataka's Mandya district** recently.
 - Also to be **India's first ever Lithium deposit site found**.

➤ **Other Potential Sites in India:**

- The major **mica belts** in **Rajasthan, Bihar, and Andhra Pradesh**.
- **Pegmatite** (igneous rocks) **belts** in **Odisha and Chhattisgarh**.
- Brines of **Sambhar and Pachpadra** in Rajasthan, and **Rann of Kachchh** in Gujarat.

➤ **Related Government Initiative:**

- India, through a newly state-owned company **Khanij Bidesh India Ltd**, had signed an agreement with an Argentinian firm to **jointly prospect lithium in Argentina**.
 - Khanij Bidesh India Ltd has a **specific mandate to acquire strategic mineral assets such as lithium and cobalt** abroad.

➤ **Lithium Production in Stars:**

- Scientists from the Indian Institute of Astrophysics (IIA) have provided evidence for the first time that **Lithium (Li) production** is common among low mass Sun-like stars during their Helium (He) core burning phase.

Sand and Dust Storms Risk Assessment in Asia and the Pacific

Why in News

According to a new **United Nations (UN)** report, more than **500 million people in India** and **more than 80% of the entire populations** of Turkmenistan, Pakistan, Uzbekistan, Tajikistan and the Islamic Republic of Iran are **exposed to medium and high levels of poor air quality due to sand and dust storms**.

- The **risk of impacts from sand and dust storms is projected to increase in the 2030s** due to more extreme drought conditions in parts of Western Australia, south-eastern Turkey, Iran and Afghanistan.

Key Points

➤ **Sand and Dust Storms:**

- **About:**
 - Sand and dust storms are **common meteorological hazards** in arid and semi-arid regions.
 - They are usually caused by **thunderstorms** –

Note:

or strong pressure gradients associated with **cyclones** – which increase wind speed over a wide area.

- Some **40% of aerosols in the troposphere (the lowest layer of Earth's atmosphere)** are dust particles from wind erosion.

○ **Main Sources:**

- The main sources of these mineral dusts are the **arid regions of Northern Africa, the Arabian Peninsula, Central Asia and China.**
- Comparatively, **Australia, America and South Africa make minor**, but still important, contributions.

➤ **Impacts:**

○ **Negative:**

- Impact on Power Plants:
 - They can interfere with energy infrastructure, adversely affecting electricity transmission lines and causing power outages.
 - India, China and Pakistan witnessed **1,584 gigawatt-hours (gWh), 679 gWh and 555 gWh of energy loss**, respectively.
 - These losses amounted to over **Rs. 782 crore for India per year.**

○ **Affect Source of Freshwater:**

- Very high dust deposition also occurs in the **Himalaya-Hindu Kush mountain range** and the **Tibetan Plateau**, the so-called '**third pole**' that are the sources for fresh water for more than 1.3 billion people in Asia.

○ **Increases Melting of Ice:**

- The deposition of dust on glaciers induces a **warming effect**, increasing the melting of ice, with direct and indirect impacts on society through numerous issues, including food security, energy production, agriculture, water stress and flood regimes.

○ **On Farmland:**

- Dust deposition **impacted large portions of farmland** in Turkmenistan, Pakistan and Uzbekistan.
 - Much of this dust is characterised by **high salt content, making it toxic for plants.**
- It **reduces yield**, posing a significant threat to the production of irrigated cotton and other crops.
- **On Sustainable Development Goals (SDG):**

- They directly affect **11 of the 17 United Nations-mandated Sustainable Development Goals (SDG):**

- Ending poverty in all forms, Ending hunger, Good health and well-being, Affordable and clean energy, Decent work and economic growth, Climate action, etc.

○ **Positive:**

- They can **increase the nutrient content in the areas of deposition** and benefit vegetation.
- Dust **deposited on water bodies can alter their chemical characteristics**, triggering both positive as well as adverse outcomes.
- Dust particles that carry iron can enrich parts of oceans, **improving the phytoplankton balance and impacting marine food webs.**

➤ **Suggestions:**

- Their impacts are complex, and thus, they represent **an important emerging issue for policy-makers in the Asia-Pacific region.**
- Member States **need to strategize their joint actions**, considering gaining a deeper understanding of the socio-economic impact of sand and dust storms, establishing a coordinated monitoring and early warning system with an impact-based focus, and coordinating actions in most at-risk and exposed geographical areas to mitigate the risks.

Footprints of 3 Dinosaur Species: Rajasthan

Why in News

Recently, in a major discovery, **footprints of three species of dinosaurs have been found in the Thar desert** in Rajasthan's Jaisalmer district.

- It proves the **presence of the giant reptiles in the western part of the State.**



Note:

Key Points

➤ About the Discovery:

- The footprints belong to **three species** of dinosaurs - *Eubrontes cf. giganteus*, *Eubrontes glenrosensis* and *Grallator tenuis*.
- The footprints were **200 million years old**.
- The **dinosaur species are considered to be of the theropod type**, with the distinguishing features of hollow bones and feet with three digits (like fingers).
 - Theropod is any member of the **dinosaur subgroup Theropoda**, which includes all the **flesh-eating dinosaurs**.
- All the three species, belonging to the **early Jurassic period, were carnivorous**.
- The **'Age of Dinosaurs' (the Mesozoic Era - 252-66 Million Years Ago - MYA)** included three consecutive geologic time periods (the Triassic, Jurassic, and Cretaceous Periods). Different dinosaur species lived during each of these three periods.

➤ Thar Desert:

- **Naming:** The name 'Thar' is **derived from thul**, the general term for the region's sand ridges. It is also called the **'Great Indian Desert'**.
- **Location:** Partly in Rajasthan state, **northwestern India**, and partly in Punjab and Sindh provinces, **eastern Pakistan**.
 - It is **bordered by** the irrigated Indus River plain to the west, the Punjab Plain to the north and northeast, the Aravalli Range to the southeast, and the Rann of Kachchh to the south.
- **Features:**
 - An **arid region** that covers over 2,00,000 sq km.
 - The surface **consists of aeolian (wind-deposited) sand** that has accumulated over the past 1.8 million years.
 - Presents an **undulating surface**, with high and low sand dunes separated by sandy plains and low barren hills, or **bhakars**, which rise abruptly from the surrounding plains.
 - **Barchan**, also spelled **Barkhan**, **crescent-shaped sand dune** produced by the action of wind predominately from one direction.
- Several **playas (saline lake beds)**, locally known as **dhands**, are scattered throughout the region.

- The desert supports a relatively **rich biodiversity** with several large mammals, notably the blue bull, blackbuck, and Indian gazelle or chinkara.

Geologic Time Scale

Eon	Era	Period	Epoch	MYA	Life Forms	
Phanerozoic	Cenozoic (CZ)	Quaternary (Q)	Holocene (H)	0.01	Extinction of large mammals and birds Modern humans	
			Pleistocene (PE)	2.6		
		Tertiary (T)	Neogene (N)	Pliocene (PL)	5.3	Spread of grassy ecosystems
				Miocene (MI)	23.0	
			Paleogene (PG)	Oligocene (OL)	33.9	
				Eocene (E)	56.0	
	Mesozoic (MZ)	Cretaceous (K)			Placental mammals Early flowering plants Dinosaurs diverse and abundant	
			Jurassic (J)	201.3		
			Triassic (TR)	251.9		
		Paleozoic (PZ)	Permian (P)			Mass extinction First dinosaurs; first mammals Flying reptiles
				Pennsylvanian (PN)	298.9	
				Mississippian (M)	323.2	
	Devonian (D)				Mass extinction First amphibians First reptiles	
			Silurian (S)	419.2		
			Ordovician (O)	443.8		
	Cambrian (C)			First land plants Mass extinction Primitive fish Trilobite maximum Rise of corals		
			485.4			
			541.0			
	Proterozoic	Archean	Precambrian (PC, W, X, Y, Z)			Complex multicelled organisms
				2500	Simple multicelled organisms	
Hadean					Early bacteria and algae (stromatolites)	
				4000	Origin of life	
				4600	Formation of the Earth	

Impact of Climate Change on El Nino and La Nina

Why in News

According to recent research, **climate change** can cause extreme and more frequent **El Niño** and **La Niña** events.

- The findings have been obtained using one of South Korea's fastest supercomputers, **Aleph**.

Note:

Key Points

➤ About the Recent Findings:

- **Increasing atmospheric carbon dioxide** can cause a weakening of future simulated El Niño-Southern Oscillation (ENSO) sea surface temperature variability.
- Future **El Niño events will lose heat to the atmosphere more quickly** due to the evaporation of water vapour. Also, in the future there will be a **reduced temperature difference between the eastern and western tropical Pacific**, inhibiting the development of temperature extremes during the ENSO cycle.
- There can be a **weakening of Tropical Instability Waves (TIWs)** in the projected future which can cause a disruption of the La Niña event.
 - **TIWs** are a dominant feature of monthly variability in the equatorial Pacific and Atlantic Ocean.

➤ ENSO:

- **El Niño and the Southern Oscillation**, also known as ENSO is a **periodic fluctuation in sea surface temperature (El Niño) and the air pressure of the overlying atmosphere (Southern Oscillation)** across the **equatorial Pacific Ocean**.
- **El Niño and La Niña** are complex weather patterns resulting from variations in ocean temperatures in the Equatorial Pacific Region. They are **opposite phases of what is known as the ENSO cycle**.
- El Niño and La Niña episodes **typically last nine to 12 months**, but some prolonged events may last for years.

➤ El Niño:

- **About:**
 - El Niño is a **climate pattern that describes the unusual warming of surface waters in the eastern tropical Pacific Ocean**.
 - It is the **“warm phase” of ENSO**.
 - It occurs **more frequently than La Niña**.
- **Impact:**
 - The warmer waters **cause the Pacific jet stream to move south of its neutral position**. With this shift, **areas in the northern US and Canada are**

dryer and warmer than usual. But in the US Gulf Coast and Southeast, **these periods are wetter** than usual and have increased flooding.

- As El Niño brings rain to South America, it **brings droughts to Indonesia and Australia**.
- El Niño also has a **strong effect on marine life off the Pacific coast**.
 - During normal conditions, **upwelling** brings water from the depths to the surface; this water is cold and nutrient rich.
 - During El Niño, **upwelling weakens or stops altogether**. Without the nutrients from the deep, there are fewer phytoplankton off the coast. This affects fish that eat phytoplankton and, in turn, affects everything that eats fish.
 - The warmer waters **can also bring tropical species, like yellowtail and albacore tuna**, into areas that are normally too cold.

➤ La Niña:

○ About:

- La Niña, the **“cool phase” of ENSO**, is a pattern that describes the unusual cooling of the tropical eastern Pacific.
 - La Niña events **may last between one and three years**, unlike El Niño, which usually lasts no more than a year.
 - Both phenomena tend to peak during the **Northern Hemisphere winter**.

○ Impact:

- Off the west coast of the Americas, **upwelling increases**, bringing cold, nutrient-rich water to the surface.
- It usually has a **positive impact on the fishing industry of western South America**.
- It can also lead to a **more severe hurricane season**.
- Causes the **jet stream** to move northward and to weaken over the eastern Pacific.
- **Causes drought in the South American countries of Peru and Ecuador**.
 - There are **increased temperatures in Western Pacific, Indian Ocean and off the Somalian coast**. It also leads to **heavy floods in Australia**.



Note:

Art and Culture

Highlights

- Hindi Diwas
- Panj Piare
- World Heritage Institute of Training and Research – Asia Pacific

Hindi Diwas

Why in News

Every year, **14th September** is celebrated as **Hindi Diwas in India**.

- One of the reasons behind celebrating this day is to **prevent the increasing trend of the English language** in the nation and the neglect of Hindi.

Key Points

- **History of the Hindi Diwas:**
 - Hindi, written in the **Devanagari script**, was adopted as the **official language** of the Republic of India on **14th September, 1949**.
 - Kaka Kalelkar, Maithili Sharan Gupta, Hazari Prasad Dwivedi, Seth Govindadas made **important contributions** to make Hindi the official language.
 - The **first Hindi Day** was celebrated in **1953**.
 - Besides Hindi, English is the other **official language (Article 343)** of the Constitution).
 - Hindi is also an **eighth schedule language**.
 - **Article 351** pertains to '**Directive for development of the Hindi language**'.
 - Hindi is **not a classical language**.
- **World Hindi Day:**
 - It is observed on **10th January**.
 - Commemorates the anniversary of the **first World Hindi Conference held in Nagpur** on 10th January, 1975, which saw 122 delegates from 30 countries participating in it.
 - **First celebrated in 2006** by former Indian Prime Minister Dr. Manmohan Singh with an aim to promote Hindi language across the world.

- The **World Hindi Secretariat building** was inaugurated in **Mauritius** in 2018.
- **About the Hindi Language:**
 - **Origin:**
 - Hindi got its name from the **Persian word Hind**, meaning '**land of the Indus River**'. Turkish invaders in the **early 11th century** named the language of the region Hindi, 'language of the land of the Indus River'.
 - The **modern Devanagari script** came into existence in the **11th century**.
 - Spoken in Countries outside India:
 - Hindi is the **fifth most spoken language** among the total languages spoken in the world.
 - It is spoken in Pakistan, Nepal, Bangladesh, USA, UK, Germany, New Zealand, United Arab Emirates, Uganda, Guyana, Suriname, Trinidad, Mauritius, and South Africa.
 - **Related Government Initiatives:**
 - The **Central Hindi Directorate** was established in 1960 under the **Ministry of Education** with an **aim to impart knowledge of Hindi** through correspondence to the people of non-Hindi speaking Indian states, Indians settled abroad and foreign nationals desirous of learning Hindi.
 - **Indian Council for Cultural Relations (ICCR)** has established '**Hindi Chairs**' in various foreign universities/institutions abroad.
 - **LILA-Rajbhasha (Learn Indian Languages through Artificial Intelligence)** is a multimedia based intelligent self-tutoring application for learning Hindi.
 - **E-Saral Hindi Vakya Kosh** and **E-MahashabdKosh Mobile App**, both initiatives of the **Department of Official Language**, aim to harness information technology for the growth of Hindi.
 - **Rajbhasha Gaurav Puraskar** and **Rajbhasha Kirti Puraskar** recognise contributions to Hindi.

Note:

Panj Piare

Why in News

Recently, a controversy erupted in Punjab over the use of the term “**Panj Piare**” for political leaders.

Key Points

- **Part of Sikh Tradition:** The Panj Piare is the term used for the **Five Beloved:** the men **who were initiated into the khalsa** (the special group of **Sikh** warriors) under the leadership of the last of the ten Gurus, **Gobind Singh**.
 - They are deeply **revered by Sikhs** as symbols of steadfastness and devotion.
- **Origin:** Guru Gobind Singh established the institution of Panj Piare while founding the Khalsa **on the day of Baisakhi in 1699**.
 - To preserve the culture, Guru Gobind Singh asked for five men willing to surrender their lives for him and the cause. With great reluctance by nearly everyone, eventually, five volunteers stepped forward.
 - Guru Gobind Singh himself got baptised from them at the same stage to tell the Sikhs that Panj Piaras have **higher authority and decision making power** than anyone in the community.
 - The **original five beloved Panj Piare** who played a vital role in shaping Sikh history and defining Sikhism are:
 - **Bhai Daya Singh** (1661 - 1708 CE) from Lahore
 - **Bhai Dharam Singh** (1699 - 1708 CE) from Hastinapur
 - **Bhai Himmat Singh** (1661 - 1705 CE) from Jagannath Puri
 - **Bhai Muhkam Singh** (1663 - 1705 CE) from Dwarka
 - **Bhai Sahib Singh** (1662 - 1705 CE) from Bidar
 - Since then, every group of five baptised Sikhs is called Panj Piare and accorded the respect enjoyed by the first five Sikhs.
- **Contributions:**
 - These spiritual warriors vowed **not only to fight adversaries** on the battlefield but to **combat the inner enemy, egoism**, with humility through **service to humanity** and **efforts to abolish caste**.

- They performed the original **Amrit Sanchar (Sikh initiation ceremony)**, baptizing **Guru Gobind Singh** and about 80,000 others on the festival of Baisakhi in 1699.
- All five Panj Piare fought beside Guru Gobind Singh and the Khalsa in the **siege of Anand Purin** and helped the guru to escape from the **battle of Chamkaur** in December 1704.
- The unanimous decision taken by Panj Piare has to be followed by everyone in the community.
 - **Akal Takht Jathedar** also can't take any decision unilaterally and every diktat from the Akal Takht has to be **signed by all the five Jathedars of the five Takhts** (Temporal seats) or their representatives.

Khalsa Order

- **Guru Gobind Singh established the Khalsa order** (meaning 'The Pure'), soldier-saints.
- The Khalsa **upholds the highest Sikh virtues** of commitment, dedication and a social conscious.
- The Khalsa are men and women who have undergone the Sikh baptism ceremony and who strictly follow the Sikh Code of Conduct and Conventions and wear the prescribed physical articles of the faith (**5K's: Kesh (uncut hair), Kangha (a wooden comb), Kara (a iron bracelet), Kachera (cotton underpants) and Kirpan (an iron dagger)**).

Battle of Chamkaur

- The battle was fought over three days from 21st - 23rd December, 1704 between the **Khalsa of Guru Gobind Singh** and the **coalition forces of the Mughals and Rajput hill chieftains**.
- Guru Gobind Singh makes a reference to this battle in his **victory letter Zafarnama**.

Akal Takhat Jathedar

- Akal Takhat Sahib means **Eternal Throne**. It is also part of the Golden Temple complex in Amritsar. Its foundation was laid by **Guru Hargobind Ji**, the sixth Sikh Guru.
- A Jathedar is a **leader of a Jatha (a group, a community or a nation)**.
- Among the Sikhs, a Jathedar is an ordained leader of the clergy and leads a Takht, a sacred and authoritative seat. Sikh clergy consists of five Jathedars, one each from five takhts or sacred seats.

Note:

World Heritage Institute of Training and Research – Asia Pacific

Why in News

Recently, the **World Heritage Institute of Training and Research – Asia Pacific (WHITR-AP)** has recognised **CEPT (Centre for Environmental Planning and Technology, Gujarat)** University's programme in conservation and regeneration as a **commended case of Global Innovation on World Heritage Education**.

- The World Heritage Education Programme was initiated as a **United Nations Educational, Scientific and Cultural Organization (UNESCO)** special project in 1994. It gives young people a chance to voice their concerns and to become involved in the protection of common cultural and natural heritage.

Key Points

- **About:**
 - The WHITR-AP is a **non-profit organization** specialized in the area of **heritage conservation**.
 - It is an **institute under the auspices of UNESCO**, it is the **first one established in the developing countries**.
 - It is an **autonomous institution** at the service of member states and associate members of UNESCO.
- **Mission:**
 - To strengthen implementation of the **World Heritage Convention 1972** in the Asia and the Pacific region.
- **World Heritage Convention:**
 - It is one of the most important **global conservation instruments which was created in 1972**.
 - Its mission is to **identify and protect the world's natural and cultural heritage** considered to be of Outstanding Universal Value.

- It sets out the duties of States Parties in identifying potential sites and their role in protecting and preserving them.
 - By signing the Convention, each country pledges to conserve not only the World Heritage sites situated on its territory, but also to protect its national heritage.
- The Convention is **governed by the World Heritage Committee supported by the UNESCO World Heritage Centre**, the secretariat for the Convention, and **three technical advisory bodies** to the Committee:
 - **International Union for Conservation of Nature (IUCN)**
 - **International Council on Monuments and Sites (ICOMOS)**
 - **International Centre for the Study of the Preservation and Restoration Cultural Property (ICCROM)**
- India is a signatory to the convention and has **40 world heritage sites**, which includes 32 cultural, 7 natural and one mixed property.
 - **Ramappa Temple** in Telangana was the 39th and **Dholavira** in Gujarat was India's 40th world heritage site.

UNESCO

- **About:**
 - It seeks to **build peace through international cooperation** in Education, the Sciences and Culture. It was founded in 1945 and is **located in Paris, France**.
- **Major Initiatives:**
 - **Man and Biosphere Programme**
 - **World Heritage Programme**
 - **Global Geopark Network**
 - **Network of Creative Cities**
 - **Atlas of World Languages in Danger**



Note:

Security

Highlights

- C-295 Aircraft Deal
- LCA-Mk2 and AMCA
- Ceasefire With NSCN(K) Niki Group
- SIMBEX 2021
- DefExpo-2022

C-295 Aircraft Deal

Why in News

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

- The C-295MW aircraft **will be purchased from Airbus Defence and Space S.A., Spain.**



Key Points

- **About:**
 - **Capacity:**
 - The C-295 MW is a transport aircraft of **5-10 tonne capacity** with contemporary technology.
 - **Features:**
 - It has a **rear ramp door** for **quick reaction** and **para-dropping** of troops and cargo.
 - It will be installed with the **indigenous Electronic Warfare Suite**.
 - **Replacement:**
 - It will replace the Indian Air Force's ageing fleet of **Avro-748 planes**.

- The Avro-748 planes are a **British-origin twin-engine turboprop**, military transport and freighter with a **6-tonne freight capacity**.
- **Project Execution:**
 - **Airbus Defence and Space and Tata Advanced Systems Limited (TASL)** will jointly execute the project to equip the air force with the new transport aircraft under the Make-in-India initiative in the aerospace sector.
 - Airbus will supply the **first 16 aircraft in fly away condition** while the **remaining 40 will be assembled in India** by TASL.

➤ Significance of the Deal:

- **Private Sector Participation:** This is the first project of its kind in which a military aircraft will be manufactured in India by a private company.
 - During the process of manufacturing in India, it is expected that all the suppliers of TATA Consortium who will be involved in special processes will gain and maintain globally recognized **National Aerospace and Defence Contractors Accreditation Program (NADCAP)** accreditation.
- **Boosts Atmanirbhar Bharat Abhiyan:** It offers a unique opportunity for the Indian Private Sector to enter into technology intensive and highly competitive aviation Industry.
 - This programme is a unique initiative to strengthen **indigenous capabilities** and boost **'Make in India'**.
- **Boost MSMEs:** The project will give a boost to the aerospace ecosystem in India wherein several **Micro, Small and Medium Enterprises (MSMEs)** spread over the country will be involved in manufacturing of parts of the aircraft.

Note:



- **Reduce Import Dependence:** The project will **augment domestic aviation manufacturing** resulting in **reduced import dependence** and **expected increase in exports**.
 - A large number of detail parts, sub-assemblies and major component assemblies of aero structure are scheduled to be manufactured in India.
- **Employment Generation:** The programme will act as a catalyst in employment generation in the aerospace ecosystem of the country.
 - It is expected to generate 600 highly skilled jobs directly, over 3000 indirect jobs and an additional 3000 medium skill employment opportunities with more than **42.5 lakh man hours of work** within the aerospace and defence sector of India.
- **Infra Development:** It will involve development of specialized infrastructure in the form of hangars, buildings, aprons and taxiways.
 - Before completion of deliveries, **‘D’ Level servicing facility (MRO)** for C-295MW aircraft are scheduled to be set up in India.
 - It is expected that this facility will act as a regional **MRO (Maintenance, Repair and Overhaul)** hub for various variants of C-295 aircraft.
- **Offset Obligations:** Airbus will discharge its **offset obligations** through direct purchase of eligible products and services from Indian offset partners giving further boost to the economy.
 - In simplest terms, the offset is **an obligation by an international player to boost India’s domestic defence industry** if India is buying defence equipment from it.

Note

- **National Aerospace and Defense Contractors Accreditation Program (NADCAP)** is a worldwide cooperative program of major companies designed to manage a cost-effective consensus approach to special processes and products and provide continual improvement within the aerospace and defense industries.

LCA-Mk2 and AMCA

Why in News

According to the **Aeronautical Development Agency (ADA)**, **LCA Tejas-Mk2 will be rolled out in 2022** and the first flight in early 2023. **Advanced Medium Combat Aircraft (AMCA)** will be rolled out in 2024 and first flight in 2025.

- Simultaneously, the project for development of a **twi-engine deck-based fighter jet** meant to fly from the Navy’s aircraft carriers is also making progress.
- ADA is an **autonomous body** of the **Ministry of Defence**.

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 Grippen

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)

WHEN: Set to go into production after the Tejas LCA order of 123 aircraft to replace the IAF’s ageing MiG-21s is completed



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

Key Points

- **LCA-Mk2:**
 - It is a **4.5 generation aircraft** which will be used by the Indian Air Force.
 - It is a **replacement for the Mirage 2000 class of aircraft**.
 - It has got a bigger engine and can carry **6.5 tonnes of payload**.
 - The technology is already developed in **Light Combat Aircraft (LCA)**.
 - The LCA programme began in the 1980s to replace India’s ageing MiG-21 fighters.
 - The LCA is being designed and developed with **ADA as the nodal agency** and **State-owned Hindustan Aeronautics Limited (HAL)** being the principal partner.
 - Its production is likely to start somewhere around 2025.

Note:

Variants of Tejas

- **Tejas Trainer:** 2-seater operational conversion trainer for training air force pilots.
- **LCA Navy:** Twin- and single-seat carrier-capable for the Indian Navy.
- **LCA Tejas Navy MK2:** This is phase 2 of the LCA Navy variant.
- **LCA Tejas Mk-1A:** This is an improvement over the LCA Tejas Mk1 with a higher thrust engine (**Air Force**).
- **LCA Tejas Mk-2:** Following the Mk-1A is the Mk-2 which will provide a high degree of manoeuvrability
- **Advanced Medium Combat Aircraft (AMCA):**
 - **About:**
 - It is a **fifth generation aircraft**. And will be used **by the Indian Air Force**.
 - It is a stealth aircraft, i.e. **designed for stealth** and unlike the LCA, which is designed for maneuverability.
 - It has a unique shape to achieve low radar cross-section and has an internal carriage of weapons.
 - When the external weapons are removed, this aircraft has enough fuel and weapons inside to do a very capable operational role in stealth mode.
 - **Range:**
 - **Over 1,000 km up to 3,000 km** in different modes.
 - **Variants and Engine:**
 - It has two variants **Mk-1 and Mk-2**, While AMCA Mk-1 will have an imported engine, same as LCA Mk-2, the AMCA Mk-2 will have an indigenous engine.
 - **Manufacturing:**
 - The manufacturing and production of the aircraft will be through a **Special Purpose Vehicle (SPV)**, which will also have participation of private industry.

Ceasefire With NSCN(K) Niki Group

Why in News

Recently, the Union Government has entered into a Ceasefire Agreement with the **National Socialist Council of Nagaland (K) Niki Group** for a period of one year.

- This initiative is a significant boost to the **Naga peace process** and in line with **Prime Minister of India's vision of 'insurgency free, prosperous North East'**.

Key Points

- **Naga Peace Process:**
 - After India became independent in 1947, the **Naga territory initially remained a part of Assam**.
 - In **1957**, after an agreement was reached between Naga leaders and the Indian government, the Naga Hills region of Assam and the Tuensang frontier division to the northeast were brought together under a single unit **directly administered by the Indian government**.
 - Nagaland **achieved statehood in 1963**, however, rebel activity continued.

THE NAGA STRUGGLE

1918: Naga Club formed. Seeds of Naga nationalism sown	Agreement interpreted as offer for sovereignty by NNC
1946: Naga National Council (NNC) born under the leadership of A.Z. Phizo	1955: NNC begins armed insurgency. Delhi imposes Assam Disturbed Areas' Act
August 14, 1947: NNC declares independence	1958: AFSPA comes into force
June 1947: Haidari	1963: Nagaland born
1964: Nagaland Peace Mission created, ceasefire signed	
1975: Shillong Accord signed, calls for unconditional ceasefire, termed a 'complete sellout'	
1980: National Socialist Council of Nagalim (NSCN) formed	
1988: NSCN splits into NSCN (K) and NSCN (I-M)	
1997: NSCN (I-M) signs ceasefire	
2001: NSCN (K) signs ceasefire	
March 2015: NSCN (K) breaks ceasefire	
August 2015: Naga peace accord signed	



A.Z. Phizo

- Vision of Insurgency Free, Prosperous North East:
 - Recognises that the North East is very important for the country from the aspects of security.

Note:

- Thus, the aim is to **end all disputes in the Northeast by 2022** and usher in a **new era of peace and development in the Northeast in 2023**.
- Under this, the Government is enriching the dignity, culture, language, literature and music of the Northeast.
- Over the years, the government has also signed several peace agreements with military outfits in northeast India. For example,
 - **Karbi Anglong Agreement, 2021:** It involved a tripartite agreement signed among five insurgent groups of Assam, the Centre and the state government of Assam.
 - **Bru Accord, 2020:** Under the Bru accord, the permanent settlement of 6959 Bru families in Tripura with a financial package has been agreed between the Government of India, Tripura and Mizoram with representatives of Bru migrants.
 - **Bodo Peace Accord, 2020:** In 2020, the Government of India, Government of Assam and representatives of Bodo groups signed an agreement, wherein more autonomy is provided to Bodoland Territorial Region (BTR), in Assam.
 - Peace agreement with various military outfits which are involved in Naga Insurgency like **NSCN(NK), NSCN(R), and NSCN(K)-Khango, NSCN(IM)**.

Conflicts in Northeast India



➤ Typology of Conflicts:

- **National Conflicts:** Involving the concept of a distinct 'homeland' as a separate nation.
 - **Nagaland:** Naga insurgency originated from the demand of independence.

- Although the demand for independence has majorly subsided, the lingering issue of a final political settlement including the demand for '**greater Nagaland**' or '**Nagalim**' remains.
- **Ethnic Conflicts:** Involving assertion of numerically smaller and less dominant tribal groups against the political and cultural hold of the dominant tribal group.
 - **Tripura:** The State's demographic profile has been altered since 1947 when mass migrations from the newly emerged East Pakistan converted it from a largely tribal area to one with a majority of Bengali speaking people.
 - Tribals were deprived of their agricultural lands at throw-away prices and driven to the forests.
 - The resultant tensions caused major violence and widespread terror.
 - **Sub-regional Conflicts:** Involving movements which ask for recognition of sub-regional aspirations and often come in direct conflict with the State Governments or even the autonomous Councils.
 - **Mizoram:** The State with its history of violent insurgency and its subsequent return to peace is an example to all other violence affected States.
 - Following an 'Mizo Peace accord' between the Union Government and the Mizo National Front in 1986 and conferment of statehood the next year, complete peace and harmony prevails in Mizoram.
 - Further, the **boundary issue between Assam and Mizoram** has existed since the formation of Mizoram.
 - **Other Reasons:** Sponsored terrorism, conflicts generated as a result of continuous inflow of migrants from across the borders, criminal enterprise aimed at expanding and consolidating control over critical economic resources, have also result into clashes.
 - **Assam:** The major ethnic conflict in the State is the grievance against the perceived influx of 'foreigners' i.e. people with a language and culture substantially different from the Assamese from across the border (i.e. Bangladesh).
 - The recent tension in Assam emanates from the **Citizenship (Amendment) Act, 2019** and **National Register of Citizens** debate.

Note:

➤ Modes of Conflict Resolution:

- Strengthening security forces/ 'police action'.
- More local autonomy through mechanisms such as conferment of Statehood, the **Sixth Schedule**, Special Provisions under **PART XXI of the Constitution**.
- Negotiations with insurgent outfits.
- Development activities including special economic packages.

SIMBEX 2021

Why in News

Recently, India and Singapore have carried out 28th edition of the **Singapore-India Maritime Bilateral Exercise (SIMBEX)**.

Key Points

- **About:**
 - **Initiated in 1994**, SIMBEX is the **Indian Navy's longest uninterrupted bilateral maritime exercise** with any foreign navy.
 - **28th edition** of SIMBEX was a mega naval wargame in the southern fringes of the **South China Sea**, in reflection of their growing congruence of interests in the strategically key region.
- **Other Defence Cooperation:**
 - Both navies have a representation in each other's **Maritime Information Fusion Centres** and have also recently signed an agreement on **mutual submarine rescue support and coordination**.
 - Singapore participates in **Indian Ocean Naval Symposium (IONS)** and multilateral exercise **MILAN** hosted by the Indian Navy.
 - Singapore's membership of **Indian Ocean Rim Association (IORA)** and India's membership of **ADDM+ (ASEAN Defence Ministers' Meeting - Plus)** provides a platform for both countries to coordinate positions on regional issues of mutual concern.
- **Other Exercises:**
 - **Bold Kurukshetra** (Army)
 - Joint Military Training (Air Force)
 - **Trilateral Maritime Exercise SIMTEX** (with Thailand).

Note

- Singapore has been **Ranked 2nd** in the most powerful passport report '**Henley Passport Index 2021**'.
- The **first UN treaty to be named after Singapore**, the United Nations Convention on International Settlement Agreements Resulting from Mediation (or, Singapore Convention on Mediation) recently came into force.
- Recently, the **Hawker Culture in Singapore** was inscribed on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity.

DefExpo-2022

Why in News

The **12th edition of DefExpo** will be held in **Gandhinagar, Gujarat in March 2022**.

Key Points

- **About:**
 - DefExpo is a **flagship biennial event of the Ministry of Defence**, showcasing the land, naval, air as well as homeland security systems.
 - The aim of the DefExpo 2022 is to build upon the vision to achieve **Atmanirbharta' in defence** and **reach the \$5bn defence exports target by 2024**.
 - The **11th edition of DefExpo** was held at **Lucknow (Uttar Pradesh) in 2020**.
- **Defence Sector Reforms Under Atmanirbhar Bharat Abhiyan:**
 - **Revision of FDI Limit:** The FDI limit in defence manufacturing under automatic route is raised from 49% to 74%.
 - **Project Management Unit (PMU):** The government is expected to begin time-bound defence procurement and faster decision making by setting up a Project Management Unit (for contract management purposes).
 - **Reduction in Defence Import Bill:** The government will notify a list of weapons/platforms banned for imports and thus such items can only be purchased from the domestic market.
 - Separate budget provision for domestic capital procurement.
 - **Corporatisation of the Ordnance Factory Board:** It will include a **public listing of some units**, ensuring a more efficient interface of the manufacturer with the designer and end-user.



Note:



drishti

Miscellaneous

Highlights

- Index of Industrial Production
- Mobile X-Ray Container Scanning System: Paradip Port
- ATL Space Challenge 2021
- World's Northernmost Island
- Hare Krishna Movement: ISKCON
- River Bhogdoi
- Manda Buffalo: Odisha
- International Fund for Agricultural Development
- Maiden Navy Exercise: India-Algeria
- Covid-19 Endemicity
- AUSINDEX 2021
- Right to Sit
- Pashmina Shawls: Kashmir
- River Umngot: Meghalaya
- PISA (Program for International Student Assessment): OECD
- Fukutoku-Okanoba Volcano: Japan
- ZAPAD 2021: Russia
- 63rd Ramon Magsaysay Award
- World University Rankings 2022: Times Higher Education
- NIRF Rankings 2021
- Pilibhit Tiger Reserve: Uttar Pradesh

Index of Industrial Production

Why in News

India's industrial output grew by 11.5% in July compared to a 10.5% contraction a year ago, as per quick estimates from the [National Statistical Office \(NSO\)](#).

Key Points

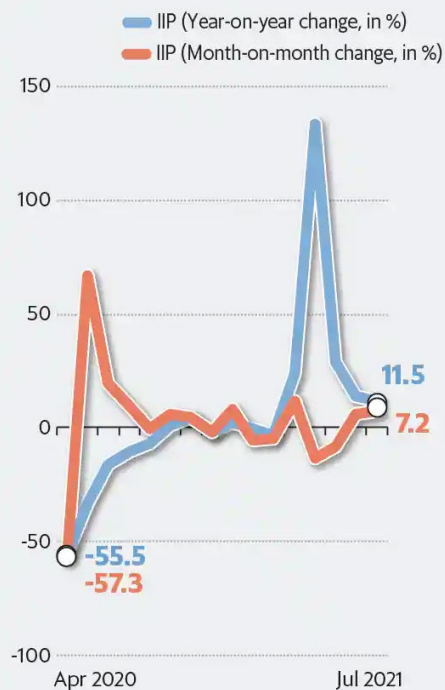
➤ About:

- Mining, manufacturing and electricity recorded growth of 19.5%, 10.5% and 11.1%, respectively, albeit driven by favourable base effect.
- The country's output of the **eight core sectors** - also known as the infrastructural output, **grew 9.4%** in July 2021.
- The index substantially bridged the gap with the pre-pandemic level and remained only marginally lower than the July 2019 mark, suggesting a graded pick-up in industrial activities with the easing of curbs in key states as the **Second Covid Wave** waned.
- This recovery is owing to the result of the **Base Effect** due to the **Covid-19** lockdown that affected economic activity in 2020.
 - The base effect refers to the effect that the choice of a basis of comparison or reference can

have on the result of the comparison between data points.

Recovery path

Factory output grew 7.2% in July over the preceding month, while the fading of the low base meant y-o-y growth eased to 11.5%.



Note:

➤ Index of Industrial Production:

- IIP is an indicator that measures the changes in the volume of production of industrial products during a given period.
- It is compiled and published monthly by the **National Statistical Office (NSO)**, Ministry of Statistics and Programme Implementation.
- It is a composite indicator that measures the growth rate of industry groups classified under:
 - **Broad sectors**, namely, Mining, Manufacturing, and Electricity.
 - **Use-based sectors**, namely Basic Goods, Capital Goods, and Intermediate Goods.
- Base Year for IIP is **2011-2012**.
- **Significance of IIP:**
 - It is used by government agencies including the Ministry of Finance, the Reserve Bank of India, etc, for policy-making purposes.
 - IIP remains extremely relevant for the calculation of the quarterly and advance **GDP (Gross Domestic Product)** estimates.

➤ About Eight Core Sectors:

- These **comprise 40.27% of the weight of items** included in the Index of Industrial Production (IIP).
- The eight core sector industries in decreasing order of their weightage: **Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers.**

Mobile X-Ray Container Scanning System: Paradip Port

Why in News

Recently, a **Mobile X-Ray Container Scanning System (MXCS)** has been installed by **Paradip Port** near the PICT(Paradeep International Cargo Terminal) Terminal.

Key Points

➤ About:

- It has been installed under the **Ease of Doing Business (EoDB) initiative** for the purpose of

reducing physical examination and dwell time of containers at the Port.

- It will facilitate **movement of unshredded metallic scrap** materials in containers through the Port to meet the long standing requirement of hinterland Industries.

➤ Significance:

- It is **expected to boost the container volume at Paradip Port** and will **reduce the logistic cost** and help the **EXIM (Export-Import) trade**.

➤ Paradip Port:

- It is a **natural, deep-water port on the East coast of India**, situated at the confluence of the **Mahanadi river** and the Bay of Bengal, in Odisha.
 - Located 210 nautical miles south of Kolkata and 260 nautical miles north of Visakhapatnam.
- It is administered by the **Paradip Port Trust (PPT)**, administering under the Major Port Trusts Act, 1963 functioning under the **Ministry of Ports, Shipping and Waterways**.
 - PPT was commissioned in 1966 as a **mono commodity port for export of iron ore**.



Note:

ATL Space Challenge 2021

Why in News

Recently, **NITI Aayog's Atal Innovation Mission (AIM)** in collaboration with **ISRO (Indian Space Research Organisation)** and **CBSE (Central Board of Secondary Education)** has launched '**ATL Space Challenge 2021**'.

- Earlier, the Union cabinet in June 2020 decided to open up the space sector for private sector participation, and cleared the creation of a new entity, **Indian National Space Promotion and Authorization Centre (IN-SPACe)**, to encourage private companies to use India's space infrastructure.

Key Points

- **About:**
 - This is to ensure that **students of classes 6 to 12** are given an open platform where they can innovate and enable themselves to solve digital age space technology problems.
 - Students from **both ATL (Atal Tinkering Labs) and non-ATL schools** can submit their entries in the space challenge. School teachers, ATL In-charges and mentors may support the student teams.
 - Under the ATL initiative, schools receive a grant for setting up such labs to encourage students to give shape to their ideas and come up with innovative experiments on their own in these laboratories.
 - It aligns with the **World Space Week 2021** which is observed from 4th -10th October each year, to celebrate the contributions of space science and technology.
 - This comes against the backdrop of India's push to move up in the **Global Innovation Index (GII)**, released by the World Intellectual Property Organisation) rankings.
- **Atal Innovation Mission:**
 - AIM is Government of India's **flagship initiative to promote a culture of innovation and entrepreneurship** in the country.
 - It's **objective** is to develop new programmes and policies for fostering innovation in different sectors of the economy, provide platform and collaboration

opportunities for different stakeholders, create awareness and create an umbrella structure to oversee the innovation ecosystem of the country.

Major Initiatives:

- **Atal Tinkering Labs:** Creating problem solving mindset across schools in India.
- **Atal Incubation Centers:** Fostering world class startups and adding a new dimension to the incubator model.
- **Atal New India Challenges:** Fostering product innovations and aligning them to the needs of various sectors/ministries.
- **Mentor India Campaign:** A national mentor network in collaboration with the public sector, corporates and institutions, to support all the initiatives of the mission.
- **Atal Community Innovation Center:** To stimulate community centric innovation and ideas in the unserved /underserved regions of the country including Tier 2 and Tier 3 cities.
- **Atal Research and Innovation for Small Enterprises (ARISE):** To stimulate innovation and research in the MSME industry.



World's Northernmost Island

Why in News

A new island has been discovered that is located off the Greenland's coast.

Note:

LOCATION OF MOST NORTHERN ISLAND

The northernmost island in the world has been discovered by accident, according to scientists who were collecting samples off coast of Greenland



Key Points

- Measuring 60×30 metres and with a peak of three metres above sea level, it has now become the **new northernmost piece of land on Earth**. Before this, **Oodaaq** was marked as the Earth's northernmost terrain.
- It is **made up of seabed mud and moraine**, i.e. soil, rock and other material left behind by moving glaciers, and has no vegetation.
- The researchers have suggested the **discovery be named 'Qeqertaq Avannarleq'**, which is Greenlandic for "the northernmost island".
- The discovery comes as a **battle is looming among Arctic nations**, the US, Russia, Canada, Denmark and Norway for the control of the North Pole and of the surrounding seabed, fishing rights and shipping routes exposed by melting ice due to climate change.
- **Global warming might have had a severe effect on the ice sheet of Greenland**, but the new island however is not a direct consequence of climate change.

Hare Krishna Movement: ISKCON

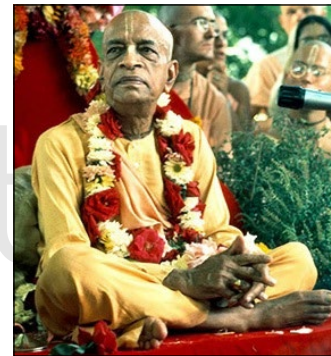
Why in News

Recently, the Prime Minister has released a **special commemorative coin of Rs 125** to mark the 125th birth

anniversary of ISKCON (International Society for Krishna Consciousness) founder Srila Bhaktivedanta Swami Prabhupada.

Key Points

- **About:**
 - The ISKCON, **founded in 1966**, is commonly known as the "**Hare Krishna movement**".
 - ISKCON has translated the Shrimad Bhagavad Geeta and other Vedic literature in 89 languages, playing a stellar role in the dissemination of Vedic literature across the world.
 - Members of the ISKCON movement view Bhaktivedanta Swami as a representative and messenger of Krishna Chaitanya.
- **Srila Bhaktivedanta Swami Prabhupada:**
 - Born Abhay Charan De (1st September 1896 in Calcutta), was an Indian spiritual teacher and the founder of the ISKCON.
 - He is especially respected as the world's most prominent contemporary authority on **bhakti-yoga, devotional service to the Supreme Person, Krishna**, as taught by the ancient Vedic writings of India.



- Swami ji also **established over a hundred temples** and wrote several books, teaching the path of **Bhakti Yoga to the world**.
- In his later years, as a travelling Vaishnava monk, he became an influential **communicator of Gaudiya Vaishnava** sampradaya's theology to India and specifically to the West through his leadership of ISKCON.
- **Gaudiya Vaishnavism:**
 - It is a Vaishnava **Hindu religious movement** inspired by Chaitanya Mahaprabhu.
 - Here, "Gaudiya" refers to the Gaura or Gauḍa region of Bengal with Vaishnavism meaning "the worship of Vishnu".

Note:

- The focus of Gaudiya Vaishnavism is the **devotional worship (known as bhakti-yoga) of Radha and Krishna**, and their many divine incarnations as the supreme forms of God, Svayam Bhagavan.
- Most popularly, this worship **takes the form of singing Radha and Krishna's holy names, such as "Hare", "Krishna" and "Rama"**, most commonly in the form of the Hare Krishna (mantra) also known as kirtan and dancing along with it.

River Bhogdoi

Why in News

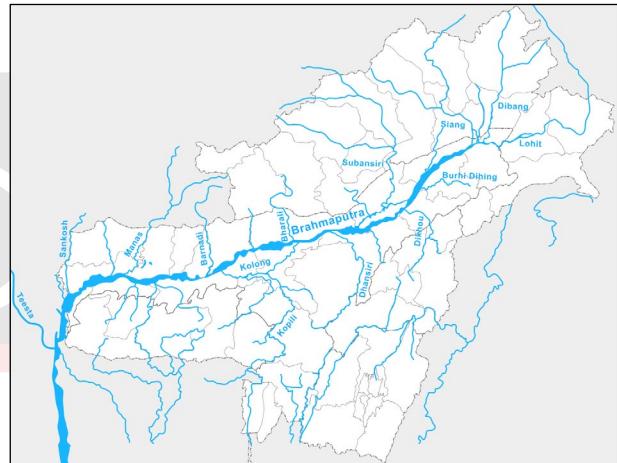
The **rampant coal mining** in Nagaland, coupled with **waste discharge from tea estates** and **encroachment** are **contaminating waters of River Bhogdoi** in Assam.

- In **2019**, the **Ministry of Environment, Forest and Climate Change** declared Bhogdoi as **one of the most polluted rivers in Assam** and **351st** among the polluted rivers in the country.

Key Points

- **About:**
 - It **originates from Mokokchung in Nagaland** where it is also known as **Tsujenyong nullah** and is the **south bank tributary of the River Brahmaputra**.
 - It is an **inter-state river (flowing between Assam and Nagaland)** and **joins Dhansiri river** near its confluence with Brahmaputra.
- **Issues:**
 - **Coal mining** in Nagaland introduced **high levels of manganese** in the river.
 - **Chemical waste from the tea gardens** is turning the river poisonous and polluted.
 - The drains carry **industrial and residential wastes**. The river has become **heavily silted, reducing its carrying capacity**.
 - The high **BOD (Biological Oxygen Demand)** indicates low water quality and less oxygen for aquatic life.
 - The **massive encroachments** along the river bank have been not only making the river narrower but also increasing the filth and garbage.

- **Disposing human excreta and cremating dead bodies along the river bank** are gradually contaminating the soil and water of the region. This is increasing the **threat of water-borne diseases**.
- **Brahmaputra River:**
 - Brahmaputra River **originates** under the name of Siang or Dihang, **from the Chemayungdung glacier of the Kailash range** near the Mansarovar lake (Tibet). It **enters India west of Sadiya town in Arunachal Pradesh**.
 - **Tributaries: Dihing River, Dibang River**, Lohit River, Dhansiri River, Kolong River, Kameng River, Manas River, Beki River, Raidak River, Jaldhaka River, Teesta River, Subansiri River.



Biochemical Oxygen Demand (BOD)

- **Water pollution by organic wastes is measured in terms of BOD.**
- BOD is the amount of Dissolved Oxygen (DO) needed by bacteria in decomposing the organic wastes present in water. It is expressed in milligrams of oxygen per litre of water.
- The **higher value of BOD indicates low DO content** of water.
- Since BOD is limited to biodegradable materials, it is not a reliable method of measuring water pollution.

Chemical Oxygen Demand (COD)

- COD measures the **amount of oxygen in parts per million required to oxidise organic** (biodegradable and non-biodegradable) and oxidizable inorganic compounds in the water sample.

Note:

Manda Buffalo: Odisha

Why in News

The Manda buffalo has been recognised as the 19th unique breed of buffaloes found in India by the National Bureau of Animal Genetic Resources (NBAGR).

- Four breeds of cattle - Binjhapuri, Motu, Ghumusari and Khariar - and two breeds of buffalo - Chilika and Kalahandi - and one breed of sheep, Kendrapada, have already received NBAGR recognition.



Key Points

- **Manda:**
 - **Habitat:**
 - They are found in the Eastern Ghats and plateau of Koraput region of Odisha.
 - The small, sturdy buffaloes are used for ploughing in their native habitat.
 - **Characteristics:**
 - These buffaloes have ash grey and grey coats with copper-coloured hair. Some animals are silver white in colour.
 - **Speciality of the Breed:**
 - The Manda are resistant to parasitic infections, less prone to diseases and can live, produce and reproduce at low or nil input systems.
- **Significance of Recognition:**
 - The state and the Centre will make efforts to conserve this unique buffalo genetic resource of Odisha and enhance their productivity through breeding strategy.
 - The governments will help in marketing the produce- milk, curd and ghee at a premium price resulting in the improvement of the livelihood of the stakeholders in the native tract.

➤ NBAGR:

- Indian Council of Agricultural Research (ICAR) -National Bureau of Animal Genetic Resources, Karnal (ICAR-NBAGR) is the nodal agency for the registration of newly identified germplasm of livestock and poultry of the country.
- Its mandate includes Identification, Evaluation, Characterization, Conservation and sustainable Utilization of Livestock and Poultry Genetic Resources.

International Fund for Agricultural Development

Why in News

Recently, IFAD (International Fund for Agricultural Development) has committed to focus 30% of its climate finance to support nature-based solutions in rural small-scale agriculture by 2030.

- Ahead of the IUCN (International Union for the Conservation of Nature) World Conservation Congress (WCC), it calls for more investment to protect biodiversity.
- The IUCN convenes WCC every four years. The Congress brings together its various members, who vote on recommendations and set the agenda for the global conservation efforts.

Key Points

- **About:**
 - IFAD is an international financial institution and specialized United Nations agency working in the field of poverty eradication in the rural areas of developing countries providing grants and loans with low interest for allied projects.
 - It works with marginalized and vulnerable groups such as farmers with small holdings, foresters, Pastoralists, Fishermen and small scale entrepreneurs by giving them disaster preparedness, access to weather information, technology transfer and social learning.
- **Formation:**
 - It was created in 1977, which is the outcome of the World Food Conference of 1974.

Note:



- **Headquarters:**
 - Rome, Italy
- **Members:**
 - It has 177 member countries.
 - India is also a member country.
- **Objectives:**
 - To increase the productive capacity of poor people.
 - To increase benefits for them from market participation.
 - To strengthen the environmental sustainability & climate resilience of their economic activities.
- **Reports:**
 - It brings out the **Rural Development Report** every year.

Maiden Navy Exercise: India-Algeria

Why in News

Recently, the Indian and Algerian navies participated in a **maiden naval exercise off the Algerian coast** in a bid to increase maritime cooperation.

- The naval exercise with Algeria is crucial for India as it is **strategically located in the Maghreb region** (region of North Africa bordering the **Mediterranean Sea**) and is the largest country of Africa.



Key Points

- **About:**
 - **Indian Naval Ship (INS) Tabar** took part in a Maritime Partnership Exercise with **Algerian Navy ship 'Ezzadjer'**.

- INS Tabar, is a **Talwar-class Stealth Frigate** built for the Indian Navy in Russia.
- India has been focussing on **boosting defence and security ties** with various **African Nations** in the last few years.
- **India and Africa – Maritime Security:**
 - Integrated Maritime Strategy 2050 of the African Union:
 - It consists of the **overarching, concerted and coherent long-term multilayered plans** of actions that will achieve the objectives of the **AU (African Union)** to enhance maritime viability for a prosperous Africa.
 - **Maritime Domain Awareness:**
 - To monitor the activities in the **Indian Ocean Region (IOR)**, **Maritime Domain Awareness**, a robust information sharing mechanism has been set up by India, and efforts have been made to encourage African participation in **various multilateral frameworks in the IOR**.
 - **Indian Ocean Rim Association:**
 - It is an **Indian-led initiative** that seeks to **build and expand understanding and mutually beneficial cooperation** through a consensus-based, evolutionary and non-intrusive approach.
 - **Maritime Security Infrastructure:**
 - India has been gradually increasing its engagements **with the navies in the African continent through frequent naval deployments and port visits**. Also inclusive **regional maritime security infrastructure** has been set up which are **strategically located** and there are constant interactions at the operational level.

Covid-19 Endemicity

Why in News

According to the **World Health Organization (WHO)** India seems to be entering some stage of **Covid-19 endemicity** where there is **low- to moderate-level transmission**.

Key Points

- **Endemicity:**
 - An endemic disease is a disease that is **always present in a certain population or a given geographical region**.

Note:

- Some examples of endemics include **chicken pox and malaria**, where there are a predictable number of cases every year in certain parts of the world.
- **Endemic vs Epidemic vs Pandemic:**
 - Endemic diseases are often confused with epidemics. However, an **epidemic refers to an outbreak of a disease**. An epidemic occurs when a disease is spreading through one or more populations. In contrast, the endemic disease is one that is constantly present in a group or geographic area.
 - **Pandemics** are worldwide epidemics. A pandemic affects more people and takes more lives than an epidemic.
 - Under certain circumstances, an **epidemic can lead to a disease becoming endemic**.
- **Reason for Covid's Endemicity:**
 - Only those pathogens can be eradicated that **don't have animals (another species) as a reservoir**.
 - **Smallpox and polio** are human virus examples, **rinderpest** is a cattle virus.
 - It means if there is a **virus/pathogen that is present in some animal reservoir** then it can transmit again once the level of immunity wanes in the population against the disease caused by it.
 - In the case of **coronavirus disease**, it will continue to circulate as it is present in the animal reservoir.
- **Implications:**
 - **On Immunity:**
 - If enough people are vaccinated or have been exposed to the infection, then the **virus will cause symptomatic infection but not disease**.
 - On Future Cases:
 - As long as the **new variant does not come with much more transmissibility** than **Delta variant**, it is more likely that **there will be a steady level of cases, with some regions**, especially of low prior seroprevalence and low vaccination rates, seeing spikes.

AUSINDEX 2021

Why in News

Recently, **India and Australia** have participated in the **4th edition of AUSINDEX Naval Exercise**.

- It comes on the heels of the **Malabar Naval Exercise**, one of the largest wargaming exercises of India,

in which all the four members of the **Quad** had participated - India, Australia, the US and Japan - in the last week of August.

- These exercises are a part of the two-month deployment of the Navy's Eastern Fleet to **Southeast Asia, South China Sea** and the **Western Pacific**.



Key Points

- **About:**
 - It is a **major biennial bilateral exercise, first held in India in 2015**.
 - The **2021 exercise is being held in Australia**.
 - It aims to consolidate shared commitment to regional and global security challenges **promoting peace, security and stability in the Indo-Pacific region**.
 - It is **aligned to the 2020 Comprehensive Strategic Partnership** between the two nations.
- **Other Exercises:**
 - Ex AUSTRA HIND (Bilateral Exercise with Army), **EX PITCH BLACK** (Australia's multilateral air combat training exercise)
- **Other Developments:**
 - **Supply Chain Resilience Initiative** (launched by India, Japan and Australia)
 - **Mutual Logistic Support Arrangement (MLSA)**

Right to Sit

Why in News

Recently, the **Tamil Nadu** government has tabled a **bill to amend Tamil Nadu Shops and Establishments Act, 1947**.

Note:



- The **bill** sought to add a subsection **to mandatorily provide seating facilities for the employees.**

Key Points

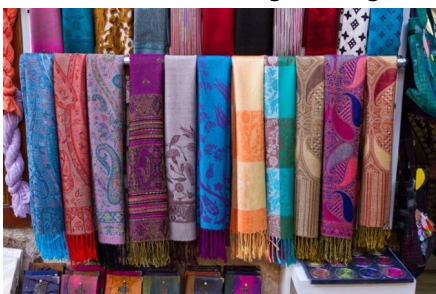
- **Highlights of the Bill:**
 - **Proposed Amendment:** The proposed **Section 22-A** to the Act reads that the premises of every establishment shall have suitable seating arrangements for all employees so that they may take advantage of any opportunity to sit.
 - **Need of the Bill:** Persons employed in shops and establishments are made to stand throughout their duty time resulting in **varied health issues.**
 - **Significance:** It would benefit thousands of employees of large and small establishments, particularly those working in textile and jewellery showrooms.
- **Similar Legislation:** A few years ago, workers of textile showrooms in Kerala had gone on a protest demanding the 'Right to Sit'.
 - This prompted the Kerala government to amend the Kerala Shops and Establishments Act in 2018 to provide seating arrangements for them.

Pashmina Shawls: Kashmir

Why in News

The **Directorate of Handicrafts and Handloom, Kashmir** has announced a **Minimum Support Price (MSP) for Geographical Indication (GI)-certified hand-made Pashmina shawls** "to sustain the old techniques".

- Earlier, the **Kashmir saffron** got **GI tag status.**



Key Points

- **About Kashmiri Shawls:**
 - Shawls are produced by **two techniques**, loom woven or **kani shawls** and the needle embroidered or **sozni shawls.**

- The basic **fabric is of the three types** - Shah Tush, Pashmina and Raffal.
- **Shah Tush (King of wool)** passes through a ring and is **also known as Ring shawl.** It **comes from a rare Tibetan antelope** living at a height of over 14000 ft in the wilds of the Himalayas.
- **Pashmina** is known world over as **cashmere wool**, it **comes from a special goat (Capra hircus)** living at an altitude of 12000 to 14000 ft.
- **Raffal** is **spun out of merino wool tops** and is a popular type of shawl.

➤ Geographical Indication (GI) Certification:

- **About:**
 - GI is an indication used **to identify goods having special characteristics originating from a definite geographical territory.**
 - It is used for **agricultural, natural and manufactured goods.**
 - The **Geographical Indications of Goods (Registration and Protection) Act, 1999** seeks to provide for the registration and better protection of geographical indications relating to goods in India.
 - It is also a part of the **World Trade Organisation's Trade-Related Aspects of Intellectual Property Rights (TRIPS).**
- **Administered By:**
 - The **Controller General of Patents, Designs and TradeMarks-** who is the Registrar of Geographical Indications.
 - The Geographical Indications Registry is located at **Chennai.**
- **Validity of Registration:**
 - The registration of a geographical indication is **valid for a period of 10 years.**
 - It can be **renewed from time to time for a further period of 10 years each.**

River Umngot: Meghalaya

Why in News

Recently, the Meghalaya government has scrapped an agreement with private power developers to execute the proposed **Umngot hydroelectric project** on river Umngot.

Note:

Key Points

- Popularly known as **Dawki river**, the Umngot river in Meghalaya is undisputedly the **cleanest river in Asia with its crystal clear water**. It originates from the Eastern Shillong Peak, which is located 1,800 m above sea level.
- The river is in the village of Mawlynnong (“**God’s Own Garden**”) in Meghalaya, close to India’s border with Bangladesh, which is touted as **Asia’s Cleanest Village**.
 - Alongside cleanliness, the village has also achieved a rare feat – a **100% literacy rate**.
- It acts as a natural divide between Jaintia and Khasi hills, before finally flowing into Bangladesh.

PISA (Program for International Student Assessment): OECD

Why in News

The field trial of **PISA (Program for International Student Assessment)** is scheduled to be held from September, 2021.

Key Points

- **About:**
 - It is a **competency-based test designed to assess the ability of the 15-year-old candidates that measures their reading, mathematics, and science literacy every three years** to apply their knowledge to real-life situations.
 - It is an international survey coordinated by the **Organization for Economic Cooperation and Development (OECD)** and was first conducted in 2000.
- **India’s Participation:**
 - India has participated in the **PISA test only once before, in 2009**. In this round of PISA, where students from Himachal Pradesh and Tamil Nadu sat for the test, **India ranked 72nd out of 73 countries**, outranking only Kyrgyzstan.
 - Since then, **India has strayed away from the test until now**, for students from Chandigarh will be sitting for the test in 2022.
 - Originally the **main PISA survey was scheduled for 2021**, but was **postponed by one year** owing to the pandemic.

➤ Significance for India:

- Learnings from participation in PISA will **help to introduce competency-based examination reforms in the school system** and help move away from rote learning. The **CBSE and NCERT will be part of the process** and activities leading to the actual test.
- It would **lead to recognition and acceptability of Indian students** and prepare them for the **global economy in the 21st century**.

Organization for Economic Cooperation & Development

- It was **formed in 1961**. It has **38 member countries**. **India is not a member** but one of the key partners of the organisation.
- It is an **international organisation**, having a goal to shape policies that foster prosperity, equality, opportunity and well-being for all.
- It is **headquartered at Paris, France**.
- The **Financial Action Task Force (FATF) Secretariat** is located at OECD headquarters.

Fukutoku-Okanoba Volcano: Japan

Why in News

Recently, the **Fukutoku-Okanoba Submarine Volcano** exploded in the Pacific Ocean, off Japan.

- Earlier, a surge of **Earthquakes** and the ground swelling was noticed at **Hawaii’s Kilauea Volcano**.



Note:

Key Points

- It is situated about **25 metres below the sea, five kilometres north of Japan's South Iwo Jima Island.**
- The plume reached a height of 16 kilometres above the surface, which **poses a risk to the passage of planes and ships.**
- Plume went straight from **being a submarine event to an eruption cloud reaching the lower boundary of the Stratosphere**, this is not very common for this type of volcano.
 - Normally **lower-level plumes** are seen from submarine eruptions.
 - Eruption and submarine hydrothermal activities **often cause water discoloration in the area, and during eruption, the volcano has built several temporary new islands.**

Submarine Volcanoes

- **From Hawaii to Indonesia to Iceland, hundreds of islands across the globe have been formed by submarine volcanoes.** Submarine volcanoes are exactly what they sound like—volcanoes located beneath the ocean's surface.
- Because they erupt into water instead of air, submarine volcanoes **behave quite differently than terrestrial volcanoes.** For instance, it's uncommon for submarine volcanoes to have explosive eruptions.
- The sheer weight of the water above them creates very high pressure, usually resulting in what are known as **passive lava flows along the seafloor.** Most submarine eruptions do not disturb the ocean surface.

ZAPAD 2021: Russia**Why in News**

The **Indian Army contingent** will participate in a two-week **multinational military exercise named 'ZAPAD 2021'** at Nizhny in Russia.

Key Points

- It is **one of the theatre level exercises of the Russian Armed Forces** and will focus primarily on **operations against terrorists.**
- Over a dozen countries from **Eurasian and South Asian Region** will participate in the exercise.

- **Nine are Participating countries** which include Mongolia, Armenia, Kazakhstan, Tajikistan, Kyrgyzstan, Serbia, Russia, India and Belarus.
- **Eight countries are Observers** which include Pakistan, China, Vietnam, Malaysia, Bangladesh, Myanmar, Uzbekistan and Sri Lanka.
- The **aim** is to enhance military and strategic ties amongst the participating nations.
- The **NAG Battalion group** (from India) will participate in the exercise.
 - The Naga Regiment is an **infantry regiment of the Indian Army.**
- India also participated in the **exercise TSENTR 2019**, which is part of the annual series of large scale exercises that form part of the Russian Armed Forces' annual training cycle.
- Military Exercise between India and Russia:
 - **Indra 2021:** Joint Tri-Services (Army, Navy, Air Force) Exercise.

63rd Ramon Magsaysay Award**Why in News**

Recently the Ramon Magsaysay Award 2021 was announced. The award is **presented in a formal ceremony in Manila**, the capital of the Philippines **on 31st August each year.**



Note:

Key Points

- The Ramon Magsaysay Award was **established in 1957** and is considered Asia's premier prize and highest honour.
- It is **named after Ramon Magsaysay**, the third president of the Republic of the Philippines.
- Recognises and **honours individuals and organisations in Asia, regardless of race, creed, gender, or nationality**, who have achieved distinction and have helped others generously without aiming for public recognition.
- **Till 2009**, awards were traditionally given in **five categories**:
 - Government service; public service; community leadership; journalism, literature and creative communication arts; and peace and international understanding.
- However, **post 2009**, the Ramon Magsaysay Award Foundation annually selects the awardees for the field of **Emergent Leadership**.
- Awardees are presented with a certificate, a medallion with an embossed image of Ramon Magsaysay and cash prize.
- The award is **internationally-recognized as the Nobel Prize counterpart of Asia**.
- **Winners for 2021**: Bangladesh's Dr. Firdausi Qadri (Affordable Vaccine Champion), Pakistan's Muhammad Amjad Saqib (Poverty Alleviation Visionary), Filipino fisher and community environmentalist Roberto Ballon, American Steven Muncy for humanitarian work and refugee assistance and Indonesian torch bearer for investigative journalism, Watchdoc.

World University Rankings 2022: Times Higher Education

Why in News

The **Times Higher Education (THE)** recently released its **World University Rankings 2022 edition**.

- **THE**, formerly known as **The Times Higher Education Supplement (THES)**, is a magazine reporting specifically on news and issues related to higher education.
- Earlier, Quacquarelli Symonds (QS) released the **QS World University Rankings 2022**.

Key Points

- **About**:
 - The rankings cover the **four main areas** of university activity: teaching, research, knowledge transfer and international outlook and THE has been releasing data **since 2004**.
- **India's Ranking**:
 - Overall, India is home to **35 of the world's top 1,000 universities**, its **second-highest total ever in the rankings**. Last year, it was **36**.
 - Top Performer was **Indian Institute of Science (IISc)** followed by **IIT Ropar** and **JSS Academy of Higher Education and Research**.
- **Global Ranking**:
 - Globally, the **University of Oxford tops the ranking for the sixth consecutive year**, while mainland China's Tsinghua University becomes the first Asian university to break into the top 20 under the current methodology (launched in 2011).
 - Country-wise, the **US is the most-represented country** overall with 183 institutions.
- **Related Indian Initiatives**:
 - **Institutions of Eminence (IoE) Scheme**:
 - To **provide the regulatory architecture for setting up or upgrading of 20 Institutions** (10 from public sector and 10 from the private sector) as world-class teaching and research institutions called 'Institutions of Eminence'.
 - **National Education Policy, 2020**:
 - To introduce **several changes in the Indian education system** - from the school to college level and make India a global knowledge superpower.
 - **Impacting Research Innovation and Technology (IMPRINT)**:
 - A **first-of-its-kind Pan-IIT and IISc joint initiative** to develop a new engineering education policy and a roadmap for research to solve major engineering and technology challenges.
 - **Uchhatar Avishkar Yojana (UAY)**:
 - To spur innovative mindset in the students and faculty in premier technological institutes.

Note:



NIRF Rankings 2021

Why in News

Recently, the Ministry of Education released the **India Rankings 2021** instituted by the **National Institutional Ranking Framework (NIRF)** (sixth edition).

Key Points

➤ About:

- **Launch:** The **National Institutional Ranking Framework (NIRF)** was approved by the Ministry of Education (Erstwhile Ministry of Human Resource Development) in **September 2015**.
 - It is the first-ever effort by the government to **rank Higher Education Institutions (HEIs)** in the country.
 - Participation in NIRF was made compulsory for all government-run educational institutions in 2018.
- **Assessment on Five Parameters:**
 - Teaching, Learning and Resources (TLR)
 - Research and Professional Practice (RP)
 - Graduation Outcomes (GO)
 - Outreach and Inclusivity (OI)
 - Peer Perception.
- **11 Categories:** Best institutions across 11 categories are listed out - overall national ranking, universities, engineering, college, medical, management, pharmacy, law, architecture, dental and research.
- **Reason for Launch:** The subjectivity in the ranking methodology developed by **QS World University Rankings** and the **Times Higher Education World University Ranking** led India to start its own ranking system for Indian HEIs on the line of Shanghai Rankings.
 - NIRF is in its sixth year, but it **continues to only rank Indian HEIs** whereas Shanghai Rankings were international in character from the first year itself.
 - The long-term plan of NIRF is to make it an international league table.
- **No. of Participating Institutions in 2021:** More than 6,000 institutes participated in NIRF Rankings.

➤ Highlights of India Rankings 2021:

- **Overall:** IIT-Madras, IISc-Bangalore, and IIT-Bombay have emerged as the country's top three higher education institutions
- **University:** IISc, Bengaluru tops the category.
- **Research Institution:** IISc, Bengaluru was ranked the best research institution, a **category included for the first time in India Rankings 2021**.
- **Colleges:** Miranda College retains 1st position amongst colleges for the fifth consecutive year, followed by Lady Shri Ram College for Women and Loyola College.
- **Engineering:** Among engineering institutions, IIT-Madras remained number one.
- **Management:** Indian Institute of Management Ahmedabad was ranked one.
- **Medical:** All India Institute of Medical Sciences, New Delhi occupies the top slot in Medical for the fourth consecutive year.
- **Pharmacy:** Jamia Hamdard tops the list in Pharmacy subject for the third consecutive.
- **Architecture:** IIT Roorkee takes the top slot for the first time in Architecture subject.
- **Law:** National Law School of India University, Bangalore retains its first position in Law for the fourth consecutive year.
- **Dental:** Manipal College of Dental Sciences, Manipal secured 1st position.

Pilibhit Tiger Reserve: Uttar Pradesh

Why in News

Recently, a herd of **Elephants** from Shuklaphanta National Park reached the **Pilibhit Tiger Reserve** (Uttar Pradesh) and damaged crops of farmers.

- The **Shuklaphanta National Park** is a protected area in the Terai of the Far-Western Region, Nepal.

Key Points

➤ About:

- It is located in **Pilibhit district, Lakhimpur Kheri District** and **Bahraich District** of Uttar Pradesh.
- It was designated as a **Tiger Reserve** in **2014** and was India's **45th Tiger Reserve Project**.

Note:

- In 2020, it bagged the International **Award TX2** for **doubling up the number of tigers in the past four years.**
- It forms part of **Terai Arc Landscape** in the upper **Gangetic Plain**. The **northern edge of the reserve lies along the Indo-Nepal border** while the southern boundary is marked by the **river Sharada and Khakra.**
- **Corridor Linkages:**
 - Pilibhit is an important habitat for tigers **owing to its connection with several tiger habitats** within the State and outside. They are **used by tigers and other wild animals.**
 - The important linkages are:
 - Surahi range - **Corbett**
 - Lagga-Bagga - Shuklaphanta National Park (Nepal)
 - Kishanpur Wildlife Sanctuary – **Dudhwa.**
- **Flora and Fauna:**
 - It is home to a habitat for over **127 animals, 326 bird species and 2,100 flowering plants.**

- Wild animals include tiger, **swamp deer, bengal florican, leopard,** etc.
- It has high **sal forests, plantations and grasslands** with several water bodies.

Terai Arc Landscape

- It is an 810 km stretch between the river **Yamuna** in the west and the **river Bhagmati** in the east.
- It is spread across the **Indian states of Uttarakhand, Uttar Pradesh and Bihar, and the low lying hills of Nepal.**
- It boasts of some of India's most well-known **Tiger Reserves and Protected Areas** such as **Corbett Tiger Reserve** (Uttarakhand), **Rajaji National Park** (Uttarakhand), **Dudhwa Tiger Reserve** (Uttar Pradesh), **Valmiki Tiger Reserve** (Bihar).
- The forests are home to three flagship species, the **Bengal tiger** (*Panthera tigris*), the **greater one horned rhino** (*Rhinoceros unicornis*) and the **Asian elephant** (*Elephas maximus*).



Note:

