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TATHASTU

Institute of Civil Services



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Table of Contents

Editorials of the Month	
1.	UNSC Statement on Non-Proliferation
2.	Public Investment led GDP Growth
3.	Public Expenditure on Agriculture
4.	Opinion Polls
5.	Forest Cover in India
6.	Taxes on Fuel
7.	Cyber-Attacks
8.	Issues with State-wise Local Reservations
9.	India's Geospatial Sector
10.	Budgetary Announcement on Cryptocurrencies
11.	Varied Electricity Prices
12.	Food and Nutrition Security in India
13.	Budgetary allocation to Environment

GENERAL STUDIES - 1	
<u>HISTORY & CULTURE</u>	
1.	Hoysalas Temples
2.	Ramanujacharya
3.	Ravidassia Community
4.	Narsinh Mehta
5.	Lachit Borpukan
6.	Conference on Temple Architecture
<u>SOCIETY</u>	
1.	Ineffectiveness of Anti-Mob Lynching Laws
2.	Caste-Census
3.	UN Convention on Refugees
<u>GEOGRAPHY</u>	
1.	Marine Heatwaves
2.	World Sustainable Development Summit

GENERAL STUDIES - 2	
<u>POLITY & GOVERNANCE</u>	
1.	Religious Freedom
2.	Common Electoral Roll
3.	National Security v/s Judicial Scrutiny
4.	IB Ministry controlling TV Content
5.	Section 498A of IPC
6.	Central Media Accreditation Guidelines, 2022
7.	MPs' Right to Question
8.	Death Penalty
9.	Parliamentary Standing committee Report on Police Reforms
10.	SVAMITVA Scheme
11.	RTE and Minority Educational Institutions
12.	Tribunals
13.	Election Symbols
14.	Fundamental Duties
<u>SOCIAL JUSTICE</u>	
1.	MGNREGA
2.	National Higher Educational Qualification Framework
3.	E-Shram Portal
4.	Pradhan Mantri Matru Vandana Yojana
5.	Intensified Mission Indradhanush
6.	Ayushman Bharat Digital Mission
7.	World Food Programme
8.	New India Literacy Programme
9.	Scheme for Economic Empowerment of DNTs
10.	Human Trafficking
11.	Academic Bank of Credits
12.	Rashtriya Uchchar Shiksha Abhiyan
13.	Budgetary Allocation for Children
<u>INTERNATIONAL RELATIONS</u>	
1.	India-Russia Bilateral Consultations
2.	CPEC
3.	India-Sri Lanka Relations
4.	India-Australia Interim FTA
5.	India-UAE FTA
6.	Permanent Indus Commission
7.	Russia violating UN Charter
8.	Russia-Ukraine War

GENERAL STUDIES – 3

ECONOMY

1.	Central Bank Digital Currency
2.	Reverse Repo Normalisation
3.	Changes in Import Duty
4.	Surety Bonds
5.	TRIPS Agreement
6.	Green Bonds
7.	Revamped Distribution Sector Reform Scheme
8.	Parvatmala Programme
9.	Key Shortcomings in Latest Budget
10.	SWIFT
11.	Farm Loan Waivers
12.	Crop-Diversification
13.	Rating Agencies
14.	Oil Market in India
15.	India's Dairy Sector
16.	Changes in Income Tax for Retrospective Taxation
17.	Ban on Import of Drones
18.	Capital Gains Tax
19.	Pradhan Mantri Fasal Bima Yojana
20.	Data Monetisation Policy
21.	Decentralised and Distributed Renewable Energy Supply
22.	Fair and Remunerative Price
<u>SCIENCE & TECHNOLOGY</u>	
1.	Virtual Digital Assets
2.	AI and Climate Change
3.	Coal Gasification
4.	Mixing Hydrogen with Natural Gas
5.	Research on Microbes
6.	Solar Storms
7.	Nuclear Fusion
8.	Volatile Organic Molecules
9.	Rice Fortification
10.	Earth Observation Satellites
11.	Synthetic Biology
12.	Breakthrough in HIV Treatment
13.	Dark Matters
14.	Indian Neutrino Observatory
15.	Decommission of ISS
16.	Satellite Internet
17.	EV Battery Swapping
18.	Indian Supercomputing Mission
19.	Quantum Key Distribution
20.	National Strategy for Additive Manufacturing Policy

21. Carbon Capture and Utilisation

22. Cyberwarfare

ENVIRONMENT & ECOLOGY

1.	National Adaptation Fund for Climate Change
2.	Implementation of Forest Laws in India
3.	50 Years of UNEP
4.	World Wetlands Day
5.	Plastic Waste Management Rules 2022
6.	CRZ Norms
7.	Annual Frontiers Report of UNEP
8.	Simlipal Biosphere Reserve
<u>INTERNAL SECURITY & DISASTER MANAGEMENT</u>	
1.	Cross-Border Insolvency through UNCITRAL
2.	Prevention of Money Laundering Act
3.	Border Infrastructure and Management

GENERAL STUDIES – 4

1. Medical Ethics

SHORT NEWS FOR PRELIMS

1.	PM-DevINE
2.	Chandrayaan-3 Mission
3.	Artificial Neural Network
4.	Indian Footwear and leather Development Programme
5.	mWRAPR
6.	Coastal Vulnerability Index
7.	REWARD Program
8.	Inter-Operable Criminal Justice System
9.	Non-Fungible Tokens
10.	PM Cares for Children

Editorials of the Month

UNSC Statement on Non-Proliferation

Background:

- This is a major statement. It is not a binding resolution and reiterates some of the core obligations of the NPT.
- The P5 statement reaffirms that a “nuclear war cannot be won and must never be fought” because of its “far-reaching consequences”.
- The statement also expresses a commitment to the group’s Treaty on the Non-Proliferation of Nuclear Weapons (NPT) obligations and “to prevent the unauthorised or unintended use of nuclear weapons”.
- Declaring that an arms race would benefit none and endanger all, the P5 have undertaken to:
- work with all states to create a security environment more conducive to progress on disarmament with the ultimate goal of a world without nuclear weapons.
- continue seeking bilateral and multilateral diplomatic approaches to avoid military confrontations, strengthen stability and predictability, increase mutual understanding and confidence”. pursue “constructive dialogue with mutual respect and acknowledgement of each other’s security interests and concerns”.

Measures:

- Bold action on six fronts is necessary. Chart a path for nuclear disarmament that member states should chart a path forward on nuclear disarmament.
- They should agree to new measures of “transparency and dialogue”.
- They should address the “simmering” nuclear crises in the Middle East and Asia.
- They should strengthen the existing global bodies that support non-proliferation, including the International Atomic Energy Agency (IAEA).
- They should promote the peaceful use of nuclear technology.
- They should remind “the world’s people that eliminating nuclear weapons is the only way to guarantee that they will never be used.

Right to peace:

- Peace is necessary for rights, freedom, equality, and justice and for that reason, we need what Justice Oliver Wendell Holmes Jr. called “education in the obvious”— namely, peace education.
- This is required at multiple levels, ranging across the planetary, global, supranational, regional, national, and local levels of social cognition and action.
- UN Resolution 39/11 (November 12, 1984) proclaims that the peoples of our planet have a sacred right to peace and equally solemnly declares that the “preservation of the right of peoples to peace and the promotion of its implementation constitute a fundamental obligation of each State”.
- The subsequent UN Resolution 53/243 B, declaring a programme of action for a culture of peace (1999) also owes a great deal to Gandhi’s legacy and mission.

Conclusion

- The statement is politically significant given the unimaginable danger posed by the 13,000 nuclear weapons currently believed to be held by a handful of countries, and the growing spectre of loose nukes, which may be deployed by armed terrorist groups for nefarious purposes.

Public Investment led GDP Growth

News: The Union Budget starts with an announcement that India's domestic output (GDP) is likely to grow 9.2% this year (2021-22) over last year — the highest among the world's large economies.

Background:

- This year's Budget seeks to boost public investment by 35.4% at current prices over last year to raise its share in GDP to 2.9% from 2.2% last year.
- Investment-led growth: The Budget hopes to trigger a virtuous investment-led output and employment growth by arguing in favour of the "crowding-in" effect of public investment on private investment.
- Challenge of mobilising resources: The crux will be to mobilise resources to finance the investment as the Budget seeks to reduce the fiscal deficit ratio, as per the schedule laid out in the last Budget.
- With the threat of higher (imported) inflation (on account of rising international oil prices) and rising interest rates (on account of the US Federal Reserve's decision), meeting the ambitious investment target would be challenging, but it is worth attempting.

Employment:

- How the budget will address the sharp decline of three percentage points of GDP in private consumption, which is likely to be caused by loss of employment? The derived demand for labour from an infrastructure boost may be limited, as the suggested projects are machinery intensive, not labour intensive.
- The employment crisis would call for enhanced allocation for the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and initiating a similar scheme for meeting urban unemployment.

Manufacturing sector

- The manufacturing sector's share in GDP has been stagnating at around 15% of GDP for quite a while.
- Lack of demand is the real problem, with low-capacity utilisation. Indeed, the proposed public investment would create demand for capital and intermediate goods. But if a substantial share of such investment "leaks" out as imports, then the industrial output may not get the desired boost.
- Growing import dependence: India has become an import-dependent economy, especially on China.
- Despite the clarion call for Atmanirbhar Bharat, India's trade deficit with China has gone up from \$57.4 billion in 2018 to \$64.5 billion in 2021.
- And the deficit would be even higher if exports from China and Hong Kong to India are combined.
- Improved EDB ranking and its limits: India launched the "Make in India" initiative in 2014-15 to raise the manufacturing sector's share in GDP to 25% and create 100 million new jobs in the industry by 2022.
- However, the Government diagnosed the principal barrier to increasing manufacturing in India as excessive and dysfunctional regulation holding back the private initiative.
- The solution, it was argued, was to improve India's rank in the World Bank's Ease of Doing Business (EDB) index. India did splendidly to improve its rank — from 142 in 2014 to 63 by 2019-20.
- But the improved ranking failed the industrial sector miserably, with a steady slowdown, noted above.
- Last year, the World Bank scrapped the index as it was flawed globally and reportedly politically motivated.

PLI Scheme

- India launched a production linked incentive scheme (PLI) for numerous technology-intensive products, starting with mobile phone assembly a few years ago to augment production and reduce imports.
- The Budget has mentioned the overwhelming response to the scheme.
- However, evidence on the number of such projects that have taken off, their investment and employment generation and rise in domestic content in such industrial units is too sparse.

Public Expenditure on Agriculture

News: While the overall budgetary allocation towards the agricultural sector has marginally increased by 4.4% in the Union Budget 2022-23, the rate of increase is lower than the current inflation rate of 5.5%-6%.

Background:

- The Food and Agriculture Organization (FAO) of the United Nations (UN) report for 2001 to 2019 shows that, globally, India is among the top 10 countries in terms of government spending in agriculture, constituting a share of around 7.3% of its total government expenditure.
- However, India lags behind several low-income countries such as Malawi (18%), Mali (12.4%), Bhutan (12%), Nepal (8%), as well as upper middle-income countries such as Guyana (10.3%) and China (9.6%).

Budgetary allocation

- A closer look at the budgetary allocation towards the agricultural sector shows that there has been a drastic slashing of funds toward important schemes such as crop insurance and minimum support price (MSP). Even with an overall increase in budgetary outlays, the allocation towards Market Intervention Scheme and Price Support Scheme (MIS-PSS) was only ₹1,500 crore.
- This is 62% less than the previous allocation of ₹3,959.61 crore in revised estimates (RE) of FY 2021-22.
- Similarly, the Pradhan Mantri Annadata Aay SanraksHan Abhiyan (PM-AASHA) was allocated just ₹1 crore for the year as against an expenditure of ₹400 crore in 2021-22. Both schemes are pertinent to ensure MSP-based procurement operations in the country, especially for pulses and oil seeds.
- Capital investment in the agricultural sector is more crucial than price support programmes.
- However, there has not been any considerable and commensurate increase in the allocation towards capital investment, especially for promotion of rural infrastructure and marketing facilities.
- The allocation of funds towards schemes such as Pradhan Mantri Kisan Samman Nidhi (PM KISAN), Pradhan Mantri Kisan Maandhan Yojana, though desirable, will not result in long run asset generation.

Agriculture Orientation Index (AOI)

- It measures the ratio between government spending towards the agricultural sector and the sector's contribution to GDP. AOI was developed as part of the Goal 2 (Zero Hunger) of the 2030 Agenda for Sustainable Development in 2015.
- What low AOI indicates: India's index is one of the lowest, reflecting that the spending towards the agricultural sector is not commensurate with the sector's contribution towards GDP.
- India holds only the 38th rank in the world. Although the AOI has shown an improvement since the mid-2000s, as part of the general revival that took place in several middle-income countries, India's AOI is one of the lowest in Asia and among several other middle-income and upper-income countries.

Crop Yield:

- The enormous spending on the agricultural sector by East Asian countries is also reflected in their higher crop yield. For example, the total cereal yield in India is only around 3,282 kilograms per hectare compared to 4,225 kg per hectare in Asia. In China, even with an average landholding size of 0.6 hectares, which is much lower than India's average landholding size, the performance of the sector in terms of crop yield is much higher than India.

Way forward

- The focus on development of irrigation facilities, urban infrastructure and development of national highways must be complemented with an emphasis on the development of rural infrastructure and rural transportation facilities, along with an increase in the number of markets, as suggested by the National Commission on Farmers. The intensification in government spending towards the agricultural sector is the key to attain the sustainable development goals of higher agricultural growth and farm income.

Opinion Polls

News: Every election season, we find television channels flooded with opinion polls and subsequently exit polls after the casting of votes.

What are Opinion Polls?

- Opinion polls are similar to surveys or an inquiry designed to gauge public opinion about a specific issue or a series of issues in a scientific and unbiased manner. This term has got wide recognition for assessing outcomes of elections in India. In most democracies, opinion and exit polls are common during elections. In

India, the ECI allows the dissemination of the exit poll results half an hour after the end of polling on the last poll day.

- Interviewers/reporters ask questions of people chosen at random from the population being measured. Responses are given, and interpretations are made based on the results. It is important in a random sample that everyone in the population being studied has an equal chance of participating. Otherwise, the results could be biased and, therefore, not representative of the population.

Significance:

- Polls are simply a measurement tool that tells us how a population thinks and feels about any given topic.
- Polls tell us what proportion of a population has a specific viewpoint.
- Opinion polling gives people who do not usually have access to the media an opportunity to be heard.

Issues:

- Critics have often questioned their authenticity. This largely manipulates the voting behavior.
- The media, on the other hand, invariably opposes the idea of a ban as seat forecasts attract primetime viewership.
- The exit polls largely disrespect public opinions inciting confusion regarding the election mandate.
- The opposition to the ban in India is mainly on the ground that freedom of speech and expression is granted by the Constitution (Article 19). What is conveniently forgotten is that this freedom is not absolute and allows for “reasonable restrictions” in the same article.

Presence in India:

- The Indian Penal Code and Representation of the People Act, 1951 do contain certain restrictions against disinformation. While the Constitution allows for reasonable restrictions on freedom of expression, its mandate to the ECI for free and fair elections is absolute.
- The Supreme Court (SC), in a series of judgments, has emphasized this requirement. It considers free and fair elections is the basic structure of the Constitution (PUCL vs Union of India, 2003; NOTA judgment, 2013).
- Restrictions are imposed in many countries, extending from two to 21 days prior to the poll — Canada, France, Italy, Poland, Turkey, Argentina, Brazil, Colombia, to name a few examples.
- In India, all political parties too have opposed these polls, demanding a ban — except when they are shown as winning.

Call for Ban:

- Having seen “paid news” in action, it apprehends that some opinion polls may be sponsored, motivated and biased. Almost all polls are non-transparent, providing little information on the methodology.
- Subtle propaganda on casteist, religious and ethnic basis as well as by the use of sophisticated means like the alleged poll surveys create public distrust in poll process.
- With such infirmities, many “polls” amount to misinformation that can result in “undue influence”, which is an “electoral offense” under IPC Section 171 (C). It is a “corrupt practice” under section 123 (2) of the RP Act.
- The polling agencies manipulate the margin of error, victory margin for candidates, seat projections for a party or hide negative findings.
- The demand for a ban on opinion polls is not new. At all-party meets called by the Election Commission in 1997 and 2004, there was unanimous demand for a ban. The difference of opinion was only on whether the ban should apply from the announcement of the poll schedule or the date of notification.
- In 1998, the ECI issued guidelines that were challenged in the SC. A five-judge Constitution Bench asked the ECI how it would enforce these decisions in the absence of a law. Realizing its weakness, the ECI withdrew the guidelines. Unfortunately, this left the constitutionality of the issue

Forest Cover in India

News: The recently released India State of Forest Report (ISFR) 2021 shows the total forest and tree cover in India is 80.9 million hectares, which is 24.62 per cent of the geographical area of the country.

Definition:

- India’s definition of forest cover is in sync with that of the Kyoto Protocol. A “forest” has a minimum area of 0.05 to 1 ha (India has 1.0 ha minimum), with the tree crown cover percentage being more than 10 to 30 per

cent (India has 10 per cent) and with trees having the potential to reach a minimum height of 2 to 5 m at maturity in situ (in India, it's 2 m). The definition thus arrived at by India assesses forests as all lands, more than 1 hectare in area, with a tree canopy density of more than 10 per cent irrespective of ownership and legal status. Such lands may not necessarily be a recorded forest area. It also includes orchards, bamboo, palm etc.

Assessment:

- The assessment of forest cover is done based on the interpretation of satellite data, which basically identifies umbrella-shaped canopies from the sky. The forest cover is also estimated from field inventory data, which corroborates the figures of forest cover obtained from the satellite-based interpretation.
- The environment ministry is even considering providing forest cover maps through the Web Map Service to make the analyses of researchers and agencies easier.
- Importance of plantations: The importance of plantations needs to be understood.
- For example, cashew plantations, which mainly grow along the coast, serve as the first line of defence against cyclones, which are hitting with greater frequency and ferocity.
- Mixed plantations, especially of native species, meet all the ecological functions of natural forests.
- A lot of wildlife inhabits these plantations. While we do not advocate equating natural forests with plantations, let us recognise their ecological functions.

Efforts:

- India is on track to achieve its national commitment to land degradation neutrality. India is working towards restoring 26 million hectares of degraded land by 2030. Our afforestation efforts are also aligned with our wildlife conservation efforts. Project Tiger was launched in 1973.
- From nine tiger reserves initially, we now have 51 tiger reserves. These are the cornerstones of wildlife conservation and preserve natural ecosystems which support ecological processes responsible for providing various goods and services that are vital for human well-being.

Way forward

- Notwithstanding these gains, the goal of 33 per cent area under forest and tree cover as per the National Forest Policy, 1988, remains to be achieved.
- The balance of 9 per cent can be achieved through taking up plantation/afforestation outside the forests and restocking/plantation in degraded and scrub forests. According to the ISFR 2021, the Trees outside forest (TOF) extent comprises 36.18 per cent of the total forest and tree cover of the country. Given this fact, the draft NFP 2021 has focused on the promotion of TOF by including it among its objectives.
- Given this fact, the draft NFP 2021 has focused on the promotion of TOF by including it among its objectives.
- The provisions in draft NFP 2021 include substantially increasing the tree cover outside forests by incentivising and promoting agro-forestry and farm forestry; managing and expanding green spaces in urban and peri-urban areas to enhance citizens' well-being; plantation of trees outside forests in partnership with local communities, land-owning agencies, and private enterprises; creation, sustainable management and promotion of urban forests; afforestation/reforestation in public-private partnership (PPP) mode; promotion of urban forests.

Taxes on Fuel

News: The disconnect between retail and wholesale inflation suggests that the two measures are driven by distinct and unrelated shocks.

Retail v/s Wholesale inflation

- In the months between April 2020 and November 2020, retail inflation remained above 6%, while average wholesale inflation was -0.20%. During the financial crisis (2008-2009) wholesale inflation came down significantly as commodity prices crashed after a boom, but retail inflation kept rising.
- This disconnect is reflected in the contemporaneous correlation between these two measures of inflation, which we find to be very low (0.04), and not significant.
- We cannot rule out feedback from wholesale inflation to retail inflation. To better explore this, it helps to understand the driving forces behind retail and wholesale inflation.

- Retail inflation is closely linked to food and beverage prices, partly because of their higher weightage in the consumer price index (CPI). High retail inflation in 2020 was primarily due to the rising prices of food and beverages. The surge was likely led by the usual supply shocks—rainfall, agricultural productivity, or Covid-19-induced supply shocks. This suggests two important features of Indian retail inflation: it is predominantly led by supply shocks (food inflation shock) and it is transitory in nature.
- High wholesale inflation in recent months was mainly due to rising prices in fuel and power and manufacturing, which together comprise around 77% of the wholesale price index (WPI). Rising fuel and energy prices in India were a result of the recent increase in global oil prices.

Analysis:

- High wholesale inflation should not warrant any immediate policy responses as the two inflation measures seem to reflect different things. Overall, the high correlation between world energy inflation and India's wholesale inflation (0.88) indicates that India's wholesale inflation is predominantly driven by world commodity prices.
- On the other hand, the low correlation between India's retail inflation and world energy inflation (-0.13, and not significant), suggests that India's retail inflation is primarily driven by domestic food prices.
- Higher wholesale inflation implies a higher profit margin for producers, which acts as an incentive for investment. There are, in fact, some early signs of a revival in investment in recent quarters, and policy must be careful not to derail this.

Way forward:

- Given the pass-through of wholesale inflation into retail inflation, if the ongoing commodity boom persists, then the fuel and power component of the WPI is likely to raise retail inflation directly.
- At that point, there would be some urgency to increase the interest rate, which may be premature and could dampen the revival of growth prospects.
- To avoid the interest rate response, the best option going forward would be to rationalise fuel taxes, to reduce the pass-through of global commodity prices into wholesale prices and ultimately into retail inflation.
- The correct fiscal-monetary coordination requires fiscal policy not to be inflationary, so that the RBI can support growth by keeping interest rates low.

Cyber-Attacks

News: Cyber attacks may be a relatively new phenomenon, but in a short time frame have come to be assessed as dangerous as terrorism.

Background:

- The world was possibly made aware of the danger and threat posed by cyber weapons with the advent of the Stuxnet Worm in 2010, which resulted in large-scale damage to Iran's centrifuge capabilities.
- In the decade that followed, the West seemed to lose its way on how to deal with the emerging cyber threat.
- The years 2020 and 2021 have proved to be extremely difficult from the perspective of cyber attacks but no changes in methodology have been seen. Ransomware is increasing in intensity and is tending to become a near destructive threat, because there are many available soft targets.
- Statistics in this regard are also telling, viz., that new attacks are taking place every 10 seconds.
- Apart from loss of data, what is also becoming evident is that ransomware criminals are becoming more sophisticated, and are using ransomware to cripple large enterprises and even governments.
- Talk of the emergence of 'Ransomware as a Service' (RaaS) — a business model for ransomware developers — is no mere idle threat. A conservative estimate is that a rash of attacks is almost certain to occur on home computers and networks. A tendency seen more recently to put everything on the Cloud could backfire, causing many security holes, challenges, misconfigurations and outages. Furthermore, even as Identity and Multifactor Authentication (MFA) take centre stage, the gloomy prognostication of experts is that Advanced Persistent Threats (APT) attacks are set to increase, with criminal networks working overtime and the Dark web allowing criminals to access even sensitive corporate networks.
- Estimates of the cost to the world in 2021 from cyber attacks are still being computed, but if the cost of cyber crimes in 2020 (believed to be more than \$1 trillion) is any guide, it is likely to range between \$3trillion-\$4 trillion.

Targets:

- Credential threats and the threat of data breaches, phishing, and ransomware attacks, apart from major IT outages, are expected to be among the main concerns. The vast majority of cyber attacks are directed at small and medium sized businesses, and it is likely that this trend will grow.
- Among the most targeted sectors in the coming period are likely to be health care, education and research, communications and governments.
- While preventive and reactive cyber security strategies are needed — and are essential to mitigate cyber risks — they are proving to be highly illusive in an increasingly hyper-connected world.

Challenges

- There is a great deal of talk among cyber security experts about emerging cyber security technologies and protocols intended to protect systems, networks and devices, but little clarity whether what is available can ensure protection from all-encompassing cyber attacks.
- What is most needed is absent, viz., that cyber security experts should aim at being two steps ahead of cyber criminals. While the West focused on ‘militarization’ of the cyber threat, and how best it could win with its superior capabilities, valuable time was lost.
- It led to misplaced ideas and erroneous generalisations, resulting in a decade of lost opportunity.

Way forward:

- SASE — Secure Access Service Edge — to reduce the risk of cyber attacks.
- Additional solutions are being proposed such as CASB — Cloud Access Security Broker — and SWG — Secure Web Gateway — aimed at limiting the risks to users from web-based threats.
- The Zero Trust Model and Micro Segmentation as a means to limit cyber attacks, can again be self-limiting.
- A detailed study of the series of low- and medium-level proactive cyber attacks that have occurred during the past decade is clearly warranted. A related aspect is to prevent individual companies from attempting their own tradeoffs — between investing in security and maximising short-term profits.
- What many companies and even others fail to realise is that inadequate corporate protection and defence could have huge external costs for national security, as was evident in the SolarWinds attack.
- The emphasis should be on prioritising the defence of data above everything else.
- Consequently, law enforcement agencies would need to play a vital role in providing effective defence against cyber-attacks. On the strategic plane, understanding the nature of cyber space is important.
- While solving the technical side is ‘one part of the solution, networks and data structures need at the same time to prioritise resilience through decentralised and dense networks, hybrid cloud structures, redundant applications and backup processes’. This implies ‘planning and training for network failures so that individuals could adapt and continue to provide service even in the midst of an offensive cyber campaign’.

Issues with State-wise Local Reservations

News: Last week, the Punjab and Haryana High Court admitted a petition challenging the constitutionality of the Act, and stayed the implementation until it heard the case.

Article 19(1)(g)

- Article 19(1)(g) of the Constitution guarantees freedom to carry out any occupation, trade or business.
- There may be reasonable restrictions “in the interests of the general public”, and in particular related to specifying any professional or technical qualifications, or to reserve a sector for government monopoly.
- This Act, by requiring private businesses to reserve 75% of lower end jobs for locals, encroaches upon their right to carry out any occupation.
- In 2005, in the P.A. Inamdar case, Supreme Court said that reservation cannot be mandated on educational institutions that do not receive financial aid from the state, as that would affect the freedom of occupation.

Article 16

- The provision of reservation by virtue of domicile or residence may be unconstitutional. Article 16 of the Constitution specifically provides for equality of opportunity for all citizens in public employment.
- It prohibits discrimination on several grounds including place of birth and residence. However, it permits Parliament to make law that requires residence within a State for appointment to a public office.

- This enabling provision is for public employment and not for private sector jobs.
- And the law needs to be made by Parliament, and not by a State legislature.

Reservation Limit:

- In the Indra Sawhney case in 1992, the Supreme Court capped reservations in public services at 50%.
- It however said that there may be extraordinary situations which may need a relaxation in this rule.
- It also specified that “in doing so, extreme caution is to be exercised and a special case made out”.
- That is, the onus is on the State to make a special case of exceptional circumstances, for the 50% upper limit on reservations to be relaxed. It stated that the 50% limit is “to fulfil the objective of equality”, and that to breach the limit “is to have a society which is not founded on equality but on caste rule”. The Haryana Act does not further “caste rule” as it is for all residents of the State irrespective of caste but it breaches the notion of equality of all citizens of India.

India as a one nation

- The Constitution conceptualises India as one nation with all citizens having equal rights to live, travel and work anywhere in the country. These State laws go against this vision by restricting the right of out-of-State citizens to find employment in the State. This restriction may also indirectly affect the right to reside across India as finding employment becomes difficult. If more States follow similar policies, it would be difficult for citizens to migrate from their State to other States to find work.

Economic implications

- The move may potentially increase the costs for companies. There may also be an increase in income inequality across States as citizens of poorer States with fewer job opportunities are trapped within their States.

Conclusion

- The courts, while looking at the narrow questions of whether these laws violate fundamental rights, should also examine whether they breach the basic structure of the Constitution that views India as one nation which is a union of States, and not as a conglomeration of independent States.

India's Geospatial Sector

News: Last year new guidelines took effect to completely de-regulate the geospatial sector for Indians.

Background:

- India has a robust ecosystem in geospatial, with the Survey of India (SoI), the Indian Space Research Organisation (ISRO), remote sensing application centres (RSAC)s, and the National Informatics Centre (NIC) in particular, and all ministries and departments, in general, using geospatial technology.
- However, the full benefits have yet to percolate to the public; neither is there much contribution to the nation's GDP. The Prime Minister's speech during Independence Day and mention of geospatial in the Union Budget have created the necessary buzz. The last year has also witnessed some activity on the ground.
- The most noticeable was the over subscription of the initial public offering of MapmyIndia.
- The other noticeable activity was the launching of a city mapping programme by Genesys International in India. Such an aggressive stance by investors for geospatial was not seen in the earlier regime; it is certain that the new guidelines have played a role.

Challenges

- There is no demand for geospatial services and products on a scale linked to India's potential and size.
- This is mainly due to the lack of awareness among potential users in government and private.
- The other hurdle has been the lack of skilled manpower across the entire pyramid.
- The unavailability of foundation data, especially at high-resolution, is also a constraint.
- The lack of clarity on data sharing and collaboration prevents co-creation and asset maximisation.
- Lastly, barring a few cases, there are still no ready-to-use solutions especially built to solve the problems of India.

Way forward:

- Despite one year since the new guidelines came into effect, users are still not fully aware of things.
- First and foremost is the need to publish the entire policy document and make government and private users aware of things. The data available with government departments should be unlocked, and data sharing should be encouraged and facilitated.
- The Government needs to invest in developing standards and must mandate the adoption of standards
- While different types of data will be produced on a project-to-project basis, there is a need to generate foundation data across India. This should include the Indian national digital elevation model (InDEM), data layers for cities, and data of natural resources. Local technology and solutions should be promoted, and competition should be encouraged for quality output.
- As the new guidelines prevent high-accuracy data being stored in overseas clouds, there is a need to develop a geospatial data cloud locally and facilitate a solution as service.
- Unlike the West, India lacks a strata of core professionals who understand geospatial end-to-end. India should start a bachelor's programme in geospatial also in the Indian Institutes of Technology and the National Institutes of Technology. Besides these, there should be a dedicated geospatial university.

Budgetary Announcement on Cryptocurrencies

News: In the Union Budget speech, Finance Minister Nirmala Sitharaman announced a 30% flat tax rate levied on any gains made from the transfer of virtual assets including cryptocurrencies and Non-Fungible Tokens (NFTs).

What is cryptocurrency?

- Cryptocurrency (crypto) consists of a digital denomination designed to work as a medium of exchange through a distributed computer network (a blockchain) that is not reliant on any central authority such as a government or a bank for its upholding and maintenance.
- Legal status: The announcement of the tax by the Finance Minister now leads to the assumption that crypto is legal in India. Foreseeable are changes that would, down the road, legitimise and formally legalise the activities of crypto start-ups and enable them to access the necessary support system which might not have been available previously.

Implications of Budget's announcements:

- While critics are right in observing that the 30% flat tax rate is a harsh rate, this is a premium and price well-worth paying in exchange for what is effectively a ruling-out of prospects for a total ban on crypto by the central government.
- The high tax rate would inevitably hamper the willingness of investors to convert cryptocurrencies into the national fiat, this may, in turn, open up more doors for technologically savvy and innovation-minded investors.
- The extremely high tax rate and the fact that the losses cannot be offset would invariably propel investors to turn to alternative means of storing and undertaking transactions in cryptocurrencies, without foregoing the significant losses involved as they "switch" back into the rupee.
- An inadvertent upside of this, then, is the prospective conversion and reallocation of crypto-funds from one form to another. Such transformations would involve DeFi (Decentralised Finance) activities such as staking, lending, and providing liquidity, among others.

Decentralised Finance in India:

- DeFi (or "decentralized finance") is "an umbrella term for financial services on public blockchains.
- With DeFi, one can do most of the things that banks support — earn interest, borrow, lend, buy insurance, trade derivatives, trade assets, and more — but it is faster and does not require paperwork or a third party.
- DeFi is global, peer-to-peer (meaning directly between two people, and not routed through a centralised system), pseudonymous, and open to all.
- The processes highlighted above would drive innovation in the field of Indian DeFi.

Issues:

- The community of small and medium-sized enterprises (SMEs) and lower-end high net-worth individuals is going to find it most difficult to access the ecosystem given the substantial barriers posed by the tax rates.

- It is unlikely that the community we speak of here is likely to reap the gains from the system in light of the burdens they would confront. Participation would remain unlikely for at least a few more years to come.
- Additionally, when it comes to India's crypto policy at large, there is a fundamental lack of clarity in aspects other than taxation. There appears to be a push to treat crypto as purely an asset class than a currency.
- The consolation offered by the Government in the form of the Reserve Bank of India's CBDC, or Central Bank Digital Currency, will definitely help in pushing for the adoption of digital currencies, but, equally, defeats the fundamental purpose of cryptocurrency, which is decentralisation.

Way forward:

- There is a need to reduce tax rates in the future, though this must be weighed against considerations concerning government revenue and the need to curb speculative bubbles surfacing in relation to the currency. The second reform constitutes the incorporation of insights from seasoned partners from international communities; the key should rest with engaging these individuals for their insights and advice on the best practices associated with cryptocurrency policymaking.

Varied Electricity Prices

News: Electricity prices vary not just among end users, but also between states, where a complex patchwork of different taxes and subsidy regimes can leave consumers in some states paying five times more for their electricity than their counterparts in neighbouring states.

Low Income States:

- The low-income States (LIS) are deprived on many fronts. They have low accessibility to credit, low investments, low power availability and accessibility, and high energy costs. The high-income States (HIS), on the other hand, have a big share in industry and commerce because they are not deprived on the same fronts.
- The six HIS (Maharashtra, Tamil Nadu, Gujarat, Karnataka, Andhra Pradesh and Telangana) together account for 56.4% of factories and 54.3% of the net value added to the country, while their share in population is only 32.3%.
- Among other reasons, this is because they have higher credit and financial accessibility (55% of total institutional credit and 56% of total industrial credit went to these five HIS) at the credit-deposit ratio.
- On the other hand, the six LIS (Bihar, Jharkhand, U.P., M.P., Odisha, and Rajasthan) access only 15% of total institutional credit and barely 5% of total industrial credit, while their share in population is 43%.
- The maximum benefit of the Atmanirbhar package (₹20 lakh crore) also went to the HIS as they have a higher share in industry.
- Among other reasons, the availability of adequate quality power at the cheapest rate attracts investments, either private or public, in a particular location. Due to a complex patchwork of different taxes and subsidy regimes, electricity prices vary not just among end users, but also between states. This can leave consumers in some states paying five times more for their electricity than their counterparts in neighbouring states.

Solutions

- Energy India Outlook 2021 provides two solutions.

Regional Grids:

- The power-producing States have the advantage of power, being available at lower prices. This problem can be addressed by synchronising all the regional grids. This will help the transfer of energy (without compromising quality). The idea is of 'One Nation, One Grid, One Frequency'.
- Further, this will pave the way for establishing a vibrant electricity market and facilitate the trading of power across regions through the adoption of the 'one tariff' policy.
- The Central Electricity Regulatory Commission is in the process of implementing a framework of the Market-Based Economic Dispatch and moving towards 'One Nation, One Grid, One Frequency, One Price'.

Electricity duty in GST:

- Apart from uniform cost, the power sector also needs uniformity in electricity duty charged by different States. In general, the association between income and electricity consumption is direct.

- Thus, only 32% of the population used 50% of power. Contrary to this, six backward States got only 25% of the power though their share of the population is 43%. Therefore, it is clear that the substantial proportion of the power cost incurred in HIS is also borne by the LIS which buy those industrial products, as the input cost of power has already been included in the product's price.
- Further, this situation justifies the fact that the final costs of power consumption are also borne by other States. Thus, the electricity duty should be redistributed among the States under the ambit of GST equally shared by the CGST and SGST.

Food and Nutrition Security in India

News: The country faces the dual challenge of achieving nutrition security, as well as addressing declining land productivity, land degradation and loss of ecological services with change in land use. Not surprisingly, widespread concerns about poverty, malnutrition and the need for a second Green Revolution are being made in tandem.

Background:

- Macro- and micronutrient malnutrition is widespread in India. 18.7% of women and 16.2% of men are unable to access enough food to meet basic nutritional needs. Over 32% of children below five years are still underweight as per the recently released fifth National Family Health Survey (2019-2021) phase 2 compendium. India is ranked 101 out of 116 countries in the Global Hunger Index, 2021.
- Although India is now self-sufficient in food grains production in the macro sense, it has about a quarter of the world's food insecure people, a pointer to the amount of food necessary to allow all income groups to reach the caloric target (2,400 kcal in rural and 2,100 kcal in the urban set-up).

Way to sustainable Food System:

- The UN Food Systems Summit called for action by governments in five areas: nourish all people; boost nature-based solutions; advance equitable livelihoods, decent work and empowered communities; build resilience to vulnerabilities, shocks and stresses; and accelerate the means of implementation.
- In the context of the intensifying economic, environmental and climate challenges and crisis, the need of the hour is a good theory of transition encompassing the spatial, social and scientific dimensions, supported by policy incentives and mechanisms for achieving a sustainable, resilient and food secure agriculture.
- An agro-climatic approach to agricultural development is important for sustainability and better nutrition.
- Data compiled in the agro-climatic zones reports of the Indian Council of Agricultural Research and the erstwhile Planning Commission of India reveal enormous potential for crop diversification and precision for enhanced crop productivity based on soil type, climate (temperature and rainfall), and captive water resources. The focus should be on improving farmers' competitiveness, supporting business growth in the rural economy, and incentivising farmers to improve the environment.
- It is assumed that a meticulous review of agro-climatic zones could make smallholders farming a profitable business, enhancing agricultural efficiency and socio-economic development, as well as sustainability.
- Strengthening and shortening food supply chains, reinforcing regional food systems, food processing, agricultural resilience and sustainability in a climate-changing world will require prioritising research and investments along these lines.
- A stress status of the natural resource base — soil and water in different agro-climatic zones — will help understand the micro as well as meso-level interventions needed with regard to technologies, extension activities and policies.
- Lastly, infrastructure and institutions supporting producers, agripreneurs and agri micro, small and medium enterprises (MSMEs) in their production value chain are central to the transition.
- This should be aligned to the national and State policy priorities such as the National Policy guidelines 2012 of the Ministry of Agriculture for the promotion of farmer producer organisations, and the National Resource Efficiency Policy of 2019 of the Ministry of Environment, Forest and Climate Change.

Budgetary allocation to Environment

News: One can analyse the budget from three standpoints: Direct allocations for the environment sector, allocations for environment in non-environment sectors, and allocations for other sectors with environmental impacts.

What does the Budget say?

Allocation for MoEFCC

- There is a slight increase in the budget of the Ministry for Environment, Forests and Climate Change (MoEFCC) from 2021-22's revised estimate of Rs 2,870 crore to Rs 3,030 crore. This is a meagre 0.08 per cent of the total budgetary outlay. While some sectors like forestry and wildlife have seen a healthy rise in allocation, the outlay for others like the National River Conservation Plan has declined.

Natural and organic farming

- There is a welcome stated focus on natural and organic farming, and on promoting millets.
- There are no details on the allocations, including for linkages necessary to make such farming viable, such as manure and markets. Also, given the major push for food processing in the budget, without making reservations for community-run businesses, there is a danger of big corporations capturing the organic space.
- Completely missing is a focus on rainfed farming that involves 60 per cent of the farming population and is ecologically more sustainable than artificially irrigated agriculture.
- The FM announced the government's support to "chemical-free farming throughout the country," but she has also allocated a massive chemical fertiliser subsidy of Rs 1,05,222 crore.
- A recent announcement that palm plantations are proposed in Northeast India and the Andaman Islands, both ecologically fragile, makes this a worrying prospect.

Positive provisions:

- On the climate front, there are several positive provisions — use of biomass for power stations, boost to batteries, energy-efficiency measures in large commercial buildings, and sovereign green bonds.
- Renewable and "clean" energy has received substantially higher allocations. But the focus remains on mega-parks in solar/wind energy, nuclear power, and large hydro that have serious ecological impacts.
- The additional budget for farm-level solar pumps and rooftop solar generation is welcome, but it's minuscule compared to mega-projects.
- Another chance to shift towards decentralised renewable energy with less ecological impacts and greater community access has been missed. The budget does promise greater support for public transport, something demanded by citizens' groups for decades. Unfortunately, most of the allocation in this will go to metros that are extremely carbon-intensive in terms of construction.
- The National Climate Action Plan gets an abysmally inadequate Rs 30 crore — the same as in 2021-22.
- And there is no focus on a "just transition" that could help workers in fossil fuel sectors, like coal, to transition to jobs in cleaner, greener sectors.

Lack of focus on infrastructure:

- As highlighted by the FM, this is predominantly an "infrastructure budget". While investments in infrastructure for small towns and villages are urgently needed, much of what is proposed are mega-projects.
- The proposed 25,000 km increase in highways will further fragment forests, wetlands, mountains, grasslands, agricultural lands and bypass most villages. A shift in paradigm to decentralised, sustainable, and community-oriented infrastructure is missing. Several specific allocations are of further concern. For instance, the Ken-Betwa river-linking project, given over Rs 40,000 crore, will submerge valuable tiger habitat. The Deep Ocean Mission and the Blue Revolution allocations are oriented towards commercial exploitation rather than conservation and sustainable use.

Green jobs

- The budget misses out on a major shift to "green jobs". This includes support to decentralised (including handmade) production of textiles, footwear, and other products. Even the MGNREGS, which could have been used for regenerating two-thirds of India's landmass that is ecologically degraded, has got reduced allocation.

General Studies – 1

Indian Heritage and Culture

1. Indian culture will cover the salient aspects of Art Forms, Literature and Architecture from ancient to modern times.

History

2. Modern Indian history from about the middle of the eighteenth century until the present significant events, Personalities, Issues.
3. The Freedom Struggle — Its various stages and Important contributors / contributions from different parts of the country.
4. Post-independence consolidation and reorganization within the country.
5. History of the world will include events from 18th century such as Industrial revolution, World wars, Redrawing of national boundaries, Colonization, decolonization, Political philosophies like communism, capitalism, socialism etc.— their forms and effect on the society

Society

6. Salient features of Indian Society, Diversity of India.
7. Role of women and women's organization, Population and associated issues, Poverty and developmental issues, Urbanization, their problems and their remedies.
8. Effects of globalization on Indian society.
9. Social empowerment, Communalism, regionalism & secularism.

Geography

10. Salient features of world's physical geography.
11. Distribution of key natural resources across the world (including South Asia and the Indian sub-continent) Factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India).
12. Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc., Geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes

History & Culture

Hoysalas Temples

News: The Hoysala Temples of Belur, Halebid and Somnathapura in Karnataka have been finalized as India's nomination for consideration as World Heritage for the year 2022-2023.

Details:

- The sacred ensembles of the Hoysalas are extraordinary expressions of spiritual purpose and vehicles of spiritual practice and attainment. The sacred ensembles of the Hoysalas at Belur and Halebid are the finest, most exquisite, and most representative examples of the artistic genius and cultural accomplishments of the Hoysalas remaining today.

Belur: Chennakeshava Temple Complex

- The Chennakeshava temple complex was at the center of the old walled town located on the banks of the Yagachi River.
- The complex itself was walled in a rectangular campus with four rectilinear streets around it for ritual circumambulation of the deity.
- Construction of the temple commenced in 1117 AD and took a 103 years to complete. The temple was devoted to Vishnu. The richly sculptured exterior of the temple narrate scenes from the life of Vishnu and his reincarnations and the epics, Ramayana, and Mahabharata.
- However, some of the representations of Shiva are also included.
- Consecrated on a sacred site, the temple has remained continuously worshipped since its establishment and remains until today as a site of pilgrimage for Vaishnavites.

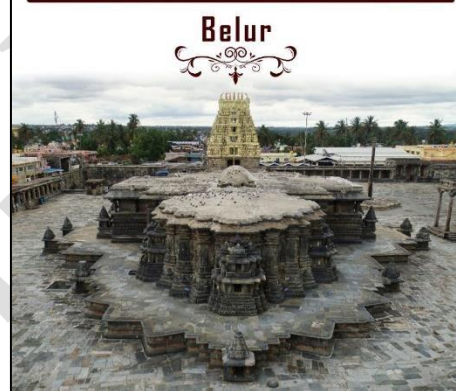
Halebid: Hoysaleswara Temple

- At the zenith of the Hoysala empire, the capital was shifted from Belur to Halebid that was then known as Dorasamudhra.
- The Hoysaleswara temple at Halebidu is the most exemplary architectural ensemble of the Hoysalas extant today.
- Built in 1121CE during the reign of the Hoysala King, Vishnuvardhana Hoysaleswara. The temple, dedicated to Shiva, was sponsored and built by wealthy citizens and merchants of Dorasamudra.
- The temple is most well-known for the more than 240 wall sculptures that run all along the outer wall. Halebid has a walled complex containing of three Jaina basadi (temples) of the Hoysala period as well as a stepped well.

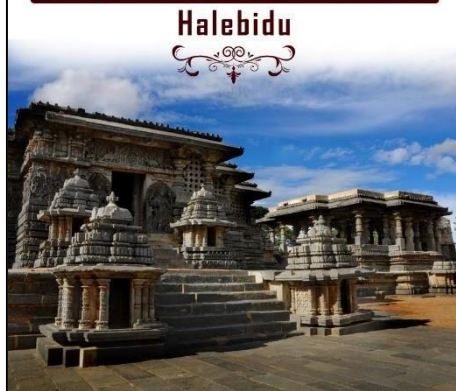
Somnathpur: Kesava Temple

- The Keshava temple at Somanathapura is another magnificent Hoysala monument, perhaps the last.
- This is a breathtakingly beautiful Trikuta Temple dedicated to Lord Krishna in three forms – Janardhana, Keshava and Venugopala.
- Unfortunately, the main Keshava idol is missing, and the Janardhana and Venugopala idols are damaged. Still this temple is worth a visit just to soak in the artistry and sheer talent of the sculptors who created this magnificent monument to the Divine.

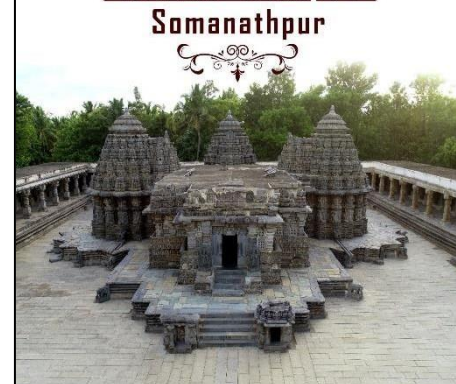
Channakeshava Temple



Hoysaleswara Temple



Kesava Temple



Ramanujacharya

News: The Prime Minister will inaugurate the Statue of Equality, a statue of Ramanujacharya, on the outskirts of Hyderabad, Telangana. India is celebrating his 1,000th birth anniversary as the 'Festival of Equality', upholding the view that the world is one family, 'vasudhaiva kutumbakam'.

Who was Ramanujacharya?

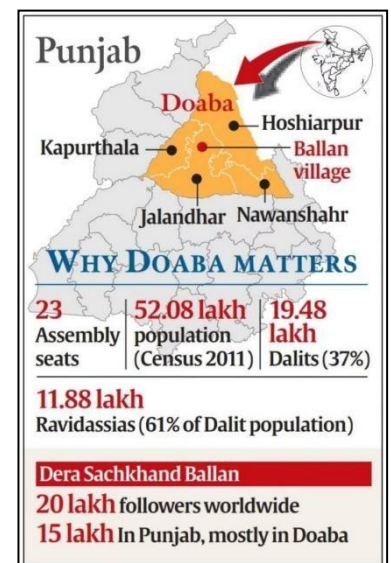
- Born in 1017 in Sriperumbudur in Tamil Nadu, Ramanujacharya is revered as a Vedic philosopher and social reformer. He was named Lakshmana at the time of his birth. He was also referred to as Ilaya Perumal which means the radiant one. He traveled across India, advocating equality and social justice.
- He revived the Bhakti movement, and his preachings inspired other Bhakti schools of thought. He is considered to be the inspiration for poets like Annamacharya, Bhakta Ramdas, Thyagaraja, Kabir, and Meerabai. He is famous as the chief proponent of Vishishtadvaita subschool of Vedānta.
- VishishtAdvaita (literally "Advaita with uniqueness; qualifications") is a non-dualistic school of Vedanta philosophy. It is non-dualism of the qualified whole, in which Brahman alone is seen as the Supreme Reality, but is characterized by multiplicity. He went on to write nine scriptures known as the navaratnas, and composed numerous commentaries on Vedic scriptures.
- Ramanuja's most important writings include his commentary on the Vedanta Sutras (the Sri Bhasya, or "True Commentary"), and his commentary on the Bhagavad-Gita (the Gitabhasya, or "Commentary on the Gita"). His other writings include the Vedārtha Samgraha ("Summary of the Meaning of the Veda"), the Vedantasara ("Essence of Vedanta"), and Vedantadipa ("Lamp of Vedanta").
- He has also stressed the need of being in tune with nature and not to over-exploit.
- Ramanuja was an advocate of social equality among all sections of people centuries ago, and encouraged temples to open their doors to everyone irrespective of caste or position in society at a time when people of many castes were forbidden from entering them.
- He took education to those who were deprived of it. His greatest contribution is the propagation of the concept of "vasudhaiva kutumbakam", which translates as "all the universe is one family".
- He traveled across India for several decades, propagating his ideas of social equality and universal brotherhood from temple podiums.
- He embraced the socially marginalized and condemned, and asked royal courts to treat them as equals.
- He spoke of universal salvation through devotion to God, compassion, humility, equality, and mutual respect, which is known as Sri Vaishnavam Sampradaya. Ramanujacharya liberated millions from social, cultural, gender, educational, and economic discrimination with the foundational conviction that every human is equal regardless of nationality, gender, race, caste, or creed.

Ravidassia Community

News: Out of the total population of Dalits in Punjab, about 21 percent of the population belongs to the Ravidassia community. The importance of this population can be understood from the fact that due to Sant Ravidas Jayanti on February 16, the date of Punjab Assembly elections was changed from February 14 to February 20.

Who are the Ravidassias?

- The Ravidassias are a Dalit community of whom the bulk — nearly 12 lakh — live in the Doaba region. The Dera Sachkhand Ballan, their largest dera with 20 lakh followers worldwide, was founded in the early 20th century by Baba Sant Pipl Das.
- Once closely connected with Sikhism, the dera severed these decades-old ties in 2010, and announced they would follow the Ravidassia religion. The dera made the announcement on Guru Ravidas Jayanti in Varanasi.
- From 2010, the Dera Sachkhand Ballan started replacing the Guru Granth Sahib with its own Granth, Amritbani, carrying 200 hymns of Guru Ravidas, in Ravidassia temples and gurdwaras.



About Guru Ravidas:

- Guru Ravidas was a North Indian mystic poet of the bhakti movement.
- While the exact year of his birth is not known, it is believed that the saint was born in 1377 C.E.
- Guru Ravidas Jayanti is celebrated on Magh Purnima, which is the full moon day in the Hindu calendar month of Magha. The Adi Granth of Sikhs, in addition to the Panchvani are the two of the oldest documented sources of the literary works of Guru Ravidas.
- Notably, he belonged to an untouchable caste and suffered a lot of atrocities as a result. However, the saint chose to focus on spiritual pursuits and also penned several devotional songs which made a huge impact in the Bhakti movement during the 14th to 16th century CE.
- He is believed to be a disciple of the bhakti saint-poet Ramananda and a contemporary of the bhakti saint-poet Kabir. One of his famous disciples was the saint, Mirabai.
- Among Ravidas's moral and intellectual achievements were the conception of "Begampura", a city that knows no sorrow; and a society where caste and class have ceased to matter.
- Guru Ravidas spoke against the caste divisions and spoke of removing them to promote unity. His teachings resonated with the people, leading to a religion being born called the Ravidassia religion, or Ravidassia Dharam based on his teachings. He taught about the omnipresence of God and said that a human soul is a particle of God and hence Ravidas rejected the idea that people considered lower caste cannot meet God. He said in his teachings that the only way to meet God was to free the mind from the duality.

Narsinh Mehta

News: Recently Junagadh University discovered a new species of spider and named it Narsinhmehtai in honour of Narsinh Mehta, the 15th-century poet who was a devotee of Lord Krishna.

Narsinh Mehta

- Mehta is believed to have been born in Talaja in present-day Bhavnagar district in 1410 and died in Junagadh in 1480s. The family had its origin in Vadnagar in north Gujarat, and the caste name is believed to be Pandya but as members of the family were officers in kingdoms of those days.
- They were called Mehta (one who keeps books of accounts) which later on became the family name.
- His father died when Mehta was just 5 and it is believed that Mehta learnt to speak only when he was eight years old, after a holy man asked him to utter the name of Lord Krishna.
- His elder brother Bansidhar and Bansidhar's wife raised Mehta and arranged his marriage.
- Mehta used to spend time in Krishna-bhakti (devotion to Lord Krishna) even after his marriage to Manekba, paying little attention to family duties. Mehta is believed to have run away from home and done tapashcharya at a Shiva temple in Talaja for seven days. After that, Mehta relocated with his family to Junagadh.
- Nonetheless, folklore has it that Lord Krishna, by impersonating as Mehta, helped the devout poet organise shraadhha (a ritual performed post death of a family member) of his father, marriage of his son Shamaldas etc. One of his bhajans narrates how Ra Mandlik, the then ruler of Junagadh had imprisoned him, accusing the poet of not having seen Lord Krishna and yet claiming to have done so.
- Mehta penned more than 750 poems, called padd in Gujarat. They mainly deal with devotion to Lord Krishna, gyan (wisdom) vairagya (detachment from worldly affairs). Others like Shalmshano Vivah, Kunvarbainu Mameru, Hundi and Harmala are believed to be autobiographical accounts of different occasions in his life.
- Vaishnavajñāna tene kahiye, Mahatma Gandhi's favourite bhajan is Mehta's creation.

Lachit Borpukan

News: The Prime Minister has paid tribute to Lachit Borpukan on Lachit Diwas.

Who was Lachit Borpukan?

- The year was 1671 and the decisive Battle of Saraighat was fought on the raging waters of the Brahmaputra.

- On one side was Mughal Emperor Aurangzeb's army headed by Ram Singh of Amer (Jaipur) and on the other was the Ahom General Lachit Borphukan.
- He was a commander in the Ahom kingdom, located in present-day Assam.
- Ram Singh failed to make any advance against the Assamese army during the first phase of the war.
- Lachit Borphukan emerged victorious in the war and the Mughals were forced to retreat from Guwahati.
- On 24 November each year, Lachit Divas is celebrated state-wide in Assam to commemorate the heroism of Lachit Borphukan. On this day, Borphukan has defeated the Mughal army on the banks of the Brahmaputra in the Battle of Saraighat in 1671. The best passing out cadet of National Defence Academy has been conferred the Lachit gold medal every year since 1999 commemorating his valor.

Conference on Temple Architecture

News: Recently, the Union Culture Minister inaugurated Devayatanam, a one-of-a-kind conference on temple architecture of India, at Hampi, Karnataka.

Details:

- It is a part of the celebration under Azadi Ka Amrit Mahotsav and is being organized on 25th-26th February by the Archaeological Survey of India (ASI) of the Ministry of Culture.
- The temples of Hampi are already featured in the World Heritage List of UNESCO for their Sheer brilliance, Scale of imagination, and Scintillating architecture.
- Approximately 10 of India's 40 UNESCO World Heritage Inscriptions are Hindu Temples in different architectural styles, patterns and symmetry. In 2021, Rudreswara Temple, (also known as the Ramappa Temple) at Mulugu district, Telangana has been inscribed on UNESCO's World Heritage list.
- The conference provides a platform to discuss, deliberate and disseminate to the world the grandeur of Indian temples, art and architecture. This was in line with the overall vision of the Prime Minister which is based on 5 V's, i. e. Vikas (development), Virasat (heritage), Vishwas (trust), Vignan (knowledge), which lead us to becoming a vishwaguru so that India shows the world the way.
- Devayatnam, the house of God is not only a place to worship and perform rituals but also a centre for education, fine arts, music, science & technology, rituals & traditions or activities shaping the society.

Ineffectiveness of Anti-Mob Lynching Laws

News: Bills passed against mob lynching in some states have not been implemented since lynching is not defined as a crime under the Indian Penal Code (IPC).

Reasons for pendency:

- Most bills have been reserved by the Governor for consideration of the President. The President has to go with the advice given by the Council of Ministers, in the case of such legislations, represented by the MHA.
- The Union Home Ministry examines the State legislations on three grounds-
 - Repugnancy with Central laws
 - Deviation from national or central policy and
 - Legal and constitutional validity

What is Mob Lynching?

- Lynching is a premeditated extrajudicial killing by a group. It is most often used to characterize informal public executions by a mob in order to punish an alleged transgressor, or to intimidate a group.
- Recent incident can be recalled from Pakistan where a Sri Lankan national was set ablaze over blasphemy charges.
- In 2017, the National Crime Records Bureau (NCRB) collected data on mob lynching, hate crimes and cow vigilantism but it was not published and discontinued.
- This is because, there is “no separate” definition for lynching under the IPC.
- However, lynching incidents could be dealt with under Sections 300 and 302 of the IPC, pertaining to murder.
- In 2018, the Supreme Court asked Parliament to make lynching a separate offense.
- Since then, the government is working to overhaul the IPC framed in 1860 and the Code of Criminal Procedure (CrPC) to consider mob-lynching.

Why do we need Anti-Mob Lynching Laws?

- It fills a void in our criminal jurisprudence. The Indian Penal Code has provisions for unlawful assembly, rioting, and murder but nothing that takes cognizance of a group of people coming together to kill (a lynch mob). There has been a rise in lynching incidents in recent years.
- The lynch mobs are confident of getting away with it. So far, the state has done little to shake that confidence. In the case of cow-linked lynchings, a lot depends on whether the incumbent in power considers it compatible with its political interests to crack down on such attacks.
- Another factor that gave rise to lynchings is the spread of fake news through social media platforms which incite a sudden wave of antagonism. With modernity, there is a growth of individualism and erosion of associational life. The sense of fraternity has been fading away due to this.
- High Unemployment rates leave millions of youth unengaged.

Implication of lynching:

- It is against the values upheld in the constitution of India. Every individual have certain fundamental rights any violence would be a curtailment of this right. Lynchings have led to degrading regard to law and order.
- Many International agencies warned India against mob lynching incidents. This impacts both foreign and domestic investment thereby adversely affecting sovereign ratings. It directly hampers internal migration which in turn affects economy. Large resources deployed to tackle such menaces induces extra burden on state-exchequer.

Stalled crackdown

A brief look at anti-lynching Bills passed by four States that are caught in a question of definition

JHARKHAND

The Prevention of Mob Violence and Mob Lynching Bill, 2021, provides for punishment ranging from three years in prison to life imprisonment, in case of death of the victim. Those convicted may be fined between ₹3 lakh and ₹25 lakh depending on the severity of the crime



RAJASTHAN

The Rajasthan Protection from Lynching Bill, 2019, provides for life imprisonment and a fine from ₹1 lakh to ₹5 lakh to those convicted in cases of mob lynching leading to the victim's death



WEST BENGAL

The West Bengal (Prevention of Lynching) Bill, 2019, has a provision for death sentence. It proposes a jail term from three years to life imprisonment for those involved in assaulting and injuring a person. The Bill, while defining terms such as “lynching” and “mob”, says the West Bengal Lynching Compensation Scheme may be framed under it



MANIPUR

The Manipur Protection from Mob Violence Bill, 2018, proposes rigorous life imprisonment for those involved in mob violence, if it results in the death of a victim



- Radical and extremist organizations such as ISIS etc could take leverage of the atmosphere created by such incidents. This impact solidarity of society and idea of Unity in diversity. This create an atmosphere of majority v/s minority. It could aggravate caste, class and communal hatred. Such acts show loss of tolerance in society and people are being swayed by emotions, prejudices etc.

Way forward

- States should be more vigilant and proactive in flagging rumors using social media and other platforms.
- Some states are doing it, others need to emulate these examples.
- The more proactive the administration is in this regard, the stronger a deterrent it will be.
- There is also a need for a special court for the trial of mob violence.

Caste-Census

News: Last month, the Supreme Court upheld the 27% quota for Other Backward Classes (OBC) in the All-India Quota seats for the National Eligibility-cum-Entrance Test and reiterated that reservations for backward classes were not an exception but an extension of the principle of equality under Article 15(1) of the Constitution. This is seen as a positive discrimination in the Indian Context.

Background:

- Despite the underlying good intentions, positive discrimination has been a controversial topic. Many oppose affirmative actions like reservation; they believe that such provisions only perpetuate caste differences and they call for a “casteless society”. But, as Justice D.Y. Chandrachud pointed out, “castelessness” is a privilege that only the upper caste can afford because their caste privilege has already translated into social, political and economic capital. On the other hand, individuals who belong to the lower castes must retain their caste identity in order to claim the benefits of measures such as reservation, which recognise historic harm. The faith of our citizens cannot be restored until credible exercises of data collection are undertaken regarding caste. Even though data concerning the Scheduled Castes and Scheduled Tribes have been included in the Census, there is no similar data on OBCs.
- The Socio-Economic and Caste Census (SECC) conducted in 2011 has been called “faulty” and “unreliable”.
- Even the Mandal Commission’s recommendations were criticised as being based merely on the “personal knowledge” of the members of the commission and sample surveys.

Caste-based census:

- The Union government had told the Supreme Court that the caste-based data enumerated in the Socio-Economic Caste Census (SECC) of 2011 was “unusable”, but in 2016, the Registrar-General and Census Commissioner of India had informed the Standing Committee on Rural Development that 98.87% of the data on individual caste and religion was “error free”.
- The government had said that the total number of castes surveyed in 1931 was 4,147, while the SECC figures show that there are more than 46 lakh different castes. Assuming that some castes may bifurcate into sub-castes, the total number cannot be exponentially high to this extent.
- The entire exercise was corrupted because the enumerators had used different spellings for the same castes. In many cases the respondents, the government said, had refused to divulge their castes.
- In the Indra Sawhney case, the Supreme Court held that the States must conclude the “backwardness” of a particular class of people only after proper assessment and objective evaluation.
- It held that such a conclusion must be subject to periodic review by a permanent body of experts.
- While SC/ST details are collected as part of the census, details of other castes are not collected by the enumerators. The main method is by self-declaration to the enumerator.
- Every Census in independent India from 1951 to 2011 has published data on Scheduled Castes and Scheduled Tribes, but not on other castes. Before that, every Census until 1931 had data on caste.

What is SECC 2011?

- The Socio-Economic Caste Census of 2011 was a major exercise to obtain data about the socio-economic status of various communities. It had two components: a survey of the rural and urban households and ranking of these households based on pre-set parameters, and a caste census.

- However, only the details of the economic conditions of the people in rural and urban households were released. The caste data has not been released till now. The Census provides a portrait of the Indian population, while the SECC is a tool to identify beneficiaries of state support. Since the Census falls under the Census Act of 1948, all data are considered confidential, whereas all the personal information given in the SECC is open for use by Government departments to grant and/or restrict benefits to households.
- The precise number of the population of each caste would help tailor the reservation policy to ensure equitable representation of all of them. There is a possibility that it will lead to heartburn among some sections and spawn demands for larger or separate quotas. It has been alleged that the mere act of labelling persons as belonging to a caste tends to perpetuate the system.

UN Convention on Refugees

News: Model laws on asylum and refugees that were drafted by the National Human Rights Commission (NHRC) decades ago but not implemented by the government could be revised by an expert committee.

Background:

- India is not having a specific law for refugees and asylum-seekers.
- Though India has not signed the United Nations Refugee Convention, 1951, the refugees and asylum seekers were entitled to the rights in Articles 14, 20 and 21 of the Constitution.

UN Refugee Convention, 1951

- The 1951 Convention Relating to the Status of Refugees was the first comprehensive attempt to define refugees and charted a detailed guideline for host countries to ensure the adequate protection and preservation of the rights of all refugees.
- It puts out clearly who a refugee is and what kind of assistance, rights and legal protection a refugee is entitled to receive. It also lays down the obligations of refugees towards the host countries. The Convention also specifies certain categories of people, such as war criminals, who do not qualify for refugee status.
- The 1951 convention defines a refugee as:
 - A person who is outside his or her country of nationality or habitual residence
 - Has a well-founded fear of being persecuted because of his or her race, religion, nationality, membership of a particular social group or political opinion
 - Unable or unwilling to avail him— or herself of the protection of that country, or
 - Unable to return there, for fear of persecution

Rights conferred to Refugees

- The right not to be expelled, except under certain, strictly defined conditions.
- The right not to be punished for illegal entry into the territory of a contracting State.
- The rights to work, housing, education, public relief and assistance, freedom of religion, access courts, and freedom of movement within the territory.
- The right to be issued identity and travel documents.
- The right to be protected from refoulement apply to all refugees.

Why India hasn't signed the convention?

- Another reason why India has not signed the Convention is the narrow definition of refugee under it. For instance, it does not include deprivation of economic rights as an eligibility criterion.
- It is believed that the chief reason is related to security issues.
- South Asian borders are porous and any conflict can cause a huge displacement of people.
- Finally, sometimes refugees also pose a threat to law and order due to cultural differences. Ex. North East states. An influx of people during such times can put a lot of strain on the resources of the local economy and also, it can cause an imbalance in the delicate demography of the region.
- India has already houses many refugees and in many cases, without the support of the UN.
- Signing the convention would have meant allowing international scrutiny of 'India's internal security, political stability and international relations'. The convention lacks a strong implementation policy which has given rise to ad-hocism and warehousing of refugees.

Geography

Marine Heatwaves

According to a study, marine heatwaves — or the ones that form on oceans — have been on the rise in the waters around India.

What are Marine Heatwaves?

- Marine heatwaves are periods of extremely high temperatures in the ocean. These events are linked to coral bleaching, seagrass destruction, and loss of kelp forests, affecting the fisheries sector adversely.
- Study showed that 85% of the corals in the Gulf of Mannar near the Tamil Nadu coast got bleached after the marine heatwave in May 2020. The most common drivers of marine heatwaves include ocean currents which can build up areas of warm water and air-sea heat flux, or warming through the ocean surface from the atmosphere. Winds can enhance or suppress the warming in a marine heatwave, and climate modes like El Niño can change the likelihood of events occurring in certain regions.

Latest Findings:

- Emerging studies have reported their occurrence and impacts in the global oceans, but are little understood in the tropical Indian Ocean. Also, according to the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6), the sea surface temperature over the Indian ocean is likely to increase by 1 to 2 °C when there is 1.5°C to 2°C global warming.
- The Western Indian Ocean region experienced the largest increase in marine heatwaves at a rate of about 1.5 events per decade, followed by the north Bay of Bengal at a rate of 0.5 events per decade.
- The marine heatwaves in the Western Indian Ocean and the Bay of Bengal increased drying conditions over the central Indian subcontinent. Correspondingly, there is a significant increase in the rainfall over south peninsular India in response to the heatwaves in the north Bay of Bengal. From 1982 to 2018, the Western Indian Ocean had a total of 66 events, while the Bay of Bengal had 94 events.
- These changes are in response to the modulation of the monsoon winds by the heatwaves.
- This is the first time that a study has demonstrated a close link between marine heatwaves and atmospheric circulation and rainfall.

Impacts of Marine Heatwaves?

- Marine heat waves affect ecosystem structure, by supporting certain species and suppressing others.
- It has been associated with the mass mortality of marine invertebrates, and may force species to change behaviour in a way that puts wildlife at increased risk of harm.
- Marine heatwaves can change the habitat ranges of certain species, such as the spiny sea urchin off southeastern Australia which has been expanding southward into Tasmania at the expense of kelp forests which it feeds upon.
- Marine heatwaves can cause economic losses through impacts on fisheries and aquaculture.
- Biodiversity can be drastically affected by marine heatwaves.
- In 2016, marine heatwaves across northern Australia led to severe bleaching of the Great Barrier Reef.
- Often, they occur alongside other stressors such as ocean acidification, deoxygenation, and overfishing.
- In such cases, MHWs not only further damage habitats, but also increase the risk of deoxygenation and acidification.

World Sustainable Development Summit

News: Recently, the Prime Minister addressed the The Energy and Resources Institute's (TERI) World Sustainable Development Summit.

What is the World Sustainable Development Summit?

- The World Sustainable Development Summit (WSDS) is the annual flagship event of TERI. It was earlier known as Delhi Sustainable Development Summit. Instituted in 200. It is the only Summit on global issues, taking place in the developing world.

- It has been conceptualized as a single platform to accelerate action towards sustainable development and climate change. It aims to bring together global leaders and thinkers in the fields of sustainable development, energy and environment sectors on a common platform.

India's stand at latest summit:

- India has fulfilled its commitments by ensuring that equitable energy access to the poor remains a cornerstone of its environmental policy. These included initiatives such as 90 million households getting access to clean cooking fuel under the Ujjwala Yojana scheme. And farmers being encouraged to set up solar panels under the PM-KUSUM scheme where farmers could use and sell surplus power to the grid, which would promote sustainability and equity.
- Discussed the LED bulbs distribution scheme (UJALA) that has been running for over seven years that had reportedly saved close to 220 billion units of electricity and prevented 180 billion tonnes of carbon dioxide emissions per year. The National Hydrogen Mission aims to tap into 'green hydrogen' and it was up to the academic and research institutes such as TERI to come up with scalable solutions.
- Mentioned international recognition for India's efforts by the International Union for Conservation of Nature (IUCN) and India now having 49 Ramsar sites (wetlands) spread over more than 1 million hectares. India is a megadiverse country. With 2.4% of the world's land area, India accounts for nearly 8% of the world's species.
- Restoring degraded land has been one of the main focus areas since 2015 and more than 11.5 million hectares have been restored. India is on track to achieve the national commitment of Land Degradation Neutrality under the Bonn Challenge. India firmly believes in fulfilling all its commitments made under the UNFCCC. India also raised its ambitions during CoP-26 at Glasgow. For example, India announced that it will reach carbon neutrality by 2070 by 2030.
- Sustainability requires coordinated action for the global commons. India's efforts have recognised this inter-dependence. Through the International Solar Alliance, India's aim is "One Sun, One World, One Grid".
- The world must work towards ensuring availability of clean energy from a world-wide grid everywhere at all times. This is the "whole of the world" approach that India's values stand for.
- It also urged countries to act on the basis of globally agreed rules taking into account the principles of equity and Common but Differentiated Responsibilities and Respective Capabilities (acting on climate change based on national circumstances). The Paris Agreement goals cannot be reached unless equity is implemented by all countries staying within their fair share of the global carbon budget.
- The Coalition for Disaster Resilient Infrastructure (C.D.R.I.), aims to build strong infrastructure in areas prone to frequent natural disasters. On the side-lines of CoP-26, India also launched an initiative called "Infrastructure for Resilient Island States". The Island Developing States are the most vulnerable and hence need urgent protection.
- India launched LIFE - Lifestyle For Environment Initiative. LIFE is about making lifestyle choices to improve our planet. LIFE will be a coalition of like-minded people across the world who will promote sustainable lifestyles. They will be called 3Ps - Pro Planet People. This global movement is the Coalition for LIFE.

General Studies – 2

Polity & Constitution

1. Indian Constitution—historical underpinnings, evolution, features, amendments, significant provisions and basic structure.
2. Functions and responsibilities of the Union and the States, issues and challenges pertaining to the federal structure, devolution of powers and finances up to local levels and challenges therein.
3. Separation of powers between various organs dispute redressal mechanisms and institutions
4. Comparison of the Indian constitutional scheme with that of other countries.
5. Parliament and State legislatures—structure, functioning, conduct of business, powers & privileges and issues arising out of these.
6. Structure, organization and functioning of the Executive and the Judiciary—Ministries and Departments of the Government; pressure groups and formal/informal associations and their role in the Polity.
7. Salient features of the Representation of People’s Act.
8. Appointment to various Constitutional posts, powers, functions and responsibilities of various Constitutional Bodies.
9. Statutory, regulatory and various quasi-judicial bodies.

Social Justice

10. Government policies and interventions for development in various sectors and issues arising out of their design and implementation.
11. Development processes and the development industry —the role of NGOs, SHGs, various groups and associations, donors, charities, institutional and other stakeholders.
12. Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.
13. Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources.
14. Issues relating to poverty and hunger.

Governance

15. Important aspects of governance, transparency and accountability, e-governance, applications, models, successes, limitations, and potential; citizens charters, transparency & accountability and institutional and other measures.
16. Role of civil services in a democracy.

International Relations

17. India and its neighborhood- relations.
18. Bilateral, regional and global groupings and agreements involving India and/or affecting India’s interests.
19. Effect of policies and politics of developed and developing countries on India’s interests, Indian diaspora.
20. Important International institutions, agencies and fora- their structure, mandate

Polity & Governance

Religious Freedom

News: A row over whether educational institutions can impose a strict dress code that could interfere with the rights of students has spilled in the Udupi district of Karnataka.

Latest Issue:

- Two set of rulings of the Kerala High Court, particularly on the right of Muslim women hold dressing according to the tenets of Islam. In 2015, Kerala HC ruled the prescription of dress code for AIPMT exam which prescribed wearing light clothes with half sleeves not having big buttons, brooch/badge, flower, etc. with Salwar/Trouser and slippers and not shoes.
- In 2016, it examined the issue more closely. It held that the practice of wearing a hijab constitutes an essential religious practice but did not quash the CBSE rule.
- The court once again allowed for the “additional measures” and safeguards put in place the previous year.

Religious Freedom in India

- Article 25(1) of the Constitution guarantees the “freedom of conscience and the right freely to profess, practise and propagate religion”. It is a right that guarantees a negative liberty — which means that the state shall ensure that there is no interference or obstacle to exercise this freedom.
- Like all fundamental rights, the state can restrict the right for grounds of public order, decency, morality, health and other state interests. Over the years, the Supreme Court has evolved a practical test of sorts to determine what religious practices can be constitutionally protected and what can be ignored.
- In 1954, the Supreme Court held in the Shirur Mutt case that the term “religion” will cover all rituals and practices “integral” to a religion. The test to determine what is integral is termed the “Essential Religious Practices” test.

Essential Religious Practices:

- While these issues are largely understood to be community-based, there are instances in which the court has applied the test to individual freedoms as well.
- In a 2004 ruling, the Supreme Court held that the Ananda Marga sect had no fundamental right to perform the Tandava dance in public streets since it did not constitute an essential religious practice of the sect.
- For example, in 2016, the Supreme Court upheld the discharge of an airman from the Indian Air Force for keeping a beard. It distinguished the case of a Muslim airman from that of Sikhs who are allowed to keep a beard. In 2015, the Supreme Court restored the Jain religious practice of Santhara/Sallekhana (a ritualistic fast unto death) by staying an order of the Rajasthan HC.

Issues:

- In the first place, what constitutes the essential part of a religion is primarily to be ascertained with reference to the doctrines of that religion itself, the SC had held in the Shirur Mutt case.
- So the test, a judicial determination of religious practices, has often been criticized by legal experts as it pushes the court to delve into theological spaces.
- In criticism of the test, scholars agree that it is better for the court to prohibit religious practices for public order rather than determine what is so essential to a religion that it needs to be protected.
- In several instances, the court has applied the test to keep certain practices out.

Common Electoral Roll

News: Recently, the Law and Justice Minister told the Rajya Sabha that the Centre was not planning on amending the Representation of the People Act, 1951 to enable a common electoral roll and simultaneous elections to all electoral bodies in the country.

What is the Common Electoral Roll?

- Under the Common Electoral Roll, only one voter list will be used for Lok Sabha, Vidhan Sabha and other elections.

- Some state laws allow the SEC (State Election Commission) to borrow and use the Election Commission of India's voter's rolls for the local body elections. In others, the state commission uses the EC's voters list as the basis for the preparation and revision of rolls for municipality and panchayat elections.
- Few states have their own electoral rolls and do not adopt EC's roll for local body polls like those of Uttar Pradesh, Uttarakhand, Odisha, Assam, Madhya Pradesh, Kerala, Odisha, Assam, Arunachal Pradesh, Nagaland and the Union Territory of Jammu and Kashmir.
- The distinction stems from the fact that the supervision and conduct of elections in our country are entrusted with two constitutional authorities — the Election Commission (EC) of India and the State Election Commissions (SECs). A common electoral roll and simultaneous elections as a way to save an enormous amount of effort and expenditure. It is argued that the preparation of a separate voters list causes duplication of the effort and the expenditure.
- The Law Commission recommended it in its 255th report in 2015 for a single electoral roll.
- The EC too adopted a similar stance in 1999 and 2004. The EC pointed out that it adds to the confusion among voters, since they may find their names present in one roll, but absent in another.

Implementation:

- A Constitutional Amendment to Articles 243K and 243ZA is required. Articles 243K and 243ZA deal with elections to panchayats and municipalities in the states. These give the power of superintendence, direction and control of preparation of electoral rolls and the conduct of these elections to the State Election Commission (SEC). The amendment would make it mandatory to have a single electoral roll for all elections in the country. Persuading the state governments to tweak their respective laws and adopt the Election Commission's (EC) voters list for municipal and panchayat polls.

Simultaneous Elections:

- The idea is about structuring the Indian election cycle in a manner so that elections to the Lok Sabha and the State Assemblies are synchronised together so that the election to both can be held within a given span of time.

Pros:

- Help keep a check on the poll expenses, party expenses, etc. and also save public money.
- Reduce the burden on administrative setup and security forces.
- Ensure timely implementation of the government policies and also ensure that the administrative machinery is engaged in developmental activities rather than electioneering.
- Solve the problem of governance on the part of the politicians who are ruling. It is generally seen that for short term political gains from a particular assembly election, ruling politicians avoid taking a harsh long-term decision which can ultimately help the country in the long run.
- Provide more time to all the stakeholders i.e. political parties, Election Commission of India (ECI), paramilitary forces, civilians for the preparation of elections once in five years.

Cons:

- The synchronisation is a major problem considering the traditions and conventions that India's Parliamentary system follows. The government is accountable to the Lower House and it is possible that the government can fall before completing its term and the moment the government falls, there has to be an election. It is difficult to convince and bring together all the political parties on the idea.
- For holding simultaneous elections, the requirements for Electronic Voting Machines (EVMs) and the Voter Verified Paper Audit Trails (VVPATs) will double as the ECI has to provide two sets (one for election to the Legislative Assembly and second for that to the Lok Sabha).
- There will also be an additional requirement of the polling staff and for better security arrangements.

National Security v/s Judicial Scrutiny

News: The Supreme Court is all set to examine whether the Centre can expect a free pass on matters pertaining to national security.

Background:

- The question whether the state can use 'national security' as a ground to limit judicial scrutiny has come up for scrutiny in the MediaOne TV channel case.

- The government has cited national security reasons in the Kerala High Court for canceling telecast permission to the Malayalam news channel.
- Recently, in its Pegasus snooping case order, the Supreme Court observed that the Centre cannot expect a 'free pass' from the courts as soon as it raises the 'spectre of national security'.

Details:

- Scope of judicial review is limited in matters involving national security. However, this does not mean that the state gets a free pass every time the spectre of 'national security' is raised.
- One of the major concerns raised by citizens recently is the "chilling effect" such state actions endure to have on free speech, especially in the media.

Relevant cases:

- Anuradha Bhasin case concerned Internet restrictions in Jammu and Kashmir in the backdrop of the abrogation of Article 370. The court had ruled that any order of the state which restricts the fundamental rights of speech or expression should be backed by reasons. The courts should be convinced that the state acted in a responsible manner and did not take away rights in an "implied fashion or a casual or cavalier man.
- In Government of India v. Cricket Association of Bengal and Shreya Singhal v. The Union of India cases, the court has observed that there is no dispute that freedom of speech and expression includes the right to disseminate information to as wide a section of the population as is possible. The wider range of circulation of information or its greater impact cannot restrict the content of the right nor can it justify its denial.

What is Judicial Review?

- Judicial review is the power of Judiciary to review any act or order of Legislative and Executive wings and to pronounce upon the constitutional validity when challenged by the affected person.
- The power of Judicial Review comes from the Constitution of India itself (Articles 13, 32, 136, 142 and 147 of the Constitution).
- The power of judicial review is evoked to protect and enforce the fundamental rights guaranteed in Part III of the Constitution.
- Article 13 of the Constitution prohibits the Parliament and the state legislatures from making laws that "may take away or abridge the fundamental rights" guaranteed to the citizens of the country.
- The provisions of Article 13 ensure the protection of the fundamental rights and consider any law "inconsistent with or in derogation of the fundamental rights" as void.

Judicial Restraint vs. Judicial Activism	
Restraint	Activism
<i>Judges should:</i>	<i>Judges should:</i>
✓look to the original Intent of the Constitution	✓Look <u>beyond</u> the original intent of the Framers
✓Look at the <u>intent</u> of the legislators that wrote the law	✓"Living Constitution" (changes over time)
✓Respectful of precedents	✓Active action is necessary and appropriate at times
✓Argue that changes to the Constitution can only be made thru the Amendment process	✓Can be involved in interpreting and enlarging laws

IB Ministry controlling TV Content

News: On January 31, the Information and Broadcasting Ministry barred the transmission of Malayalam news channel Media One citing 'security reasons'. Hours later, the Kerala High Court granted a stay, allowing the channel to continue functioning.

Details:

- Till 2021: TV channels, newspapers and magazines, movies in theatres and on TV, and the radio — barring the internet. Post the implementation of Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021: Regulatory powers extended over internet content too, especially on digital news platforms and OTT platforms such as Netflix, Amazon Prime or Hotstar.
- The Information and Broadcasting Ministry, in 2021, amended the Cable Television Network Rules, 1994 regulating Cable TV networks, providing for a "statutory" mechanism for complaints raised by citizens regarding any content broadcast.

- It tracks channels for any violations of the programming and advertising codes mentioned in the Cable TV Network Rules, 1994. Violation can lead to revocation of a channel's uplinking licence (for sending content to a satellite) or downlinking licence.

Cable Television Networks (Amendment) Rules, 2021:

- It provides for a three-level grievance redressal mechanism — self-regulation by broadcasters, self-regulation by the self-regulating bodies of the broadcasters, and oversight by an Inter-Departmental Committee at the level of the Union government.

Grievance redressal:

- A viewer can file a complaint directly to the broadcaster, who will have to respond within 15 days.
- If the complainant is not satisfied with the response, the complaint can be escalated to the self-regulating bodies set up by TV channels, which should deal with the case in 60 days. If the complainant is not satisfied with the decision of the self-regulating body, he may, within 15 days of such decision, prefer an appeal to the Central Government for its consideration under the Oversight Mechanism.
- Such appeals will be dealt with by the Inter-Departmental Committee set up under the Oversight Mechanism. The committee will be headed by the Additional Secretary in the Ministry of Information and Broadcasting, and have members from various ministries. Committee can recommend the Centre to advise, issue a warning, censure, admonish or reprimand a broadcaster, or seek an apology.
- Ask the broadcaster to include a warning card or a disclaimer, or to delete or modify content, or take the channel or a programme off-air for a specified time period, where it is satisfied that such action is warranted. At present, there is an institutional mechanism by way of an Inter-Ministerial Committee to address the grievances of citizens relating to the violation of the Programme/Advertising Codes under the Rules, but it does not have statutory backing.
- It paves the way "for a strong institutional system for redressing grievances.
- It places accountability and responsibility on the broadcasters and their self-regulating bodies.

Cable Television Networks (Regulation) Act, 1995:

- The law prescribes imprisonment up to two years or fine up to ₹1,000 or both for the first offence, and imprisonment up to five years and with fine up to ₹5,000 if any media governed under the CTN Act violates the provisions and the "Programme Code".
- The code, which contains an elaborate list of don'ts for cable TV channels, states that no programme should be aired that contains anything obscene, defamatory, false, and suggests innuendos and half-truths.
- There are no specific laws on content allowed or prohibited in print and electronic media, radio, films or OTT platforms.
- The content on any of these platforms has to follow the free speech rules of the country. Article 19(1) of the Constitution, while protecting the freedom of speech, also lists certain "reasonable restrictions" including content related to the security of the state, friendly relationship with foreign states, public order, decency and morality etc.

Section 498A of IPC

News: The Supreme Court in a recent judgement highlighted the growing misuse of Section 498A IPC, with friction rising in marriages.

Background:

- The incorporation of section 498A was aimed at preventing cruelty committed upon a woman by her husband and her in-laws by facilitating rapid state intervention.
- The court held that there is an increased tendency to employ provisions such as Section 498A IPC as instruments to settle personal scores against the husband and his relatives.

What is Section 498A IPC?

- Section 498A of the Indian Penal Code 1860 was passed by the Indian Parliament in 1983. The section of 498A of the Indian Penal Code is a criminal law. It is defined that if the husband or the relative of the husband of a woman, subjected such woman towards cruelty would be punished with imprisonment for a term which might extend to 3 years and may also be liable for fine.

- Section 498 A of Indian Penal Code is one of the greatest rescues for Violence against Woman (VAW), which is a reflection of the pathetic reality of the domestic violence occurring within the four walls of a house.

Cases of misuse:

- With the rise in the rate of education, financial security, and modernization, the more independent and the radical feminists have made Section 498A of IPC as a weapon in their hands than a shield. Due to this, many helpless husbands and their relatives have become the victims of the vengeful daughters-in-law of their house.
- These days in many cases where Section 498A is invoked, they turn out to be false cases as they turn out to be mere blackmail attempts by the wife (or her close relatives) when troubled with a stressed marriage. Due to this, in most cases the Section 498A complaint is generally followed by the demand of a huge amount of money to settle the case outside the court.
- The court held specifically that there is misuse and exploitation of the provisions to such an extent that it was hitting on the basis that is the foundation of marriage itself. This has ultimately proved to be not a good sign for the health of society for the public at large. Women have begun misusing Section 498 of IPC as this law is a tool for their vengeance or to get out of wedlock.
- Similar views were also expressed by the 2003 Malimath Committee report on reforms in the criminal justice system. The committee noted that the "general complaint" of Section 498A of the IPC to be a subject to gross misuse.

Central Media Accreditation Guidelines, 2022

News: Recently, the Central government has released the Central Media Accreditation Guidelines-2022. Applications for accreditation are vetted by a Central Press Accreditation Committee headed by the DG, PIB. At present, there are 2,457 PIB-accredited journalists in the country.

Provisions:

- If a journalist acts in a manner prejudicial to the country's security, sovereignty and integrity, friendly relations with foreign States, public order or is charged with a serious cognisable offence.
- If actions are prejudicial to decency, or morality, or in relation to contempt of court, defamation or incitement to an offence. Accredited media persons have been prohibited from using the words "Accredited to the government of India" on public/social media profile, visiting cards, letter heads or on any other form or any published work.
- Accreditation is only available for journalists living in the Delhi NCR region. There are multiple categories.
- A journalist needs to have a minimum five years' professional experience as a full-time working journalist or a cameraperson in a news organisation, or a minimum of 15 years as a freelancer to become eligible.
- Veteran journalists, with over 30 years of experience, and who are older than 65 years of age, too are eligible.
- A newspaper or a periodical needs to have a minimum daily circulation of 10,000, and news agencies must have at least 100 subscribers. Similar rules apply for foreign news organisations and foreign journalists.
- Journalists working with digital news platforms are also eligible, provided the website has a minimum of 10 lakh unique visitors per month.
- No accreditation will be granted to freelance journalists working for foreign news media organisations.
- The Government shall constitute a Committee called the Central Media Accreditation Committee.
- The Committee will be chaired by the Principal Director General, Press Information Bureau (PIB) and composed of up to 25 members nominated by the government to discharge the functions laid down under these guidelines. The CMAC would function for a period of two years from the date of its first meeting and shall meet once in a quarter or more frequently, if necessary.

Concerns:

- The guidelines leave it to the discretion of government nominated officials to assess what is defamatory or prejudicial to the sovereignty or integrity of India while deciding on whether a journalist's accreditation should be suspended or withdrawn.

- One of the core responsibilities of a journalist is to expose wrongdoing, whether by public officials, politicians, big businessmen, corporate groups, or other people in power. This could result, at times, in such powers trying to intimidate journalists or to block information from coming out.
- Journalists often report on issues and policy decisions that the government may not like.
- Any investigative story on sensitive issues could be held to be in violation of any of these provisions.

Benefits:

- In certain events where VVIPs or dignitaries such as the President, the Vice President or the Prime Minister are present, only accredited journalists are allowed to report from the premises.
- Second, accreditation ensures that a journalist is able to protect the identity of his or her sources.
- An accredited journalist does not have to disclose who he or she intends to meet when entering offices of union ministries, as the accreditation card is “valid for entry into buildings under MHA (Ministry of Home Affairs) security zone”. Accreditation brings certain benefits for the journalist and his or her family, like being included in the Central Government Health Scheme, and some concessions on railway tickets.

MPs’ Right to Question

News: Congress Whip Jairam Ramesh has raised the issue of Cabinet ministers not responding to questions in the Rajya Sabha claiming it to be first such incident in 70 years.

Details:

- In both Houses, elected members enjoy the right to seek information from various ministries and departments in the form of starred questions, unstarred questions, short notice questions and questions to private members.
- Usually, MPs’ questions form a long list, which then go through a rigorous process of clearance.
- The admissibility of questions in Rajya Sabha is governed by Rules 47-50 of the Rules of Procedure and Conduct of Business in the Council of States.
- Once a question that fulfils the conditions of admissibility is received, the Secretariat sends it to the ministry concerned. Once the facts are received from the ministry, the question is further examined for admissibility.
- A final list of questions is circulated to ministers, on the basis of which they frame their answers.

Types of Questions:

- **Starred Question:** The member desires an oral answer from the minister. Such a question is distinguished by the MP with an asterisk. The answer can also be followed by supplementary questions from members.
- **Unstarred Question:** The MP seeks a written answer, which is deemed to be laid on the table of the House by the concerned minister.
- **Short Notice Question:** These are on an urgent matter of public importance, and an oral answer is sought. A notice of less than 10 days is prescribed as the minimum period for asking such a question.
- **Question To Private Member:** A question can be addressed to a private member under Rule 40 of Lok Sabha’s Rules of Procedure, or under Rule 48 of Rajya Sabha’s Rules, provided that the question deals with a subject relating to some Bill, resolution or other matter for which that member is responsible.
- In Rajya Sabha, among various norms, the question “shall be pointed, specific and confined to one issue only; it shall not bring in any name or statement not strictly necessary to make the question intelligible; if it contains a statement the member shall make himself responsible for the accuracy of the statement; it shall not contain arguments, inferences, ironical expressions, imputations, epithets or defamatory statements”.
- In Lok Sabha, questions that are not admitted include: those that are repetitive or have been answered previously; and matters that are pending for judgment before any court of law or under consideration before a Parliamentary Committee.

Death Penalty

News: Recently, the Supreme Court (SC) commuted the death sentence of a man, convicted of the rape and murder of a seven-year-old girl, to life imprisonment. The judgment may become a significant precedent to the anti-death penalty cause.

Supreme Court's Judgement:

- SC commuted the death sentence to life imprisonment, with the rider that he shall not be entitled to "premature release or remission before undergoing actual imprisonment" for a period of 30 years.
- SC advised the trial judges that they should not be swayed in favour of death penalty merely because of the dreadful nature of the crime and its harmful impact on the society. They should equally consider the mitigating factors in favour of life imprisonment. SC referred to the evolution of the principles of penology and said that penology had grown to accommodate the philosophy of "preservation of human life".
- Penology is a sub-component of criminology that deals with the philosophy and practice of various societies in their attempts to repress criminal activities, and satisfy public opinion via an appropriate treatment regime for persons convicted of criminal offences.
- SC noted that though capital punishment serves as a deterrent and a "response to the society's call for appropriate punishment in appropriate cases",
- The principles of penology have "evolved to balance the other obligations of the society, i.e., of preserving the human life, be it of accused, unless termination thereof is inevitable and is to serve the other societal causes and collective conscience of society".

What is a Death Penalty?

- Capital punishment, also called the death penalty, is the execution of an offender sentenced to death after conviction by a court of law of a criminal offence. It is the highest penalty awardable to an accused. Generally, it is awarded in extremely severe cases of murder, rapes, treason etc.
- The death penalty is seen as the most suitable punishment and effective deterrent for the worst crimes. Those who oppose it, however, see it as inhumane. Thus, the morality of the death penalty is debatable and many criminologists and socialists all across the globe, have been long demanding abolition of the death penalty. Prior to the Criminal Procedure (Amendment) Act (Cr PC) of 1955, the death penalty was the rule and life imprisonment an exception in India. Further, the courts were bound to give an explanation for awarding a lighter penalty than death for capital offences.
- After the amendment of 1955 courts were at liberty to grant either death or life imprisonment.
- As per Section 354 (3) of the Cr PC, 1973 the courts are required to state reasons in writing for awarding the maximum penalty. The situation has been reversed and a life sentence is the rule and death penalty an exception in capital offences. Moreover, despite a global moratorium against the death penalty by the United Nation, India retains the death penalty.
- India is of view that allowing criminals guilty of having committed intentional, cold-blooded, deliberate and brutal murders to escape with a lesser punishment will deprive the law of its effectiveness and result in travesty of justice. In concurrence of this, a proposal for the scrapping of the death penalty was rejected by the Law Commission in its 35th report 1967.
- In India as per official statistics, 720 executions have taken place in India after it became independent in the year 1947, which is a minuscule fraction of the people who were awarded death penalty by the trial courts. In the majority of the cases, death was commuted to life imprisonment and some were acquitted by the higher courts.

Arguments in Favour:

- One of the key principles of retribution is that people should get what they deserve in proportion to the severity of their crime. This argument states that real justice requires people to suffer for their wrongdoing and to suffer in a way appropriate for the crime. Capital punishment is often justified with the argument that by executing convicted murderers, we will deter would-be murderers from killing people.
- It is often argued that the death penalty provides closure for victims' families.

Arguments against:

- The statistical evidence doesn't confirm that deterrence works. Some of those executed may not have been capable of being deterred because of mental illness or defect. Death has been prescribed in rape cases since 2013 (Sec. 376A of IPC), still, rapes continue to happen and in fact, the brutality of rapes has increased manifold. This compels one to think of the death penalty is an effective deterrent to crime.
- The most common argument against capital punishment is that sooner or later, innocent people may get killed, because of mistakes or flaws in the justice system.
- As long as human justice remains fallible, the risk of executing the innocent can never be eliminated.

Parliamentary Standing committee Report on Police Reforms

News: Recently, the Parliamentary standing committee on home affairs has tabled a report on Police- training, modernisation and reforms. The report highlights the number of reforms required and challenges faced by the Police forces.

Details:

- The report asked the Centre to advise states and Union Territories to create a road map for ensuring 33% representation of women in police while expressing anguish over their underrepresentation. The appointment of women in police may be done by creating additional posts rather than converting the vacant posts of men. Ensuring higher women representation will also help in improving the police-population ratio.
- States and union territories should assign important challenging duties to women instead of those of inconsequence. It recommended at least one all-women police station in each district. It recommended offline and online modules to help them de-stress through yoga, exercises, counseling and treatment.
- It called for the separation of investigation from law and order to maintain accountability and increase police autonomy in probing crimes. This will lead to specialisation and professionalism, speed up the investigation and secure the convictions.
- The panel backed virtual trials, particularly those involving high-risk groups, via video conferencing. It will help in dedicating less police force for escorting under-trial prisoners to courts and also save resources.
- The committee expressed disappointment over the poor housing satisfaction levels among police personnel and recommended an allocation of funds for housing. In the 21st century India, there are police stations without telephones or proper wireless connectivity especially in many sensitive states like Arunachal Pradesh, Odisha and Punjab. Policing system should be transparent, independent, accountable and people-friendly. The committee expressed concern that even after 15 years, only 17 States have either enacted the Model Police Act, 2006, or amended the existing Act. The progress in police reforms has been slow.
- It recommends that the MHA (Ministry of Home Affairs) may put the information in public domain about the states that are leading and lagging in the modernization process.
- Community policing should be promoted, as it involves a cooperative effort between police and the communities where both can work together to solve the crime and crime-related problems.
- Advise the state police and central armed police forces to train and liaison with people living in the border areas for gathering intelligence on infiltration, use of drones and drug trafficking.
- For drones, the panel directed the MHA to create a central pool of anti-drone technology "at the earliest" and give its access to all states and Union Territories.
- The committee observed that the under-utilisation of funds by the states for police modernisation needs to be identified. It recommended that the MHA should consider constituting a committee which can visit the underperforming states and assist them to utilize the funds in a planned manner.

SVAMITVA Scheme

News: The government has said that it plans to prepare digital maps of all its 6,00,000 villages and pan-India 3D maps will be prepared for 100 cities under SVAMITVA scheme. So far drone surveys have covered close to 1,00,000 villages and maps of 77,527 villages had been handed over to states. Property cards had been distributed to around 27,000 villages.

SVAMITVA (Survey of Villages and Mapping with Improvised Technology in Village Areas) Yojana':

- Launched on Panchayati Raj Diwas (April 24th, 2020). Last year, it was extended to all states. Earlier, it was launched only for 9 states. The scheme seeks to map residential land ownership in the rural sector using modern technology like the use of drones. The scheme aims to revolutionize property record maintenance in India. The scheme is piloted by the Panchayati Raj ministry.
- Under the scheme, residential land in villages will be measured using drones to create a non-disputable record. Property card for every property in the village will be prepared by states using accurate measurements delivered by drone-mapping. These cards will be given to property owners and will be recognised by the land revenue records department.

Benefits:

- The delivery of property rights through an official document will enable villagers to access bank finance using their property as collateral. The property records for a village will also be maintained at the Panchayat level, allowing for the collection of associated taxes from the owners. The money generated from these local taxes will be used to build rural infrastructure and facilities.
- Freeing the residential properties including land of title disputes and the creation of an official record is likely to result in appreciation in the market value of the properties.
- The accurate property records can be used for facilitating tax collection, new building and structure plan, issuing of permits and for thwarting attempts at property grabbing.
- The need for this Yojana was felt since several villagers in the rural areas don't have papers proving ownership of their land. In most states, survey and measurement of the populated areas in the villages has not been done for the purpose of attestation/verification of properties. The new scheme is likely to become a tool for empowerment and entitlement, reducing social strife on account of discord over properties.

RTE and Minority Educational Institutions

News: Recently, the Supreme Court has refused to entertain a petition questioning the exclusion of madrasas and Vedic schools (Minority Educational Institutions (MEI)) from the ambit of the Right of Children to Free and Compulsory Education (RTE) Act 2009.

Details:

- The exclusion of these institutions was specifically inserted into the 2009 Act by an amendment of August 2012. Earlier, a report by the NCPCR showed the disproportionate number of minority institutions or dominance of non-minority category in Minority institutions.

What are Legal Provisions regarding MEI and RTE?

- Article 21A describes modalities of the importance of free and compulsory education for children aged between 6-14 years in India under Article 21 (A) of the Constitution of India (86th Amendment). The Act mandates 25% reservation for disadvantaged sections of the society where disadvantaged groups include:
 - SCs and STs
 - Socially Backward Class
 - Differently abled
- Article 29 and 30 of Indian Constitution contain provisions securing rights of minorities and minority-run institutions. Minority institutions have the fundamental right under Article 30 of the Constitution to establish and administer their educational institutions according to their choice.
- In this context, RTE was amended to add in Sections 1(4) and 1(5) of the Act.
- Section 1(5) of the RTE Act states, "Nothing contained in this Act shall apply to madrasas, Vedic pathshalas and educational institutions primarily imparting religious instruction.
- Section 1(4) of the RTE states that "Subject to the provisions of Articles 29 and 30 of the Constitution, the provisions of this Act shall apply to conferment of rights on children to free and compulsory education.

Arguments by petitioners:

- Sections 1(4) and 1(5) fail to consider that children aged between 6 and 14 years are in their formative years and such education brings about a religious connotation in the mind of children.
- Introduction of common syllabus and common curriculum would enable every child to be placed on a level playing field for the challenges of the future.
- Right of a child should not be restricted only to free education, but must be extended to have equal quality education without discrimination on the ground of child's social economic and cultural background.
- It would meaningfully contribute in achieving the great golden goals as set out in the preamble, particularly fraternity, unity and national integration.
- Therefore, the court may declare Sections 1(4) and 1(5) of the 2009 Act arbitrary and irrational.

Tribunals

News: The Supreme Court has warned that even after the judicial intervention, the government made abrupt efforts to fill vacancies in tribunals some time back and nothing after that.

Background:

- The apex court said that it is getting requests for extension of time for NCLT (Nation Company Law Tribunal) matters, etc. Some knee-jerk appointments took place and nothing after that. The govt earlier had introduced Tribunal Reforms Bill in 2021, which abolishes nine appellate tribunals and revives provisions of an ordinance struck down by the Supreme Court.

What are Tribunals?

- Tribunals are specialist judicial bodies that decide disputes in a particular area of law. They are institutions established for discharging judicial or quasi-judicial duties. The objective may be to reduce the caseload of the judiciary or to bring in subject expertise for technical matters.
- In 1976, Articles 323A and 323B were inserted in the Constitution of India through the 42nd Amendment.
- Article 323A: This empowered Parliament to constitute administrative Tribunals (both at central and state level) for adjudication of matters related to recruitment and conditions of service of public servants.
- Article 323B: This specified certain subjects (such as taxation and land reforms) for which Parliament or state legislatures may constitute tribunals by enacting a law.
- In 2010, the Supreme Court clarified that the subject matters under Article 323B are not exclusive, and legislatures are empowered to create tribunals on any subject matters under their purview as specified in the Seventh Schedule.

SC's stance on Tribunals

- The Supreme Court has ruled that tribunals, being quasi-judicial bodies, should have the same level of independence from the executive as the judiciary. Key factors include the mode of selection of members, the composition of tribunals, and the terms and tenure of service.
- In order to ensure that tribunals are independent of the executive, the Supreme Court had recommended that all administrative matters be managed by the law ministry rather than the ministry associated with the subject area. Later, the Court recommended the creation of an independent National Tribunals Commission for the administration of tribunals. These recommendations have not been implemented.

Election Symbols

News: Prime Minister Narendra Modi, during an election speech in Uttar Pradesh, appeared to suggest a connection between the 2008 Ahmedabad blasts and the Samajwadi Party due to its election symbol, the bicycle.

Background:

- Bicycles were first used as carriers of bombs in the 2006 Malegaon blasts. The perpetrators of the blast strapped two bombs on different bicycles and placed them in the town.
- Around the world terrorist groups have long used bicycles to plant bombs. They are easy and cheap to procure anywhere in the world, and increase the impact of the blast by adding jagged metal splinters to the shrapnel from the explosion.

Details:

- As per the guidelines, to get a symbol allotted:
 - A party/candidate has to provide a list of three symbols from the EC's free symbols list at the time of filing nomination papers.
 - Among them, one symbol is allotted to the party/candidate on a first-come-first-serve basis.
 - When a recognised political party splits, the Election Commission takes the decision on assigning the symbol.
- The Election Symbols (Reservation and Allotment) Order, 1968 empowers the EC to recognise political parties and allot symbols. Under Paragraph 15 of the Order, it can decide disputes among rival groups or sections of a recognised political party staking claim to its name and symbol.
- The EC is also the only authority to decide issues on a dispute or a merger. The Supreme Court upheld its validity in *Sadiq Ali and another vs. ECI* in 1971. As per the Election Symbols (Reservation and Allotment) (Amendment) Order, 2017, party symbols are either:
 - Eight national parties and 64 state parties across the country have "reserved" symbols.
 - The Election Commission also has a pool of nearly 200 "free" symbols that are allotted to the thousands of unrecognised regional parties that pop up before elections.

- On the question of a split in a political party outside the legislature, Para 15 of the Symbols Order, 1968, states: “When the Commission is satisfied that there are rival sections or groups of a recognised political party each of whom claims to be that party the Commission may decide that one such rival section or group or none of such rival sections or groups is that recognised political party and the decision of the Commission shall be binding on all such rival sections or groups.”
- This applies to disputes in recognised national and state parties (like the LJP, in this case). For splits in registered but unrecognised parties, the EC usually advises the warring factions to resolve their differences internally or to approach the court. Please note that before 1968, the EC issued notifications and executive orders under the Conduct of Election Rules, 1961.

Fundamental Duties

News: Recently, the Supreme Court issued a notice to the Centre and states to respond to a petition to enforce the Fundamental Duties of citizens, including patriotism and unity of the nation, through comprehensive, well-defined laws. Fundamental Duties are specified under Article 51A (Part IVA) of the Constitution, they strive to uphold the country’s ideals and contribute to its growth and betterment.

What are Fundamental Duties?

- The idea of Fundamental Duties is inspired by the Constitution of Russia (erstwhile Soviet Union).
- These were incorporated in Part IV-A of the Constitution by the 42nd Constitutional Amendment Act, 1976 on the recommendations of the Swaran Singh Committee.
- Originally 10 in number, one more duty was added through the 86th Constitutional Amendment Act, 2002.
- Like the Directive Principles of State Policy, the Fundamental duties are also non-justiciable in nature.

List of Fundamental Duties:

- To abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem,
- To cherish and follow the noble ideals that inspired the national struggle for freedom,
- To uphold and protect the sovereignty, unity and integrity of India,
- To defend the country and render national service when called upon to do so,
- To promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities and to renounce practices derogatory to the dignity of women,
- To value and preserve the rich heritage of the country’s composite culture,
- To protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures,
- To develop scientific temper, humanism and the spirit of inquiry and reform,
- To safeguard public property and to abjure violence,
- To strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement, and
- To provide opportunities for education to his child or ward between the age of six and fourteen years (added by the 86th Constitutional Amendment Act, 2002).

Significance:

- Rights and duties are correlative. The Fundamental Duties are intended to serve as a constant reminder to every citizen that while the Constitution specifically conferred on them certain fundamental rights, it also requires citizens to observe basic norms of democratic conduct and democratic behaviour.
- These serve as a warning to the people against the anti-social activities that disrespect the nation like burning the flag, destroying the public property or disturbing public peace.
- These help in the promotion of a sense of discipline and commitment towards the nation. They help in realising national goals by the active participation of citizens rather than mere spectators.
- It helps the Court in determining the constitutionality of the law. For instance, any law passed by the legislatures, when taken to Court for constitutional validity of the law, if it is giving force to any Fundamental Duty, then such law would be taken as reasonable.

Social Justice

MGNREGA

News: As per the latest economic survey, Demand for work under MGNREGA scheme has dropped from the peak of the first lockdown, but is still higher than pre-COVID levels. The highest demand for work under the scheme was seen in States which are usually the destination of migrant workers, rather than source States.

Details:

- Advocates for rural workers have argued that the drop in demand is due to funding constraints, and urged a significant increase in allocations for the scheme in Union budget.
- The Centre had infused ₹40,000 crore worth of additional funding early in the first lockdown.
- However, additional funding was not available until late in the year when many States had already run out of money, forcing an artificial suppression in demand on the ground.

About MGNREGA:

- The scheme was introduced in 2005 as a social measure that guarantees “the right to work”.
- The key tenet of this social measure and labour law is that the local government will have to legally provide at least 100 days of wage employment in rural India to enhance their quality of life.
- Key objectives of the scheme are as following:
 - Generation of paid rural employment of not less than 100 days for each worker who volunteers for unskilled labour.
 - Proactively ensuring social inclusion by strengthening the livelihood base of rural poor.
 - Creation of durable assets in rural areas such as wells, ponds, roads and canals.
 - Reduce urban migration from rural areas.
 - Create rural infrastructure by using untapped rural labour.

Who are eligible?

- Must be Citizen of India to seek MGNREGA benefits.
- Job seeker has completed 18 years of age at the time of application.
- The applicant must be part of a local household (i.e. application must be made with local Gram Panchayat).
- Applicants must volunteer for unskilled labour.

Implementation:

- Within 15 days of submitting the application or from the day work is demanded, wage employment will be provided to the applicant. Right to get unemployment allowance in case employment is not provided within fifteen days of submitting the application or from the date when work is sought.
- Social Audit of MGNREGA works is mandatory, which lends to accountability and transparency.
- The Gram Sabha is the principal forum for wage seekers to raise their voices and make demands.
- It is the Gram Sabha and the Gram Panchayat which approves the shelf of works under MGNREGA and fix their priority.

National Higher Educational Qualification Framework

News: Recently, the University Grants Commission (UGC) has released a Draft National Higher Educational Qualification Framework (NHEQF) as a part of the National Education Policy (NEP) 2020 to assess students at different levels. The NEP 2020 aims at making “India a global knowledge superpower”. Given the size of the higher education system and the diversity of institutions and programmes of study in India, the country needs to move towards developing a nationally accepted and internationally comparable and acceptable qualifications framework to facilitate transparency and comparability of higher education qualifications at all levels.

Background:

- India recognized the need for NQF both for general education and for Vocational Education and Training (VET). The Ministry of Labour and Employment developed the National Vocational Qualifications Framework (NVQF) and the Ministry of Human Resource Development (renamed as Ministry of Education,

after NEP 2020 recommendations) developed the Vocational Education Qualifications Framework (NVEQF). These two frameworks were considered and used while developing the National Skills Qualifications Framework (NSQF) notified in 2013.

What is Draft NHEQF?

- The framework is not intended to promote a uniform curriculum or national common syllabus. The purpose is to bring up/elevate all HEIs (Higher Education Institutions) to a common level of benchmarking to ensure that all institutions are providing quality education. The draft framework has outlined several learning level “descriptors” or parameters based on which students can be assessed at every level.
- These parameters include generic learning outcomes, constitutional, ethical, and moral values, employment ready skills, entrepreneurship mindset, and application of knowledge and skills among others.
- The NHEQF has divided parameters into levels 5 to 10. Levels 1 to 4 cover the school education.
- The NHEQF level 5 represents learning outcomes appropriate to the first year (first two semesters) of the undergraduate programme of study, while Level 10 represents learning outcomes appropriate to the doctoral-level programme of study. The NHEQF envisages that students on completion of a programme of study must possess and demonstrate the expected graduate profile/attributes acquired.
- It also fixes the number of credits required to clear the different levels of the four-year undergraduate programme, postgraduate degrees and doctoral degrees. The NEP 2020 allows multiple entry and exits at the undergraduate level. It effectively means that students can exit after completing one year of undergraduate programme with a certificate, after two years with a diploma, after three years with a bachelor’s degree, or can complete four years and get an honours degree with a honours/research degree.
- A credit is a unit by which the coursework is measured.

E-Shram Portal

News: Over 2 crore people who have signed up for the Centre’s portal for unorganised sector workers hold a Graduate Degree.

E-Shram

- On August 26, 2021, the Ministry of Labour and Employment (MOLE) launched the E-Shram, the web portal for creating a National Database of Unorganized Workers (NDUW), which will be seeded with Aadhaar.
- It seeks to register an estimated 398-400 million unorganized workers and to issue an E-Shram card.
- It has come about even after repeated nudging by the Supreme Court of India. It is the result of state apathy.
- Had the Central and the State governments begun these legally mandated processes on time, much of the distress of lakhs of vulnerable workers would have been avoided. In fact, the political class owe an ‘apology’ to informal workers.

Issues with E-Shram

- Given the gigantic nature of registering each worker, it will be a long-drawn process.
- The Government has not mentioned a gestation period to assess its strategy and efficiency.
- Employers are or required their workers to register even. While the Government can appeal to them, any penal measure will hurt the ease of doing business.
- Considering the estimated 380 million workers as the universe of registration — debatable as the novel coronavirus pandemic has pushed lakhs of workers into informality.
- One of the vital concerns of e-portals is data security, including its potential abuse especially when it is a mega-sized database.
- There are also media reports pointing out the absence of a national architecture relating to data security.
- It has been reported that in some States such as Maharashtra, the server was down for a few days.
- Many workers will not have an Aadhaar-seeded mobile or even a smartphone. Aadhaar-seeding is a controversial issue with political overtones, especially in the North-eastern regions.
- There are several issues concerning the eligibility of persons to register as well as the definitional issues.
- By excluding workers covered by EPF and ESI, lakhs of contract and fixed-term contract workers will be excluded from the universe of UW. Hazardous establishments employing even a single worker will have to be covered under the ESI, which means these workers also will be excluded.

- The NDUW excludes millions of workers aged over 59 from its ambit, which constitutes age discrimination.
- Many are circular migrant workers and they quickly, even unpredictably, move from one trade to another.
- Many others perform formal and informal work as some during non-office hours may belong to the gig economy, for example as an Uber taxi or a Swiggy employee. They straddle formal and informal sectors.
- Even though MOLE has included gig workers in this process, it is legally unclear whether the gig/platform worker can be classified first as a worker at all.
- The central government will have to depend on the State governments for this project to be successful.
- In many States, the social dialogue with the stakeholders especially is rather weak or non-existent. The success of the project depends on the involvement of a variety of stakeholders apart from trade unions.
- There is also the concern of corruption as middle-service agencies such as Internet providers might charge exorbitant charges to register and print the E-Shram cards.

Benefits:

- Workers stand to gain by registration in the medium to long run. But the instant benefit of accident insurance upto ₹0.2 million to registered workers is surely not an attractive carrot.
- The main point of attraction is the benefits they stand to gain during normal and crisis-ridden periods such as the novel coronavirus pandemic now which the Government needs to disseminate properly.

Way forward

- E-Shram is a vital system to provide hitherto invisible workers much-needed visibility.
- It will provide the Labour Market Citizenship Document to them.
- The govt should go one step further for triple linkage for efficient and leakage-less delivery of all kinds of benefits and voices to workers/citizens: One-Nation-One-Ration Card (ONOR), E-Shram Card (especially bank account seeded) and the Election Commission Card. Last but not least, registrations cannot be a source of exclusion of a person from receiving social assistance and benefits.


Pradhan Mantri Matru Vandana Yojana

News: Recently, the Government has clarified that Aadhaar of Husbands is not mandatory under the Pradhan Mantri Matru Vandana Yojana, PMMVY, to facilitate the inclusion of single mothers and abandoned mothers.

What is PMMVY?

- It is a maternity benefit programme being implemented in all districts of the country with effect from 1st January, 2017.
- It is a centrally sponsored scheme being executed by the Ministry of Women and Child Development.
- Cash benefits are provided to pregnant women in their bank account directly to meet enhanced nutritional needs and partially compensate for wage loss.
- Implementation of the scheme is closely monitored by the

MATTER OF HEALTH	THE INITIATIVE
<ul style="list-style-type: none"> ➤ Under-nutrition continues to adversely affect women in India ➤ Every third woman is under-nourished, while every second woman is anaemic ➤ Under-nourished women often give birth to babies with a low birth weight ➤ When poor nutrition starts in-utero, it extends throughout the life cycle ➤ Owing to economic and social distress, many women continue to work to earn a living for their family up to the last days of their pregnancy ➤ They resume work soon after childbirth, which prevents their bodies from fully recovering ➤ It also impedes their ability to exclusively breastfeed during the first six months 	<p>The Pradhan Mantri Matru Vandana Yojana provides maternity benefits of ₹5,000 for pregnant women and lactating mothers after their first delivery</p> <ul style="list-style-type: none"> ■ The benefit is provided in three instalments ■ It is a conditional cash transfer scheme and provides a partial wage compensation to women for wage-loss during childbirth and childcare ■ The scheme ensures safe delivery and good nutrition for women ■ The benefits are not available for employees of the Central or State governments and any public-sector undertaking



central and state governments through the Pradhan Mantri Matru Vandana Yojana - Common Application Software (PMMVY-CAS). PMMVY-CAS is a web-based software application that enables tracking the status of each beneficiary under the scheme, resulting in expedited, accountable and better grievance redressal.

- All Pregnant Women and Lactating Mothers (PW&LM), excluding those who are in regular employment with the Central Government or the State Governments or PSUs or those who are in receipt of similar benefits under any law for the time being in force. All eligible Pregnant Women and Lactating Mothers who have their pregnancy on or after 1st January 2017 for the first child in the family.

- Beneficiaries receive a cash benefit of Rs. 5,000 in three installments on fulfilling the following conditions:
 - Early registration of pregnancy
 - Ante-natal check-up
 - Registration of the birth of the child and completion of the first cycle of vaccination for the first living child of the family.
 - The eligible beneficiaries also receive cash incentive under Janani Suraksha Yojana (JSY). Thus, on an average, a woman gets Rs. 6,000.

Intensified Mission Indradhanush

News: The Union Health Minister has launched the Intensified Mission Indradhanush (IMI) 4.0.

Details:

- The IMI 4.0 will have three rounds and will be conducted in 416 districts (including 75 districts identified for Azadi ka Amrit Mahotsav) across 33 States and UTs, a Health Ministry statement said.
- It will immensely contribute in filling the gaps and make lasting gains towards universal immunisation.
- It will ensure that Routine Immunisation (RI) services reach the unvaccinated and partially vaccinated children and pregnant women” he said.

What is Mission Indradhanush ?

- With the aim to increase the full immunisation coverage, the PM launched Mission Indradhanush in December 2014. It aimed to cover the partially and unvaccinated pregnant women and children in pockets of low immunisation coverage, high-risk and hard-to-reach areas and protect them from vaccine preventable diseases. The first two phases of the Mission resulted in 6.7% increase in full immunisation coverage in a year.
- It aims to immunize all children under the age of 2 years, as well as all pregnant women, against eight vaccine-preventable diseases. The diseases being targeted are diphtheria, whooping cough, tetanus, poliomyelitis, tuberculosis, measles, meningitis and Hepatitis B.
- In 2016, four new additions have been made namely Rubella, Japanese Encephalitis, Injectable Polio Vaccine Bivalent and Rotavirus. In 2017, Pneumonia was added to the Mission by incorporating the Pneumococcal conjugate vaccine under Universal Immunisation Programme

Ayushman Bharat Digital Mission

News: The National Health Authority has announced the integration of its flagship Ayushman Bharat Digital Mission with the Aarogya Setu app, allowing users to create the 14-digit unique Ayushman Bharat Health Account numbers from the app.

About the Mission:

- The Ayushman Bharat Digital Mission will provide a digital health ID to the people who will hold their health records. It is a digital health ecosystem under which every Indian citizen will now have unique health IDs, digitised health records with identifiers for doctors and health facilities.
- The scheme will come under the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana.
- It comprises six key building blocks — HealthID, DigiDoctor, Health Facility Registry, Personal Health Records, e-Pharmacy and Telemedicine. The National Health Authority has been given the mandate to design, build, roll-out and implement the mission in the country.
- The core building blocks of the mission is that the health ID, DigiDoctor and Health Facility Registry shall be owned, operated and maintained by the Government of India.

PARTICIPATION IN SYSTEM TO BE VOLUNTARY	
AIMS TO	KEY BUILDING BLOCKS
➤ Establish digital health systems and managing health data	● Health ID ● Personal health records ● Digi Doctor ● Health facility registry ● Telemedicine ● e-Pharmacy
➤ Improve quality of health data collection, storage and dissemination	
➤ Provide a platform for interoperability of healthcare data	
➤ Fast-track creation of updated and accurate health registries for the entire country	
	GUIDING PRINCIPLES
	● Voluntary participation ● Privacy and security by design ● Inclusivity ● Seamless portability

- Private stakeholders will have an equal opportunity to integrate and create their own products for the market. The core activities and verifications, however, remain with the government.
- Under the Mission, every Indian will get a Health ID card that will store all medical details of the person including prescriptions, treatment, diagnostic reports and discharge summaries.
- Health ID is a randomly generated 14-digit number used for the purposes of uniquely identifying persons, authenticating them, and threading their health records (only with their informed consent) across multiple systems and stakeholders. The citizens will be able to give their doctors and health providers one-time access to this data during visits to the hospital for consultation.
- The mission aims to liberate citizens from the challenges of finding the right doctors, seeking appointment, payment of consultation fee, making several rounds of hospitals for prescription sheets, among several others and will empower people to make an informed decision to avail the best possible healthcare.

World Food Programme

News: India signed an agreement with the United Nation's World Food Programme (WFP) for the distribution of 50,000 MT of wheat that it has committed to sending Afghanistan as part of a humanitarian assistance.

Details:

- According to the MoU, the wheat will be taken through Pakistan to the Afghan border crossing and handed over to WFP officials in Kandahar beginning February 22.
- The wheat will eventually be divided into five batches of 10,000 MT, to be distributed across the country on approximately 200 trucks that are run by WFP.

What is the United Nations World Food Programme?

- The World Food Programme (WFP) is the leading humanitarian organisation saving lives and changing lives, delivering food assistance in emergencies and working with communities to improve nutrition and build resilience. It was founded in 1961 by the Food and Agriculture Organisation (FAO) and United Nations General Assembly (UNGA) with its headquarters in Rome, Italy.
- It is also a member of the United Nations Sustainable Development Group (UNSDG), a coalition of UN agencies and organisations aimed at fulfilling the Sustainable Development Goals (SDGs).
- The WFP assists 88 countries, and has assisted 97 million people (in 2019) which is the largest number since 2012. The WFP has been awarded with the Nobel Prize for Peace 2020 for its efforts to combat hunger, bettering conditions for peace in conflict-affected areas and preventing the use of hunger as a weapon of war and conflict.
- Major Objectives of the fund are:
 - To end hunger by protecting access to food.
 - Improving nutrition and achieving food security.
 - Supporting the SDG implementation and partnering for its results.



- To focus on emergency assistance as well as rehabilitation and development aid.
- Alibaba Cloud, the cloud computing arm of Alibaba is working with WFP to develop digital “World Hunger Map”. The map will help to monitor global hunger and operations to end scourge by 2030 which is one of UN’s key Sustainable Development goals. It also aims to boost efficiency of interventions and shorten emergency response times.

New India Literacy Programme

News: Recently, a new scheme “New India Literacy Programme” for the period FYs 2022-2027 to cover all the aspects of Adult Education to align with National Education Policy 2020 has been approved. It is also in line with Budget 2021-22, which announced that increased access to resources, online modules covering the entire gamut of adult education will be introduced. The estimated total outlay of the scheme is Rs.1037.90 crore which includes Central share of Rs. 700 crore and State share of Rs. 337.90 crore respectively for the FYs 2022 -27. Term “Adult Education” will be replaced by “Education For All”.

Objectives:

- To impart not only foundational literacy and numeracy but also to cover other components which are necessary for a citizen of the 21st century.
- Critical life skills (including financial literacy, digital literacy, commercial skills, health care and awareness, child care and education, and family welfare).
- Vocational skills development (with a view towards obtaining local employment).
- Basic education (including preparatory, middle, and secondary stage equivalency).
- Continuing education (including engaging holistic adult education courses in arts, sciences, technology, culture, sports, and recreation, as well as other topics of interest or use to local learners, such as more advanced material on critical life skills).

Implementation:

- The scheme will be implemented through volunteerism through online mode. The training, orientation, workshops of volunteers, may be organized through face-to-face mode. All material and resources shall be provided digitally. School will be Unit for implementation of the scheme. Schools to be used for conducting surveys of beneficiaries and Voluntary Teachers.

Beneficiaries:

- Non-literates of the age of 15 years and above in all states/UTs in the country.
- The target is 5 (five) crore learners @ 1.00 crore per year by using “Online Teaching, Learning and Assessment System (OTLAS)” in collaboration with National Informatics Centre, NCERT and NIOS.

Significance:

- As per Census 2011, the absolute number of non-literates of the country in 15 years and above age group is 25.76 crore (Male 9.08 crore, Female 16.68 crore). Also, in consideration of the progress of persons certified as literates being to the tune of 7.64 crore under the Saakshar Bharat programme implemented during 2009-10 to 2017-18, it is estimated that currently around 18.12 crore adults are still non-literate in India.

New India Literacy Program

A new scheme on ‘Education for All’- erstwhile termed as ‘Adult Education’

Objectives:

- Reaching to 5 Cr. learners for the Foundational Literacy & Numeracy
- Covering non-literates of the age of 15 years and above
- Using Online Teaching, Learning and Assessment System (OTLAS) to cover learners
- Collaboration with NIC, NCERT and NIOS for wider reach of scheme

Scheme for Economic Empowerment of DNTs

News: The Minister of Social Justice and Empowerment has launched the Scheme for Economic Empowerment of De-notified, Nomadic, and Semi Nomadic Communities (SEED).

Who are the DNTs?

- The term 'De-notified Tribes' stands for all those communities which were once notified under the Criminal Tribes Acts, enforced by the British Raj between 1871 and 1947.
- These Acts were repealed after Independence in 1952, and these communities were "De-Notified".
- The DNTs (of whom most are the medieval period Banjaras) are the most neglected, marginalized, and economically and socially deprived communities. Most of them have been living a life of destitution for generations and still continue to do so with an uncertain and gloomy future.

SEED Scheme

- Under the scheme, the government seeks to provide free coaching to students for civil services examinations, competitive exams for admission to professional courses; health insurance; livelihood support and housing.
- It has been formulated for families having income from all sources of Rs.2.50 lakh or less per annum and not availing any such benefits from similar Scheme of Centre Government or the State Government.
- The Scheme will be implemented through a portal, developed by the Department of Social Justice & Empowerment. Post verification, the funds will be transferred directly to the beneficiaries in their account.
- The other implementing agencies are Ministry of Rural Development, National Rural Livelihood Mission (NRLM) and National Health Authority (NHA).

Components of the scheme

Free Coaching

- A component of free Coaching for DNT Students has been envisioned for the educational empowerment of these communities. The objective of this component is to enable them to appear in competitive examinations/ admission to professional courses like medicine, engineering, MBA, etc for obtaining an appropriate job in Public/Private Sector. The selection of the candidates for each course will be based on system generated merit list through the portal. Approximately, 6250 students will be provided free coaching under this component in five years. The total funds spend in the five years will be Rs.50 crore.

Health Insurance

- Members of these communities are likely to have little or no access to medical facilities and other benefits available under the mainstream health policies. The primary objective of the scheme is to provide financial assistance to National Health Authority (NHA) in association with State Health Agencies (SHAs).
- These agencies will provide a health insurance cover of Rs.5 lakhs per family per year for families as per norms of "Ayushman Bharat Pradhan Mantri Jan Arogya Yojana.

Livelihood Initiatives

- The decline of traditional occupations of DNT/NT/SNT communities has exacerbated their poverty. A focus to support livelihood generation for these communities is required. The primary objective of the scheme is to provide financial assistance to National Rural Livelihood Mission (NRLM). It would enhance productivity growth in key livelihood sectors for employment generation through investments in institutional support, technical assistance.

Financial support for Housing

- Considering the shortage of houses for DNTs, it has been proposed to earmark a separate outlay for PMAY to support specific importance in providing houses only for DNTs living in rural areas. It is for those who have not taken benefits of the Pradhan Mantri Awas Yojana as SC, ST, OBC and are living below poverty line. The admissible support is Rs 1.20 lakhs in plains and 1.30 lakhs in hilly areas (per unit assistance).

Significance:

- DNTs escaped the attention of our developmental framework and thus are deprived of the support unlike Scheduled Castes and Scheduled Tribes. Historically, these communities never had access to private land or homeownership. These tribes used forests and grazing lands for their livelihood and residential use and had "strong ecological connections. Many of them are dependent upon various types of natural resources and carve out intricate ecological niches for their survival. The changes in ecology and environment seriously affect their livelihood options.

Human Trafficking

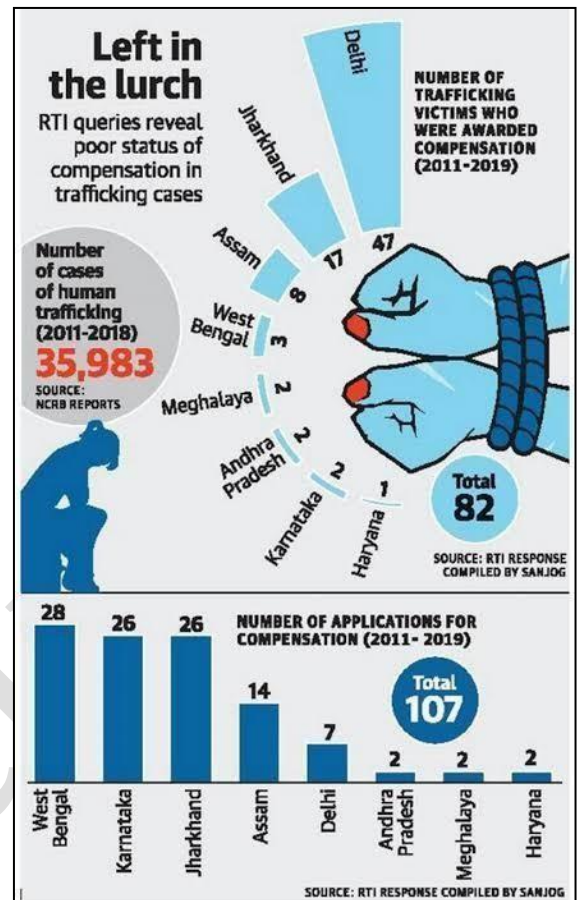
News: Details of the conviction of cases involving human trafficking were recently shared in Parliament.

Background:

- According to the Trafficking in Persons report 2021, released by the US State Department, the Covid-19 pandemic has resulted in an increase in vulnerability to human trafficking and interrupted existing anti-traffic efforts. While India did not meet the minimum standards to eliminate trafficking, the government was making significant efforts, although these were inadequate, especially when it came to bonded labour.

Details:

- The conviction rate in human trafficking cases has been declining over the past four years. It has dropped from 27.8% in 2016 to 10.6% in 2020. The number of Anti Human Trafficking Units (AHTU) in the country has increased to 696. Absence of a strong and robust mechanism to investigate human trafficking cases often span across state borders leading to acquittal of traffickers across the country.
- The conviction rate will remain low unless India has a comprehensive legislation that provides for a strong investigation mechanism clarifying the roles and responsibilities of investigating agencies such as AHTUs and the NIA (National Investigation Agency). The Ministry of Women and Child Welfare has prepared the Trafficking in Persons (Prevention, Care and Rehabilitation) Bill, 2021.



Highlights of the latest bill:

- The bill proposes stringent punishments for offenders, including hefty fines and seizing of their properties.
- The Bill also extends beyond the protection of women and children as victims to now include transgenders as well as any person who may be a victim of trafficking. The draft also does away with the provision that a victim necessarily needs to be transported from one place to another to be defined as a victim.
- Exploitation has been defined to include, at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation including pornography, any act of physical exploitation, forced labour or services, slavery or practices similar to slavery, servitude or forced removal of organs etc.
- The law will extend to:
 - All citizens inside as well as outside India.
 - Persons on any ship or aircraft registered in India wherever it may be or carrying Indian citizens wherever they may be.
 - A foreign national or a stateless person who has his or her residence in India at the time of commission of offence under this Act.
 - Every offence of trafficking in persons with cross-border implications.
 - Defence personnel and government servants, doctors and paramedical staff or anyone in a position of authority.

Constitutional and Legal Provisions:

- Trafficking in Human Beings or Persons is prohibited under the Constitution of India under Article 23 (1).
- The Immoral Traffic (Prevention) Act, 1956 (ITPA) is the premier legislation for prevention of trafficking for commercial sexual exploitation.
- Criminal Law (amendment) Act 2013 has come into force wherein Section 370 of the Indian Penal Code has been substituted with Section 370 and 370A IPC which provide for comprehensive measures to counter the menace of human trafficking.

Academic Bank of Credits

News: The National Education Policy (NEP) 2020 has recommended a revamp of the higher education scene in India. A new initiative stemming from this desire is an 'Academic Bank of Credits' (ABC) in higher education idea, which was notified recently by the University Grants Commission (UGC).

Academic Bank of Credits' (ABC)

- Any undergraduate or postgraduate student can create an account in the ABC portal and store information of his/her completed courses (i.e., subjects/papers in old terminology) and grades obtained. These grades are stored for a period of five years.
- As multiple institutes are connected to the ABC portal, one can be formally enrolled in university 'A' but can choose to do some courses from university 'B', some more from university 'C' and so on and all of these would count towards the student's degree.
- Flexible and multidisciplinary: One can enrol in an equivalent course from another college in the same city or join online courses offered by other universities; or can enrol in SWAYAM (a programme initiated by the Government of India) or the National Programme on Technology Enhanced Learning (NPTEL) and add these credits. Thus, education will truly become flexible and interdisciplinary, without forcing any single institute to float an unmanageable number of courses.
- This flexibility will offer students a chance to enrol in a course and learn from teachers from some of the best institutes such as the Indian Institutes of Technology (IIT) or the Indian Institutes of Science Education and Research.

Issues with ABC

- ABC regulations say that the institute should allow up to 20% supernumerary seats for students enrolling through the ABC scheme. There is no clarity on how the selection of students would be made if there are more than 20% seats. Massive Open Online Courses (MOOC) platforms such as SWAYAM and NPTEL are 'supposedly designed' for large enrolments.
- So far, we have not found any evidence in the public domain that these MOOC platforms can provide a reliable assessment of learning achievement if there is massive enrolment for a course.
- The ABC portal will accept courses from a large number of higher education institutes. The filtering criterion in the original regulation was that higher education institutes should have obtained an 'A' grade or higher in the latest round of National Assessment and Accreditation Council (NAAC) accreditation. This filtering criterion is not satisfactory.
- The ABC scheme specifies that students can avail up to 70% of courses from other institutes while being enrolled in a particular college. If students avail these credits outside the parent college, they need not enrol for the corresponding in-house courses. As the number of teaching posts in any higher education institute are calculated on the basis of student enrolment numbers, what happens when a large fraction of students do not enrol for the courses offered by you?

Rashtriya Uchchar Shiksha Abhiyan

News: The Government has approved the scheme of Rashtriya Uchchar Shiksha Abhiyan (RUSA) for continuation till 31st March, 2026 or till further review, whichever is earlier.

What is RUSA?

- It is the centrally sponsored scheme launched in October 2013 that aims at providing strategic funding to higher education institutions throughout the country. The central funding (in the ratio of 60:40 for general category States, 90:10 for special category states and 100% for union territories) is norm based and outcome dependent. The funding flows from the Ministry of Education through the state governments/union territories to the State Higher Education Councils before reaching the identified institutions.
- The funding to states would be made on the basis of critical appraisal of State Higher Education Plans, which would describe each state's strategy to address issues of equity, access and excellence in higher education.

New Phases:

- New phase of RUSA targets to reach out the unserved, underserved areas, remote/ rural areas, difficult geographies, LWE (Left-Wing Extremism) areas, NER (North Eastern Region), Aspirational Districts, tier-2 cities, areas with low GER (Gross enrolment ratio) etc., and to benefit the most disadvantaged areas and SEDGs (Socio-Economically Disadvantaged Groups).
- The new phase of the scheme has been designed to implement some of the recommendations and aims of the New Education Policy, which suggests some key changes to the current higher education system to revamp and re-energize it and thereby deliver quality higher education, with equity and inclusion.
- State Governments will be supported for Gender inclusion, Equity Initiatives, ICT, Enhancing employability through vocationalisation & skill upgradation.
- States will also be supported for creation of new Model Degree Colleges.
- State Universities will be supported for Multi-Disciplinary Education and Research.
- Grants will be provided for strengthening both accredited and non-accredited Universities and Colleges for undertaking various activities including teaching-learning in Indian languages.

Objectives:

- Improve the overall quality of state institutions by conforming to the prescribed norms and standards.
- Adoption of accreditation (certification of competency) as a mandatory quality assurance framework.
- Promoting autonomy in state universities and improving governance in institutions.
- Ensure reforms in the affiliation, academic and examination system.
- Ensure adequate availability of quality faculty in all higher educational institutions and ensure capacity building at all levels of employment.
- Create an enabling atmosphere for research in the higher education system.
- Correct regional imbalances in access to higher education by setting up institutions in unserved and underserved areas.
- Improve equity in higher education by providing adequate opportunities to the disadvantaged.

Budgetary Allocation for Children

News: According to an analysis by a NGO, Children in the country received the lowest share of allocation in the Budget in 11 years. Budgeting for children by the Union Government had started as early as 2008 with the publication of the first-ever Child Budget Statement. Subsequently, several states have also initiated the practice.

Background:

- The recent NFHS 5 survey has revealed a mixed picture on child health and nutrition. On one hand there are definite positives like reduction in child mortality rates, improvements in the levels of nutrition indicators like stunting and wasting etc. On the other hand, incidents of anemia among children have gone up from 58.6% in NFHS 4 to an alarming level of 67.1% in this round, leading experts to point out that more efforts are needed for meeting the 2030 SDG targets.
- The consecutive ASER surveys have pointed out that there has been no improvement in the proportion of children currently not enrolled in school between 2020 and 2021 and there exists a lot of variability among the states in this regard.
- Covid-19 has impacted children in diverse ways – be it physical, emotional, cognitive, or social repercussions, including transition or migration, familial crises, isolation from friends, discontinuity of learning, environment, quarantine, hospitalisation of self or family members, and entry into adult roles of work or marriage. Consequently, the lives of India's children were severely restricted in terms of their access to education, nutrition and development, and child protection.

What is in the Budget for the Children?

- The total allocation for children in Union Budget 2023 is Rs. 92,736.5 crore, against an allocation of Rs. 85,712.56 crore in the last Budget. Though this is an increase of 8.19% in absolute terms, it's not proportionate to the increase in the total expenditure in the Union Budget. The share of the Budget for children is a meagre 2.35% of the Union Budget for the next fiscal (2022-23), which is a reduction of 0.11%, which is the lowest share children have received in the last 11 years.

For Child health:

- The allocation for child health has decreased by 6.08%. One of the most important child health schemes, the NRHM-RCH Flexi Pool, has observed a reduced allocation of 8.22%. This flexipool addresses the needs of health systems strengthening and Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A) of the States.

For Child Development Programme:

- They have seen a drop of 10.97% in allocation for the next fiscal at R.17,826.03 crore. These include supplementary nutrition and anganwadi (day care) services. Schemes for children such as Poshan 2.0, which provide integrated benefits to women and children, did not get any additional funds this year.
- In 2022-23, an estimated budget of Rs 10,234 crore has been sanctioned to the Pradhan Matri Poshan Shakti Nirman (PM POSHAN) programme. Last year, the revised estimate was Rs 10,234 crore.
- This scheme was earlier known as the 'National Program of Midday Meal in Schools' and provided hot cooked meals to school children between the ages of 6 and 14 years.

For Child Education:

- The share of child education has witnessed only a marginal increase of 0.3% points from 1.74% in the current fiscal to 1.73% for the next fiscal. A 'One class, one TV channel' programme announced in the budget is a difficult mode of learning for children. The 'One class, one TV channel' programme of PM eVIDYA will be expanded from 12 to 200 TV channels.

For Protection and Welfare of Children:

- Schemes for the protection and welfare of children clubbed under the Mission Vatsalaya of the Ministry of Women and Children received Rs. 1,472.17 crore. This is 65% more than this fiscal, but below the allocation of Rs. 15,000 crore in 2019-2020, before the scheme was restructured.

Issues:

- Budgeting for children by the Union Government has remained limited to being a mere annual accounting exercise culminating in the publication of the Child Budget Statement (CBS) by simply collating relevant budget heads across departments. This alone does little to address the core objective of remaining responsive to the special needs of children.
- State Governments, being mainly responsible for implementing many of the critical schemes for children, play an important role in taking this exercise forward. But even for them, it has mostly been perceived as an accounting responsibility rather than as a tool to plan and execute interventions for children more effectively.
- Moreover, there is a lack of standardisation of norms among government entities for reporting in their respective Child Budget Statement (CBS).

International Relations

India-Russia Bilateral Consultations

News: Recently, the Bilateral consultations on United Nations related issues were held between India and Russia in New Delhi.

Details:

- Russia is set to assume the presidency of the UN Security Council in February, 2022. The discussion came in the backdrop of tensions between Russia and Ukraine over possible eastward expansion by NATO.
- Earlier, the 21st India-Russia annual summit took place at New Delhi which also included the first 2+2 ministerial dialogue of India's foreign and defence ministers with their Russian counterparts.

Significance:

- Both Sides stresses the importance of reinvigorating multilateralism, with the central coordinating role played by the United Nations in world affairs. Russia welcomed India's election as a non-permanent member of the UN Security Council with an overwhelming majority for a two-year term.
- Russia supports India's candidacy for permanent membership of a reformed United Nations Security Council and of the Nuclear Suppliers Group. Both Sides support the comprehensive reform of the UNSC to reflect contemporary global realities and to make it more representative, effective and efficient in dealing with issues of international peace and security. Both Sides are committed to enhanced cooperation within BRICS.
- Russia congratulates India on its successful BRICS Chairmanship in 2021, including hosting of the XIII BRICS Summit on 9th September 2021 and adopting the New Delhi Declaration.
- The role of the New Development Bank (NDB) is recognised by both sides as vital to addressing development challenges, including health and economic impact of the covid-19 pandemic and encouraged the NDB to explore the possibility of financing more social infrastructure projects, including those that use digital technologies.
- India and Russia recognise the achievements of the Shanghai Cooperation Organization (SCO) in the last two decades of its operation and believe that it has the great potential for further interaction among the SCO Member States. They intend to focus particularly on increasing the effectiveness of countering terrorism, extremism, drug trafficking, cross-border organized crime, and information security threats, in particular by improving the functionality of the SCO Regional Anti-Terrorist Structure.
- They are also determined to cooperate within the G20 format and intensify the same on issues of global and mutual interest, keeping in view India's presidency of the G20 in 2023.
- Both sides agree that safeguarding of global commons including our oceans, outer space and information space should be based on the principles of transparency, accessibility and upholding international law.
- Recently, Philippines has signed a deal with BrahMos Aerospace Private Ltd. for the supply of a shore-based anti-ship variant of the BrahMos supersonic cruise missile. This is the first export order for the missile, a joint product of India and Russia.
- The Philippines wants to induct this missile amid tensions with China over the disputed islands in the South China Sea. Several countries have shown interest in acquiring the BrahMos missile. For example, discussions are in advanced stages with Indonesia and Thailand.

About BrahMos Missile

- BrahMos is a joint venture between the Defence Research and Development Organisation of India (DRDO) and the NPOM of Russia. BrahMos is named on the rivers Brahmaputra and Moskva.
- It is a two-stage (solid propellant engine in the first stage and liquid ramjet in second) missile.
- It is a multiplatform missile i.e it can be launched from land, air, and sea and multi capability missile with pinpoint accuracy that works in both day and night irrespective of the weather conditions.
- It operates on the "Fire and Forgets" principle i.e it does not require further guidance after launch.
- Brahmos is one of the fastest cruise missiles currently operationally deployed with speed of Mach 2.8, which is nearly 3 times more than the speed of sound.
- Recently, an Advance Version of BrahMos (extended range sea-to-sea variant) was test fired.

- Following India's entry into the MTCR (Missile Technology Control Regime) club in June 2016, the range is planned to be extended to 450 km and to 600km at a later stage.
- The BrahMos missile was initially developed with a range capped at 290 km.

Missile Technology Control Regime (MTCR):

- It is an informal and voluntary partnership among 35 countries to prevent the proliferation of missile and unmanned aerial vehicle technology capable of carrying greater than 500 kg payload for more than 300 km.
- The members are thus prohibited from supplying such missiles and UAV systems that are controlled by the MTCR to non-members. The decisions are taken by consensus of all the members.
- This is a non-treaty association of member countries with certain guidelines about the information sharing, national control laws and export policies for missile systems and a rule-based regulation mechanism to limit the transfer of such critical technologies of these missile systems.
- It was established in April 1987 by G-7 countries – USA, UK, France, Germany, Canada, Italy, and Japan.

CPEC

News: Recently, Pakistan signed a new agreement with China to begin the second phase of the USD 60 billion China-Pakistan Economic Corridor (CPEC). Earlier, Pakistan had discussed Taliban-led Afghanistan joining the multibillion-dollar China-Pakistan Economic Corridor (CPEC) infrastructure project. The second phase primarily revolves around Special Economic Zones (SEZs) development and industrialisation.

What is CPEC?

- CPEC is a 3,000-km long route of infrastructure projects connecting China's northwest Xinjiang Uygur Autonomous Region and the Gwadar Port in the western province of Balochistan in Pakistan.
- It is a bilateral project between Pakistan and China, intended to promote connectivity across Pakistan with a network of highways, railways, and pipelines accompanied by energy, industrial, and other infrastructure development projects.
- It will pave the way for China to access the Middle East and Africa from Gwadar Port, enabling China to access the Indian Ocean and in return China will support development projects in Pakistan to overcome the latter's energy crises and stabilising its faltering economy.
- CPEC is a part of the Belt and Road Initiative. The BRI, launched in 2013, aims to link Southeast Asia, Central Asia, the Gulf region, Africa and Europe with a network of land and sea routes.



India's Stand:

- India has been severely critical of the CPEC, as it passes through Pakistan-occupied Kashmir, which is a disputed territory between India and Pakistan. India has also protested to China over the CPEC as it is being laid through the Pakistan-occupied Kashmir (PoK).
- India is a member of the Quad (India, the US, Australia and Japan) which can provide realistic alternatives for countries looking for infrastructure and be an alternative to China. The member countries of the Quad have come up with some alternatives.
- For Example: Blue Dot Network (BDN) and Build Back Better World (B3W) initiative'.

Impact on India:

- India has continuously opposed the project since it passes through the Pakistan-occupied Kashmir territory of Gilgit-Baltistan – a claim opposed by Pakistan. The corridor is also perceived to be an alternative economic road link for the Kashmir Valley lying on the Indian side of the border.
- Most key players in the Indian state of Jammu and Kashmir, have expressed optimism about the project.
- There have been calls by local business and political leaders to declare Kashmir on both sides of the Line of Control (LoC) a 'Special Economic Zone'.

- However, a well-connected Gilgit-Baltistan that attracts industrial development and foreign investment, if CPEC proves a success, will further consolidate the region's perception as internationally recognised Pakistani territory, diminishing India's claim over the 73,000 sq km piece of land which is home to more than 1.8 million people.
- Major US ports on the East Coast depend on the Panama Canal to trade with China. Once CPEC becomes fully functional, China will be in a position to offer a 'shorter and more economical' trade route (avoiding travel through the entire Western Hemisphere) to most North and Latin American enterprises.
- This will give China the power to dictate the terms by which the international movement of goods will take place between the Atlantic and the Pacific oceans.
- China has been increasing its presence in the Indian Ocean with the 'String of Pearls' ambition: A term coined by the Americans and often used by Indian defence analysts to refer to a Chinese game-plan of encircling India through a network of airfields and ports.
- With an existing presence in Chittagong port (Bangladesh), Hambantota port (Sri Lanka), Port Sudan (Sudan), Maldives, Somalia and Seychelles, a control of Gwadar port establishes complete dominance of the Indian ocean by the Communist nation.
- It is poised to speed up Pakistan's economic progress. Pakistani exports, mainly in the textile and construction material industry, compete directly with those of India in the US and UAE – two of the top three trading partners of both countries.
- With the supply of raw material from China becoming easier, Pakistan will be suitably placed to become a regional market leader in these sectors – mainly at the cost of Indian export volumes.
- China's BRI project that focuses on the trade connectivity between China and the rest of Eurasia through a network of ports, roads and railways has been often seen as China's plan to dominate the region politically. CPEC is one giant step in the same direction.
- A China that is more accepted and integrated with the rest of the global economy will have a better say in the United Nations and with individual nations, which may prove to be bad news for an India aspiring to acquire a permanent seat at the UN Security Council.

India-Sri Lanka Relations

News: Recently, in a bilateral meeting India has agreed to provide a grant to Sri Lanka to implement a 'Unitary Digital Identity framework', apparently modelled on the Aadhaar card. Both sides also discussed the fishermen's issue and India provided financial assistance of 2.4 billion USD to Sri Lanka. Earlier, India and Sri Lanka agreed to a four-pronged approach to discuss initiatives on food and energy security to help mitigate Sri Lanka's economic crisis.

Unitary Digital Identity framework:

- It is similar to India's own Aadhaar and under the proposed Unitary Digital Identity framework, Sri Lanka is expected to introduce a:
 - Personal identity verification device based on biometric data
 - Digital tool that can represent the identities of individuals in cyberspace and
 - Identification of individual identities that can be accurately verified in digital and physical environments by combining the two devices
- This is not the first time that Sri Lanka is attempting to digitise its citizens' identities. Just a few years ago from 2015 to 2019, the Sri Lankan government mooted a similar Electronic-National Identity Card — or E-NIC — that privacy advocates opposed on grounds that the state would have full access to citizens' personal data in a central database.
- Government also tried initiating the project as early as 2011. Neither project was implemented.

India-Sri Lanka Relations:

- Beginning January 2022, India has been providing crucial economic support to the island nation in the grip of a severe dollar crisis that, many fear, might lead to a sovereign default, and a severe shortage of essentials in the import-reliant country.
- The relief extended by India from the beginning of this year totals over USD 1.4 billion —a USD 400 currency swap, a USD 500 loan deferment and a USD 500 Line of Credit for fuel imports. Sri Lanka

is further negotiating a USD 1 billion assistance from India to help the country as it faces an unprecedented economic crisis.

- India expeditiously take forward mutually beneficial projects”, which include:
 - Proposals to enhance air and sea connectivity between India and Sri Lanka
 - Economic and investment initiative
 - Steps to enhance Sri Lanka’s energy security
 - Keeping the neighbours’ “shared maritime domain safe from various contemporary threats”, and cooperation in combating Covid-19 pandemic.

Issues in this bilateral relation:

- Killing of Indian fishermen by the Sri Lankan Navy is a lingering issue between these two nations. In 2019 and 2020, a total of 284 Indian fishermen were arrested and a total of 53 Indian boats were confiscated by the Sri Lankan authorities. In the current meeting both the countries discussed the Palk Bay fisheries conflict and reiterated the longstanding consensus to handle fishermen issues through “humanitarian approach and refrain from the use of violence”.
- This year (2021) Sri Lanka cancelled an MoU signed with India and Japan for the East Coast Terminal project. India protested the cancellation though it later agreed to the West Coast Terminal being developed by the Adani group.
- China’s rapidly growing economic footprint (and political clout as a corollary) in Sri Lanka is straining India-Sri Lanka relations. China is already the largest investor in Sri Lanka, accounting for 23.6% of the total Foreign Direct Investment (FDI) during 2010-2019 as against 10.4% from India. China is also one of the largest export destinations for Sri Lankan goods and holds over 10% of its external debt. 13th Amendment of the Sri Lankan Constitution envisages devolution of necessary powers to the provincial councils to address the just demand of the Tamil people for equality, justice, peace, and respect within a united Sri Lanka.

India-Australia Interim FTA

News: Recently, India and Australia have announced that they are set to conclude an Interim Trade Agreement in March 2022 and a Comprehensive Economic Cooperation Agreement (CECA) 12-18 months thereafter. The agreement will cover “most areas of interest for both countries” including goods, services, rules of origin, sanitary and phytosanitary measures and customs procedures. Earlier, India, Japan and Australia have formally launched the Supply Chain Resilience Initiative (SCRI).

What is an Interim Trade Agreement?

- An interim or early harvest trade agreement is used to liberalise tariffs on the trade of certain goods between two countries or trading blocs before a comprehensive FTA (Free Trade Agreement) is concluded.
- Government’s emphasis on interim agreements may be tactical so that a deal may be achieved with minimum commitments and would allow for contentious issues to be resolved later.
- The problem, though, is that these early harvest schemes potentially target the low-hanging fruits, leaving the tougher goods and services for later. This strategy can lead to significant delays in wrapping up the more broad-based FTAs, which could potentially lead to impediments.
- India had concluded an early harvest agreement with Thailand in 2004 but has not been able to conclude a comprehensive FTA with the country. India also has a trade agreement with Sri Lanka dealing with goods but was not able to conclude an agreement on services and investments.
- Early harvest agreements that do not graduate into full-scale FTAs are exposed to legal challenges from other countries that are members of the World Trade Organisation. It is often beneficial to negotiate the entire deal together, as an early harvest deal may reduce the incentive for one side to work towards a full FTA.

What are Free Trade Agreements?

- 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.
- The concept of free trade is the opposite of trade protectionism or economic isolationism.

- FTAs can be categorised as Preferential Trade Agreement, CECA, Comprehensive Economic Partnership Agreement (CEPA).

India-Australia Relations:

- Bilateral trade between the two countries stood at about USD 12.5 billion in Financial Year (FY) 21 and has already surpassed USD 17.7 billion in the first 10 months of FY22.
- India has imported merchandise worth about USD 12.1 billion from Australia in the first 10 months of the fiscal and has exported merchandise worth USD 5.6 billion in the same period.
- Key imports from Australia include coal, gold and Liquefied Natural Gas while key exports to the country from India include diesel, petrol and gems and jewellery. The agreement with Australia is set to bring opportunities across sectors including mining, pharmaceuticals, health, education, renewables, railways, gems and jewellery, tourism, defence and textiles.
- India is also likely to seek easier visa access for both students and professionals visiting Australia.
- Australia is likely to seek market access for wines and agricultural products which are not produced on a large scale in India. Both countries are also looking at mutual recognition of educational qualifications to boost the number of Indian students seeking education in Australia and vice versa and boost tourism in both countries. India and Australia have also signed an MoU to boost tourism between the two countries.
- The agreement would lead to deeper cooperation between the two countries in critical minerals and rare earth elements which are critical to future industries including renewable energy and electric vehicles.
- As Australia has plentiful supplies of rare earths and critical minerals in but it needs places for them to be processed.

India-UAE FTA

News: India has embarked on a new journey — a new free trade agreement (FTA) journey to be precise — with renewed zeal and vigour.

India's strategy on FTA:

- Gaining meaningful market access: India's approach towards FTAs is now focusing more on gaining meaningful market access and facilitating Indian industry's integration into global value chains.
- Under the revamped FTA strategy, the Government of India has prioritised at least six countries or regions to deal with, in which the United Arab Emirates (UAE) figures at the top of the list for an early harvest deal.
- The others are the United Kingdom, the European Union, Australia, Canada, Israel and a group of countries in the Gulf Cooperation Council (GCC).
- The early harvest deal is to be enlarged into a comprehensive FTA in due course of time.

Significance of India-UAE FTA:

- The UAE has emerged as an important economic hub not just within the context of the Middle East/West Asia, but also globally. The UAE, due to its strategic location, has emerged as an important economic centre in the world. Although the UAE has diversified its economy, 'the hydrocarbon sector remains very important followed by services and manufacturing. Within services, financial services, wholesale and retail trade, and real estate and business services are the main contributors.
- As part of the GCC, the UAE has strong economic ties with Saudi Arabia, Kuwait, Bahrain, and Oman, meaning the UAE shares a common market and a customs union with these nations. Under the Greater Arab Free Trade Area (GAFTA) Agreement, the UAE has free trade access to Saudi Arabia, Kuwait, Bahrain, Qatar, Oman, Jordan, Egypt, Iraq, Lebanon, Morocco, Tunisia, Palestine, Syria, Libya, and Yemen.

India-UAE ties:

- India and the UAE established diplomatic relations in 1972. The India-UAE total trade merchandise has been valued at U.S.\$52.76 billion for the first nine months of the fiscal year 2021-22, making the UAE India's third-largest trading partner. As India and the UAE strive to further deepen trade and investment ties, the soon-to-be-announced early harvest agreement comes at the most opportune time. The aim is to boost bilateral merchandise trade to above U.S.\$100 billion and services trade to U.S.\$15 billion in five years.

- As we are witnessing a big turnaround in manufacturing, the UAE would be an attractive export market for Indian electronics, automobiles, and other engineering products. The UAE's investment in India is estimated to be around U.S.\$11.67 billion, which makes it the ninth biggest investor in India. On the other hand, many Indian companies have set up manufacturing units either as joint ventures or in Special Economic Zones for cement, building materials, textiles, engineering products, consumer electronics, etc.

Challenges

- The UAE tariff structure is bound with the GCC, and the applied average tariff rate is 5%. Therefore, the scope of addressing Non-Tariff Barriers (NTBs) becomes very important.
- The reflection of NTBs can be seen through Non-Tariff Measures (NTMs) which have mostly been covered by Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT). The UAE has 451 SPS notifications. Most of the notifications are related to consumer information, labelling, licensing or permit requirements and import monitoring and surveillance requirements. These compliances pose a challenge for Indian exporters.

Permanent Indus Commission

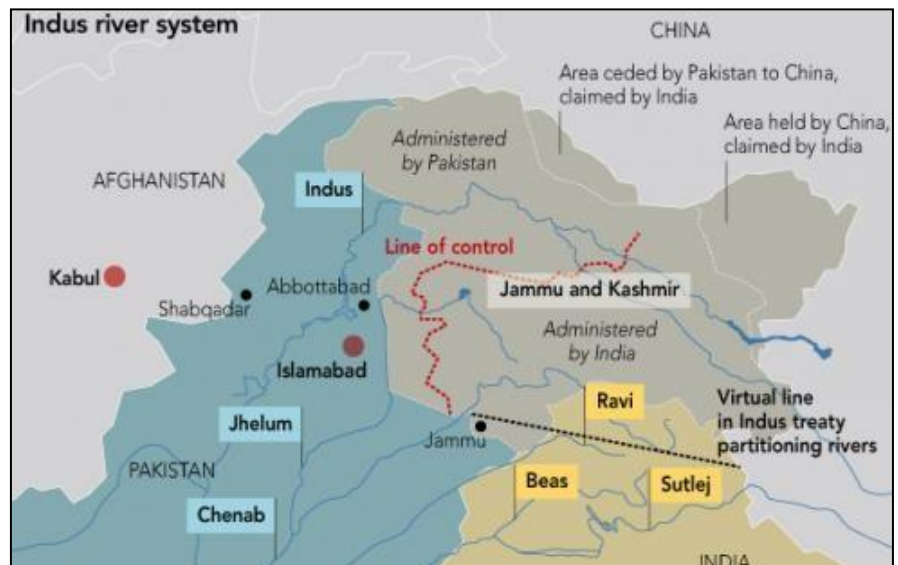
News: A 10-member Indian delegation will visit Pakistan for the annual meeting of the Permanent Indus Commission from March 1-3. Under the Indus Water Treaty, it is mandatory to hold a meeting at least once every year ending March 31.

Permanent Indus Commission:

- The Permanent Indus Commission is a bilateral commission of officials from India and Pakistan, created to implement and manage goals of the Indus Waters Treaty, 1960. The Commission according to the treaty must meet regularly at least once a year, alternately in India and Pakistan.
- The functions of the Commission are:
 - to study and report to the two Governments on any problem relating to the development on the waters of the rivers.
 - to solve disputes arising over water sharing.
 - to arrange technical visits to projects' sites and critical river head works.
 - to undertake, once in every five years, a general tour of inspection of the Rivers for ascertaining the facts.
 - to take necessary steps for the implementation of the provisions of the treaty.
- In a first since the signing of the Indus Water Treaty between the two countries, three female officers will also be part of the Indian delegation, which will be advising the Indian Commissioner on various issues during the meeting.
- Pakistan's objections on Indian hydroelectric projects namely Pakal Dul (1,000 MW), Lower Kalnai (48 MW) and Kiru (624 MW) in Chenab basin in Jammu and Kashmir and few small hydroelectric projects in Ladakh are likely to be on the agenda for discussion.

Indus Water Treaty:

- It is a Water-Distribution Treaty, signed in Karachi on 1960, between India (Pm Jawaharlal Nehru) and Pakistan (President Ayub Khan), brokered by the World Bank.
- Under the provisions of the Indus Waters Treaty, signed between India and Pakistan in 1960, all the waters of the eastern rivers — the Sutlej, Beas, and Ravi — amounting to around 33 MAF (million acre-feet) annually is allocated to India for unrestricted use.



- The waters of western rivers — Indus, Jhelum, and Chenab — amounting to around 135 MAF annually are largely for Pakistan. Under the Treaty, India has been given the right to generate hydroelectricity through a run of the river projects on the western rivers subject to specific criteria for design and operation. It also gives the right to Pakistan to raise concerns on the design of Indian hydroelectric projects on western rivers.

Russia violating UN Charter

News: The Russian annexation of Russia has been condemned widely and raised several questions concerning violation of international law.

Principle of Non-Intervention

- The Russian attack on Ukraine is violative of the non-intervention principle, and amounts to aggression under international law. The principle of non-intervention in domestic affairs is the foundational principle on which existing international order is based.
- The principle is enshrined in article 2(4) of the UN Charter requiring states to refrain from using force or threat of using force against the territorial integrity or political independence of any state.
- It prohibits any kind of forcible trespassing in the territory of another state, even if it is for temporary or limited operations such as an 'in and out' operation.

Principle of Non-Aggression

- The UN General Assembly Resolution 3314 (1974) defines aggression as the use of armed force by a state against the sovereignty, territorial integrity or political independence of another state.
- Additionally, allowing one's territory to be used by another state for aggression against a third state, also qualifies as an act of aggression. Accordingly, Belarus can also be held responsible for aggression as it has allowed its territory to be used by Russia for attacking Ukraine. Aggression is also considered an international crime under customary international law and the Rome statute establishing the International Criminal Court.

Principle of Political Independence

- Russia's desire to keep Ukraine out of NATO is a prime reason for its use of force against Ukraine.
- This is violative of Ukraine's political independence under article 2(4) as Ukraine being a sovereign state is free to decide which organizations it wants to join. Also, by resorting to use of force, Russia has violated article 2(3) which requires the states to settle their dispute by peaceful means in order to preserve international peace and security.

Principle of Self-Defence

- In face of the use of force by Russia, Ukraine has the right to self-defence under international law.
- The UN Charter under article 51 authorizes a state to resort to an individual or collective self-defense until the Security Council take steps to ensure international peace and security. In this case, it seems implausible for the UNSC to arrive at a decision as Russia is a permanent member and has veto power.

Russia-Ukraine War

News: Recently, Russia recognised two independent republics out of Ukraine (Donetsk and Luhansk - Donbass region), signaling the inevitable war that followed. In the declaration of war, the Russian President described Ukraine with no history or identity, and was entirely and fully created by the former Soviet Union (USSR). Ukraine and Russia share hundreds of years of cultural, linguistic and familial link.

Background:

- Ukraine is in the east of Europe, and is bound by Russia to its northeast, east, and southeast, and



the Black Sea in the south. In the southwest, west, and north, Ukraine shares borders, in the anticlockwise direction, with Moldova, Romania, Hungary, Slovakia, Poland, and Belarus. It is the largest country in Europe after Russia itself, with an area of 6,03,550 sq km, or about 6% of the continent.

- In July 2021, Ukraine's population was estimated at 43.7 million. Of this, 77.8% was of Ukrainian ethnicity and 17.3% was Russian, and Ukrainian and Russian speakers made up 67.5% and 29.6% of the population respectively.
- Ukraine is the poorest country in Europe in terms of gross domestic product and gross national income per capita. It has deposits of iron ore and coal, and exports corn, sunflower oil, iron and iron products, and wheat.
- India is Ukraine's largest export destination in the Asia Pacific region. The country's major export to India is sunflower oil, followed by inorganic chemicals, iron and steel, plastics, and chemicals. Ukraine's major import from India is pharmaceutical products.

Ukraine as a part of Russia:

- In the 18th century, Empress Catherine the Great (1762-96) of Russia absorbed the entire ethnic Ukrainian territory into the Russian Empire. The Tsarist policy of Russification led to the suppression of ethnic identities and languages, including that of the Ukrainians.
- Within the Russian Empire though, many Ukrainians rose to positions of prosperity and importance, and significant numbers migrated to settle in other parts of Russia.
- More than 3.5 million Ukrainians fought in World War I on the side of the Russian Empire, but a smaller number fought against the Tsar's army with the Austro-Hungarians.
- Ukraine Becoming part of USSR: The World War I led to the end of both the Tsarist and Ottoman empires. As a mainly communist-led Ukrainian national movement emerged, several small Ukrainian states sprang up.
- Months after the Bolsheviks took power in the October Revolution of 1917, an independent Ukrainian People's Republic was proclaimed, but a civil war continued between various claimants to power, including Ukrainian factions, anarchists, Tsarists, and Poland. In 1922, Ukraine became part of the Union of Soviet Socialist Republics (USSR). The Soviet Union had its roots in the October Revolution of 1917, when the Bolsheviks, led by Vladimir Lenin, overthrew the Russian Provisional Government that had replaced Tsar Nicholas II.

Collapse of USSR:

- In 1991, the USSR was dissolved. The Demands for independence had been growing in Ukraine for a couple of years previously, and in 1990, over 300,000 Ukrainians created a human chain in support of freedom.
- This was followed by the Granite Revolution when students sought to prevent the signing of a new agreement with the USSR.
- On 24th August, 1991, after the failure of the coup to remove President Mikhail Gorbachev and restore the communists to power, the parliament of Ukraine adopted the country's Act of Independence.
- Subsequently, Leonid Kravchuk, head of the parliament, was elected Ukraine's first President.
- In December 1991, the leaders of Belarus, Russia, and Ukraine formally dissolved the Soviet Union and formed the Commonwealth of Independent States (CIS). However, Ukraine's parliament, the Verkhovna Rada, never ratified the accession, so Ukraine was legally never a member of the CIS.

Present context:

- In 2014, Russia had annexed Crimea from Ukraine following a hastily called referendum, a move that sparked fighting between Russia-backed separatists and government forces in eastern Ukraine.
- Recently, Ukraine has urged the North Atlantic Treaty Organization (NATO) to speed up his country's membership in the alliance. Russia declared such a move a "red line", and worried about the consequences of the US-led military alliances expanding right up to its doorstep. This has led to the present war between Russia and Ukraine.

General Studies – 3

Economic Development

1. Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.
2. Inclusive growth and issues arising from it.
3. Government Budgeting.
4. Major crops-cropping patterns in various parts of the country, - different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers.
5. Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.
6. Food processing and related industries in India- scope' and significance, location, upstream and downstream requirements, supply chain management.
7. Land reforms in India.
8. Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.
9. Infrastructure: Energy, Ports, Roads, Airports, Railways etc.
10. Investment models.

Technology

11. Science and Technology- developments and their applications and effects in everyday life.
12. Achievements of Indians in science & technology; indigenization of technology and developing new technology.
13. Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

Environment & Bio-diversity

14. Conservation, environmental pollution and degradation, environmental impact assessment.

Disaster Management & Security

15. Disaster and disaster management.
16. Linkages between development and spread of extremism.
17. Role of external state and non-state actors in creating challenges to internal security.
18. Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.
19. Security challenges and their management in border areas - linkages of organized crime with terrorism.
20. Various Security forces and agencies and their mandate.

Economic Development

Central Bank Digital Currency

News: Finance Minister Nirmala Sitharaman has announced the launch of the Digital Rupee — a central bank digital currency (CBDC) — 2022-23 onwards. The Reserve Bank of India will launch the CBDC from the upcoming financial year.

What is the CBDC or National Digital currency?

- A Central Bank Digital Currency (CBDC), or national digital currency, is simply the digital form of a country's fiat currency. Instead of printing paper currency or minting coins, the central bank issues electronic tokens. This token value is backed by the full faith and credit of the government.
- Four major use cases of CBDC in the Indian context:
 - 'Fit-for-purpose' money used for social benefits and other targeted payments in a country. For such cases, the central bank can pay intended beneficiaries pre-programmed CBDC, which could be accepted only for a specific purpose.
 - CBDCs could be used for faster cross-border remittance payments. International collaboration among the major economies of the world, including India, could help create the necessary infrastructure and arrangements for CBDC transfer and conversion.
 - Payment instruments could be made available for payment transactions to be made via CBDC. Furthermore, universal access attributes of a CBDC could also include an offline payment functionality.
 - Instant lending to micro, small, and medium enterprises (MSMEs) in India can be possible with the help of CBDC.
- An official digital currency would reduce the cost of currency management while enabling real-time payments without any inter-bank settlement. India's fairly high currency-to-GDP ratio holds out another benefit of CBDC — to the extent large cash usage can be replaced by CBDC, the cost of printing, transporting and storing paper currency can be substantially reduced. The need for inter-bank settlement would disappear as it would be a central bank liability handed over from one person to another.

Challenges:

- Potential cybersecurity threat.
- Lack of digital literacy of population.
- Introduction of digital currency also creates various associated challenges in regulation, tracking investment and purchase, taxing individuals, etc.
- The digital currency must collect certain basic information of an individual so that the person can prove that he's the holder of that digital currency.

Reverse Repo Normalisation

News: In a recent report, State Bank of India has stated that it believes the stage is set for a Reverse Repo Normalisation in India.

What is Reverse Repo Normalisation?

- It means the reverse repo rates will go up i.e., raising the reverse repo rate in one or two stages.
- In the face of rising inflation, several central banks across the world have either increased interest rates or signalled that they would do so soon. In India, too, it is expected that the RBI will raise the repo rate. But before that, it is expected that the RBI will raise the reverse repo rate and reduce the gap between the two rates. The process of normalisation is mainly aimed at curbing inflation. However, it will not only reduce excess liquidity but also result in higher interest rates across the board in the Indian economy.
- Thus, reducing the demand for money among consumer and making it costlier for businesses to borrow fresh loans.

What is Monetary Policy Normalisation?

- The RBI keeps changing the total amount of money in the economy to ensure smooth functioning. As such, when the RBI wants to boost economic activity, it adopts a so-called “loose monetary policy”.
- It does so by buying government bonds from the market. As the RBI buys these bonds, it pays back money to the bondholders, thus injecting more money into the economy.
- Two, the RBI also lowers the interest rate it charges banks when it lends money to them; this rate is called the repo rate. By lowering the interest rate at which it lends money to commercial banks, the RBI hopes that the commercial banks (and the rest of the banking system), in turn, will feel incentivised to lower interest rates. Lower interest rates and more liquidity, together, are expected to boost both consumption and production in the economy. For a consumer, it would now pay less to keep the money in the bank — thus it incentivises current consumption. For firms and entrepreneurs, it would make more sense to borrow money to start a new enterprise because interest rates are lower.
- The reverse of a loose monetary policy is a “tight monetary policy” and it involves the RBI raising interest rates and sucking liquidity out of the economy by selling bonds (and taking money out of the system).
- When any central bank finds that a loose monetary policy has started becoming counterproductive (for example, when it leads to a higher inflation rate), the central bank “normalises the policy” by tightening the monetary policy stance.

What are Repo and Reverse Repo Rates?

- Repo rate is the rate at which the central bank of a country (RBI in case of India) lends money to commercial banks in the event of any shortfall of funds. Here, the central bank purchases the security.
- The reverse repo is the interest rate that the RBI pays to the commercial banks when they park their excess “liquidity” (money) with the RBI. The reverse repo, thus, is the exact opposite of the repo rate.
- Under normal circumstances, that is when the economy is growing at a healthy pace, the repo rate becomes the benchmark interest rate in the economy. That’s because it is the lowest rate of interest at which funds can be borrowed. As such, the repo rate forms the floor interest rate for all other interest rates in the economy - be it the rate for a car loan or a home loan or the interest earned on fixed deposit etc.
- When the RBI pumps more and more liquidity into the market but there are no takers of fresh loans — either because the banks are unwilling to lend or because there is no genuine demand for new loans in the economy.
- In such a scenario, the action shifts from repo rate to reverse repo rate because banks are no longer interested in borrowing money from the RBI. Rather they are more interested in parking their excess liquidity with the RBI. And that is how the reverse repo becomes the actual benchmark interest rate in the economy.

Changes in Import Duty

News: The Finance Minister introduced a host of changes in Customs duty on several items in the Union Budget for 2022-23. This would mean that imports become more expensive or cheaper depending on the change in customs duties.

Background:

- In 2021, customs duty exemptions were given to the steel scrap industry, which has now been extended for another year. It is likely to provide relief to micro, small and medium-scale secondary steel producers.
- Over the last five years, import duty hikes have been made on several occasions such as almonds, apples, and others. Other items such as cellphone parts and solar panels have seen the most regular hikes, with an aim to protect and nurture the domestic industry growth. Prior to the large-scale hikes, India’s peak customs duty — the highest of the normal rates — on non-agriculture products had come down steeply from 150% in 1991-92 to 40% in 1997-98 and subsequently, to 20% in 2004-05 and 10% in 2007-08.

What are the Changes in the Import Duty?

- The customs duty on umbrellas was doubled to 20%, while exemptions provided on import of parts of umbrellas were withdrawn. Similarly, the customs duty on single or multiple loudspeakers, whether or not mounted in their enclosures was hiked to 20% from 15%. Import duty was reduced for cut and polished diamonds, asafoetida, cocoa beans, methyl alcohol and acetic acid.

- Duty on capital goods and project imports was rationalized by phasing out concessional rates and applying a moderate tariff of 7.5%. Under Project Import Scheme, goods imported by a company are placed under a single tariff in the Customs Tariff Act, 1975 to facilitate faster assessment and clearances of goods.
- The tariff changes will come into effect from 1st May 2022, as per the Finance Bill 2022-23.

Why such changes?

- The hike in import duty for items, such as umbrellas, are in line with the increase in import duty on toys last year. The hike is being done for industries which manufacture items that do not deploy any major technology. Umbrellas, for instance, are manufactured in small units spread across 10-12 districts with Kerala being the major manufacturing state. The government seems to be offering protection to such industries. It also falls in line with the other Budget announcement of popularising one station-one product to popularise local businesses and supply chains as announced in Budget 2022.
- One station-one product as a concept aims to promote a local product from each stop of the Indian Railways by making the railway station of that area a promotional and sales hub for the product.
- The concept of 'One station one product' has based itself on the successful One District One Product (ODOP) scheme. Based on a district's strengths, ODOP has been a transformational step towards realising the true potential of a district, fueling economic growth, generating employment and rural entrepreneurship.

Surety Bonds

News: In the Budget 2022-23, the government has allowed the use of surety insurance bonds as a substitute for bank guarantees in case of government procurement and also for gold imports. Insurance Regulatory and Development Authority of India (IRDAI) has also released final guidelines to ensure orderly development of surety insurance business in India. The IRDAI (Surety Insurance Contracts) Guidelines, 2022 will come into effect from 1st April, 2022.

What is a Surety Bond?

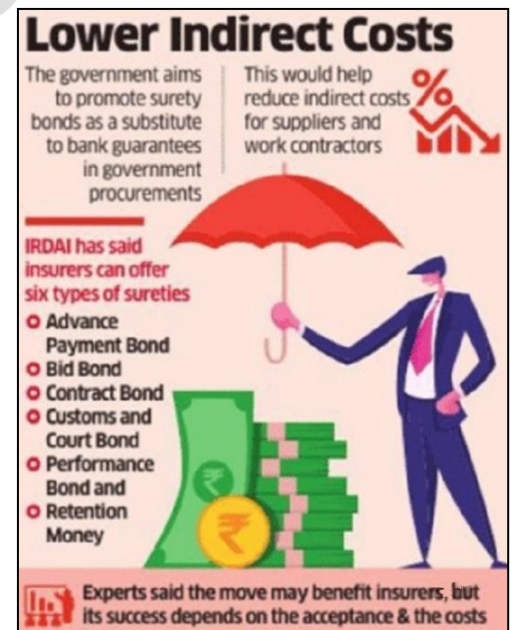
- A surety bond is a legally binding contract entered into by three parties—the principal, the obligee, and the surety.
- The obligee, usually a government entity, requires the principal, typically a business owner or contractor, to obtain a surety bond as a guarantee against future work performance.
- Surety bonds are mainly aimed at infrastructure development, mainly to reduce indirect cost for suppliers and work-contractors thereby diversifying their options and acting as a substitute for bank guarantee.
- Surety bond is provided by the insurance company on behalf of the contractor to the entity which is awarding the project.
- Surety bonds protect the beneficiary against acts or events that impair the underlying obligations of the principal. They guarantee the performance of a variety of obligations, from construction or service contracts to licensing and commercial undertakings.

Issues:

- Surety bonds, a new concept, are risky and insurance companies in India are yet to achieve expertise in risk assessment in such business. Also, there's no clarity on pricing, the recourse available against defaulting contractors and reinsurance options. These are critical and may impede the creation of surety-related expertise and capacities and eventually deter insurers from writing this class of business.

Significance:

- The move to frame rules for surety contracts will help address the large liquidity and funding requirements of the infrastructure sector. It will create a level-playing field for large, mid and small contractors. The Surety insurance business will assist in developing an alternative to bank guarantees for construction projects. This shall enable the efficient use of working capital and reduce the requirement of collateral to be provided by construction companies.



IRDAI Guidelines on Surety Bonds:

- According to new guidelines Insurance companies can launch the much-anticipated surety bonds now.
- The regulator has said the premium charged for all surety insurance policies underwritten in a financial year, including all installments due in subsequent years for those policies, should not exceed 10% of the total gross written premium of that year, subject to a maximum of Rs 500 crore.
- As per Insurance Regulatory and Development Authority of India (IRDAI), Insurers can issue contract bonds, which provide assurance to the public entity, developers, subcontractors and suppliers that the contractor will fulfil its contractual obligation when undertaking the project.
- Contract bonds may include Bid Bonds, Performance Bonds, Advance Payment Bonds and Retention Money.
- The limit of guarantee should not exceed 30% of the contract value.
- Surety Insurance contracts should be issued only to specific projects and not clubbed for multiple projects.

Bid Bonds provides financial protection to an obligee if a bidder is awarded a contract pursuant to the bid documents, but fails to sign the contract and provide any required performance and payment bonds.

Performance Bond provides assurance that the obligee will be protected if the principal or contractor fails to perform the bonded contract. If the obligee declares the principal or contractor as being in default and terminates the contract, it can call on the Surety to meet the Surety's obligations under the bond.

Advance Payment Bond is a promise by the Surety provider to pay the outstanding balance of the advance payment in case the contractor fails to complete the contract as per specifications or fails to adhere to the scope of the contract.

Retention Money is a part of the amount payable to the contractor, which is retained and payable at the end after successful completion of the contract.

TRIPS Agreement

News: India runs the risk of being excluded from a proposal it co-authored at the World Trade Organization (WTO) negotiations, in 2020, to "temporarily waive" intellectual property rights (IPR) held, by primarily Western countries, on vaccines, therapeutics and diagnostics for COVID-19.

Background:

- India and China are two major global suppliers of medicine. A small group of WTO members were discussing suggestions to exclude drug manufacturers in India and China from prospective waivers to IPR obligations.
- IPR obligations are as a result of the Trade Related Intellectual Property Rights (TRIPS) which WTO members are committed to upholding.

TRIPS Agreement:

- The Agreement on TRIPS is an international legal agreement between all the member nations of the World Trade Organization (WTO). It establishes minimum standards for the regulation by national governments of different forms of intellectual property (IP) as applied to nationals of other WTO member nations.
- TRIPS was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) between 1989 and 1990 and is administered by the WTO.
- It introduced intellectual property law into the multilateral trading system for the first time and remains the most comprehensive multilateral agreement on intellectual property to date.
- TRIPS require member states to provide strong protection for intellectual property rights.
- It seeks to provide copyright rights, covering authors and other copyright holders, as well as holders of related rights, namely performers, sound recording producers and broadcasting organisations.
- It provides for geographical indications (GI); industrial designs; integrated circuit layout-designs; patents; new plant varieties; trademarks; trade names and undisclosed or confidential information.
- It also specifies enforcement procedures, remedies, and dispute resolution procedures.
- TRIPS also has a most favored nation (MFN) clause.
- The obligations of the main international agreements of the World Intellectual Property Organization (WIPO) that already existed before the WTO was created:

- Paris Convention for the Protection of Industrial Property (patents, industrial designs, etc)
- Berne Convention for the Protection of Literary and Artistic Works (copyright).
- Some areas are not covered by these agreements. In some cases, the standards of protection prescribed were thought inadequate. So the TRIPS Agreement adds significantly to existing international standards.
- Following other dimensions are also covered:
 - Copyright terms must extend at least 50 years, unless based on the life of the author.
 - Computer programs must be regarded as “literary works” under copyright law and receive the same terms of protection.
 - Patents must be granted for “inventions” in all “fields of technology and must be enforceable for at least 20 years.

Green Bonds

News: Recently, the finance minister in the Budget 2022 announced that the government proposes to issue sovereign green bonds to mobilise resources for green infrastructure. The proceeds will be deployed in public sector projects which help in reducing the carbon intensity of the economy. The announcement is in sync with India’s commitment to achieving net-zero carbon emissions by 2070.

What are Green Bonds?

- Green bonds are issued by companies, countries and multilateral organisations to exclusively fund projects that have positive environmental or climate benefits and provide investors with fixed income payments.
- The projects can include renewable energy, clean transportation and green buildings, among others.
- Proceeds from these bonds are earmarked for green projects. This is unlike standard bonds, the proceeds of which can be utilised for various purposes at the discretion of the issuer.
- The international green bond market has seen cumulative issuance worth more than USD 1 trillion since market inception in 2007.
- By the end of 2020, 24 national governments had issued Sovereign Green, Social and Sustainability bonds totalling a cumulative USD 111 billion dollars, according to the London-based Climate Bonds Initiative. Sovereign green issuance sends a powerful signal of intent around climate action and sustainable development to governments and regulators.
- It will catalyze domestic market development and provides impetus to institutional investors.
- It will provide benchmark pricing, liquidity and a demonstration effect for local issuers, helping to support the growth of a local market. With the IEA’s World Energy Outlook 2021, estimating that 70% of the additional USD 4 trillion spending to reach net-zero is required in emerging/developing economies, sovereign issuance can help kickstart these large inflows of capital.

Revamped Distribution Sector Reform Scheme

News: Launched in July 2021, the Revamped Distribution Sector Reform Scheme (RDSS) is the latest of many central government grant-based programmes towards electricity distribution network investments.

Details:

- Revamped Distribution Sector Reform Scheme’s (RDSS) has outlay of Rs 3 lakh crore for five years.
- Half of the outlay is for better feeder and transformer metering and pre-paid smart consumer metering.
- The remaining half, 60 per cent of which will be funded by central government grants, will be spent on power loss reduction and strengthening networks.
- RDSS stipulates universal pre-paid metering but post-paid options may be suitable in many contexts.
- RDSS suggested measures such as privatisation and franchisee adoption.

Issues

- RDSS has inherited several design issues from its predecessor schemes.
- Only 60 per cent of the total Rs 2.5 lakh crore grants allocated in past schemes were disbursed.
- Lack of public review and regulatory oversight in states is another issue.
- The prescriptive approach of the scheme design impedes effective implementation.

- For example, RDSS emphasises loss reduction investments over system strengthening.
- However, high losses are typically connected to sustained poor quality service which, in turn, is affected by inadequate investment in system strengthening.

Opportunities for discoms under RDSS

- It is important to strengthen rural networks to meet growing demand. In the past decade, 4.9 crore poor households have been electrified and more than Rs 50,000 crore has been invested in rural networks. However, actual investments have been much less than planned. Transformer and sub-station capacities were designed to meet the minimal demand assuming few lights, fan and TV. Increased supply hours, appliance usage and the needs of rural enterprises will need more network investment. Without this, the risk of power outages is high. The RDSS system's strengthening plans can focus on this challenge.
- About 25 per cent of electricity sales is to highly subsidised, agricultural consumers who also receive erratic, poor quality supply. Under the national KUSUM scheme, day-time, low-cost supply can be provided to a large number of farmers by installing megawatt scale solar plants. For this to work, separate feeders for agricultural consumers are needed. RDSS prioritises investments and grants towards dedicated agricultural feeders to accelerate feeder solarisation. States must leverage this grant support to provide reliable supply and reduce subsidy requirements.
- Despite efforts, unmetered consumers and non-functional meters at the consumer and feeder level persist.
- Often, discoms under-estimate losses by over-estimating unmetered consumption in a bid to demonstrate loss reduction. For greater veracity, all feeders must be equipped with meters capable of communicating readings without manual intervention. States should leverage RDSS's emphasis on automatic meter reading for this.
- RDSS prescribes a phase-wise roll-out of consumer smart meters, starting with commercial and industrial consumers and urban areas. Such an approach provides states with an opportunity to understand implementation issues, adopt suitable strategies for metering and evolve frameworks for assessing benefits vis-a-vis the costs.
- The network can be prepared for charging electric vehicles. Discoms can avail 60 per cent of grants under RDSS for network investments required to address the demand of charging infrastructure for electric vehicles. This can accelerate a shift away from petrol and diesel fuels.

Way forward

- To leverage various opportunities, states must emphasise the need for flexibility in prioritising investments in their action plans. Central government agencies should also be flexible in the monitoring, tracking and fund disbursement mechanisms. This should be accompanied by state-level commitments towards accelerated but deliberate implementation.
- Despite the challenges, there are opportunities for discoms under RDSS. However, without these efforts, despite its potential, RDSS will likely be important but limited in its impact, like its predecessors.

Parvatmala Programme

News: Recently, the Union Finance Minister in the Union Budget for 2022-23 announced National Ropeways Development Programme – “Parvatmala” to improve connectivity in hilly areas.

What is the Scheme?

- The scheme will be taken up on PPP (Public Private Partnership) mode, which will be a preferred ecologically sustainable alternative in place of conventional roads in difficult hilly areas.
- The idea is to improve connectivity and convenience for commuters, besides promoting tourism.
- This may also cover congested urban areas, where conventional mass transit systems are not feasible.
- The scheme is being presently started in regions like Uttarakhand, Himachal Pradesh, Manipur, Jammu & Kashmir and the other North Eastern states. The Finance Minister announced that contracts for 8 ropeway projects for a length of 60 km would be awarded in 2022-23.
- The Ministry of Road Transport and Highways (MORTH) will have responsibility for development of ropeway and alternative mobility solutions technology, as well as construction, research, and policy in this area. In February 2021, the Government of India (Allocation of Business) Rules 1961 was amended, which enabled the MORTH to also look after the development of Ropeways and Alternate Mobility Solutions.

- The move will give a boost to the sector by setting up a regulatory regime. The MORTH has so far been responsible for development of Highways and regulating the road transport sector across the country.
- Given that ropeway projects are built in a straight line over a hilly terrain, it also results in lower land acquisition costs. Hence, despite having a higher cost of construction per km than roadways, ropeway projects' construction cost may happen to be more economical than roadways.
- Owing to the aerial mode of transportation, ropeways have an advantage over roadway projects where ropeways can be built in a straight line, over a hilly terrain.
- Low dust emissions. Material containers can be designed so as to rule out any soiling of the environment.
- Ropeway projects adopting 3S (a kind of cable car system) or equivalent technologies can transport 6000-8000 passengers per hour.

Key Shortcomings in Latest Budget

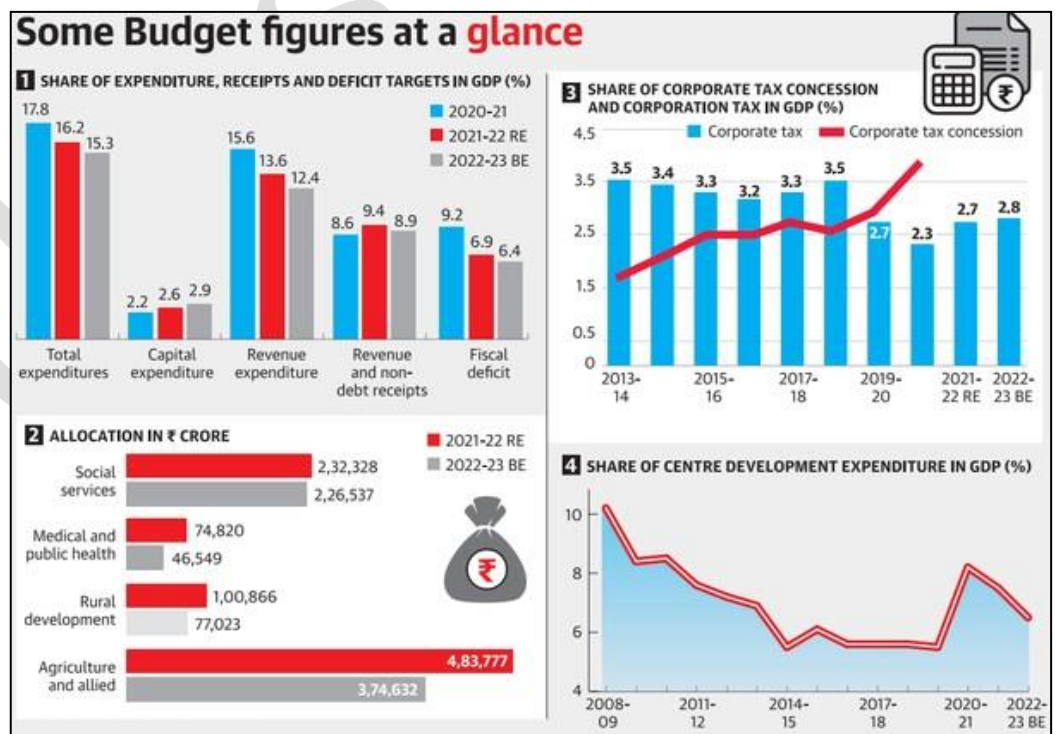
News: The Union Budget 2022-23 has projected a fiscal deficit of 6.4% of nominal GDP, a narrowing from the 6.9% assumed in the revised estimates for the current fiscal year ending on 31st March, 2022. In simple words, a fiscal deficit is a shortfall in a government's income compared with its spending. Nominal GDP is GDP (Gross Domestic Product) evaluated at current market prices. It includes all of the changes in market prices that have occurred during the current year due to inflation or deflation.

Background:

- Though every economic crisis involves sharp reduction in output growth rate, the specificity of the present crisis in India lies in the sharper reduction in labour income as compared to profits.
- The consequent reduction in income share of labour was associated with a sharp fall in consumption-GDP ratio as well as absolute value of consumption expenditure during the pandemic.
- The four components of Gross Domestic Product (GDP) are personal consumption, business investment, government spending, and net exports. It is pertaining to addressing the structural constraints of the Indian economy that restricted growth even during the pre-pandemic period.

Details:

- The share of revenue and non-debt receipts in GDP has remained more or less unchanged, the objective of fiscal consolidation has been sought to be achieved primarily by reducing the expenditure-GDP ratio.
- Fiscal consolidation refers to the ways and means of narrowing the fiscal deficit.
- Hence, the brunt of this expenditure compression fell on revenue expenditure.
- Expenditure on the payment of wages and salaries, subsidies or interest payments would be typically classified as revenue expenditure. Since the bulk of the revenue expenditure comprises food subsidies and current expenses in social and economic services, reduction in the allocation for revenue expenditure has been associated with fall in several key expenditure that affect the income and livelihood of labour.



- For example, allocation for both agriculture and allied activities and rural development registered a sharp decline in nominal absolute terms in 2022-23 as compared to 2021-22.
- Similarly, in the midst of the ongoing pandemic, total nominal expenditure on medical and public health registered a sharp fall in 2022-23 as compared to 2021-22. Such expenditure compression has been associated with the overall fall in the allocation for total social sector expenditure.
- Despite sharp increase in profits during the pandemic, the corporate tax-GDP ratio has continued to remain below the 2018-19 level due to tax concessions. Despite the objective of fiscal consolidation, the corporate tax ratio continues to remain low and restrict revenue receipts.

Implications:

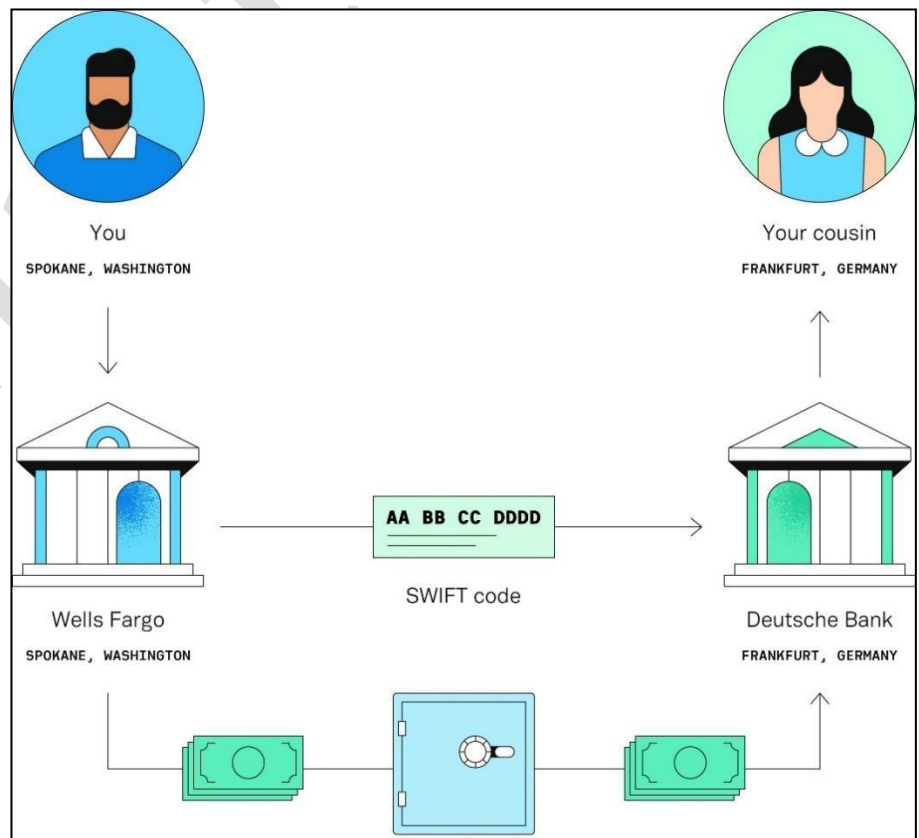
- The objective of fiscal consolidation along with the inability to increase revenue receipts has posed a constraint on development expenditure.
- Developmental expenditure refers to the expenditure of the government which helps in economic development by increasing production and real income of the country.
- With non-development expenditure comprising of interest payments, administrative expenditure and various other components which are typically rigid downward, the brunt of expenditure compression has fallen on development expenditure.
- The reduction in the allocation for development expenditure ratio for 2022-23 reflects reduction in the allocation for food subsidies, national rural employment guarantee program, expenditure in agriculture, rural development and social sector.

SWIFT

News: As tensions peaks over Ukraine the United States could exclude Russia from the Society for Worldwide Interbank Financial Telecommunication (SWIFT).

What is SWIFT?

- SWIFT is an international network for banks worldwide to facilitate smooth money transactions globally.
- It is basically a messaging network used by banks and financial institutions globally for quick and faultless exchange of information pertaining to financial transactions.
- The Belgium-headquartered SWIFT connects more than 11,000 banking and securities organization in over 200 countries and territories.
- First used in 1973, it went live in 1977 with 518 institutions from 22 countries, its website states.
- SWIFT is merely a platform that sends messages and does not hold any securities or money.
- It facilitates standardized and reliable communication to facilitate the transaction.



Procedure:

- Each participant on the platform is assigned a unique eight-digit SWIFT code or a bank identification code (BIC). If a person, say, in New York with a Citibank account, wants to send money to someone with an HSBC

account in London, the payee would have to submit to his bank the London-based beneficiary's account number along with the eight-digit SWIFT code of the latter's bank. Citibank would then send a SWIFT message to HSBC. Once that is received and approved, the money would be credited to the required account. SWIFT claims to be neutral. Its shareholders, consisting of 3,500 firms across the globe, elect the 25-member board, which is responsible for oversight and management of the company.

- It is regulated by G-10 central banks from Belgium, Canada, France, Germany, Italy, Japan, The Netherlands, the UK, the US, Switzerland, and Sweden, alongside the European Central Bank.
- Its lead overseer is the National Bank of Belgium. The SWIFT oversight forum was established in 2012.
- The G-10 participants were joined by the central banks of India, Australia, Russia, South Korea, Saudi Arabia, Singapore, South Africa, the Republic of Turkey, and the People's Republic of China.
- Europe, Middle East, and Africa are highest contributors to SWIFT.

Implication of exclusion from SWIFT:

- US excluding Russia from SWIFT could have serious repercussions on how Russian banks carry out international financial transactions. If a country is excluded from the most participatory financial facilitating platform, its foreign funding would take a hit, making it entirely reliant on domestic investors.
- This is particularly troublesome when institutional investors are constantly seeking new markets in newer territories. An alternative system would be cumbersome to build and even more difficult to integrate with an already expansive system. Iranian banks were ousted from the system in 2018 despite resistance from several countries in Europe. This step, while regrettable, was taken in the interest of the stability and integrity of the wider global financial system, and based on an assessment of the economic situation.

Farm Loan Waivers

News: The Congress manifesto for the UP polls promises waiver of farm loans within 10 days of coming to power and a subquota for the most backward classes (MBCs) within the other backward classes (OBC) quota to ensure maximum benefits, if voted to office Uttar Pradesh.

Background:

- To help the farm sector, state governments have time and again announced loan waiver schemes. Back in 2008-09, the then UPA government at the Centre had announced a loan waiver scheme for the entire country. States like Madhya Pradesh, Chhattisgarh and others have announced similar schemes in the recent past.

Issues:

- Firstly, it covers only a tiny fraction of farmers. The loan waiver as a concept excludes most of the farm households in dire need of relief and includes some who do not deserve such relief on economic grounds.
- Second, it provides only a partial relief to the indebted farmers as about half of the institutional borrowing of a cultivator is for non-farm purposes.
- Third, in many cases, one household has multiple loans either from different sources or in the name of different family members, which entitles it to multiple loan waiving. Fourth, loan waiving excludes agricultural labourers who are even weaker than cultivators in bearing the consequences of economic distress.
- Fifth, it severely erodes the credit culture, with dire long-run consequences to the banking business.
- Sixth, the scheme is prone to serious exclusion and inclusion errors, as evidenced by the Comptroller and Auditor General's (CAG) findings in the Agricultural Debt Waiver and Debt Relief Scheme, 2008.
- Lastly, schemes have serious implications for other developmental expenditure, having a much larger multiplier effect on the economy.

Way forward:

- For providing immediate relief to the needy farmers, a more inclusive alternative approach is to identify the vulnerable farmers based on certain criteria and give an equal amount as financial relief to the vulnerable and distressed families.
- The sustainable solution to indebtedness and agrarian distress is to raise income from agricultural activities and enhance access to non-farm sources of income. The low scale of farms necessitates that some

cultivators move from agriculture to non-farm jobs. Improved technology, expansion of irrigation coverage, and crop diversification towards high-value crops are appropriate measures for raising productivity and farmers' income. All these require more public funding and support.

- As per RBI, loan waivers not only inhibit investment in the farm sector but put pressure on the fiscal of states which undertake farm loan waiver. In every state election during the last five years, loan waiver promise made by one political party or other. Also, loan waivers, as the RBI has repeatedly argued, vitiate the credit culture, and stress the budgets of the waiving state or central government.
- The magic wand of a waiver can offer temporary relief, but long-term solutions are needed to solve farmer woes. There are many dimensions of the present agrarian crisis in India. The search for a solution therefore needs to be comprehensive by taking into consideration all the factors that contribute to the crisis. Furthermore, both short- and long-term measures are required to address the numerous problems associated with the agrarian crisis.

Crop-Diversification

News: In the annual Economic Survey, the Department of Economic Affairs said that there is an urgent need for Crop Diversification in view of the severe water stress in areas where paddy, wheat and sugarcane are grown as well as to increase oil seed production and reduce dependency on imports of cooking oil.

Crop-Diversification:

- Crop diversification refers to the addition of new crops or cropping systems to agricultural production on a particular farm taking into account the different returns from value-added crops with complementary marketing opportunities.
- Many farmers also use the mixed crop-livestock system to increase their standards of living and income.
- Animal husbandry or Animal Agriculture is the branch of science dealing with the practice of breeding, farming and care of farm animals (livestocks) such as cattle, dogs, sheep and horses by humans for advantages. It refers to livestock raising and selective breeding. It is a branch of agriculture.

Why do we need it?

- A farmer may confront a series of adversities and climatic vagaries during agricultural production, such as erratic rainfall, stone hail, drought, flood, and so on. In addition, challenges like post-harvest losses, storage and unavailability of accessible proper marketing are further aggravating the problem.
- Currently, the human-wildlife and / or human-crops conflict, forest fires, organic matter deficit soil, monoculture, plant disease and infestation, migration and the reluctance of youth towards agriculture are a new array of problems.
- For more than five decades, Indian agriculture has been facing severe problems related to an increase in input cost to increase productivity. However, the productivity proportional to input maintains for a certain time before plateauing and then progressively declines in many cases.
- Farmers have been using the common government-promoted Green Revolution cropping pattern — rice-wheat-rice for a longer time to enhance productivity. Unilaterally, following the same cropping pattern for a longer period of time has extracted the specific nutrients from the soil, resulting in soil deficiency in those nutrients along with a declined population of microfauna in the soil. The microfaunal population is responsible for the mobilisation and absorption of particular nutrients in the crop rhizosphere.
- Reduction of the microfaunal population in the soil is a serious issue because without microfaunal activities, the soil is lost to self-perpetuate and its ecology for crop production.
- The mono-cropping pattern also reduces resource-use efficiency.
- Furthermore, mono-cropping patterns have more chances to be attacked by the same types of insects and pests, which in turn are controlled by pumping the insecticides and pesticides.

Agroforestry:

- It is a part of primitive and tribal agriculture nourished with indigenous technical knowledge.
- Agroforestry is a land-use system that includes trees, crops and / or livestock in a spatial and temporal manner, balancing both ecological and economic interactions of biotic and abiotic components. It harnesses the complementarity between trees and crops for efficient utilisation of available resources.

- Agroforestry is practiced for diversification around the world in different spheres of biological, ecological, economical and sociological considerations. In North America, for instance, farmers preferred agroforestry over agriculture to improve their economic gain and natural resource conservation.
- In Europe, agroforestry trees are dominated by oaks, pines, junipers and firs. In Australia, *Pinus radiata* and *Eucalyptus globulus* while in the African continent, coffee, cocoa, coconut, oil palm, and rubber are common agroforestry trees on farms.
- The home gardens of the southern part of India are a classic example of maintaining temporal and spatial arrangement for crop diversity, with trees resulting in sustainable productivity from the unit area.
- Agroforestry can generate food, feed, fruits, fibre, fuel, fodder, fish, flavour, fragrance, floss, gum and resins as well as other non-wood products for food and nutritional security. It can also support livelihoods and promote productive, resilient agricultural environments in all ecologies.
- Agroforestry contributes to a multifunctional production system which enhances biodiversity due to the creation of diverse habitat for macro- and micro-organisms and maintaining landforms for future generations. It provides opportunities to integrate traditionally grown crops, with other commercial crops such as cereals, oilseeds, pulses, vegetables, fruits in agrihorticulture, hortisilviculture, silvofloriculture, silvomedicinal, agrihortisilviculture, aquaforestry, silvipasture, hortipasture.

Rating Agencies

News: Finance Secretary has accused rating agencies of “double standards” when assessing emerging markets and developing economies. Fitch, a rating agency, has termed India as the most indebted emerging market. It claimed that the latest budget did not provide clarity on fiscal consolidation plans.

What is a Rating Agency?

- Rating agencies assess the creditworthiness or potential of an equity, debt or country. Their reports are read by investors to make an informed decision on whether or not to invest in a particular country or companies in that geography. They assess if a country, equity or debt is financially stable and whether it at a low/high default risk. In simpler terms, these reports help investors gauge if they would get a return on their investment. The agencies periodically re-evaluate previously assigned ratings after new developments geopolitical events or a significant economic announcement by the concerned entity.
- Their reports are sold and published in financial and daily newspapers.

Methodology:

- The three prominent ratings agencies, viz., Standard & Poor’s, Moody’s and Fitch subscribe to largely similar grading patterns. Standard & Poor’s accord their highest grade, that is, AAA, to countries, equity or debt with the exceedingly high capacity to meet their financial commitments.
- Its grading slab includes letters A, B and C with an addition a single or double letter denoting a higher grade. Moody’s separates ratings into short and long-term definitions. Its longer-term grading ranges from Aaa to C, with Aaa being the highest. Fitch, too, rates from AAA to D, with D being the lowest. It follows the same succession scheme as Moody’s and Fitch.

Criticism:

- Popular ratings agencies publicly reveal their methodology, which is based on macroeconomic data publicly made available by a country, to lend credibility to their inferences.
- However, credit rating agencies were subjected to severe criticism for allegedly spurring the financial crisis in the United States, which began in 2007. The agencies underestimated the credit risk associated with structured credit products and failed to adjust their ratings quickly enough to deteriorating market conditions. They were charged for methodological errors and conflict of interest on multiple counts.

Implications:

- Lowered rating of a country can potentially cause panic selling or offloading of investment by a foreign investor. In 2013, the European Union opted for regulating the agencies.
- Over reliance on credit ratings may reduce incentives for investor to develop their own capacity for credit risk assessment. Ratings Agencies in the EU are now permitted to issue ratings for a country only thrice a year, and after close of trade in the entire Union.

Oil Market in India

News: Energy giants like Russia and Saudi Arabia have been looking for a slice of the rising market in India. As per the estimates of the Organisation of the Petroleum-Exporting Countries (Opec), world oil demand will rise from 96.44 million barrels per day (mb/d) in 2021 to 100.59 mb/d in 2022. Therefore, to counter the rising prices and ensure sustainability, India needs a transition strategy away from fossil fuels.

Background:

- India will depend on imports for 85% of oil and half its fuel needs. It can elevate oil manufacturing by 20% by higher managing present fields however, for extra, it needs main discoveries, which have not come by in a very long time.
- Cooking fuel might be India's new vulnerability as consumption has risen with elevated entry. But its world provide is unlikely to develop considerably sooner or later as new refiners are likely to prioritise petrochemicals manufacturing the place LPG turns into a feedstock. Therefore, India must search options reminiscent of electrical, photo voltaic, fuel or biogas to exchange LPG.

Concerns for India:

- The United Nations Environment Programme's (UNEP) latest Production Gap Report has revealed that 15 of the top fossil fuel producing countries, including India, are not prepared to meet the requirements of the 2015 Paris Climate Agreement.
- Paris Agreement seeks to keep global warming "well below 2 degrees" above pre-industrial levels.
- In order for the world to meet the Paris Agreement goals, "global coal, oil, and gas production (and consumption) have to start declining immediately to be consistent with limiting warming to 1.5°C."
- India is the seventh-largest producer of fossil fuels among the 15 countries. As part of the Paris Agreement, India pledged a 33%-35% reduction in the "emissions intensity" of its economy by 2030, compared to 2005 levels. However, as part of the Atmanirbhar Bharat campaign, the government pledged to become a self-reliant producer of coal and made a plan to invest Rs 500 billion worth of infrastructure for coal extraction.
- India doesn't have a federal level policy on scaling down production of fossil fuels, or ensuring a just transition into renewable energy. Global cost of air pollution from fossil fuels is high. It was around \$2.9 trillion per year, or \$8 billion per day, which was 3.3 per cent of the world's GDP at the time.
- India is estimated to bear a cost of \$150 billion from air pollution caused by fossil fuels.
- As of now, human activities have already caused global temperatures to rise by about 1 degree Celsius above pre-industrial levels (1950-1900).
- Currently, countries' emissions targets are not in line with limiting global warming to under 1.5 degrees.

India's Dairy Sector

News: Union Budget 2022-23 is expected to boost the dairying and livestock sector with a host of measures to make it sustainable amid the ongoing Covid-19 pandemic.

Background:

- Dairy is the single-largest agri-commodity in India. It contributes 5% to the national economy and employs 80 million dairy farmers directly. A revival in economic activities, increasing per capita consumption of milk and milk products, changing dietary preferences and rising urbanisation in India, has driven the dairy industry to grow by 9-11% in 2021-22.
- The livestock sector has grown at a Compound Annual Growth Rate (CAGR) of 8.15% over the last five years ending 2020. Growth in the liquid milk segment, which accounts for over half of the dairy industry, is likely to remain stable (6-7%). The organised dairy segment, which accounts for 26-30% of industry (by value), has seen faster growth, compared to the unorganised segment.
- Dairy analogues, plant-based products and adulteration pose a major challenge and threat to the dairy industry. Shortage of fodder resources and ineffective control of animal diseases. Absence of field oriented conservation strategy for indigenous breeds. Lack of skills and quality services to farmers for improving productivity and improper infrastructure to support the sector.

Major Announcements under Latest Budget:

- Border villages in northern India with a sparse population and limited connectivity, have been covered under the 'New Vibrant Villages Programme' in the new budget. Some 95% of livestock farmers are concentrated in rural India. Hence, infrastructure development under the Vibrant Villages Programme will play a significant role in enhancing market access for these livestock farmers. New Vibrant Villages Programme announced in the budget aims to improve social and financial infrastructure in remote habitations, primarily along the border with China, and will be an improved version of the existing border area development programme.
- To provide a level playing field between co-operative societies and companies, alternate minimum tax has been reduced from 18.5% to 15%. Government has also proposed to reduce the surcharge on co-operative societies to 7% from 12% at present for those having total income of more than Rs. 1 crore and up to Rs. 10 crore. This would help enhance the income of cooperative societies and its members who are mostly from rural and farming communities.
- Allocation for the Rashtriya Gokul Mission and National Programme for Dairy Development has been increased by 20% in 2022-23. It is expected to help in increasing the productivity of indigenous cattle and quality milk production. Allocation for the livestock sector has been increased by more than 40% for 2022-23 and the enhanced allocation for central sector schemes by more than 48% shows commitment by the government for the growth of livestock and dairy farmers.
- An almost 60% enhancement in allocation for livestock health and disease control for 2022-23 over the previous year will ensure healthier livestock.
- Incentivising digital banking, digital payments and fintech innovations will create a ripple effect in the livestock sector through greater transparency by streamlining payments during milk procurement. A completely paperless, e-bill system will be launched by ministries for procurement.

Changes in Income Tax for Retrospective Taxation

News: The Union Budget 2022-23 brought in some amendments to the Income Tax (IT) Act 1961 that would be effective retrospectively.

What is a Retrospective Tax?

- A retrospective tax is one that is charged for transactions in the long past. It can be a new or additional charge on transactions done in the past. Ideally, retrospective tax is to make adjustments when policies in the past and the present are so vastly different that tax paid before under the old policy could be said to have been less. Retrospective tax could correct that situation by charging tax under the existing policy.
- Retrospective taxation allows a nation to implement a rule to impose a tax on certain products, goods or services and deals and charge companies from a time before the date on which the law is passed.
- Countries use this form of taxation to rectify any deviations in the taxation policies that, in the past, allowed firms to take benefit from any loophole. It affects companies that had unknowingly or knowingly used the tax rules differently. Not only India, but many other countries like the US, UK, Australia, Netherlands, Belgium, Canada, and Italy have retrospectively taxed firms.

Highlights of major amendments:

- Making a retrospective amendment to the IT Act from 2005-06, the Budget has clarified that cess and surcharge will not be allowed to be claimed as deductions in the form of expenditure, a practice that some companies and businesses were resorting to in the absence of legal clarity.
- Citing some court rulings over the years that had given benefit to taxpayers in claiming cess as expenditure and not tax, the tax department said the retrospective amendment is being done to correct the anomaly.
- This amendment will take effect retrospectively from 1st April, 2005 and will accordingly apply in relation to the assessment year 2005-06 and subsequent assessment years. The change is being brought from AY 2005-06 as education cess was brought in for the first time by the Finance Act, 2004.
- The court rulings differentiated between income tax and education cess on income tax, and in absence of a specific disallowance for 'education cess', courts had taken a view beneficial for taxpayers in many cases.

- In order to nullify the effect of such court rulings and to consider such rulings against the intention of the law, a clarificatory amendment has been introduced in the income tax law, providing that any surcharge or education cess on income tax shall not be allowed as business expenditure.
- The government has also allowed exemption of the amount received for medical treatment and on account of death due to Covid-19 retrospectively from April 2020. Any sum of money received by an individual, from any person, in respect of any expenditure actually incurred by him on his medical treatment or treatment of any member of his family, in respect of any illness related to Covid-19 subject to such conditions, as may be notified by the Central Government in this behalf, shall not be the income of such a person.
- It has also allowed exemption for amount received by a member of the family of a deceased person, from the employer of the deceased person (without limit), or from any other person or persons with such money not exceeding Rs 10 lakh, where the cause of death of such person is illness relating to Covid-19, and the payment is received within twelve months from the date of death of such person. Separately, gifts and freebies to doctors shall not be treated as business expenditure under the Income-tax Act.
- This has clarified that any expense incurred in providing various benefits in violation of the provisions of Indian Medical Council (Professional Conduct, Etiquette and Ethics) Regulations, 2002 shall be inadmissible under law. This step is likely to discourage pharma companies from giving freebies to medical professionals, and claim these expenses as deductions.

Funding of Companies:

- Government has made changes to the IT law, making space for questioning by the tax department to explain the source of funds at the hands of the creditor.
- A provision has been introduced stating that the source of funding for loan and borrowings for a recipient will be treated as explained only if the source of funds is also explained in the hands of the creditor.
- This could have an impact on funding of businesses, especially startups, if the creditor is not a venture capital fund, a venture capital company registered with SEBI.
- Earlier, if any company used to have bogus entries, the taxpayer would just provide details such as PAN and other financial details of the creditor and that was enough for the tax department. Now, it's upon the recipient to prove that it's the right source of income and they had the right net worth to provide this amount.

Ban on Import of Drones

News: The Government last week banned the import of drones barring for R&D, defence and security purposes.

Details:

- This is the latest in a slew of measures the Government has taken to promote make in India drones.
- Before this order, import of drones was "restricted" and needed prior clearance of the Directorate General of Civil Aviation (DGCA) and an import license from DGFT. For its defence needs, India imports from Israel and the US. Consumer drones such as those used for wedding photography come from China and drones for light shows also come from China apart from Russia.
- Indian drone manufacturers and service providers arrange drones for a variety of use cases such as survey and mapping, security and surveillance, inspection, construction progress monitoring and drone delivery.
- Most drone manufacturers in India assemble imported components in India, and there is less of manufacturing. What the import ban will do is that it will ensure that an Indian manufacturer has the control of the IP, design and software which gives him or her a total understanding and control of the product. Over a period of time this can enable further indigenisation.

Latest order:

- The Directorate General of Foreign Trade (DGFT) issued an order prohibiting with immediate effect the import of drones in Completely-Built-Up (CBU), Semi-knocked-down (SKD) or Completely-Knocked-down (CKD) forms. Import of drones by government entities, educational institutions recognised by Central or State governments, government recognised R&D entities and drone manufacturers for R&D purpose as well as for defence and security purposes will be allowed.
- For this, there has to be an import authorisation obtained from the DGFT.

- The import of drone components is “free”, implying that no permission is needed from the DGFT allowing local manufacturers to import parts like diodes, chips, motors, lithium ion batteries etc.
- The ban is likely to hurt those who use drones for photography and videography for weddings and events.
- These drones primarily come from China because they are cheaper and easy-to-use and India still has a lot of catching up to do in manufacturing them.

Domestic Drone Manufacturing:

- In August last year, the Government brought out liberalised Drone Rules, 2021 which reduced the number of forms to be filled to seek authorisation from 25 to five.
- They also dispensed with the need for a security clearance before any registration or issuance of licence.
- R&D entities too have been provided blanket exemption from all kinds of permissions, and restrictions on foreign-owned companies registered in India have also been removed.
- The Government has also announced a production-linked incentive scheme for drones and drone components with the aim to make India a “global drone hub by 2030”.
- Foreign manufacturers will be encouraged to set up assembly lines in India.

Capital Gains Tax

News: The capital gains tax structure in India is complicated, and it is time for a relook since the union budget has provisions for 30% tax on cryptocurrency.

Details:

- Capital gains tax is levied on the profits made on investments. It covers real estate, gold, stocks, mutual funds, and various other financial and non-financial assets.
- It is divided into long-term capital gains tax (LTCG) and short-term capital gains tax (STCG) depending on how long you have held the investment in question.
- Unlike income tax, the percentage of tax does not change on the basis of your overall tax slab.
- The LTCG tax, excluding surcharge, on equity is the same for gains of ₹10 lakh or ₹10 crore.
- There is also a separate set of deductions that apply to LTCG, which do not apply to ordinary income.
- Capital gains tax is complicated for a few primary reasons.
 1. First, the rate changes from asset to asset. LTCG tax on stocks and equity mutual funds is 10% but on debt mutual funds is 20% with indexation.
 2. Second, holding period changes from asset to asset. The holding period for LTCG tax is two years in real estate, one year for stocks, and three years for debt mutual funds and gold.
 3. Third, exemptions available against it come with their own complex conditions. For instance, buying a house after selling one can get you an exemption, but the new house must be bought in two years or built in three years of the sale.
- The 2022 budget has proposed a 30% tax on cryptocurrency, which is higher than capital gains tax in many cases. Besides, under capital gains tax, investors can adjust profits and losses on different investments against each other or against profits/losses in the future.
- However, this cannot be done with cryptocurrency. As capital gains tax is the same regardless of your overall income it can compound inequality. For instance, a person with a salary of ₹40 lakh will pay 30% tax on it but just 10% LTCG tax on gains from stock trading.
- A person with a salary of ₹5 lakh will pay a 5% tax on it but the same 10% LTCG tax on stock trading.
- Second, the smaller one-year qualifying period for LTCG in stocks compared to three years in debt mutual funds may encourage short-term trading in equity.

Way forward:

- The government can bring about uniformity in rates and holding periods for various assets to ensure that the tax for one asset is not more attractive than another.
- A uniform and long holding period to qualify for LTCG can also discourage short-term trading and speculative behavior in assets such as stocks. The exemptions for LTCG such as reinvestment in another house property or capital gains bonds can also be made simpler, with fewer conditions.
- Small investors can also be given relief by reducing rates of capital gains.

Pradhan Mantri Fasal Bima Yojana

News: Recently, Maharashtra has signaled that it may opt out of Pradhan Mantri Fasal Bima Yojana Scheme. Andhra Pradesh, Jharkhand, Telangana, Bihar, Gujarat, Punjab and West Bengal - all predominantly agriculture states - have already opted out of the scheme.

About the scheme:

- Launched in 2016 and is being administered by the Ministry of Agriculture and Farmers Welfare.
- It replaced the National Agricultural Insurance Scheme (NAIS) and Modified National Agricultural Insurance Scheme (MNAIS). It aims to provide a comprehensive insurance cover against the failure of the crop thus helping in stabilising the income of the farmers.
- All food & oilseed crops and annual commercial/horticultural crops for which past yield data is available.
- The prescribed premium is 2% to be paid by farmers for all Kharif crops and 1.5% for all rabi crops. In the case of annual commercial and horticultural crops, the premium is 5%.
- Premium cost over and above the farmer share was equally subsidized by States and GoI. However, GoI shared 90% of the premium subsidy for North Eastern States to promote the uptake in the region.
- By empanelled general insurance companies. The selection of the Implementing Agency (IA) is done by the concerned State Government through bidding.
- The revamped PMFBY is often called PMFBY 2.0, it has the following features:
 - Enrolment 100% voluntary for all farmers from 2020 Kharif. Earlier, it was compulsory for loanee farmers availing Crop Loan/Kisan Credit Card (KCC) account for notified crops.
 - The Centre has decided to limit the PMFBY premium rates - against which it would bear 50% of the subsidy - to a maximum of 30% in un-irrigated and 25% in irrigated areas.
 - The government has given the flexibility to states/UTs to implement PMFBY and given them the option to select any number of additional risk covers/features. Insurance companies have to now spend 0.5% of the total premium collected on Information, Education and Communication (IEC) activities.

Issues:

- The financial constraints of the state governments and low claim ratio during normal seasons are the major reasons for non-implementation of the Scheme by these States. States are unable to deal with a situation where insurance companies compensate farmers less than the premium, they have collected from them and the Centre. The State governments failed to release funds on time leading to delays in releasing insurance compensation. This defeats the very purpose of the scheme which is to provide timely financial assistance to the farming community. Many farmers are dissatisfied with both the level of compensation and delays in settlement. The role and power of Insurance companies is significant. In many cases, it didn't investigate losses due to a localised calamity and, therefore, did not pay the claims.
- Insurance companies have shown no interest in bidding for clusters that are prone to crop loss. Further, it is in the nature of the insurance business for entities to make money when crop failures are low and vice-versa. Currently the PMFBY scheme doesn't distinguish between large and small farmers and thus raises the issue of identification. Small farmers are the most vulnerable class.

Data Monetisation Policy

News: The Ministry of Electronics and Information Technology's proposal to monetise data collected at the central level has data policy and other experts divided.

Backgrounder to this policy

- The idea of monetising citizens' data for greater public good was first floated by the government in the Economic Survey of 2018-19. It had noted that since such data is generated and belongs to the people, it should be used for the people. The survey had also noted that private sector could be granted access to "select databases" for commercial use.

India Data Accessibility and Use Policy, 2022

- The data, which has been collected by the central government and undergone some value addition be allowed to be sold for some price.

- The draft of the policy suggests new framework for identifying “high value data-set” on the basis of the data’s degree of importance in the market.
- The draft has also suggested setting up of a central India Data Office will be created under MeitY.
- All the central government’s line ministries will have to form their respective Data Management Unit, which will be headed by a Chief Data Officer. These chief data officers along with the India Data Officer will together form the IDC, which will decide on the policy matters of data accessibility and its usage.
- It will be the broad umbrella to help respective central or state government ministries and departments “assess and optimally manage” the risks associated with the release and sharing of such data.

Significance of the move

- The thought process to consider non personal data as community or national resource, in itself is commendable. The core problem with the government selling citizens’ data is the revenue generation. The new policy will encourage data sharing among government departments and potentially help the investor ecosystem.

Issues flagged with the Policy

- Data monetization may happen at cost of individual privacy. The most sought-after datasets are those that contain sensitive personal data of individuals, ex. medical history, financial data. The new draft policy has been announced at a time when the country is yet to finalise the countours of a data protection law.
- The policy could also face pushback from big tech companies whose business model is based on the monetisation of large-scale data collection model. When the govt starts selling citizen data, even if anonymised, the government gets into business it making money.
- Once the govt starts making money, it’s very hard to reduce that activity or to regulate it in a manner where it is impartial to the public. There is a lack of proper standard and framework on data anonymisation leading to a possible that such data may be “reverse-engineered”.

Decentralised and Distributed Renewable Energy Supply

News: Recently, the Union Ministry of New and Renewable Energy (MNRE) released a draft policy framework for DRE livelihood applications. The aim is to achieve the objective of a decentralised and distributed renewable energy supply in the country, particularly for rural populations with little or no access to power.

Details:

- MNRE proposed forming a committee to monitor the progress of DRE projects, which will meet at least once every six months. Within the committee, each member ministry shall nominate the main point of contact for inter-ministerial collaboration. Depending on the scheme being implemented on DRE livelihood application, the committee may co-opt additional ministries/departments as members.
- MNRE will make available a digital catalogue of DRE-powered solutions to be used by various stakeholders to raise awareness. Objectives of the New Framework are as follows:
 - Enabling a market-oriented ecosystem.
 - Increasing the adoption of DRE-based livelihood solutions by enabling easy finance for the end-user.
 - Encouraging development and management of high-quality products.
 - Developing effective DRE livelihood applications through innovation as well as research and development.
 - Establishing energy-efficiency standards for high-potential livelihood products
 - Using applications powered by mini/micro-grids operating in hybrid mode along with the main grid.

Significance:

- DRE and its downstream applications offer an opportunity to not only meet India’s climate and energy access targets, but also provide attractive returns to financial investors.
- It also provides pathways for India to reduce import-dependence on crude oil as well as create economic growth and jobs in the long run. In addition, addressing existing policy and financing gaps would not only allow for better targeting and risk-hedging of government spending programs, but would also allow capital to be recycled efficiently, thereby enhancing both the duration and magnitude of the impact.

Issues:

- In order to use renewable energy in their livelihoods, people need access to technology and financing, which are not available to most rural households in India despite the existence of several technology options to deploy small-scale renewable energy-based livelihood applications.
- Local communities in the villages often find it difficult to pay upfront for these innovations.
- Microbusinesses, under-represented groups and women face unique challenges when it comes to acquiring assets. As a result, businesses that use operating expense-based financial models, such as pay-as-you-go or leasing, may be eligible for credit facilitation.
- Lack of proper financing channels, consumer awareness, consumer affordability and quality products/standards are some of the major challenges facing DRE in India.

Fair and Remunerative Price

News: The Maharashtra government has issued a government resolution which will allow sugar mills to pay the basic fair and remunerative price (FRP) in two tranches. Sugar mill owners have welcomed the move. However, farmers are not happy with it.

Details:

- FRP is the price declared by the government, which mills are legally bound to pay to farmers for the cane procured from them. The payment of FRP across the country is governed by The Sugarcane Control order, 1966. It mandates payment within 14 days of the date of delivery of the cane.
- The FRP is based on the recovery of sugar from the cane. For the sugar season of 2021-22, FRP has been fixed at Rs 2,900/tonne at a base recovery of 10 per cent. Sugar recovery is the ratio between sugar produced versus cane crushed, expressed as a percentage. The higher the recovery, the higher is the FRP, and higher is the sugar produced.
- The Central Government announces Fair and Remunerative Prices which are determined on the recommendation of the Commission for Agricultural Costs and Prices (CACP) and announced by the Cabinet Committee on Economic Affairs (CCEA). CCEA is chaired by the Prime Minister of India.
- The FRP is based on the Rangarajan Committee report on reorganizing the sugarcane industry.
- Assured payment is one of the major reasons why cane is a popular crop with farmers.
- Delays in payment can attract an interest up to 15 per cent per annum, and the sugar commissioner can recover unpaid FRP as dues in revenue recovery by attaching properties of the mills.
- Farmers argue that this method would impact their incomes. They point out that while FRP will be paid in installments, and will depend on an unknown variable, their bank loans and other expenses are expected to be paid for as usual. Also, farmers mostly require a lumpsum at the beginning of the season (October-November), because their next crop cycle depends on it.

Sugarcane:

- Temperature: Between 21-27°C with hot and humid climate.
- Rainfall: Around 75-100 cm.
- Soil Type: Deep rich loamy soil.
- Top Sugarcane Producing States: Uttar Pradesh > Maharashtra > Karnataka > Tamil Nadu > Bihar.
- India is the second largest producer of sugarcane after Brazil.

Science & Technology

Virtual Digital Assets

News: Finance Minister in her Budget 2022 announced a 30 per cent tax on income from virtual digital assets (particularly aiming Cryptocurrencies).

What are Virtual Digital Assets?

- To define the term “virtual digital asset”, a new clause (47A) is proposed to be inserted to section 2 of the Act.
- A virtual digital asset is proposed to mean any information or code or number or token (not being Indian currency or any foreign currency):
- Generated through cryptographic means or otherwise
- Providing a digital representation of value which is exchanged with or without consideration with the promise or representation of having inherent value
- Functions as a store of value or a unit of account and includes its use in any financial transaction or investment, but not limited to, investment schemes
- Can be transferred, stored or traded electronically.
- Non fungible token (NFT) and; any other token of similar nature are included in the definition.
- Virtual digital assets have gained tremendous popularity in recent times and the volumes of trading in such digital assets has increased substantially.
- Further, a market is emerging where payment for the transfer of a virtual digital asset can be made through another such asset. There has been a phenomenal rise in such transactions and the magnitude and frequency of these transactions have made it imperative to provide for a specific tax regime.
- The gifting of virtual digital assets is also a popular mode of exchange.
- The bill provides for the definition of virtual digital asset which is wide enough to cover emerging digital assets including NFT, assets in metaverse, cryptocurrencies etc.
- This recognition of digital assets under income tax is NOT akin to granting legal status.

Scheme for Taxation of Virtual Digital Assets

Specific tax regime imperative for transactions in virtual digital assets given the volume and magnitude.

Any income from transfer of any virtual digital asset shall be taxed at the rate of 30%

Gift of virtual digital asset is also proposed to be taxed in the hands of the recipient

Loss from transfer of virtual digital asset cannot be set off against any other income

TDS on payment made in relation to transfer of virtual digital asset at the rate of 1% of such consideration above a monetary threshold

AI and Climate Change

News: While there is an allure to national dreams of economic prosperity and global competitiveness, underwritten by AI, there is an environmental cost.

Issues:

- A few developed economies possess certain material advantages right from the start, they also set the rules. They have an advantage in research and development, and possess a skilled workforce as well as wealth to invest in AI. We can also look at the state of inequity in AI in terms of governance: How “tech fluent” are policymakers in developing and underdeveloped countries? What barriers do they face in crafting regulations and industrial policy? At the same time, there is an emerging challenge at the nexus of AI and climate change that could deepen this inequity.

Climate impact of AI

- The climate impact of AI comes in a few forms: The energy use of training and operating large AI models is one. In 2020, digital technologies accounted for between 1.8 per cent and 6.3 per cent of global emissions.
- In November 2021, UNESCO adopted the Recommendation on the Ethics of Artificial Intelligence, calling on actors to “reduce the environmental impact of AI systems, including but not limited to its carbon

footprint.”, calling on actors to “reduce the environmental impact of AI systems, including but not limited to its carbon footprint.”

Inequitable access:

- Both global AI governance and climate change policy (historically) are contentious, being rooted in inequitable access to resources. Developing and underdeveloped countries face a challenge on two fronts:
 - AI’s social and economic benefits are accruing to a few countries.
 - Most of the current efforts and narratives on the relationship between AI and climate impact are being driven by the developed West.

Way forward

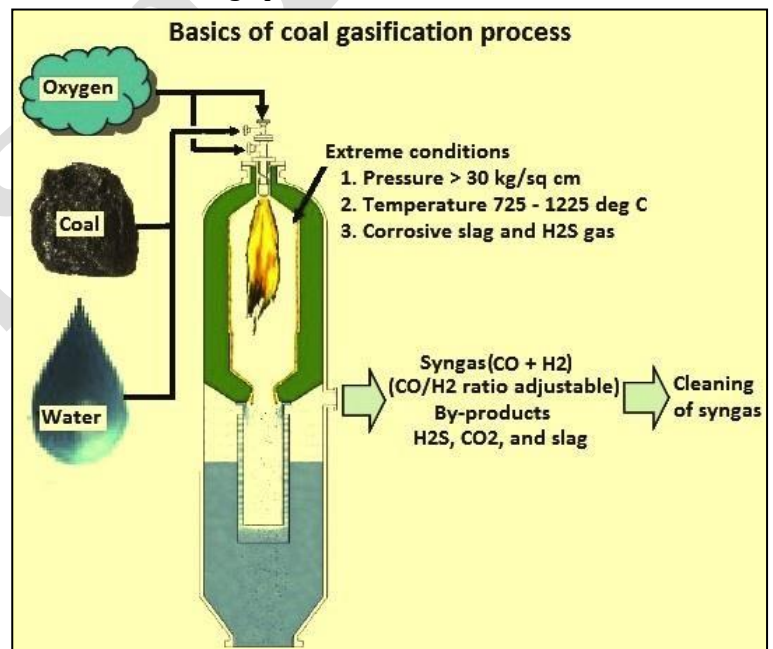
- Assess technology-led priorities: Governments of developing countries, India included, should also assess their technology-led growth priorities in the context of AI’s climate costs. It is argued that as developing nations are not plagued by legacy infrastructure it would be easier for them to “build up better”.
- It may be worth thinking through what “solutions” would truly work for the unique social and economic contexts of the communities in our global village.

Coal Gasification

News: Recently, the Delhi-based non-profit, Centre for Science and Environment (CSE), has raised concerns about the Union Government’s announcement on coal gasification projects in the Budget 2022-23. The budget proposed four pilot projects for coal gasification and conversion of coal into chemicals required for the industry. According to CSE, the process of coal gasification is not attractive from a climate change point of view.

What is Coal Gasification?

- Coal gasification is a process in which coal is partially oxidised with air, oxygen, steam or carbon dioxide to form a fuel gas.
- This gas is then used instead of piped natural gas, methane and others for deriving energy.
- In-situ gasification of coal – or Underground Coal Gasification (UCG) – is the technique of converting coal into gas while it is still in the seam and then extracting it through wells.
- It produces Syngas which is a mixture consisting primarily of methane (CH_4), carbon monoxide (CO), hydrogen (H_2), carbon dioxide (CO_2) and water vapour (H_2O). Syngas can be used to produce a wide range of fertilizers, fuels, solvent and synthetic materials.
- Steel companies typically use coking coal in their manufacturing process. Most of the coking coal is imported and is expensive.
- To cut costs, plants can use syngas, which comes from coal gasification plants in the place of coking coal.
- It is primarily used for electricity generation, for the production of chemical feedstocks.
- The hydrogen obtained from coal gasification can be used for various purposes such as making ammonia, powering a hydrogen economy.



Concerns:

- Coal gasification actually produces more carbon dioxide than a conventional coal-powered thermal power plant. According to CSE estimates, one unit of electricity generated by burning gasified coal generates 2.5 times more carbon dioxide than what would result when burning the coal directly.
- The syngas process converts a relatively high-quality energy source (coal) to a lower quality state (gas) and consumes a lot of energy in doing so. Thus, the efficiency of conversion is also low.

Mixing Hydrogen with Natural Gas

News: In line with National Hydrogen Mission, GAIL has commenced India's first-of-its-kind project of mixing hydrogen into the natural gas system to establish the techno-commercial feasibility of blending hydrogen in City Gas Distribution (CGD) network.

Details:

- The project has been initiated in Indore, Madhya Pradesh. GAIL has started injecting grey hydrogen. This grey hydrogen would subsequently be replaced by green hydrogen. The hydrogen blended natural gas will be supplied to Avantika Gas Ltd, one of GAIL's joint venture with HPCL, for retailing of CNG to automobiles and piped natural gas to households in Indore. Government is planning to blend 15% green hydrogen with piped natural gas (PNG) for domestic, commercial and industrial consumption.

Significance:

- It is easier and safer to use than hydrogen as it contains very low energy content from hydrogen i.e., up to 30% by volume. Hydrogen-enriched compressed natural gas (HCNG) will ensure 70% more reduction in carbon monoxide emissions compared to CNG.
- Power output of HCNG is also better than CNG ones. Blending integrates concentrations of hydrogen into existing natural gas pipelines and reduces carbon intensity of methane.
- Zero-emission hydrogen is the latest buzzword around the world. India has committed to achieving net-zero carbon emissions by 2070 and hydrogen together with renewable energy is seen as key to achieving that goal. For the transition, natural gas is the fuel and the government is looking to raise its share in the primary energy basket to 15 per cent by 2030 from the current 6.2 per cent.

What is Hydrogen fuel?

- Hydrogen is the lightest and first element on the periodic table. Since the weight of hydrogen is less than air, it rises in the atmosphere and is therefore rarely found in its pure form, H₂.
- At standard temperature and pressure, hydrogen is a nontoxic, nonmetallic, odorless, tasteless, colorless, and highly combustible diatomic gas.
- Molecular hydrogen is not available on Earth in convenient natural reservoirs.
- Most hydrogen on Earth is bonded to oxygen in water and to carbon in live or dead and/or fossilized biomass. It can be created by splitting water into hydrogen and oxygen.

Significance of Hydrogen Based economy:

- Due to its ability to power fuel cells in zero-emission electric vehicles, its potential for domestic production, and the fuel cell's potential for high efficiency hydrogen is considered an alternative.
- Water is the only by-product that results from the usage of hydrogen fuel that makes the fuel 100 per cent clean. Hydrogen can also serve as fuel for internal combustion engines. The energy in 2.2 pounds (1 kilogram) of hydrogen gas contains about the same as the energy in 1 gallon (6.2 pounds, 2.8 kilograms) of gasoline. The Finance Minister in the Union budget for 2020-21 formally announced the National Hydrogen Mission which aims for generation of hydrogen from green power resources.

Challenges for India:

- Economic sustainability of extracting green or blue hydrogen. The technology used in production and use of hydrogen like carbon capture and storage (CCS) and hydrogen fuel cell technology are at nascent stage and are expensive which in turn increases the cost of production of hydrogen.

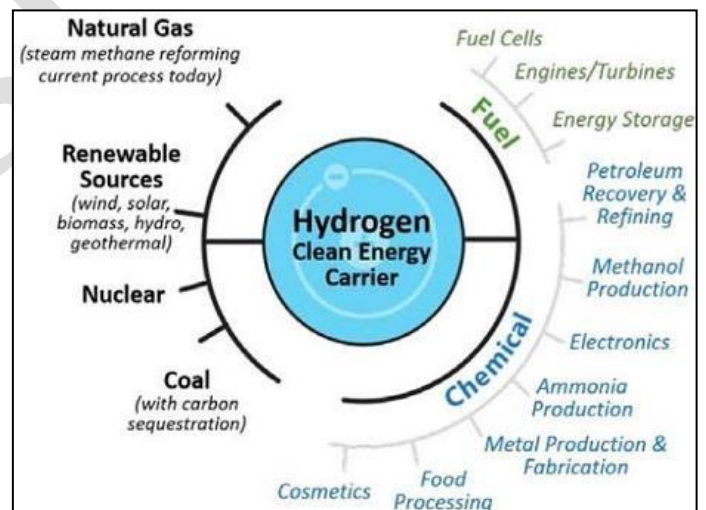
LOOKING TOWARDS HYDROGEN

National Hydrogen Mission - to make India a global hub for the production and export of green hydrogen

India spends over **Rs. 12 million** annually for energy requirements

Green hydrogen production to help replace energy imports

moneycontrol



- The maintenance costs for fuel cells post-completion of a plant can be costly, like in South Korea. The commercial usage of hydrogen as a fuel and in industries requires mammoth investment in R&D of such technology and infrastructure for production, storage, transportation and demand creation for hydrogen.

Research on Microbes

News: A team of Argentine scientists is using microorganisms native to Antarctica to explore the idea of cleaning up pollution from fuels and, potentially, plastics in the pristine expanses of the white continent. The continent is protected by a 1961 Madrid Protocol that stipulates it must be kept in a pristine state. Over 300 million tons of plastic are produced every year for use in a wide variety of applications. At least 14 million tons of plastic end up in the ocean every year, and plastic makes up 80% of all marine debris found from surface waters to deep-sea sediments.

Details:

- The researchers collected samples of plastic from the Antarctic seas and studied to see if the microorganisms are eating the plastics or simply using them as rafts. The team carried out bioremediation tasks. The team helped the microbes with nitrogen, humidity and aeration to optimize their conditions.
- This work uses the potential of native microorganisms - bacteria and fungi that inhabit the Antarctic soil, even when it is contaminated - and make these microorganisms eat the hydrocarbons.
- The tiny microbes munch through the waste, creating a naturally occurring cleaning system for pollution caused by diesel that is used as a source of electricity and heat for research bases in the frozen Antarctic. The research on how the microbes could help with plastic waste could have potential for wider environmental issues.

What is Bioremediation?

- It is a branch of biotechnology that employs the use of living organisms, like microbes and bacteria, in the removal of contaminants, pollutants, and toxins from soil, water, and other environments.
- Bioremediation is used to clean up oil spills or contaminated groundwater.
- Bioremediation may be done "in situ" - at the site of the contamination - or "ex situ" - away from the site.

Benefits:

- By relying solely on natural processes, it minimizes damage to ecosystems.
- Bioremediation often takes place underground, where amendments and microbes can be pumped in order to clean up contaminants in groundwater and soil. Consequently, bioremediation does not disrupt nearby communities as much as other cleanup methodologies.
- "Amendments" to the environment, such as molasses, vegetable oil, or simple air optimize conditions for microbes to flourish, thereby accelerating the completion of the bioremediation process.
- The bioremediation process creates relatively few harmful byproducts (mainly due to the fact that contaminants and pollutants are converted into water and harmless gases like carbon dioxide). Bioremediation is cheaper than most cleanup methods because it does not require substantial equipment or labor.

Solar Storms

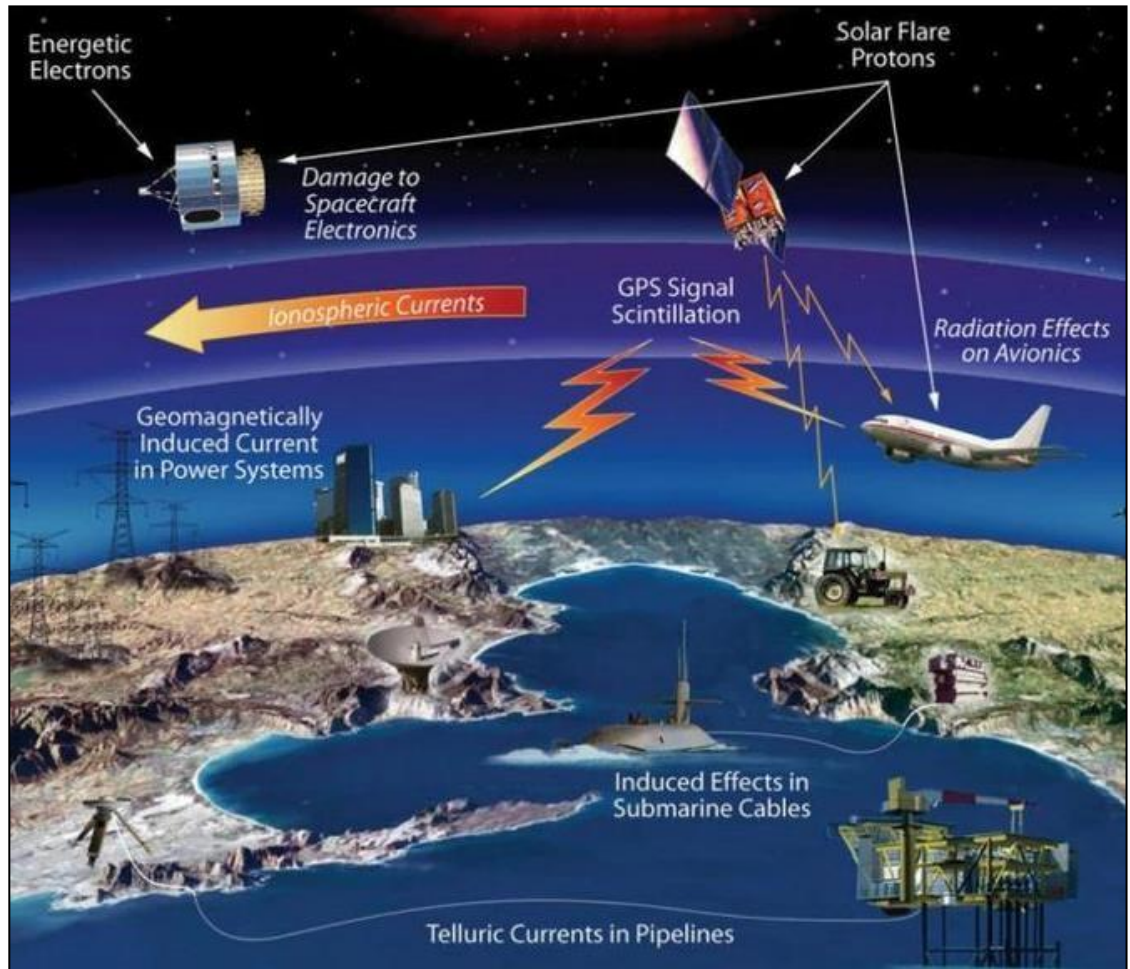
News: SpaceX's newest fleet of satellites is tumbling out of orbit after being struck by a solar storm.

Solar Storm

- A solar storm or a Coronal Mass Ejection as astronomers call it is an ejection of highly magnetized particles from the sun. These particles can travel several million km per hour and can take about 13 hours to five days to reach Earth. Earth's atmosphere protects us, humans, from these particles.
- But the particles can interact with our Earth's magnetic field, induce strong electric currents on the surface and affect man-made structures.

Impact on Satellites:

- The issue came up due to increased drag created by the solar storm in the upper reaches of the Earth's atmosphere. These storms cause the atmosphere to warm and atmospheric density at our low deployment altitudes to increase. In fact, onboard GPS suggests the escalation speed and severity of the storm caused atmospheric drag to increase up to 50 percent higher than during previous launches.



- The first recorded solar storm occurred in 1859 and it reached Earth in about 17 hours.
- It affected the telegraph network and many operators experienced electric shocks.
- A solar storm that occurred in 1921 impacted New York telegraph and railroad systems and another small-scale storm collapsed the power grid in Quebec, Canada in 1989.
- A 2013 report noted that if a solar storm similar to the 1859 one hit the US today, about 20-40 million people could be without power for 1-2 years, and the total economic cost will be \$0.6-2.6 trillion.
- The Sun goes through an 11-year cycle – cycles of high and low activity. It also has a longer 100-year cycle.
- During the last three decades, when the internet infrastructure was booming, it was a low period.
- And very soon, either in this cycle or the next cycle, we are going towards the peaks of the 100-year cycle.
- So it is highly likely that we might see one powerful solar storm during our lifetime.

Nuclear Fusion

News: Scientists in the United Kingdom said they have achieved a new milestone in producing nuclear fusion energy, or imitating the way energy is produced in the Sun.

What is Nuclear Fusion?

- Fusion is the energy source of the Sun and stars. In the tremendous heat and gravity at the core of these stellar bodies, hydrogen nuclei collide, fuse into heavier helium atoms and release tremendous amounts of energy in the process.
- Three conditions must be fulfilled to achieve fusion in a laboratory:
 - Very high temperature (on the order of 150,000,000° Celsius).
 - Sufficient plasma particle density (to increase the likelihood that collisions do occur).
 - Sufficient confinement time (to hold the plasma, which has a propensity to expand, within a defined volume).

Latest Experiment:

- A team at the Joint European Torus (JET) facility near Oxford in central England generated 59 megajoules of sustained energy during an experiment in December, more than doubling a 1997 record.
- A kg of fusion fuel contains about 10 million times as much energy as a kg of coal, oil or gas.
- The energy was produced in a machine called a tokamak, a doughnut-shaped apparatus, and the JET site is the largest operational one of its kind in the world. Deuterium and tritium, which are isotopes of hydrogen, are heated to temperatures 10 times hotter than the centre of the sun to create plasma. This is held in place using superconductor electromagnets as it spins around, fuses and releases tremendous energy as heat.
- Energy by nuclear fusion is one of mankind's long standing quests as it promises to be low carbon, safer than how nuclear energy is now produced and, with an efficiency that can technically exceed a 100%.
- Also, The record and scientific data from these crucial experiments are a major boost for ITER, the larger and more advanced version of the JET.

What is International Thermonuclear Experimental Reactor (ITER)?

- ITER is a fusion research mega-project supported by seven members – China, the European Union, India, Japan, South Korea, Russia and the USA – based in the south of France, to further demonstrate the scientific and technological feasibility of fusion energy.
- Its functions include:
 - Produce 500 MW of fusion power.
 - Demonstrate the integrated operation of technologies for a fusion power plant.
 - Achieve a deuterium-tritium plasma in which the reaction is sustained through internal heating.
 - Test tritium breeding.
 - Demonstrate the safety characteristics of a fusion device.

Volatile Organic Molecules

News: Recently, a study conducted by Indian Institute of Science Education and Research revealed that India can slash emissions of Volatile Organic Molecules (VOC) by 76% in the next eight years by swapping all two- and three-wheelers with electric vehicles and all diesel-fuelled ones with Compressed Natural Gas (CNG).

Details:

- Gases escaping out of a vehicle's exhaust account for 65-80% of an automobile's emissions.
- India is home to 14 out of the top 20 most polluted cities globally. Around 1.67 million deaths were linked to air pollution in 2019. The country lost 1.36% of its gross domestic product the same year.
- Therefore, adopting electric vehicles can help India achieve a cleaner future.

What are Volatile Organic Molecules?

- VOCs are carbon-containing chemicals released by petrol and diesel vehicles. They impact air quality and human health. However, VOCs can have a natural origin, too. Plants emit these chemicals to attract pollinators, defend themselves from pests and predators and adapt to environmental stress.
- VOCs can irritate the eyes, nose and throat, damage body organs and cause cancer. Long-term exposure to VOCs is not good because the majority of the VOCs are carcinogenic (cancer-causing). It is also linked to medical conditions such as asthma and heart disease. Black carbon is linked to health problems such as respiratory and cardiovascular disease, cancer and congenital disabilities. It also contributes to climate change.
- VOCs can drive the formation of other dangerous pollutants. For instance, they react with sunlight and nitrogen dioxide to form ground-level ozone. VOCs also trigger the formation of Particulate Matter (PM_{2.5}), a pollutant that reaches deep into the lungs, affecting their normal functioning.
- They react in the air to produce secondary organic aerosols, minute particles suspended in the air.
- Human-made VOCs are a cause for concern, yet they don't draw enough attention. Benzene, a chemical that induces cancer, is the only VOC included in the National ambient air-quality standards. The other pollutants under ambient air-quality standards considered are PM₁₀, PM_{2.5}, nitrogen dioxide, sulphur dioxide, carbon monoxide, ozone, ammonia, lead, nickel and benzo(a)pyrene.

Electric Vehicles and challenges:

- An EV operates on an electric motor instead of an internal combustion engine and has a battery instead of a fuel tank. In general, EVs have low running costs as they have fewer moving parts and are also environmentally friendly. In India, the fuel cost for an EV is approximately 80 paise per kilometre. Contrast this with the cost of petrol which is today more than Rs 100 per litre in Indian cities, or Rs 7-8 per kilometre to operate a petrol-based vehicle.
- EV production is a capital intensive sector requiring long term planning to break even and profit realisation, uncertainty in government policies related to EV production discourages investment in the industry.
- India is technologically deficient in the production of electronics that form the backbone of the EV industry, such as batteries, semiconductors, controllers, etc.
- India does not have any known reserves of lithium and cobalt which are required for battery production.
- The lack of clarity over AC versus DC charging stations, grid stability and range anxiety (fear that batteries will soon run out of power) are other factors that hinder the growth of the EV industry.
- EVs have higher servicing costs and higher levels of skills is needed for servicing. India lacks dedicated training courses for such skill development.



Rice Fortification

News: The Minister of Consumer Affairs, Food and Public Distribution informed the Rajya Sabha that the government approved the Centrally Sponsored Pilot Scheme on "Fortification of Rice & its Distribution under Public Distribution System" for a period of 3 years beginning in 2019-20 with total outlay of Rs. 174.64 Cr.

What is Food Fortification?

- Fortification is the addition of key vitamins and minerals such as iron, iodine, zinc, Vitamin A & D to staple foods such as rice, milk and salt to improve their nutritional content.
- These nutrients may or may not have been originally present in the food before processing.
- According to the Food Ministry, fortification of rice is a cost-effective and complementary strategy to increase vitamin and mineral content in diets. According to FSSAI norms, 1 kg fortified rice will contain iron (28 mg-42.5 mg), folic acid (75-125 microgram) and Vitamin B-12 (0.75-1.25 microgram).
- In addition, rice may also be fortified with micronutrients, singly or in combination, with zinc, Vitamin A, Vitamin B1, Vitamin B2, Vitamin B3 and Vitamin B6.

- India has very high levels of malnutrition among women and children. According to the Food Ministry, every second woman in the country is anemic and every third child is stunted.
- India has slipped to 101st position in the Global Hunger Index (GHI) 2021 of 116 countries, from its 2020 position of 94th. The deficiency of micronutrients or micronutrient malnutrition, also known as “hidden hunger”, is a serious health risk. Rice is one of India’s staple foods, consumed by about two-thirds of the population. Per capita rice consumption in India is 6.8 kg per month. Therefore, fortifying rice with micronutrients is an option to supplement the diet of the poor.

Food Fortification scheme:

- To address anemia and micro-nutrient deficiency in the country, the Government of India approved this scheme for a period of 3 years in 2019-20.
- Under the Scheme, FCI (Food Corporation of India) has been asked to come up with a comprehensive plan for procurement and distribution of fortified rice in all the Districts of the country under Integrated Child Development Services (ICDS) & Mid-Day Meal (MDM) Scheme from 2021-2022.
- The mid-day meal scheme is now known as PM POSHAN. Special focus remains on supplying fortified rice to the 112 specially identified Aspirational Districts of the country.

Objectives:

- Distribution of Fortified Rice through Public Distribution System, to cater 15 Districts in the country - preferably one district per State in the initial phase of Implementation.
- Coverage of NFSA (National Food Security Act) beneficiaries under PDS with Fortified Rice in the selected Districts. Facilitate cross learning and sharing of best practices among States/UTs and DoF&PD (Department of Food and Public Distribution). To evaluate the provision, coverage and Utilization of Fortified Rice by the target population as well as the efficiency/effectiveness of the consumption of fortified rice in reducing the targeted micronutrient deficiencies in different age and gender groups.

Steps taken:

- In October 2016, FSSAI operationalized the Food Safety and Standards (Fortification of Foods) Regulations, 2016 for fortifying staples namely Wheat Flour and Rice (with Iron, Vitamin B12 and Folic Acid), Milk and Edible Oil (with Vitamins A and D) and Double Fortified Salt (with Iodine and Iron) to reduce the high burden of micronutrient malnutrition in India.
- India’s National Nutritional strategy, 2017, had listed food fortification as one of the interventions to address anemia, vitamin A and iodine deficiencies apart from supplementation and dietary diversification.
- The Milk Fortification Project was launched by the National Dairy Development Board (NDDB) in collaboration with the World Bank and Tata Trusts, as a pilot project in 2017.

Earth Observation Satellites

News: After a disappointing 2021 which saw just one successful launch, ISRO is getting back to business with the EOS-04, an earth observation satellite.

Details:

- An EOS or Earth remote sensing satellite is a satellite used or designed for Earth observation (EO) from orbit. It includes spy satellites and similar ones intended for non-military uses such as environmental monitoring, meteorology, cartography and others. The most common type are Earth-imaging satellites that take satellite images, analogous to aerial photographs.
- Some EOS may perform remote sensing without forming pictures, such as in GNSS radio occultation.
- The EOS-04 is fourth in a series of earth observation satellites that are being launched under a new generic name. It is designed to provide high-quality images for applications such as agriculture, forestry and plantations, flood mapping, soil moisture and hydrology. It will complement the data from Resourcesat, Cartosat and RISAT-2B series of satellites that are already in orbit.
- Two years ago, ISRO had moved to a new naming system for its earth observation satellites which till then had been named thematically, according to the purpose they were meant for.
- The Cartosat series of satellites were meant to provide data for land topography and mapping, while the Oceansat satellites were meant for observations over sea.

- Some INSAT-series, Resourcesat series, GISAT, Scatsat, and a few other earth observation satellites were named differently for the specific jobs they were assigned to do, or the different instruments that they.
- All these would now become part of the new EOS series of satellites.

Other Satellites:

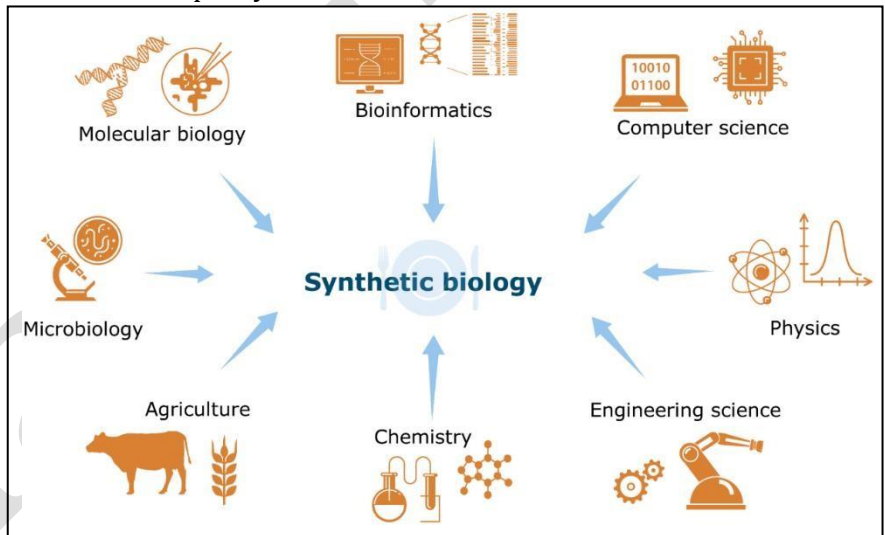
- Besides EOS-04, two other small satellites —INSPIRESat-1 and INS-2TD — will ride on the heaviest version of the PSLV rocket in the early hours from the Sriharikota launch range.
- The other co-passenger, INS-2TD, is a technology demonstrator for the first India-Bhutan joint satellite that is scheduled to be launched next month. The two countries had signed a space agreement last year, and its first outcome would be the launch of Bhutan-Sat, or INS-2B, on a PSLV rocket.
- India currently has 53 operational satellites, of which 21 are earth observation ones and another 21 are communication-based. EOS-4 launch would be the 54th flight of the PSLV rocket, and the 23rd of its most powerful XL-version that has six strap-on boosters.

Synthetic Biology

News: Recently, the Department of Biotechnology, Ministry of Science & Technology released a draft foresight paper on synthetic biology. Synthetic biology has multifarious applications of energy, agriculture and biofuels. Thus, there is always a perceived threat of components releasing into the open environment. Therefore, the document stresses on the need for a national policy that can consolidate India's stand on the issue.

What is Synthetic Biology?

- The term 'synthetic biology' was first used by Barbara Hobomin in 1980, to describe bacteria that had been genetically engineered using recombinant DNA technology.
- Synthetic biology refers to the science of using genetic sequencing, editing, and modification to create unnatural organisms or organic molecules that can function in living systems.
- Synthetic biology enables scientists to design and synthesise new sequences of DNA from scratch.
- The term was used to describe the synthesis of unnatural organic molecules that function in living systems.
- More broadly in this sense, the term has been used with reference to efforts to 'redesign life'.



Applications:

- Standardised Biological Parts- identify and categorise standardised genomic parts that can be used (and synthesised quickly) to build new biological systems.
- Applied Protein Design- redesign existing biological parts and expand the set of natural protein functions for new processes. For e.g, Modified rice to produce beta-carotene (a nutrient usually associated with carrots), that prevents Vitamin A deficiency.
- Natural Product Synthesis- engineer microbes to produce all of the necessary enzymes and biological functions to perform complex multistep production of natural products. For e.g, Microorganisms harnessed for bioremediation (use of living microorganisms to degrade environmental contaminants into less toxic forms) to clean pollutants from water, soil and air.
- Synthetic Genomics- design and construct a 'simple' genome for a natural bacterium. For e.g, Yeast engineered to produce rose oil as an eco-friendly and sustainable substitute for real roses that perfumers use to make luxury scents.

Issues:

- The intentional or accidental release of genetically engineered organisms into the environment could have significant negative impacts on both human and environmental health. Misuse of these technologies and a failure to account for unintended consequences could cause irreversible environmental damage.
- It's a movement of "citizen scientists" interested in synthetic biology experiments that has become an international phenomenon over the last decade. Often with little prior knowledge of the field, enthusiasts meet in makeshift labs to take crash courses in biotechnology and conduct hands-on experiments.
- Many of the ethical questions relevant to synthetic biology are similar to ethical discussions related to genome editing like:
 - Are humans crossing moral boundaries by redesigning organisms with synthetic biology techniques?
 - If synthetic biology yields new treatments and cures for diseases, who in our society will have access to them?

Breakthrough in HIV Treatment

News: Recently, a US patient with leukemia has become the first woman and the third person to date to be cured of HIV after receiving a stem cell transplant from a donor who was naturally resistant to the virus that causes Acquired ImmunoDeficiency Syndrome (AIDS).

About HIV

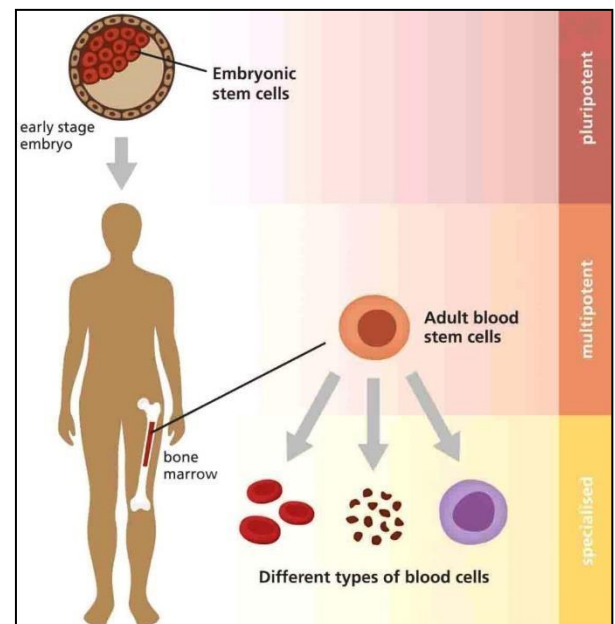
- HIV attacks CD4, a type of White Blood Cell (T cells) in the body's immune system. T cells are those cells that move around the body detecting anomalies and infections in cells. After entering the body, HIV multiplies itself and destroys CD4 cells, thus severely damaging the human immune system. Once this virus enters the body, it can never be removed. The CD4 count of a person infected with HIV reduces significantly. In a healthy body, CD4 count is between 500- 1600, but in an infected body, it can go as low as 200.

HIV/AIDS in India:

- As per the India HIV Estimation 2019 report, the estimated adult (15 to 49 years) HIV prevalence trend has been declining in India since the epidemic's peak in the year 2000 and has been stabilising in recent years.
- In 2019, HIV prevalence among adult males was estimated at 0.24% and among adult females at 0.20% of the population. There were 23.48 lakh Indians living with HIV in 2019. Maharashtra had the maximum numbers followed by Andhra Pradesh and Karnataka.

What are Stem Cells?

- Stem cells are special cells that can make copies of themselves and change into the many different kinds of cells that the body needs. They have two unique properties that enable them to do this:
 - They can divide over and over again to produce new cells. As they divide, they can change into the other types of cell that make up the body.
 - There are several kinds of stem cells and they are found in different parts of the body at different times.
 - Cancer and cancer treatment can damage the hematopoietic stem cells. Hematopoietic stem cells are stem cells that turn into blood cells.
- It helps in understanding the basic biology of how living things work and what happens in different types of cells during disease. In replacing lost or damaged cells that the bodies can't replace naturally.



What are the Three Main Types of Stem Cell?

- Embryonic Stem Cells: They supply new cells for an embryo as it grows and develops into a baby. These stem cells are said to be pluripotent, which means they can change into any cell in the body.
- Adult Stem Cells: They supply new cells as an organism grows and to replace cells that get damaged. Adult stem cells are said to be multipotent, which means they can only change into some cells in the body, not any cell, for example: Blood (or 'haematopoietic') stem cells can only replace the various types of cells in the blood.
- Induced Pluripotent Stem Cells: 'Induced' means that they are made in the lab by taking normal adult cells, like skin or blood cells, and reprogramming them to become stem cells. Just like embryonic stem cells, they are pluripotent so they can develop into any cell type.

What is Stem Cells Transplant?

- A bone marrow transplant is a medical treatment that replaces one's bone marrow with healthy cells. The replacement cells can either come from the person's own body or from a donor. A bone marrow transplant is also called a stem cell transplant or, more specifically, a hematopoietic stem cell transplant.
- Transplantation can be used to treat certain types of cancer, such as leukemia, myeloma, and lymphoma, and other blood and immune system diseases that affect the bone marrow.

Dark Matters

News: A recent hypothesis says that dark matter comprises a large number of compact objects such as primordial black holes.

What are Dark Matters?

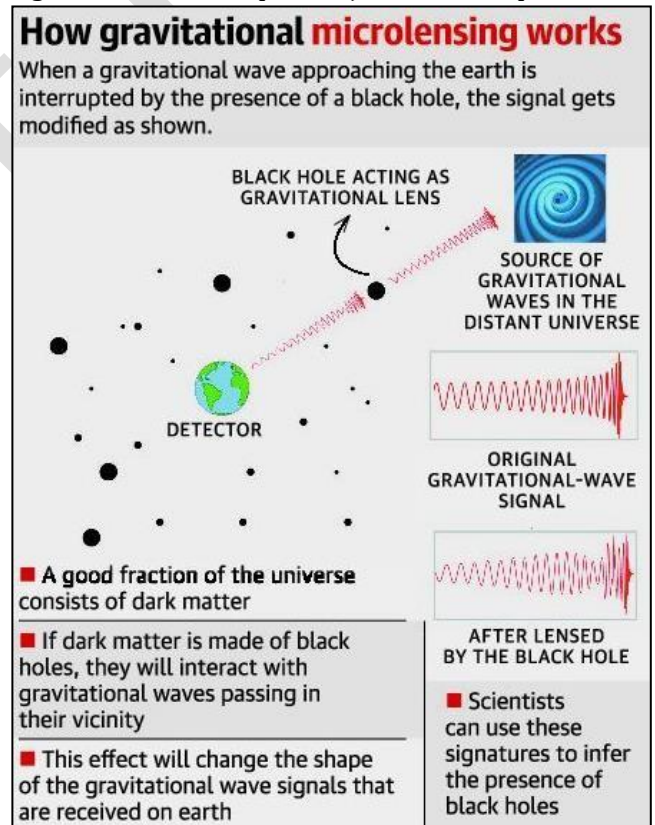
- Astronomical observations suggest that a significant part of the universe is made up of dark matter which interacts with the rest of the universe only through the gravitational pull.
- Many large lab experiments have tried to detect elementary particles that could be candidates for dark matter. However, such dark matter particles have not been detected until now.
- Several astronomical observations suggest that all galaxies are embedded in a "halo" of dark matter.
- The "visible" galaxy is like a disc embedded in a dark matter halo that is much larger in size.

Latest updations:

- When the universe was very young, hot and dense – soon after the Big Bang, it must have had quantum fluctuations of its density.
- This, in turn, would have caused some regions to become extremely dense, and therefore, to collapse under their own gravity to form the primordial black holes.
- While we have no conclusive evidence of spotting these objects, some of the binary black hole mergers detected by the LIGO gravitational wave detectors might be primordial black holes. The question is open there is good reason to believe that primordial black holes did form in the young universe.

Gravitational Lensing

- The paper explores what happens when such objects get in the way of gravitational waves traveling towards the Earth from the distance. It invokes a phenomenon called gravitational lensing that is used regularly in astronomy. When light travels through space and passes near a massive or compact body – a star, a galaxy or a black hole, for example, the intense gravity of that body may attract the light towards it.



- This causes bending it from its rectilinear (straight line) path. This phenomenon is known as gravitational lensing and was first observed by Arthur Eddington in 1919.
- Massive objects like galaxies can bend light significantly, producing multiple images, this is called strong lensing. Lighter objects like stars or black holes bend light less, and this is called micro-lensing.
- A similar lensing can happen to gravitational waves travelling towards the Earth, and this would leave signatures in the detected gravitational waves. This can be used to detect the presence, or the existence, of primordial black holes.

Assessing dark matter

- Until now, individual black holes have not marked out these signatures on gravitational waves detected by the LIGO-VIRGO detectors. However, if all of the dark matter is made of primordial black holes, they should have produced detectable signatures on the gravitational wave signals. The researchers use the non-observation of the lensing signatures to assess what fraction of the dark matter could be made of black holes.

Indian Neutrino Observatory

News: Recently, the Tamil Nadu Government has made clear to the Supreme Court that it does not want the Indian Neutrino Observatory (INO) to be set up in Eco-Sensitive Zones in the Western Ghats. INO will incur great cost to wildlife, biodiversity and ignores the local opposition. Eco-Sensitive Zones are areas within 10 kms around Protected Areas, National Parks and Wildlife Sanctuaries.

What are Neutrinos?

- A neutrino is a fundamental elementary particle, and atmospheric neutrinos can be studied when solar radiation hits the earth's atmosphere. They are very hard to detect as they hardly interact with other forms of matter due to their lack of electrical charge. However, they seem to play an important role in the universe of elementary physics, which physicists have been trying to understand for a few decades now.
- They are produced in high-energy processes such as within stars and in supernovae.
- On earth, they are produced by particle accelerators and nuclear power plants.
- They are produced in high-energy processes such as within stars and in supernovae. On earth, they are produced by particle accelerators and nuclear power plants.
- So far, neutrino physics has been mostly limited to outer space sources, observing neutrinos from farther-away stars and galaxies.

Its applications:

- The visible light is emitted from the surface of the sun and neutrinos, which travel close to the speed of light, are produced in the core of the sun. Studying these neutrinos can help us understand what goes on in the interior of the sun. Light coming from distant stars can be studied by astronomers, for example, to detect new planets. Likewise, if the properties of neutrinos are understood better, they can be used in astronomy to discover what the universe is made up of.
- Neutrinos interact very little with the matter around them, so they travel long distances uninterrupted. The extragalactic (originating outside the Milky Way galaxy) neutrinos we observe may be coming from the distant past. These undamaged messengers can give us a clue about the origin of the universe and the early stages of the infant universe, soon after the Big Bang.
- Apart from direct future uses of neutrinos, there are technological applications of the detectors that will be used to study them. For instance, X-ray machines, MRI scans, etc., all came out of research into particle detectors. Hence the INO detectors may have applications in medical imaging.

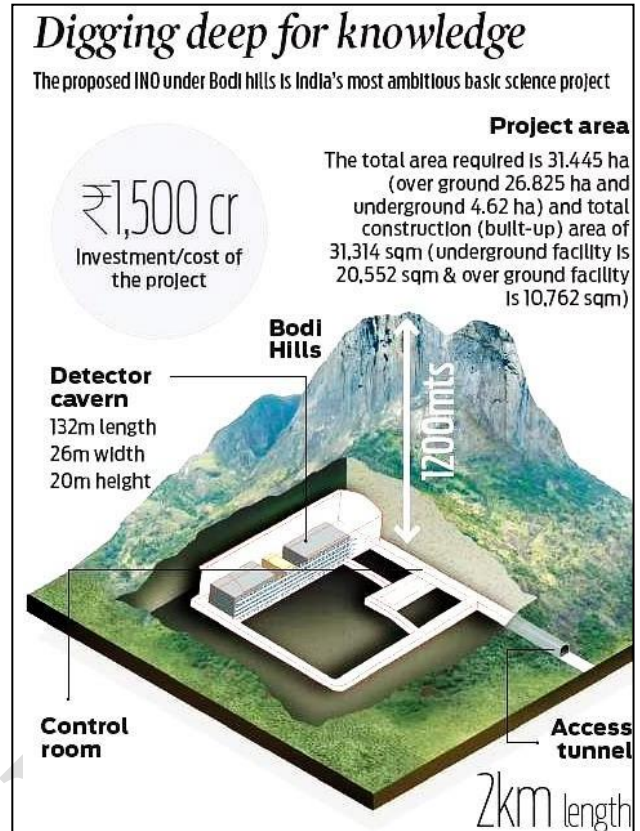
What is the Indian Neutrino Observatory (INO)?

- It is a proposed particle physics research mega project. The objective of the project was to study neutrinos in a 1,200-metre deep cave. The project is proposed to be set up at Pottipuram village in Theni district in Tamil Nadu. The project was initially mooted by the Institute of Mathematical Sciences and then by the Tata Institute of Fundamental Research.
- The proposed site in Theni district was identified because the rock burden of over 1 km in all directions shields the detector from other cosmic rays.

- Since neutrinos can easily pass through anything, they will reach the detector while the other particles will be filtered out by the rock in the mountain.
- The geographical location is also peculiar as all the existing neutrino detectors (in other countries) are at latitudes larger than 35 degrees North or South.
- There is none close to the equator as yet.

Tamil Nadu Govt.'s Stand:

- The Government asserted that the project falls exactly on the hill slopes of this part of the Western Ghats, which align within it a significant tiger corridor, namely the Mathikettan-Periyar tiger corridor. This corridor links the Periyar Tiger Reserve along the Kerala and Tamil Nadu borders and the Mathikettan Shola National Park.
- Quarrying and construction activities will upset wild animals which use the corridor for seasonal migrations.
- The area is a significant watershed and catchment zone for the rivers Sambhal and Kottakudi.
- Though the experiments in the observatory would be conducted a kilometre underground, massive blasting, activities like transportation, excavations and tunnelling among others, would jeopardise the ecological sustainability of the zone, deep in the Western Ghats. The protection of the Western Ghats was supreme as they are a global biodiversity hotspot and a treasure trove of biological diversity.
- The specific region harbours many endemic species of flowering plants, fish, amphibians, reptiles, birds, mammals and invertebrates other than large numbers of elephants and tigers.



What are Eco- Sensitive Zones?

- Eco-Sensitive Zones or Ecologically Fragile Areas are areas within 10 kms around Protected Areas, National Parks and Wildlife Sanctuaries. In case of places with sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, even areas beyond 10 km width can be included in the eco-sensitive zone. ESZs are notified by the Ministry of Environment, Forest, and Climate Change (MoEFCC), under Environment Protection Act, 1986.
- The basic aim is to regulate certain activities around National Parks and Wildlife Sanctuaries so as to minimise the negative impacts of such activities on the fragile ecosystem encompassing the protected areas.

Decommission of ISS

News: The National Aeronautics and Space Administration (NASA) has announced plans to retire and decommission the International Space Station (ISS) by 2031.

What is the ISS?

- The ISS was launched in 1998 as part of joint efforts by the U.S., Russia, Japan, Canada and Europe.
- The idea of a space station originated in the 1984 State of the Union address by former U.S. President Ronald Reagan. The space station was assembled over many years, and it operates in low-earth orbit.
- Since its inception, it has served as a laboratory suspended in space and has aided multiple scientific and technological developments. The ISS was originally built to operate for 15 years.
- A space station permits quantum leaps in research in science, communications, and in metals and lifesaving medicines which could be manufactured only in space. ISS has consistently maintained human presence for the past 21 years, providing astronauts with sophisticated technologies for scientific research.

Reasons:

- The space station has already surpassed that checkpoint by being active for 21 years, with plans to continue operations till 2030.
- The ISS goes through 16 rotations of the earth per day, causing extreme temperature changes on the exterior.
- The side facing the sun can get heated up to 121°C while the temperature on the opposite, darker side can fall to -157°C, causing intense expansion and contraction of the building material.
- This orbital thermal cycling, coupled with dynamic loading, affects the longevity of the primary structure of the space station. The technical lifetime is also limited by parts like radiators, modules and truss structures that tend to degrade over time.

Procedure to de-commission:

- NASA plans to remove the ISS from its orbit around the earth and eventually plunge it into the ocean at a point farthest from human civilisation. The space agency will use the dual method of natural orbit decay and a re-entry manoeuvre to bring an end to the ISS as we know it.
- According to the plan, the earth's natural atmospheric drag will be used in lowering the altitude of the ISS while setting up the de-orbit. The space station operators will then provide the final push to it to lower the structure to the maximum possible height and ensure safe re-entry into the earth's atmosphere.
- It would then lead to Point Nemo over the South Pacific Oceanic Uninhabited Area (SPOUA). Disassembling process would have posed huge logistical and financial challenges.

Satellite Internet

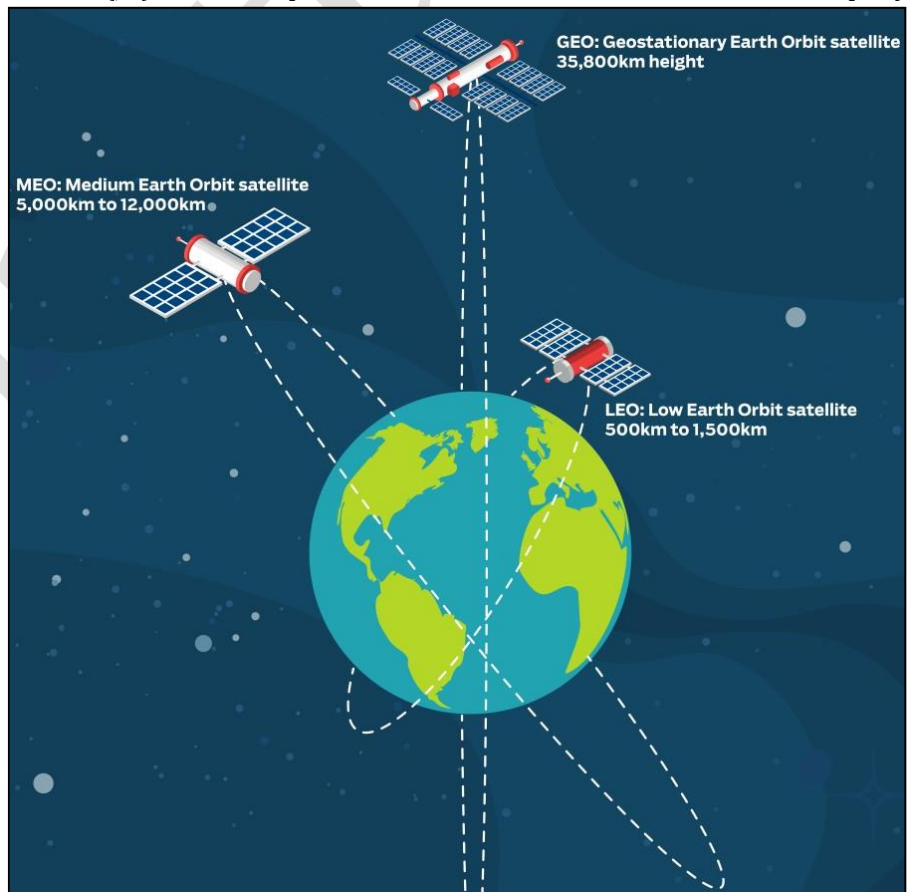
News: The Reliance has launched a joint venture (JV) with European satellite-based broadband service company SES to enter the satellite internet space.

What is Satellite Internet?

- The technology beams the internet down from a satellite that's orbiting the Earth.
- Jio, Bharti Airtel Ltd's OneWeb, and billionaire Elon Musk's Starlink want to send thousands of these satellites to orbit.
- OneWeb plans to launch 648 satellites, while Musk's Starlink has permits to launch over 4,000 of them.
- So far, OneWeb has launched over 400 satellites, while Starlink has launched over 2,000 satellites.
- It's worth noting that Starlink plans to launch 42,000 satellites in the coming decade. Jio's journey has only just begun.

Details:

- The JV will use geostationary (GEO) and medium earth orbit (MEO) satellites, while Starlink and OneWeb use low earth orbit (LEO) satellites.
- LEO satellites are cheaper to make and deploy, but require a satellite constellation working in sync to offer coverage on earth.
- On the other hand, GEO and MEO satellites are larger, deployed in higher orbits, and therefore cost more.



- These satellites cover a larger area and require fewer ground stations, which makes them ideal for targeted coverage area. LEOs move faster and can hence provide global coverage.

Advantages:

- The reason telecom firms want to explore satellite internet is because there are areas where fibre connections just can't reach.
- Satellite networks are used to bring connectivity in such areas, which include hills and remote islands.
- Consumer applications are new, but satellite networks have been used for ages in military applications.

Disadvantages:

- The applications and the power of satellite internet are often exaggerated.
- In reality, these networks have limitations, the biggest being high latency and low bandwidths.
- Latency is all about internet speed, while bandwidth determines how many devices can connect on a network at the same time. Experts say current satellite connections will bring 1-2 MB bandwidth, which just about qualifies as broadband under India's broadband policy.
- Trouble-shooting can be a problem because it needs specialized knowledge.

Applications:

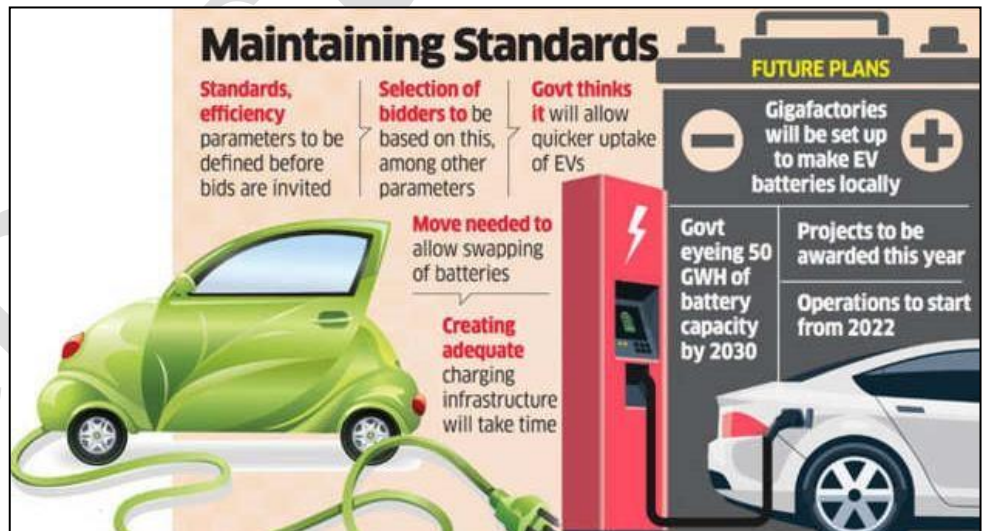
- Militaries across the world have depended on satellite communications for a long time.
- However, many military experts, too, consider this form to be unreliable and too expensive to be made the sole communication medium.
- In remote areas, satellite internet can still allow businesses to open up local branches and provide digital services.
- In theory, a bank could set up more ATMs in remote regions if it has access to satellite internet.

EV Battery Swapping

News: NITI Aayog is holding a consultation on the upcoming electric vehicle (EV) battery swapping policy.

What is BaaS?

- Battery-as-a-service (BaaS) is seen as a viable charging alternative. Manufacturers can sell EVs in two forms: Vehicles with fixed or removable batteries and vehicles with batteries on lease.
- If you buy an electric scooter with battery leasing, you do not pay for the cost of the battery—that makes the initial acquisition almost 40% cheaper. Users can swap drained batteries for a fully charged one at a swap station. The depleted batteries are then charged on or off-site. The advantages of swapping include low downtimes for commercial fleets, reduced space requirements, and lower upfront costs. It is also a viable solution for those who don't have parking spots at home.



Battery Interoperability:

- That's when a battery is compatible across vehicles and chargers, so you can seamlessly swap a battery at any swap station. This can help achieve scale. However, manufacturer and service providers say there are safety concerns around the 'one-size-fits-all' model and caution too much standardization can kill innovation. There are economic and operational constraints. Energy service providers offering swapping solutions have to charge 18% goods and services tax (GST) for swapping, compared to 5% GST on the purchase of an EV.

- Additionally, the government's FAME-II incentives are not offered to vehicles sold with BaaS or swap station operators. While these are economic disadvantages compared to direct charging solutions, the lack of a dense and interoperable battery swap infrastructure has also hindered the roll-out.
- Manufacturers, on the other hand, are keen to create proprietary battery and charging systems.

Issues:

- There is a need for standardization of safety specifications as well as the battery.
- Swapping in the various permutations and combinations of batteries at a station where they have not been tested for compatibility could lead to safety hazards. Also, mandating only one type of battery to be eligible for concessions would be disadvantageous to many players.

Significance:

- An EV, by industry standards, is 1.5-2x costlier than IC Engine counterpart and at least half the cost is from the battery pack. Many manufacturers are offering batteries separately from a vehicle, reducing the cost. In that case, a fleet owner can buy vehicles without battery and utilize battery swapping.
- Another major reason stopping people from buying EVs is range anxiety, or in simple terms, the fear of battery getting empty without finding a charging station.
- Unlike petrol pumps, EV charging stations are rare to spot and that further increases the range anxiety exponentially, especially while going on a road trip. In case of a Swapping Station, one can simply locate a station, go and replace the empty battery with a new one.

Indian Supercomputing Mission

News: Recently, the Indian Institute of Science (IISc) Bengaluru installed the supercomputer 'Param Pravega'. It has a supercomputing capacity of 3.3 petaflops. It has been installed under the government's National Supercomputing Mission. The National Supercomputing Mission is intended to indigenise the development and manufacturing of powerful computers.

What is a Supercomputer?

- A supercomputer is a computer that performs at or near the currently highest operational rate for computers. Generally, PETA FLOP is a measure of a Supercomputer's processing speed and can be expressed as a thousand trillion floating point operations per second. FLOPS (floating point operations per second) are typically used to measure the performance of a computer's processor.
- Using floating-point encoding, extremely long numbers can be handled relatively easily. Supercomputers are primarily designed to be used in enterprises and organizations that require massive computing power.
- For example, weather forecasting, scientific research, intelligence gathering and analysis, data mining etc.
- Globally, China has the maximum number of supercomputers and maintains the top position in the world, followed by the US, Japan, France, Germany, Netherlands, Ireland and the United Kingdom.
- India's first supercomputer was PARAM 8000. PARAM Shivay, the first supercomputer assembled indigenously, was installed in IIT (BHU), followed by PARAM Shakti, PARAM Brahma, PARAM Yukti, PARAM Sanganak at IIT-Kharagpur, IISER, Pune, JNCASR, Bengaluru and IIT Kanpur respectively.
- In 2020, PARAM Siddhi, the High-Performance Computing-Artificial Intelligence (HPC-AI) supercomputer, achieved global ranking of 62nd in Top 500 most powerful supercomputer systems in the world.

What is the National Supercomputing Mission?

- In 2015, the National Supercomputing Mission was launched to enhance the research capacities and capabilities in the country by connecting them to form a Supercomputing grid, with National Knowledge Network (NKN) as the backbone. The NKN project is aimed at establishing a strong and robust Indian network which will be capable of providing secure and reliable connectivity.
- It supports the government's vision of 'Digital India' and 'Make in India' initiatives.
- The Mission is being jointly steered by the Department of Science and Technology (DST) and the Ministry of Electronics and Information Technology (MeitY). It is implemented by the Centre for Development of Advanced Computing (C-DAC), Pune, and the IISc, Bengaluru.
- The mission was planned in three phases:
 - Phase I looking at assembling supercomputers,

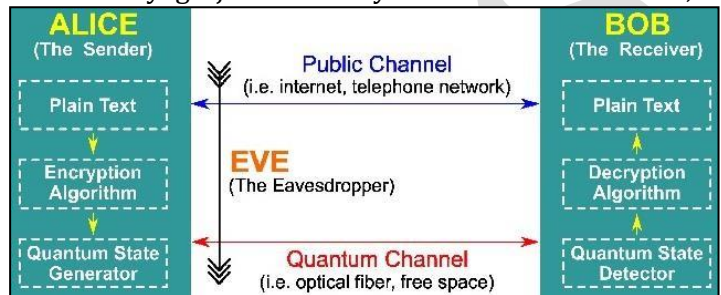
- Phase II looking at manufacturing certain components within the country.
- Phase III where a supercomputer is designed by India.
- An indigenously developed server platform called 'Rudra' is being tried out in a pilot system, with an interconnect for inter node communication called Trinetra also having been developed.

Quantum Key Distribution

News: A joint team of scientists from DRDO and IIT Delhi, for the first time in the country successfully demonstrated Quantum Key Distribution (QKD) link between Prayagraj and Vindhyachal in Uttar Pradesh, a distance of more than 100 kilometers.

What is QKD Technology?

- Quantum key distribution (QKD) is a secure communication method that implements a cryptographic protocol involving components of quantum mechanics.
- It enables two parties to produce a shared random secret key known only to them, which can then be used to encrypt and decrypt messages. It gives the ability of the two communicating users to detect the presence of any third party trying to gain knowledge of the key. This is a result of a fundamental aspect of quantum mechanics: the process of measuring a quantum system, in general, disturbs the system.
- By using quantum superposition or quantum entanglement and transmitting information in quantum states, a communication system can be implemented that detects data leak.
- QKD works by transmitting many light particles, or photons, over fiber optic cables between parties.
- Each photon has a random quantum state, and collectively, the photons sent make up a stream of ones and zeros. This stream of quantum states that make up ones and zeros are called qubits — the equivalent of bits in a binary system. When a photon reaches its receiving end, it will travel through a beam splitter, which forces the photon to randomly take one path or another into a photon collector.
- The receiver will then respond to the original sender with data regarding the sequence of the photons sent, and the sender will then compare that with the emitter, which would have sent each photon.
- It allows the detection of data leak or hacking because it can detect any such attempt. It also allows the process of setting the error level between the intercepted data in dependence.



National Strategy for Additive Manufacturing Policy

News: Recently, the Ministry of Electronics and Information Technology (MeitY) unveiled the National Strategy for Additive Manufacturing Policy.

Details:

- The policy aims to increase India's share in global additive manufacturing to 5% within the next three years and add USD 1 billion to the gross domestic product.
- Further, it aims to develop 50 India specific technologies for material, machine and software, 100 new startups for additive manufacturing, 500 new products and train at least 1 lakh new skilled workers.
- The Policy postulate the tenets of 'Make in India' and 'Atmanirbhar Bharat Abhiyan' that advocate self-reliance through the technological transformation of the production paradigm.

3D Printing:

- 3D printing is also known as additive manufacturing which uses materials such as plastics and metals to convert products envisaged on computer-aided design to real three-dimensional items.
- 3D printing is the opposite of subtractive manufacturing which is cutting out/hollowing out a piece of metal or plastic with, for instance, a milling machine.
- Additive Manufacturing is the next generation of digital manufacturing that allows the intersection of computing electronics, imaging and the emerging areas of Artificial Intelligence, pattern recognition and will create intellectual property and export opportunities.

- Additive Manufacturing (AM) has immense potential to revolutionize India's manufacturing and industrial production landscape through digital processes, communication, imaging, architecture and engineering. The next wave of startups will emerge in this area.
- 3D printing traditionally has been used for prototyping. 3D printing has a lot of scope in making artificial limbs, stents, dental crowns, parts of automobiles and consumer goods, among others.

Significance:

- Machines are cheaper, inventories can be small and space requirements are not large. Thus, jump-starting manufacturing does not face the massive hurdle of large capital requirement and the traditional small and medium enterprises can easily be adapted and retooled towards high technology manufacturing.
- The Indian software industry is well-established, and plans to increase connectivity are well underway as part of 'Digital India'. This would allow for the creation of additive manufacturing facilities in small towns and foster industrial development outside of major cities.
- Maintaining uniform product quality is far easier because the entire system is built at the same time and assembly is not required.

Challenges:

- Since 3D printing is a very niche and new domain, there are no global qualifications and certification norms. Another challenge is to convince the industry and ministries to push for its adoption in their respective sectors as any new technology, which is not understood easily, faces a tough time.
- In the initial meetings on the subject, there was a lot of resistance on whether this technology would eat into the jobs of highly-skilled workers in the medical equipment or aerospace technology sectors.
- Although actual printing is cheap, parts to build a 3D printer are very expensive as the equipment and manufacturing costs are very high. In addition, there is a concern about warranty hence, resource companies are hesitant to put 3D-printed parts into their machines if they are not covered for damage in case the parts fail.
- Globally and even in India, the largest consumer of 3D printing is the automotive industry and right now it is going through a lot of changes like the introduction of BS-VI and electric vehicles. New vehicle design development has slowed and so has the demand for 3D printing.

Carbon Capture and Utilisation

News: According to a study conducted by Radboud University, most Carbon Capture and Utilisation and Storage (CCUS) technologies, which suck carbon dioxide (CO₂) from the atmosphere and convert it into fuel or other valuable products, might fail to help the world reach Net Zero emissions by 2050. The study noted that a majority of these systems are energy intensive and the resultant product can also release CO₂ into the atmosphere. 'Net zero emissions' refers to achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere.

What are CCUS?

- Carbon Capture, Utilization, and Storage (CCUS) encompasses methods and technologies to remove CO₂ from the flue gas and from the atmosphere, followed by recycling the CO₂ for utilization and determining safe and permanent storage options. CO₂ captured using CCUS technologies is converted into fuel (methane and methanol), refrigerants and building materials. The captured gas is used directly in fire extinguishers, pharma, food and beverage industries as well as the agricultural sector.
- CCUS technologies can play an important role in meeting net zero targets, including as one of few solutions to tackle emissions from heavy industry and to remove carbon from the atmosphere.
- CCUS is considered an important tool to help countries halve their emissions by 2030 and reach net-zero by 2050. These goals are crucial to meet the Paris Agreement targets for restricting global warming to 2 degrees Celsius (°C), and preferable to 1.5°C, over pre-industrial levels.

Applications:

- Despite the adoption of alternative energy sources and energy efficient systems to reduce the rate of CO₂ emissions, the cumulative amount of CO₂ in the atmosphere needs to be reduced to limit the detrimental impacts of climate change. Capturing CO₂ from biogenic sources such as plants and soil to boost

crop growth in a greenhouse could work. Combining CO₂ with steel slag - an industrial byproduct of the steel manufacturing process — to make construction materials compatible with the Paris Agreement goals.

- CCU is already making inroads into India. For instance, Oil and Natural Gas Corporation signed a MoU with Indian Oil Corporation Limited (IOCL) for Enhanced Oil Recovery (EOR) by injecting CO₂.

Challenges:

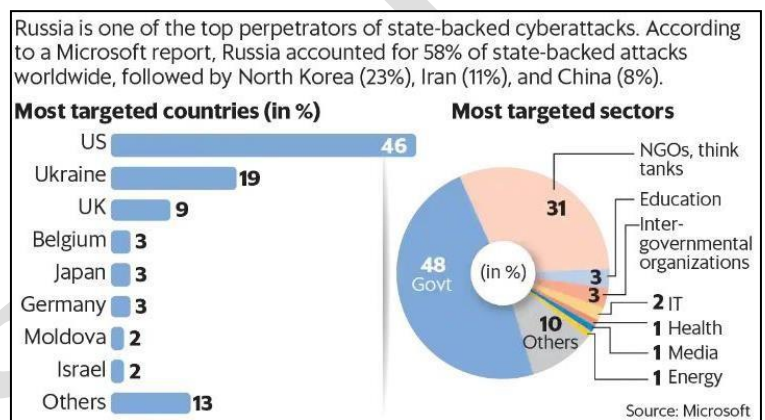
- Carbon capture involves the development of sorbents that can effectively bind to the CO₂ present in flue gas or the atmosphere, which is expensive.
- Converting CO₂ into useful chemicals of commercial importance, or utilizing CO₂ for oil extraction or remediation of alkaline industrial wastes, would add economic value to this greenhouse gas.
- However, the demand for CO₂ is limited compared to the vast amount of CO₂ that needs to be removed from the atmosphere, to reduce the detrimental environmental impacts of climate change.

Cyberwarfare

News: Alongside the missiles and bombs slamming down in Ukraine, the country has also been hit by a wave of cyber-attacks targeting critical infrastructure companies.

What is Cyberwarfare?

- Cyberwarfare has emerged as a new form of retaliation or passive aggression deployed by nations that do not want to go to actual war but want to send a tough message to their opponents.
- In June 2020, security experts from Cyfirma uncovered a conspiracy by Gothic Panda and Stone Panda, two China-based hacker groups, to target media and critical infrastructure companies in India. They led large-scale attacks amid the border stand-off between India and China in Ladakh. For many countries, cyberwarfare is a never-ending battle as it allows them to constantly harass and weaken geopolitical rivals.



Present scenario:

- Ukraine has been one of the primary targets of Russia since 2020. The recent spate of attacks started in mid-January and knocked out websites of the ministry of foreign affairs and the ministry of education. Government websites and a number of banks have been hit by another mass distributed denial of service (DDoS) attacks. DDoS attacks disrupt online services by overwhelming websites with more traffic than their server can handle.
- Russia is one of the top perpetrators of state-backed cyberattacks. According to an October 2021 report by Microsoft Corp., Russia accounted for 58% of state-backed attacks worldwide, followed by North Korea (23%), Iran (11%), and China (8%). North Korea is said to have built a cyber-army of 7,000 hackers.
- State-backed cyberattacks are usually carried out to steal state secrets, trade deals and weapons blueprint, or target large multinationals to steal their intellectual property (IP) and use it to build local industry.
- Cryptos are also on the radar now. North Korean hackers reportedly stole cryptos worth \$400 million in 2021. However, when states launch cyberattacks on other states as a result of worsening of geopolitical relations, the target is usually critical infrastructure firms to disrupt economic activity.

Indian scenario:

- Such cyberattacks rose 100% between 2017 and 2021, according to a global study by Hewlett-Packard and the University of Surrey. In 2019, the administrative network of the Kudankulam Nuclear Power Plant was hit by a malware attack by North Korea-backed Lazarus Group.
- China-backed hackers were believed to be behind a power outage in Mumbai in 2020.
- According to Black Lotus Labs, Pakistan-based hackers targeted power firms and one government organization in India in early 2021 using Remote Access Trojans.

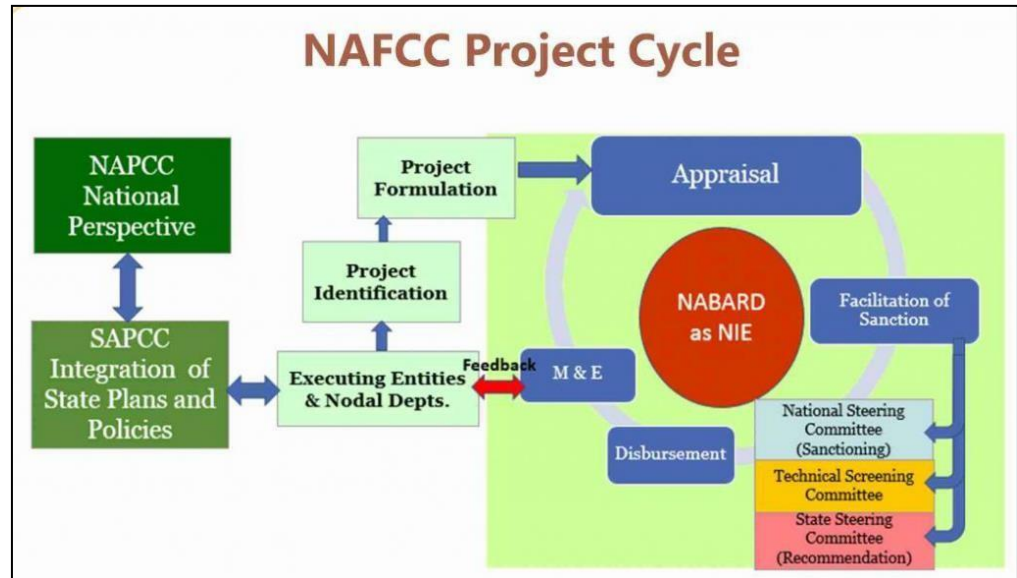
Environment & Bio-diversity

National Adaptation Fund for Climate Change

News: It was recently informed in the Lok Sabha that under NAFCC, till date, 30 projects are sanctioned in 27 States and UTs.

What is NAFCC?

- Established in August, 2015. It aims to meet the cost of adaptation to climate change for the State and Union Territories of India that are particularly vulnerable to the adverse effects of climate change.
- Considering the existing arrangement with NABARD as National Implementing Entity



(NIE) for Adaptation Fund (AF) under Kyoto Protocol and its presence across the country, NABARD has been designated as National Implementing Entity (NIE) for implementation of adaptation projects under NAFCC.

- NABARD would perform roles in facilitating identification of project ideas/concepts from State Action Plan for Climate Change (SAPCC), project formulation, appraisal, sanction, disbursement of fund, monitoring & evaluation and capacity building of stakeholders including State Governments.
- Fund level outcome parameters will consist of the following:
 - Reduced key risks and adverse impacts of climate change in water and agriculture sectors.
 - Maximised multi-sectoral, cross-sectoral benefits/co-benefits to meet the challenges of water and food security.
 - Human development, poverty alleviation, livelihood security and enhanced awareness of community.
 - Strengthened institutional & individual capacity to reduce risks associated with climate-induced socioeconomic and environmental losses.

Implementation of Forest Laws in India

News: Between 2014 and 2019, the Ministry of Environment, Forest and Climate Change (MoEFCC) has granted over 11,500 environment and forest clearances. However, the Government's development roadmap is criticised for ignoring the climate change conservation commitments on account of weak political will and the absence of an effective compliance mechanism.

Constitutional Provisions:

- Article 48A of the Constitution specifies that the State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.
- Article 51A further provides that every citizen shall protect the environment.

Statutory Provisions:

- Wildlife Protection Act, 1972
- Forest (Conservation) Act, 1980
- Environment (Protection) Act, 1986
- National Green Tribunal (NGT) Act, 2010
- Coastal Regulation Zone Notification, 2011
- Environment Impact Assessment (EIA), 2006

Issues:

- The Union Environment Ministry has less than 80 officials for field verification under green laws, who are expected to visit thousands of project sites at least once a year.
- In 2006, a report by the Organisation for Economic Co-operation and Development (OECD) blamed the “absence of strong political will” for significant funding limitations faced by all environmental institutions in India. This condition has remained the same more or less.
- Instead of strengthening the monitoring mechanism and applying effective punitive tools, successive governments have relied on amnesty (post-facto clearance), incentives (subsidies) or self-certification that helped cut non-compliance. The Green legislations in India are silent about the public participation as regards environmental protection. There is a need to involve the citizens in environmental protection to check arbitrariness and raise awareness and empathy towards the environment.

Examples:

- Ken-Betwa Link Project (KBLP):
 - Ever since it was proposed in the mid-90s, KBLP has been considered unviable by several experts for its immense environmental cost.
 - The project was rejected in 2011, only to be revived with a techno-economic clearance in 2016.
 - In 2017, its forest clearance was made conditional on compensating for the diversion of 60.17 sq km of forest land by adding an equal extent of revenue land to the Panna tiger reserve.
- Arunachal Pradesh:
 - For 17 years, both the Environment ministry and the state have been ignoring the most crucial condition imposed by the Supreme Court in 2004 for clearing the 2,000-MW Subansiri project
 - The Ministry issued the final forest clearance to the twice-rejected 3,000-MW Dibang multipurpose project despite being made aware that Arunachal had not complied with the key precondition of declaring the catchment forests as a national park.

Way Forward

- Independence in standard-setting, monitoring, and enforcement are important characteristics of an effective regulatory body. Setting-up of a stand-alone independent body must precede fragmented revamping of environmental laws. A second-generation reform for environmental regulation, which will safeguard environment and community rights as well as reduce time and transaction costs for the industry is the need of the hour. It is needed to reduce multiplicity, remove archaic laws and streamline the regulatory procedure.

50 Years of UNEP

News: The United Nations Environment Programme (UNEP) is celebrating its 50th anniversary in 2022.

About UNEP:

- Founded in 1972 following the landmark UN Conference on the Human Environment. UNEP was conceived to monitor the state of the environment, inform policy making with science and coordinate responses to the world’s environmental challenges. Major Reports: Emission Gap Report, Global Environment Outlook, Frontiers, Invest into Healthy Planet.
- Major Campaigns: Beat Pollution, UN75, World Environment Day, Wild for Life. Since its creation, UNEP has worked closely with its 193 Member States and other stakeholders to galvanize worldwide commitments and coordinated action to address many of the world’s most pressing environmental challenges.
- It also played a leading role as the docking station for 15 multilateral environmental agreements.

Achievements:

- 1972: Maurice Strong is elected as first head of UNEP.
- 1973: UNEP opens first headquarters. On 2 October at the Kenyatta International Convention Centre.
- 1973: Leaders sign Convention for the Prevention of Pollution from Ships Known as
- 1973: States adopt the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES became a UNEP-administered multilateral environmental agreement in 1984.

- 1974: World Environment Day makes its debut. The world celebrates the first World Environment Day organized by UNEP on 5 June under the theme “Only One Earth.”
- 1974: Regional Seas Programme established.
- 1976: The Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention) was adopted on 16 February 1976 in Barcelona and entered into force in 1978.
- 1979: States adopt Convention on Migratory Species. Also known as the Bonn Convention.
- UNEP hosts the secretariats of many critical multilateral environmental agreements and research bodies. These include the following:
 - The Convention on Biological Diversity
 - The Convention on International Trade in Endangered Species of Wild Fauna and Flora
 - The Minamata Convention on Mercury
 - The Basel, Rotterdam and Stockholm Conventions
 - The Vienna Convention for the Protection of Ozone Layer and the Montreal Protocol
 - The Convention on Migratory Species
 - The Carpathian Convention
 - The Bamako Convention
 - The Tehran Convention

World Wetlands Day

News: Recently, World Wetlands Day was celebrated on the 2nd of February 2022 across the globe.

Details:

- On the occasion, "National Wetland Decadal Change Atlas" was prepared by the Space Applications Center (SAC - one of the major centers of ISRO). The original Atlas was released by SAC in 2011 and has over the years been used extensively by all the State Governments also in their planning processes.
- Two new Ramsar sites (Wetlands of International Importance), Khijadia Wildlife Sanctuary in Gujarat and Bakhira Wildlife Sanctuary in UP were also announced on the occasion.
- This day marks the date of the adoption of the Convention on Wetlands on 2nd February 1971 in the Iranian city of Ramsar. The Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The countries with the most Ramsar Sites are the United Kingdom (175) and Mexico (142), as per the Ramsar List. Bolivia has the largest area with 148,000 sq km under the Convention protection.
- It was first celebrated in 1997. Theme for 2022: Wetlands Action for People and Nature.

What is a Wetland?

- Wetlands are ecosystems saturated with water, either seasonally or permanently. They include mangroves, marshes, rivers, lakes, deltas, floodplains and flooded forests, rice-fields, coral reefs, marine areas no deeper than 6 meters at low tide, as well as human-made wetlands such as waste-water treatment ponds and reservoirs.
- Wetlands are a critical part of our natural environment. They mitigate floods, protect coastlines and build community resilience to disasters, reduce the impacts of floods, absorb pollutants and improve water quality. Wetlands are critical to human and planet life. More than 1 billion people depend on them for a living and 40% of the world's species live and breed in wetlands. They are a vital source for food, raw materials, genetic resources for medicines, and hydropower. 30% of land-based carbon is stored in peatland. They play an important role in transport, tourism and the cultural and spiritual well-being of people. Many wetlands are areas of natural beauty and many are important to Aboriginal people.

Threats:

- As per the IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services)'s global assessment, wetlands are the most threatened ecosystem.
- Wetlands are disappearing 3 times faster than forests due to human activities and global warming.
- According to UNESCO, the threat to wetlands will have an adverse impact on 40% of the world's flora and fauna that live or breed in wetlands.
- Major threats: Agriculture, development, pollution and climate change.

Present Status:

- India has a network of 49 Ramsar sites covering an area of 10,93,636 hectares, the highest in South Asia.
- Bakhira Wildlife Sanctuary in UP provides a safe wintering and staging ground for a large number of species of the Central Asian Flyway while Khijadia Wildlife Sanctuary (Gujarat) is a coastal wetland with rich avifaunal diversity providing a safe habitat to endangered and vulnerable species.
- In India, according to the National Wetland Inventory and Assessment compiled by the Indian Space Research Organisation (ISRO), wetlands are 4.63% of the total geographical area of the country.
- India has 19 types of wetlands.
- In state-wise distribution of wetlands, Gujarat is at the top (17.56% of total geographical area of the state or 22.7% of total wetlands areas of the country thanks to a long coastline.
- It is followed by Andhra Pradesh, Uttar Pradesh, and West Bengal.

Implication of including a wetland into Ramsar List:

- It is like an ISO certification. They can take it off the list as well if it doesn't meet their standards continuously. It's a feather in the cap but there is a cost to it and that cost can be paid only if there is brand value. Ramsar tag makes it incumbent upon authority to strengthen the protection regime there and also creates defenses against encroachment.
- A number of species of birds prefer to avoid the Himalaya and instead choose the route passing through Afghanistan and Pakistan to enter the Indian sub-continent via Gujarat and Rajasthan. Thus, Gujarat becomes the first landing point of many international migratory species of ducks, waders, plovers, terns, gulls etc and shorebirds as well as birds of prey.
- Wetlands in India act as foraging and resting grounds for the migratory birds during winter.
- According to Convention on the Conservation of Migratory Species of Wild Animals (CMS), CAF (Central Asian Flyway), which includes 30 countries, covers at least 279 populations of 182 migratory waterbird species, including 29 globally threatened and near-threatened species, which breed, migrate and winter within the region.

Plastic Waste Management Rules 2022

News: Recently, the Ministry of Environment, Forest, and Climate Change announced the Plastic Waste Management (Amendment) Rules, 2022, which notified the instructions on Extended Producer Responsibility (EPR) for plastic packaging. Plastic Waste Management Rules 2016 has been amended to fast-track the elimination of single-use plastics and promote alternatives. The term Extended Procedure Responsibility means the responsibility of a producer for the environmentally sound management of the product until the end of its life.

What are Plastic Waste Management Rules 2016?

- It mandates the generators of plastic waste to take steps to minimize generation of plastic waste, prevent littering of plastic waste, and ensure segregated storage of waste at source among other measures. The rules also mandate the responsibilities of local bodies, gram panchayats, waste generators, retailers and street vendors to manage plastic waste.

Latest rules:

- Classification of Plastics:
 - Category 1: Rigid plastic packaging will be included under this category.
 - Category 2: Flexible plastic packaging of single layer or multilayer (more than one layer with different types of plastic), plastic sheets and covers made of plastic sheet, carry bags, plastic sachet or pouches will be included under this category.
 - Category 3: Multi-layered plastic packaging (at least one layer of plastic and at least one layer of material other than plastic) will be included under this category.
 - Category 4: Plastic sheet or like used for packaging as well as carry bags made of compostable plastics fall under this category.
- Reuse of rigid plastic packaging material has been mandated in the guidelines to reduce the use of fresh plastic material for packaging. The enforceable prescription of minimum level of recycling of plastic packaging waste collected under EPR along with use of recycled plastic content will further reduce plastic consumption and support recycling of plastic packaging waste.

- In a significant first, the guidelines allow for sale and purchase of surplus extended producer responsibility certificates. This will set-up a market mechanism for plastic waste management.
- The government has also called for establishing a centralised online portal by Central Pollution Control Board (CPCB) for the registration as well as filing of annual returns by producers, importers and brand-owners, plastic waste processors of plastic packaging waste by 31st March, 2022. It would act as the single point data repository with respect to orders and guidelines related to implementation of EPR for plastic packaging under Plastic Waste Management Rule, 2016.
- Environmental compensation will be levied based upon polluter pays principle, with respect to non-fulfilment of EPR targets by producers, importers and brand owners, for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environment pollution. The Polluter Pays Principle imposes liability on a person who pollutes the environment to compensate for the damage caused and return the environment to its original state regardless of the intent.
- A committee constituted by the CPCB under the chairmanship of CPCB chairman will recommend measures to the environment ministry for effective implementation of EPR, including amendments to Extended Producer Responsibility (EPR) guidelines.
- State Pollution Control Board (SPCBs) or Pollution Control Committees (PCCs) have been tasked to submit an annual report on EPR portal with respect to its fulfillment by producers, importers and brand-owners and plastic waste processors in the state/Union Territory to the CPCB.

Significance:

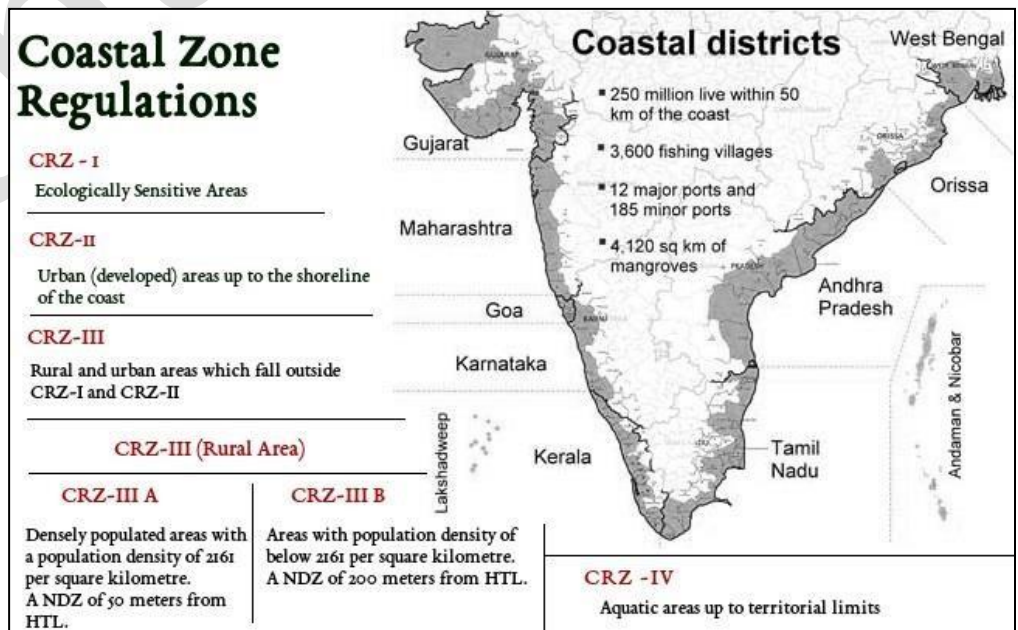
- It will promote development of new alternatives to plastics and provide a roadmap for businesses to move towards sustainable plastic packaging. The guidelines provide a framework to strengthen the circular economy of plastic packaging waste. A circular economy depends on reuse, sharing, repair, refurbishment, remanufacturing and recycling of resources to create a closed-loop system, minimising the use of resources, generation of waste, pollution and carbon emissions.
- These are important steps for reducing pollution caused due to littered plastic waste in the country.
- India generates about 3.4 million tonnes of plastic waste annually. The United Nations Development Programme aims to almost triple its plastic waste management to 100 cities in India by 2024.
- Accumulation of plastic waste is detrimental to the environment and when this waste finds its way into the sea, there can be major harm to aquatic ecosystems, too.

CRZ Norms

News: The Brihanmumbai Municipal Corporation (BMC) inspected a bungalow owned by a Union Minister for alleged violation of Coastal Regulation Zone (CRZ) norms.

Background:

- The Union Minister’s bungalow named has been illicitly constructed within 50 metres of the sea in violation of the CRZ rules.
- The crackdown assumes significance in the escalating verbal spats between the two political rivals (which were allies for years).



What are CRZ norms?

- In India, the CRZ Rules govern human and industrial activity close to the coastline, in order to protect the fragile ecosystems near the sea.
- They restrict certain kinds of activities — like large constructions, setting up of new industries, storage or disposal of hazardous material, mining, reclamation and bunding — within a certain distance from the coastline.
- After the passing of the Environment Protection Act in 1986, CRZ Rules were first framed in 1991.
- After these were found to be restrictive, the Centre notified new Rules in 2011, which also included exemptions for the construction of the Navi Mumbai airport and for projects of the Department of Atomic Energy.
- While the CRZ Rules are made by the Union environment ministry, implementation is to be ensured by state governments through their Coastal Zone Management Authorities.
- In all Rules, the regulation zone has been defined as the area up to 500 m from the high-tide line.
- The restrictions depend on criteria such as the population of the area, the ecological sensitivity, the distance from the shore, and whether the area had been designated as a natural park or wildlife zone.
- The latest Rules have a no-development zone of 20 m for all islands close to the mainland coast, and for all backwater islands in the mainland.

New Rules:

- The government notified new CRZ Rules with the stated objectives of promoting sustainable development and conserving coastal environments.
- For the so-called CRZ-III (Rural) areas, two separate categories have been stipulated. In the densely populated rural areas (CRZ-IIIA) with a population density of 2,161 per sq km as per the 2011 Census, the no-development zone is now 50 m from the high-tide level, as against the 200 m stipulated earlier.
- In the CRZ-IIIB category (rural areas with population density below 2,161 per sq km) continue to have a no-development zone extending up to 200 m from the high-tide line. The new Rules have a no-development zone of 20 m for all islands close to the mainland coast, and for all backwater islands in the mainland.

Annual Frontiers Report of UNEP

News: Recently, the United Nations Environment Programme (UNEP) has released its Annual Frontiers Report named Noise, Blazes and Mismatches. The document has been released 10 days ahead of the UN Environment Assembly. The Frontiers report identifies and offers solutions to three environmental issues: urban noise pollution, wildfires and phenological shifts that merit attention and action from governments and the public at large to address the triple planetary crisis of climate change, pollution and biodiversity loss.

COAST CUTTER


CLASSIFICATION

CRZ I | Ecologically sensitive areas like sanctuaries, reserve forests, mangroves, coral reefs, turtle-nesting grounds, which could be inundated due to rise in sea level

CRZ II | Areas which have already been developed up to the shoreline within municipal or corpn limits

CRZ III A | CRZ III areas with a population of more than 2,161 per sqkm. Here, 50m from high tide will be no-development zone (NDZ)




CRZ III B | Other CRZ III areas with less population. Here area up to 200m from the HTL on the landward side will be earmarked as NDZ





BOOST FOR TOURISM

- With the freeze on constructions along the coastal zone more or less lifted, the tourism sector will be the biggest beneficiary 

BACKGROUND

- Toilets, changing rooms, drinking water facility and temporary shacks can be constructed even on beaches 
- Existing residential buildings can be converted into homestays without increasing the plinth area 
- CRZ will not be a bar for public utilities like roads even if it passes through mangrove forests 
- Introduction of CRZ-III into A and B clauses will address state's main concern of issuing permission to dwelling units as well 

BACKGROUND

- Under Environment Protection Act, 1986 a notification was issued in February 1991 for regulation of activities in coastal area by the ministry of environment and forests 
- Coastal land up to 500m from the high tide line (HTL) and area of 100m along banks of estuaries, backwater, creeks and rivers which are subject to tidal fluctuations are called coastal regulation zone (CRZ) 

Details:

- The unwanted, prolonged, and high-level sounds from road traffic, railways, or leisure activities, impair human health and well-being. Chronic annoyance and sleep disturbance caused by traffic can result in severe heart diseases and metabolic disorders with the very young, and mostly affect the elderly and marginalised communities near busy roads.
- The trends towards more dangerous fire-weather conditions are likely to increase due to rising concentrations of atmospheric greenhouse gasses and the attendant escalation of wildfire risk factors. Climate change can prompt extreme wildfires, generating lightning that can ignite other fires, far beyond the fire front and creating a so-called hazardous feedback loop. Such extreme events are disastrous for human health and the environment. Wildfires have also become more common in the Savannah ecosystem, which has affected over one-fourth of species in the Savannah ecosystem.
- Wildfires are also responsible for air pollution. According to a global study published in September 2021, there is a link between the impact of wildfire-related pollution and human deaths. Wildfires seldom spread to humid tropical forests in the past. But these forests are now more vulnerable due to deforestation and forest fragmentation.
- Plants and animals in terrestrial, aquatic and marine ecosystems use temperature, day length or rainfall as cues for when to bear fruit, migrate or transform in other ways. However, climate change disrupts these natural rhythms as plants and animals are being pushed out of sync with their natural rhythms, leading to mismatches, such as when plants shift life cycle stages faster than herbivores.
- Phenology is the timing of recurring life cycle stages, driven by environmental forces, and how species interacting within an ecosystem respond to changing conditions.

Way forward:

- Appreciating and adopting indigenous fire management techniques. A preventive approach, rather than reactive approach by engaging vulnerable groups, will help adapt to the wildfires.
- It is important to enhance fire-fighting capabilities and strengthen community resilience-building programmes. It is important to focus on long-range weather forecasting. Focus on remote-sensing capabilities such as satellites, ground-based radar, lightning detection as well as data handling.

Simlipal Biosphere Reserve

News: Recently the Forest Administration and SHGs (Self Help Groups) have started an awareness Campaign to manage fires in Similipal Biosphere Reserve this year. Earlier, scientists unravelled the mystery behind Odisha's 'Black Tigers' in Similipal Tiger Reserve (STR).

Details:

- Similipal derives its name from 'Simul' (silk cotton) tree. It was formally designated a tiger reserve in 1956 and brought under Project Tiger in the year 1973. It was declared a biosphere reserve by the Government of India in June, 1994. It has been part of the UNESCO World Network of Biosphere Reserve since 2009.
- It is part of the Similipal-Kuldiha-Hadgarh Elephant Reserve popularly known as Mayurbhanj Elephant Reserve. It is prone to forest fires. In 2021, the Similipal saw a major fire between February-end and early March. It is situated in the northern part of Odisha's Mayurbhanj district. Geographically, it lies in the eastern end of the eastern ghat. The biosphere spread over 4,374 sq. km. has 845 sq. km. of core forest (tiger reserve), 2,129 sq km buffer area and 1,400 sq km of transition space.
- Similipal has 1,076 flowering species and 96 species of orchids. It boasts of having tropical semi-evergreen forests, tropical moist deciduous forests, dry deciduous hill forests.
- Two tribes, the Erenga Kharias and the Mankirdias, inhabit the reserve's forests and practise traditional agricultural activities. Similipal is home to a wide range of wild animals including tigers and elephants, besides 304 species of birds, 20 species of amphibians and 62 species of reptiles.

Causes and Mitigation of Forest Fires:

- Natural causes such as lightning or even soaring temperatures can sometimes result in forest fires here.
- Instances of poaching and hunting wherein the poachers set a small patch of forest on fire to divert the wild animals. Forecasting fire-prone days and including community members to mitigate incidents of fire, creating fire lines, clearing sites of dried biomass, and crackdown on poachers.

Security & Disaster Management

Cross-Border Insolvency through UNCITRAL

News: The Economic Survey 2021-22 has called for a standardized framework for cross-border insolvency as the Insolvency and Bankruptcy Code (IBC) at present does not have an instrument to restructure firms involving cross-border jurisdictions.

What is the Insolvency and Bankruptcy Code (IBC)?

- The IBC, 2016 is the bankruptcy law of India that seeks to consolidate the existing framework by creating a single law for insolvency and bankruptcy. It is a one-stop solution for resolving insolvencies which previously was a long process that did not offer an economically viable arrangement. The code aims to protect the interests of small investors and make the process of doing business less cumbersome.

Cross-border insolvency proceedings

- Cross-border insolvency proceedings are relevant for the resolution of distressed companies with assets and liabilities across multiple jurisdictions.
- A framework for cross border insolvency proceedings allows for:
 - Location of such a company's foreign assets
 - Identification of creditors and their claims
 - Establishing payment towards claims and
 - Process for coordination between courts in different countries
- Foreign creditors can make claims against a domestic company. However, the IBC currently does not allow for automatic recognition of any insolvency proceedings in other countries.
- Current provisions do not allow Indian courts to address the issue of foreign assets of a company being subjected to parallel insolvency proceedings in other jurisdictions.

UNCITRAL

- It is an affiliate organization to the UN made up of business and legal professionals. This group develops model standards and procedures for dealing with issues affecting international business.
- Perhaps most notably, UNCITRAL promulgated the Convention on International Sale of Goods (CISG).
- The CISG is a model law commonly used as the governing provisions in contracts between parties from different nations.
- The UNCITRAL model is the most widely accepted legal framework to deal with cross-border insolvency issues. It has been adopted by 49 countries, including the UK, the US, South Africa, South Korea and Singapore.
- It is designed to assist States in reforming and modernizing their laws on arbitral procedure so as to take into account the particular features and needs of international commercial arbitration.
- This law works on four main principles: access, recognition, cooperation and coordination:
 - Direct access to foreign insolvency professionals and foreign creditors to participate in or commence domestic insolvency proceedings against a defaulting debtor.
 - Recognition of foreign proceedings & provision of remedies.
 - Cooperation between domestic and foreign courts & domestic and foreign insolvency practitioners.
 - Coordination between two or more concurrent insolvency proceedings in different countries: The main proceeding is determined by the concept of Centre of Main Interest (COMI).
- The framework for cross border insolvency adopted in India may like in the case of some other countries require reciprocity from any country which seeks to have its insolvency proceedings recognised by Indian courts. This would allow Indian proceedings for foreign corporate debtors to be recognised in foreign jurisdictions.
- Many countries that adopt the UNCITRAL model law do make certain changes to suit their domestic requirements. The Indian cross border insolvency framework exclude financial service providers from being subjected to cross border insolvency proceedings.
- This is because many countries exempt businesses providing critical financial services, such as banks and insurance companies, from the provisions of cross- border insolvency frameworks.

Prevention of Money Laundering Act

News: The Supreme Court (SC) is examining allegations of rampant misuse of Prevention of Money Laundering Act 2002 (PMLA) by the government and the Enforcement Directorate (ED).

What is Money Laundering?

- Money laundering is the process of making large amounts of money generated by criminal activity, such as drug trafficking or terrorist funding, appear to have come from a legitimate source. Criminal activities like illegal arms sales, smuggling, drug trafficking and prostitution rings, insider trading, bribery and computer fraud schemes produce large profits. Thereby it creates the incentive for money launderers to "legitimise" the ill-gotten gains through money laundering. The money generated is called 'dirty money' and money laundering is the process of conversion of 'dirty money', to make it appear as 'legitimate' money.
- Money laundering is a three-stage process :
 - The first stage is when the crime money is injected into the formal financial system.
 - In the second stage, money injected into the system is layered and spread over various transactions with a view to obfuscate the tainted origin of the money.
 - In the third and the final stage, money enters the financial system in such a way that original association with the crime is sought to be wiped out and the money can then be used by the offender as clean money.
- Some of the Common Methods of Money Laundering are Bulk Cash Smuggling, Cash Intensive Businesses, Trade-based laundering, Shell companies and trusts, Round-tripping, Bank Capture, Gambling, Real Estate, Black Salaries, Fictional Loans, Hawala, False invoicing.

What is the Prevention of Money Laundering Act?

- It forms the core of the legal framework put in place by India to combat Money Laundering.
- The provisions of this act are applicable to all financial institutions, banks (Including RBI), mutual funds, insurance companies, and their financial intermediaries. It adds the concept of 'reporting entity' which would include a banking company, financial institution, intermediary etc. PMLA, 2002 levied a fine up to Rs 5 lakh, but the amendment act has removed this upper limit. It has provided for provisional attachment and confiscation of property of any person involved in such activities.

Latest allegations:

- PMLA is pulled into the investigation of even "ordinary" crimes and assets of genuine victims have been attached. PMLA was enacted in response to India's global commitment (including the Vienna Convention) to combat the menace of money laundering. Instead, rights have been "cribbed, cabined and confined".
- PMLA was a comprehensive penal statute to counter the threat of money laundering, specifically stemming from trade in narcotics. Currently, the offences in the schedule of the Act are extremely overbroad, and in several cases, have absolutely no relation to either narcotics or organised crime.
- Even the Enforcement Case Information Report (ECIR) - an equivalent of the FIR - is considered an "internal document" and not given to the accused. The ED treats itself as an exception to these principles and practises [of criminal procedure law] and chooses to register an ECIR on its own whims and fancies on its own file.
- There is also a lack of clarity about ED's selection of cases to investigate. The initiation of an investigation by the ED has consequences which have the potential of curtailing the liberty of an individual.

Border Infrastructure and Management

News: Recently, the Ministry of Home Affairs has approved the continuation of the Central Sector Umbrella Scheme of "Border Infrastructure and Management" (BIM) over the 15th Finance Commission Cycle from 2021-22 to 2025-26, at a cost of Rs.13,020 crore.

Details:

- The BIM scheme will help in the creation of infrastructure such as border fence, border flood lights, technological solutions, border roads and Border OutPosts (BOPs) and company operating bases to secure

India's borders with Pakistan, Bangladesh, China, Nepal, Bhutan and Myanmar. It will strengthen the border infrastructure for improving border management, policing and guarding the borders.

- India's border with Pakistan is 3,323 km long, including about 775 km of the Line of Control. The length of the border is 4,096 km with Bangladesh, 3,488 km with China, 1,751 km with Nepal, 699 km with Bhutan, 1,643 km with Myanmar.

Other such initiatives:

Vibrant Villages Programme:

- Border villages with sparse population, limited connectivity and infrastructure often get left out from the development gains. Such villages on the northern border will be covered under the new Vibrant Villages Programme, announced in the Budget 2022-23.
- The activities will include construction of village infrastructure, housing, tourist centers, road connectivity, provisioning of decentralized renewable energy, direct to home access for Doordarshan and educational channels, and support for livelihood generation.
- The move has been taken to counter the Chinese 'model villages' close to the LAC (Line of Actual Control).
- It will be an improved version of the existing border area development programme.

The Border Area Development Programme:

- BADP was initiated in the border areas of the western region during the Seventh Five Year Plan (1985-90), for ensuring balanced development of border areas through development of infrastructure and promotion of a sense of security among the border population.
- The programme aims to meet the special development needs of the people living in remote and inaccessible areas situated near the international border and to saturate the border areas with the essential infrastructure through convergence of Central/State/BADP/Local schemes and participatory approach.

Smart Fencing in India (CIBMS):

- Two pilot projects covering about 71 Kms on Indo-Pakistan Border (10 Kms) and Indo-Bangladesh Border (61 Kms) of Comprehensive Integrated Border Management System (CIBMS) have been completed.
- CIBMS involves deployment of a range of state-of-the-art surveillance technologies — thermal imagers, infra-red and laser-based intruder alarms, aerostats for aerial surveillance, unattended ground sensors that can help detect intrusion bids, radars, sonar systems to secure riverine borders, fibre-optic sensors and a command and control system that shall receive data from all surveillance devices in real time.
- BOLD-QIT (Border Electronically Dominated QRT Interception Technique) under CIBMS on the Indo-Bangladesh border in Dhubri district of Assam is also being used.

Border Road Organization:

- Founded in 1960, the organisation plays a major role in providing defense infrastructure including roads, bridges, highways, airports, tunnels, buildings and other such structures.
- BRO. has constructed lifelines of over 53,600 km for the people of Sikkim, Arunachal Pradesh, Mizoram, Manipur, Nagaland, Tripura, Meghalaya, Ladakh, Jammu & Kashmir, Uttarakhand, Himachal Pradesh and Andaman & Nicobar Islands.

General Studies – 4

Ethics, Integrity & Aptitude

1. Ethics and Human Interface: Essence, determinants and consequences of Ethics in-human actions; dimensions of ethics; ethics - in private and public relationships. Human Values - lessons from the lives and teachings of great leaders, reformers and administrators; role of family society and educational institutions in inculcating values.
2. Attitude: content, structure, function; its influence and relation with thought and behaviour; moral and political attitudes; social influence and persuasion.
3. Aptitude and foundational values for Civil Service, integrity, impartiality and non-partisanship, objectivity, dedication to public service, empathy, tolerance and compassion towards the weaker-sections.
4. Emotional intelligence-concepts, and their utilities and application in administration and governance.
5. Contributions of moral thinkers and philosophers from India and world.
6. Public/Civil service values and Ethics in Public administration: Status and problems; ethical concerns and dilemmas in government and private institutions; laws, rules, regulations and conscience as sources of ethical guidance; accountability and ethical governance; strengthening of ethical and moral values in governance; ethical issues in international relations and funding; corporate governance.
7. Probity in Governance: Concept of public service; Philosophical basis of governance and probity; Information sharing and transparency in government, Right to Information, Codes of Ethics, Codes of Conduct, Citizen's Charters, Work culture, Quality of service delivery, Utilization of public funds, challenges of corruption.
8. Case Studies on above issues

Medical Ethics

News: The National Medical Commission (NMC), the regulator for medical education and practices that replaced the Medical Council of India in 2020, has suggested to medical colleges that the traditional Hippocratic Oath should be replaced by a "Charak Shapath".

What is the Hippocratic Oath?

- The Hippocratic Oath is attributed to Hippocrates of the island of Kos, a Greek physician of the classical period (4th-5th centuries BC, until the death of Alexander the Great in 323 BC).
- It broadly corresponds to the period from the death of the Buddha (486 BC) to the rise of the Mauryas (321 BC) in India. Among the great contemporaries of Hippocrates were the Athenian philosopher Plato and his teacher Socrates, and Plato's student and Alexander's tutor, the polymath Aristotle.
- He is regarded as the "father of modern medicine".
- Basically, the Hippocratic Oath is a charter of ethical principles that physicians over the ages have sworn to uphold in the practice of their profession.
- The earliest available fragments of what is understood to be the original oath date back to the late 3rd century AD, and a millennium-old version is now in the library of the Holy See.
- General outlines of a Medical Oath:

- Always exercise his/her independent professional judgment and maintain the highest standards of professional conduct
- Respect a competent patient's right to accept or refuse treatment
- Not allow his/her judgment to be influenced by personal profit or unfair discrimination
- Be dedicated to providing competent medical service in full professional and moral independence, with compassion and respect for human dignity
- Deal honestly with patients and colleagues, and report to the appropriate authorities those physicians who practice unethically or incompetently or who engage in fraud or deception
- Certify only that which he/she has personally verified
- Respect the local and national codes of ethics

Charaka and Charak Samhita

- The Charak Samhita is a medical pharmacopeia and collection of commentaries and discussions on medical practices that is dated to the 1st-2nd centuries AD. Along with the compendium of Susruta (c. 4th century AD), which is about surgery, the Charak Samhita is considered the foundational text of ancient Indian medicine,
- It is an evolved system of understanding and treating disease that resembled that of Hippocrates and Galen (2nd century AD), and was in some ways ahead of the Greeks. In theory and praxis, ayurvedic medicine today remains broadly unchanged from these ancient Indian principles.
- The physician was an important and respected member of ancient Indian society, and medical practice followed rules of professional conduct and ethical principles. It goes on to say that-
 - You must strive with all your soul for the health of the sick.
 - You must not betray your patients, even at the cost of your own life.
 - You must not get drunk, or commit evil, or have evil companions.
 - You must be pleasant of speech...and thoughtful, always striving to improve your knowledge.
 - When you go to the home of a patient you should direct your words, mind, intellect, and senses nowhere but to your patient and his treatment.
 - Nothing that happens in the house of the sick man must be told outside, nor must the patient's condition be told to anyone who might do harm by that knowledge to the patient or to another.
 - This ethical code is universal, and remains just as relevant and applicable today.

Pros:

- There is no universally accepted version of the physician's oath.
- Many medical schools around the world hold a ceremony in which graduating doctors swear to a broad charter of ethics that are sometimes customised by individual institutions. A version of the 'physician's code of ethics' is commonly displayed in hospitals or clinics in most places, including India.

Cons:

- The opposition has criticised the proposal as an attempt to saffronise medical education.
- Introducing Indian elements into Indian education is necessary, but not at the expense of universal values and standards. Like several other sages mentioned in the literature of ancient India, the historicity of Charaka is still uncertain.

Short News for Prelims

PM-DevINE

News: Union Budget 2022-23 provided for a new scheme, Prime Minister's Development Initiative for North East (PM-DevINE) will be implemented through the North-Eastern Council.

PM-DevINE

- It will fund infrastructure, in the spirit of PM GatiShakti, and social development projects based on felt needs of the northeast. This will enable livelihood activities for youth and women, filling the gaps in various sectors.
- While the Central Ministries may also pose their candidate projects, priority will be given to those posed by the States.
- Some of the projects to be implemented are:
 - Dedicated Services for the Management of Paediatric and Adult Haemotolymphoid Cancers in North East India, Guwahati
 - Construction of Aizawl bypass on western side, gap funding for passenger ropeway system for Pelling to Sanga-Choeling in West Sikkim
 - Gap funding for eco-friendly Ropeway (Cable Car) from Dhapper to Bhaleydhunga in South Sikkim
 - Pilot project for the construction of Bamboo Link Road at different locations in various districts in Mizoram

Chandrayaan-3 Mission

News: ISRO plans to execute the Chandrayaan-3 mission in August this year.

Details:

- The Chandrayaan-3 mission is a follow-up of Chandrayaan-2 of July 2019, which aimed to land a rover on the lunar South Pole.
- Chandrayaan-2 consisted of an Orbiter, Lander and Rover, all equipped with scientific instruments to study the moon. The Orbiter would watch the moon from a 100-km orbit,

while the Lander and Rover modules were to be separated to make a soft landing on the moon's surface.

- ISRO had named the Lander module as Vikram, after Vikram Sarabhai, the pioneer of India's space programme, and the Rover module as Pragyaan, meaning wisdom.
- The Orbiter part of the mission has been functioning normally. It is carrying eight instruments.
- Each of these instruments has produced a handsome amount of data that sheds new light on the moon and offers insights that could be used in further exploration.
- The subsequent failure of the Vikram lander led to the pursuit of another mission to demonstrate the landing capabilities needed for the Lunar Polar Exploration Mission proposed in partnership with Japan for 2024.
- The lander for Chandrayaan-3 will have only four throttle-able engines. Unlike Vikram on Chandrayaan-2 which had five 800N engines with a fifth one being centrally mounted with a fixed thrust. Additionally, the Chandrayaan-3 lander will be equipped with a Laser Doppler Velocimeter (LDV).

Artificial Neural Network

News: Recently, the global Artificial Neural Network (ANN) Market report was published. It is an information bank that delivers comprehensive information about the market ranging from the establishment to the predictable growth trend. As per the current report, ANN Market to Set Phenomenal Growth from 2021 to 2028.

About ANN:

- The concept behind an ANN is to define inputs and outputs, feed pieces of inputs to computer programs that function like neurons and make inferences or calculations.

- It then forwards those results to another layer of computer programs and so on, until a result is obtained.
- As part of this neural network, a difference between intended output and input is computed at each layer and this difference is used to tune the parameters to each program.
- This method is called back-propagation and is an essential component to the Neural Network.
- Instead of CPUs, Graphic Processing Units (GPU) which are good at performing massive parallel tasks can be used for setting up ANNs. A few free ANN frameworks are TensorFlow, Keras, PyTorch and Theano.
- These can be used for both normal Machine Learning tasks like classification or clustering and for Deep Learning/ANN tasks.
- Neuron is the building block of the brain and it inspired computer scientists from the 1950s to make a computer perform tasks like a brain does. It is not a simple problem and the clue to its complexity is in the brain structure.
- We need billions of artificial neurons if we were to build an artificial brain. With the increase in computing power, mimicking billions of neurons is now possible.
- Data Science, used interchangeably with Machine Learning, is the computer technology that uses data to detect patterns. Hand-written digit recognition is a good example of machine learning.
- However, in order for the computer to do this task, large amounts of sample data need to be manually labelled as examples of images of digits. The ANN mentioned above with its backpropagation does exactly this.
- This is why ANNs have become hugely popular in the past decade. This approach of using neural networks of many layers to automatically detect patterns and parameters is called Deep Learning.

Indian Footwear and leather Development Programme

News: Indian Footwear and Leather Development Programme (IFLDP) has been approved for continuation from 2021-22 with an approved financial outlay of Rs. 1700 crore.

Details:

- IFLDP has been approved by the Union Cabinet as continuation of the erstwhile IFLADP (Indian Footwear Leather and Accessories Development

Programme) till 31st March 2026 or till further review, whichever is earlier. The IFLADP was announced with an expenditure of Rs. 2,600 crore for three financial years - 2017-18 to 2019-20.

- It is a Central Sector Scheme, which aims at development of infrastructure for the leather sector, address environmental concerns specific to the leather sector, facilitate additional investments, employment generation and increase in production.
- Sub-schemes approved under the programme include:
 - Sustainable technology and environmental promotion; Integrated Development of Leather Sector (IDLS); establishment of institutional facilities; Mega Leather Footwear and Accessories Cluster Development; brand promotion; and development of design studios.
 - Development of design studios (proposed outlay Rs 100 crore) is a new sub-scheme and it would promote marketing/export linkages, facilitate buyer- seller meets, display designs to international buyers and work as interface for the trade fairs.

mWRAPR

News: The Indian Institute of Science (IISc.) led start-up has launched mWRAPR, a biological transport and storage medium for genomic sequencing labs, biobanks, and research labs handling biological samples for molecular analysis.

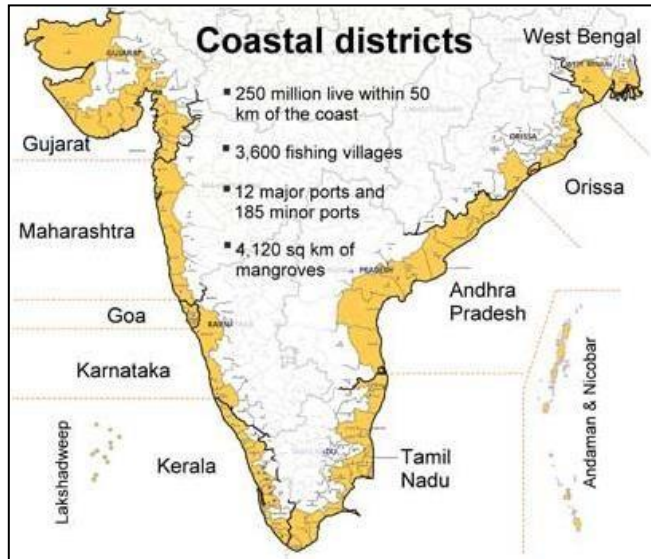
mWRAPR

- It is India's first indigenous bio-sample kit, a biological transport and storage medium.
- It would help in preserving genetic content in all types of biological samples, including microbiomes, saliva, cells, tissues, blood, body fluids, and fecal tubes.
- It is the only Molecular Transport Medium to be manufactured in India that competes with sample stabilisation and transporting media of notable foreign brands. The disruptions in global supply chain limits accessibility to materials for molecular diagnostics.
- India required to move to molecular tests (PCR/ RT-PCR test), but sample collection kits currently used were very cheap and not of molecular grade.
- RNA WRAPR is the kind of molecular grade sample collection medium that India needs right now.

Coastal Vulnerability Index

News: Indian National Centre for Ocean Information Services (INCOIS) has carried out coastal vulnerability assessment for entire Indian coast at states level.

Coastal Vulnerability Index (CVI)



- Under the CVI, INCOIS has brought out an Atlas comprising 156 maps on 1:1,00,000 scales to prepare a CVI.
- These maps determine the coastal risks due to future sea-level rise based on the physical and geological parameters for the Indian coast.
- The CVI uses the relative risk that physical changes will occur as sea-level rises are quantified based on parameters like:
 - Tidal range
 - Wave height
 - Coastal slope
 - Coastal elevation
 - Shoreline change rate
 - Geomorphology
 - Historical rate of relative sea-level change
- A coastal Multi-Hazard Vulnerability Mapping (MHVM) was also carried out using above mentioned parameters. These parameters were synthesized to derive the composite hazard zones that can be inundated along the coastal low-lying areas due to extreme flooding events.
- This MHVM mapping was carried for the entire mainland of India on a 1:25000 scale.
- These maps depict the coastal low-lying areas exposed to the coastal inundation.
- India has a coastline of 7516.6 Km i.e. 6100 km of mainland coastline plus coastline of 1197 Indian islands touching 13 States and Union

Territories (UTs). Coastal vulnerability assessments can be useful information for coastal disaster management and building resilient coastal communities.

REWARD Program

News: The GoI, the State Governments of Karnataka and Odisha, and the World Bank have signed a \$115 million for the REWARD Project.

What is REWARD Program?

- REWARD stands for Rejuvenating Watersheds for Agricultural Resilience through Innovative Development.
- The project aims to help national and state institutions adopt improved watershed management practices to help increase farmers' resilience to climate change, promote higher productivity and better incomes.
- REWARD is being implemented in three to four Indian States. It is proposed as a 6 years Project.
- The outcomes are prevention of soil run-off, regeneration of natural vegetation, rainwater harvesting and recharging of the groundwater table.
- This enables multi-cropping and the introduction of diverse agro-based activities, which help to provide sustainable livelihoods to the people residing in the watershed area.

Inter-Operable Criminal Justice System

News: Recently, the central government approved the implementation of Phase II of the Inter-Operable Criminal Justice System (ICJS) project by the Ministry of Home Affairs. It has been approved at a total cost of Rs 3,375 crore during the period from 2022-23 to 2025-26.

What is ICJS?

- ICJS is a national platform for enabling integration of the main IT system used for delivery of Criminal Justice in the country. It seeks to integrate the five pillars of the system viz Police (through Crime and Criminal Tracking and Network Systems), e-Forensics for Forensic Labs, e-Courts for Courts, e-Prosecution for Public Prosecutors and e-Prisons for Prisons.
- The ICJS system would be made available through a dedicated and secure cloud-based

infrastructure with high speed connectivity. National Crime Records Bureau (NCRB) will be responsible for the implementation of the project in association with National Informatics Centre (NIC).

- The project will be implemented in collaboration with the States and Union Territories. In Phase-I of the project, individual IT systems have been implemented and stabilised even as search of records have been enabled on these systems.
- Under Phase-II, the system is being built on the principle of 'one data one entry' whereby data is entered only once in one pillar and the same is then available in all other pillars without the need to re-enter the data in each pillar.

Non-Fungible Tokens

News: According to a report, the sales of Non-Fungible Tokens (NFTs) surged USD 25 billion in 2021 as the crypto asset exploded in popularity. However, some experts believe NFTs are a bubble that might pop.

What are NFTs?

- Anything that can be converted into a digital form can be an NFT. Everything from drawings, photos, videos, GIFs, music, in-game items, selfies, and even a tweet can be turned into an NFT, which can then be traded online using cryptocurrency.
- If anyone converts its digital asset to an NFT, he/she will get proof of ownership, powered by Blockchain.
- There is a need for a cryptocurrency wallet and an NFT marketplace where one can buy and sell NFTs.
- Some of the NFT marketplaces are OpenSea.io, Rarible, Foundation.
- NFTs are different from other digital forms in that they are backed by Blockchain technology.
- NFTs can have only one owner at a time. Apart from exclusive ownership, NFT owners can also digitally sign their artwork and store specific information in their NFTs metadata.
- This will be only viewable to the individual who bought the NFT.
- Terra Nulius was the first NFT (started in 2015) on Ethereum Blockchain, although this project was merely an idea that only allowed

to customise a short message which was then recorded on the blockchain.

- Then came Curio Cards, CryptoPunks and CryptoCats in 2017, before NFTs slowly moved into public awareness, then expanding into mainstream adoption in early 2021.

NFT v/s Cryptocurrencies:

- Apart from NFTs and cryptocurrencies being built on Blockchain, both are different from each other.
- Cryptocurrency is a currency and is fungible, meaning that it is interchangeable.
- For instance, if one holds one crypto-token, say one Ethereum, the next Ethereum that the one holds will also be of the same value. However, NFTs are non-fungible, which means the value of one NFT is not equal to another. Nonfungible means NFTs aren't mutually interchangeable.
- Every art is different from others, making it non-fungible, and unique.

PM Cares for Children

News: PM Cares for Children Scheme has been extended till February 28, 2022. The scheme was earlier valid till December 31, 2021.

Details:

- Launched in May 2021. The scheme has been launched for support & empowerment of Covid affected children. All children who have lost both parents or surviving parent or legal guardian/adoptive parents due to Covid 19 will be supported under the scheme. Children must not have completed 18 years of age at the time of the death of their parents in order to be eligible for the scheme.
- A corpus of Rs 10 lakh for each child when he or she reaches 18 years of age. Admission will be given in the nearest Kendriya Vidyalaya or in a private school as a day scholar. The child will be given admission in any Central Government residential school such as Sainik School, Navodaya Vidyalaya etc.
- The child will be assisted in obtaining an education loan for Professional courses / Higher Education in India as per the existing Education Loan norms.
- All children will be enrolled as a beneficiary under Ayushman Bharat Scheme (PM-JAY) with a health insurance cover of Rs 5 lakhs.