

VOL. II ISSUE 02

FEBRUARY EDITION 2023

# Varthaman

MONTHLY CURRENT AFFAIRS MAGAZINE  
BY RV TRAINING ACADEMY

## BLOCKCHAIN FOR IMPROVING FARM EXPORTS

India's natural farming could soon get a technological push through blockchain.

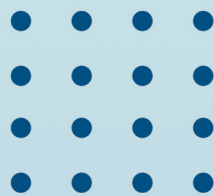
The government plans to use the technology across all export-driven crops to increase the country's food shipments.



CURRENT AFFAIRS  
& PRACTICE QUESTIONS



# ADMISSIONS OPEN



**NEW BATCH STARTS  
ON 23<sup>RD</sup> MARCH '2023**

## ***COURSE HIGHLIGHTS***

**BASIC NCERT FOUNDATION**

**PRELIMS CLASSES**

**WEEKLY CURRENT AFFAIRS**

**MAINS UPGRADATION**

**ANSWER WRITING PRACTICE**

**PERSONALISED MENTORING**

**STUDY MATERIALS**

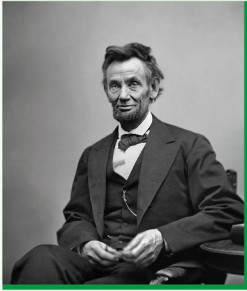


# EMINENT PERSONALITIES

## ABRAHAM LINCOLN

Date of Birth : 12 February 1809

*The Greatest US President in History*



### Did you know?

- Abraham Lincoln was the first US president to come from the then new Republican Party.
- Lincoln's great height was one of the reasons so many people respected and feared him. At 6 feet and 4 inches, he is the tallest President of the United States in history.
- Lincoln is the only US president to hold a patent to an invention to buoy and lift boats over shoals and obstructions in a river.
- Lincoln is believed to have had a premonition about two weeks before his death, and actually anticipated the assassination.
- Lincoln Established the United States Secret Service. Although the organization was only formally established 3 months after Lincoln's death, it was actually founded on the day President Lincoln died – the legislation that created the Secret Service was supposedly on his desk that day.

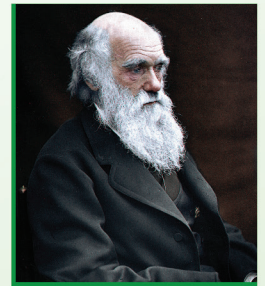
Date of Birth : 12 February 1809

*One of the most eminent scientists in the world*

## CHARLES DARWIN

### Did you know?

- Darwin was born on exactly the same day as another famous person in history, Abraham Lincoln
- Darwin initially pursued a career in medicine, but he began to neglect his studies and his father sent him to Christ's College Cambridge to study for a life in Holy Orders.
- Darwin worked on his theory of evolution for 20 years and 50 years after his birth, he published 'On the Origin of Species by Means of Natural Selection'.
- Darwin faced many scrutinizers for his theory of evolution and the Church of England was one of them. Darwin received an apology from the Church of England, 126 years later.
- There is a mountain named after Charles Darwin.



## RAMAKRISHNA PARAMAHAMSA

Date of Birth : 18 February 1836

*Indian spiritual guru*



### Did you know?

- Most accounts say that the saint was given the title of 'Paramahansa' by his Vedantic guru
- He went to school till the early age of 12, but discontinued as a formal education did not interest him.
- At the age of 23, he got married to five-year-old Saradmoni Mukhopadhyay, who later came to be known as Maa Sarada.
- Apart from being well-versed in the Puranas, the Ramayana, the Mahabharata and the Bhagavata Purana, he was devoted to Goddess Kali.
- His chief disciple Vivekananda established the Ramakrishna order, which eventually aided the spread of mission posts across the globe. The Mission formed the fundamental core of a universal spiritual movement known as the Ramakrishna Movement or the Vedanta Movement.

Date of Birth : 19 February 1630

*One of the great warriors and strategists of India*

## CHHATRAPATI SHIVAJI

### Did you know?

- Shivaji's name was not derived from Lord Shiva but from a regional deity by the name Shiva. He was given god-like stature for his deeds.
- The secular ruler was very accommodating of all religions. He had numerous Muslim soldiers in his army.
- Shivaji was a dependable supporter of women and their honour. He opposed all kinds of violence, harassment and dishonour against women.
- Known as the Father of Indian Navy, Shivaji was the first to realise the importance of having a naval force, and therefore he strategically established a navy and forts at the coastline to defend the Konkan side of Maharashtra.
- Shivaji was the proponent of the Guerrilla war. He was well versed in the geography of his area, guerrilla tactics, attacking small groups with enemies, etc. and was called a rat of the hills.





## Purpose of the magazine

The purpose of Varthaman is to focus solely on issues which are relevant to the actual as well as applied aspects of the General Studies syllabus. The unique way the "Varthaman" team puts forward the facts and analysis would help you understand, retain and reproduce the information during the journey towards toppers' list.

## The sources relied for selection and application of issues

The Hindu  
The Indian Express  
Times of India  
PIB  
Live Mint  
Hindustan Times  
News on Air  
Prasar Bharati website  
IDSA Website  
NASA website  
PRS India Website  
Down to Earth  
Rajya Sabha TV website  
Lok Sabha TV website  
Economic and Political Weekly  
Yojana  
Kurukshetra  
NITI Aayog reports  
BBC

## Disclaimer

- The information, facts and news items published in this magazine have been thoroughly examined and validated. If, by any chance, any discrepancy in any information or fact is found, the publisher, the editor or the magazine publisher is in no way responsible for the damage(s) caused to any person or organization.
- The images and maps used in this magazine are for representational purposes only.
- We believe that the information provided in this magazine has been written by our content developers. In case of copyright violation, the publisher, the editor or the printer would not be held responsible under any circumstance(s).

## Features of the magazine

### Current Affairs Analysis

- This month's edition covers the analysis of news from the immediately preceding month.
- The news are categorized subject wise viz. Polity, Economics, Environment & Ecology, Science & Technology, International Relations, etc. for easy and efficient study.
- Lead articles on burning issues are included.

### Practice Questions

- Prelims Practice Questions
- Mains Practice Questions



# Table of Contents

## Polity and Governance

• Pendency of Cases	07
• Basic Structure of Constitution	07
• National Company Law Tribunal	08
• Guidelines for Social Media Influencers	09
• The National Disaster Response Force	10
• The electronic Supreme Court Reports (e-SCR) Project	10
• Delegated Legislation	11
• Remote voting for migrant workers	11
• Centre vs Delhi Government on control over services	12
• Lokur Committee	13
• UAPA	13
• The Bureau of Indian Standards	14
• e-HRMS 2.0 Portal	14
• National Single Window System	15
• Sale of loose Cigarettes	16
• Electoral Photo ID Card (E-EPIC) or digital voter ID	16

## Government Schemes

• Akshaya Big Campaign for Document Digitisation (ABCD)	16
• Export Promotion Capital Goods Scheme	16
• Grameen Udyami Scheme	17
• Bharat Pariah	17
• Special Assistance for Capital Investment scheme	17
• Constitution Literate District	18
• Eat Right School Movement	18
• REWARD Project	18
• Digital India Land Records Modernization Programme (DILRMP)	19
• MAARG Platform	19
• Prajwala Challenge	19
• Integrated Ombudsman Scheme	20
• Vibrant Villages Programme	20
• Continuation of Development Schemes in North East	21
• BIND Scheme	22
• PM SHRI Scheme	22

## Indian Economy

• The National Asset Reconstruction Company Ltd (NARCL)	23
• Inflation Targeting	23
• Municipal Bonds	24
• India - Insurance Penetration	25
• India's first Fourth Industrial Revolution centre on healthcare, life sciences	26
• Micro Finance Institution	26
• Financial Services Institutions Bureau (FSIB)	27

• Electoral Bonds	28
• Disaster Management Plan for Power Sector	28
• Credit Default Swaps	29
• RuPay Debit Card, BHIM-UPI	29
• National level cooperative society for organic products	30
• Draft National Retail Trade Policy	30
• New Umbrella Entity	31
• First Advance Estimates of National Income, 2022-23	32
• Domestic Systemically Important Banks (D-SIBs)	32
• Goods Service Tax	33
• Purchasing Managers Index	33
• Improvement in NPA Recovery	34
• Right to Repair Portal	34

## Environment and Ecology

• Rat Hole Mining	35
• Utilisation of Fly Ash for Thermal Power Plants (TPP)	35
• Haiderpur Wetland	36
• Bhopal Ramsar Wetland	36
• Ground Water Uranium Contamination	37
• India Plastic Recycling Scenario	38
• Ozone Layer	38
• National Clean Air Program	39
• Cloud forests	40
• Manufactured Sand	40
• Indian dams to lose 26% Storage Capacity	41
• Liquefied Natural Gas	41
• Silent Valley National Park	42
• Deepor Beel	43
• Global Overturning Circulation	43
• Water Vision 2047	43
• Measles and Rubella	44
• Nature Risk Profile	45
• Alien Specie of Plants in Tiger Reserves	45
• Rare White Tufted Royal Butterfly	46
• Indian Skimmer	46
• Living Root Bridges of Meghalaya	47
• Kweda oil from Odisha's Ganjam region	47
• Neelakurinji	48
• Indian Star Tortoise	48
• Impact of Noise Pollution over Dolphins	48
• Endocrine Disrupting Chemicals	49
• Lymphatic Filariasis	49
• Ken Betwa Link Project	50
• Basmati Rice	51
• Alzheimer's Disease	51
• New Dinosaur Species in Chilean Valley	51
• National Green Hydrogen Mission	52
• Forest Conservation Rules	53



# Table of Contents

• Sustainable Shrimp Cultivation at Sunderbans Mangroves	53	• Technical Textiles	75
• Central Pollution Control Board Report on Rivers	54	• Blockchain for Improving Farm Exports	75
• Invasive species of mussel	55	• Cloud Services	76
• Indigenous Livestock Breeds	56	• NASA - OSIRIS-REx	77
• Lumpy Skin Disease	56	• ESA JUICE Mission	77
• Project Nilgiri Tahr	57	• National Geospatial Policy	78
• Assam is safe home for Rhinos	57	• BrahMos Air Launched missile	79
• Kala-azar	58	• Organic Solar Cells	79
• Virovore	58	• Dark Patterns	79
• African Swine Fever	59	• Artificial Photosynthesis	80
		• Trans Fat	80
<b>Geography</b>		<b>Indian Society/Social Issues/Social Justice</b>	
• Heat Dome	59	• Advisory to ensure safety of women in educational institutions	81
• Land subsidence at Joshimath Town in Uttarakhand	60	• Caste based census of Bihar	82
<b>International Relations</b>		<b>Reports and Indices</b>	
• India China Trade Relations	60	• Gender Gap Report	83
• India French Strategic Dialogue	61	• Oxfam Report On Rich Poor Divide	83
• H1 and L1 Visa	61	• The Annual Status of Education Report (ASER) 2022	84
• Indian Technical and Economic Cooperation Program (ITEC)	62	• Global Risks Report 2023	85
• China builds new dam in Tibet near Indian border	62	• RBI Financial Stability Report	85
• SAARC	62	• India's Unemployment Rate	86
• Peru State Emergency	63	• Road accidents in India – 2021	86
• One Sun - One World - One Grid Programme	63	<b>Ancient, Modern India and Art &amp; Culture</b>	
• Global Partnership for Financial Inclusion	64	• Banjara Community	87
• Mutual Legal Assistance Treaty (MLAT)	64	• Purana Qila	88
• Wassenaar Arrangement (WA)	64	• Jagannath Temple Puri	88
• India-Australia Economic Cooperation and Trade Agreement	65	• Assam's Charaideo Moidams	89
• Exercise Cyclone - I	66	• Gujarat's Harappan necropolis	89
• AMPHEX 2023	66	• Miniature votive stupas	90
		• Kuki-Chin Community	91
<b>Science and Technology</b>		• Gaan Ngai festival - Manipur	91
• Green Comet	67	• Shikharji Jain Temple	92
• Large Hadron Collider (LHC)	67	• Bhima Koregaon Battle	92
• Meteorite	68	• Sagol Kangjei	93
• Giant Metrewave Radio Telescope (GMRT)	68	• Losar Festival	93
• Advance Traffic Management System (ATMS)	69	• Rudreshwara Temple (Ramappa)	93
• Shukrayaan 1	69	<b>Personlities In News</b>	
• James Webb Telescope	70	• Satyendra Nath Bose	94
• Samudrayan Mission	70	• Queen Ahilyadevi Holkar	94
• Green Steel and Cement	71	<b>PRACTICE QUESTIONS</b>	95
• Mars Mantle Plumes	71		
• OneWeb	72		
• Floatovoltaics	73		
• Superconductivity of Mercury	73		
• VSHORAD Missile	74		
• Prithvi-II	74		

# POLITY AND GOVERNANCE

## PENDENCY OF CASES

**In News:** The pendency of cases in Indian Judicial system could be mitigated by digitalisation of the judiciary.



### More on the Topic:

#### Statistics on Pendency of Cases:

- India takes an average of 2,184 days to dispose a case in its subordinate courts, 1,128 days in its High Courts, and 1,095 days in the Supreme Court, bringing the total life cycle of a case in India to 12+ years.
- Over 4.7 crore cases are pending across various courts in India. Of them, 87.4% were pending in subordinate courts, 12.4% in High Courts, and nearly 1.8 lakh cases have been pending for over 30 years.

#### Reasons for Pending Cases:

- **Human Resource Crunch:** There are only two judges per one lakh Indians. The Law Commission report in 1987 recommends at-least 50 to 1 million. Population has increased by over 25 crore since 1987.
- **Insufficient number of courts:** Budgetary allocations for the whole judiciary are a pathetic 0.1% to 0.4% of the whole budget. India needs more courts and more benches.
- A highly litigious Indian society, etc.
- **Improved Awareness:** The recent socio-economic advances and the resultant awareness of legal rights, has given courage to common people to approach courts of law for justice.
- **Archaic and Vague Nature of Laws:** The archaic laws that fill up the statute books, faulty or vague drafting of laws and their multiple interpretations by various courts are also reasons for prolonged litigation.

### Effects of Pending Cases:

- **Innocent Persons being punished:** The prison occupancy across the country has been over 115% for the past 3 years. 69.05% of the total prisoners comprise under-trial inmates.
- This means that 2 out of 3 innocent (unless proven guilty) prisoners are in jail awaiting the disposal of the case.
- High cost of legal fees.
- Witness hesitancy/hostility.
- Death or disappearance of a witness.
- Economic loss.
- Loss of faith of citizenry in the justice system.
- Foreign investors are increasingly doubtful about the timely delivery of justice, which affects the success of programs like 'Make in India'.

### Way Ahead:

- The 14th Law Commission of India Report, published in the year 1958, attributed the root cause of the problem of pendency of cases to inadequate judges strength.
- The government needs to double the number of judges and create all India Judicial Service.
- To reduce the huge backlog, it was also suggested to decentralise the High Courts. (230th Law Commission of India Report, published in 2009)
- **Fix the NJAC controversy** at the earliest and start appointing judges in Supreme Court and High Courts.
- More courts in the nature of **Fast Track Courts, Lok Adalats, and Gram Nyayalayas** should be created and promoted.
- Digitization of the Judicial process could reduce pendency in a significant level.

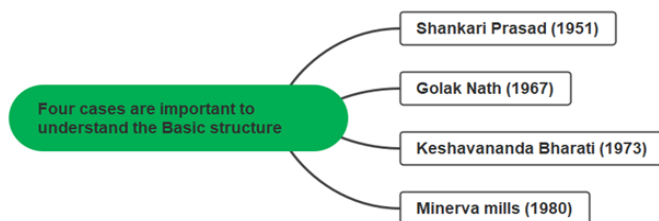
## BASIC STRUCTURE OF CONSTITUTION

**In News:** Vice President Jagdeep Dhankar criticised the Supreme Court for using the Basic Structure Doctrine to strike down constitutional amendments by Parliament, such as the NJAC Act.

### More on the Topic:

- The Doctrine of Basic Structure is a form of judicial review that is used to test the legality of any legislation by the courts.





- The doctrine was evolved by the Supreme Court in the 1973 landmark ruling in **Kesavananda Bharati v State of Kerala**.
- In a 7-6 verdict, a 13-judge Constitution Bench ruled that the 'basic structure' of the Constitution is inviolable, and could not be amended by Parliament.
- If a law is found to "damage or destroy" the "basic features of the Constitution", the Court declares it unconstitutional.
- The test is applied to constitutional amendments to ensure the amendment does not dilute the fundamentals of the Constitutional itself.
- The test is widely regarded as a check on majoritarian impulses of the Parliament since it places substantive limits on the power to amend the Constitution.

### What are the basic features of the Indian Constitution?

- In the Kesavananda ruling, the Supreme Court cited several aspects of the Constitution that could be identified as "basic features" of the document but added that it was not an exhaustive list.
- For example, judicial review, rule of law, federalism, and democratic republic structure are identified as basic features.
- In the 2015 ruling where the Supreme Court struck down the National Judicial Appointments Commission Act and the related Constitutional Amendment, "judicial independence" was identified as a basic feature of the Constitution.

### Why is the doctrine criticised?

- It is not found in the text of the Constitution itself. By evolving a test, which is not a textual application of judicial review, an argument is made that the judiciary is encroaching on the Parliament's powers.
- Some critics of the doctrine argues that the power of "unelected judges" to strike down amendments to the Constitution on the basis of this doctrine is "anti-democratic and counter-majoritarian."

### Counter Arguments:

- The doctrine rests on a sound structural interpretation of the Constitution.
- It is a testimony to the theory of Constitutionalism to prevent the damage to the essence of COI by the brute majority of the ruling majority.
- It saved the Indian democracy as it acts as a limitation of constituent power or else unlimited power of parliament might have turned India into a totalitarian regime.
- It helps us to retain the basic tenets of our constitutions meticulously framed by the founding fathers of our Constitution.
- It strengthens our democracy by delineating a true separation of power where the Judiciary is independent of the other two organs.
- Being dynamic in nature, it is more progressive and open to changes in time, unlike the rigid nature of earlier judgements.

### NATIONAL COMPANY LAW TRIBUNAL

In News: NCLT division bench will hear Reliance Capital case on January 16.



### More on the Topic:

- NCLT is a quasi-judicial authority incorporated for dealing with corporate disputes that are of civil nature arising under the Companies Act.
- The tribunal was established under the **Companies Act 2013** and was constituted on 1 June 2016 by the government of India.
- It is based on the recommendation of the **Balakrishna Eradicommittee** on law relating to the insolvency and the winding up of companies.
- All proceedings under the Companies Act, including proceedings relating to arbitration, compromise, arrangements, reconstructions

and the winding up of companies shall be disposed off by the National Company Law Tribunal.

- The NCLT bench is chaired by a Judicial member who is supposed to be a retired or a serving High Court Judge and a Technical member who must be from the Indian Corporate Law Service, ICLS Cadre.
- The National Company Law Tribunal is the adjudicating authority for the insolvency-resolution process of companies and limited liability partnerships under the Insolvency and Bankruptcy Code, 2016.
- Decisions of the tribunal may be appealed to the **National Company Law Appellate Tribunal**, the decisions of which may further be appealed to the Supreme Court of India on a point of law.
- The Supreme Court of India has upheld the Insolvency and Bankruptcy Code in its entirety.

#### It Adjudicate Matters under:

- Initiated before the **Company Law Board** under the previous act (the Companies Act 1956);
- Pending before the **Board for Industrial and Financial Reconstruction**, including those pending under the Sick Industrial Companies (Special Provisions) Act, 1985;
- Pending before the Appellate Authority for Industrial and Financial Reconstruction; and
- Pertaining to claims of **oppression and mismanagement of a company**, winding up of companies and all other powers prescribed under the Companies Act.

## GUIDELINES FOR SOCIAL MEDIA INFLUENCERS

**In News:** The Department of Consumer Affairs under Ministry of Consumer Affairs, Food and Public Distribution released a guide 'Endorsements Know-hows!' for celebrities, influencers and virtual influencers on social media platforms.

#### More on the Topic:

- The guide aims to ensure that **individuals do not mislead their audiences** when endorsing products or services and that they are in compliance with the **Consumer Protection Act** and any associated rules or guidelines.

## LAYING DOWN RULES HERE

### Who should disclose:

Celebrities, social media influencers & virtual influencers (fictional computer generated people)



gifts, discounts, trips or hotel stay, family, personal or employment relationship

**When to disclose:** When there is a material connection

### Material connection:

Monetary or other compensation, free products,

### How to disclose:

Clear & prominent display of disclosure; not to be mixed with a group of hashtags; both audio & video format, running ticker during live stream

- The guide is released in alignment with the **guidelines set by the Consumer Protection Act of 2019**. The Act established guidelines for protecting consumers from unfair trade practices and misleading advertisements.
- The Department of Consumer Affairs has published Guidelines for prevention of Misleading Advertisements and Endorsements for Misleading Advertisements, 2022 in June 2022.
- These guidelines outline the criteria for valid advertisements and the responsibilities of manufacturers, service providers, advertisers, and advertising agencies.
- These guidelines also touched upon the celebrities and endorsers. It states that misleading advertisement in any form, format or medium is prohibited by law.

#### Highlights of the Guidelines:

- The "Endorsement Know-hows!" specify that **disclosures must be prominently and clearly displayed** in the endorsement, making them extremely hard to miss.
- Any celebrity, influencer or virtual influencer who has access to an audience and can influence their purchasing decisions or opinions about a product, service, brand, or experience must disclose any material connection with the advertiser.
- This includes not only benefits and incentives, but also monetary or other compensation.
- **Endorsements must be made in simple, clear language** and terms such as "advertisement," "sponsored," or "paid promotion" can be used.
- They should not endorse any product or service in which due diligence has been done by them or that they have not personally used or experienced.



### Significance of the guidelines:

- With the increasing reach of digital platforms and social media, such as Facebook, Twitter and Instagram, there has been a rise in the influence of virtual influencers, in addition to celebrities and social media influencers.
- This has led to an increased risk of consumers being misled by advertisements and unfair trade practices by these individuals on social media platforms.

### THE NATIONAL DISASTER RESPONSE FORCE

In News: The National Disaster Response Force (NDRF) celebrated its 16th Foundation Day.



#### More on the Topic:

- The National Disaster Response Force is an Indian specialized force constituted "for the purpose of special response to a threatening disaster situation or disaster" under the Disaster Management Act, 2005.
- National Disaster Response Force (NDRF) is a force of 16 battalions, organized on para-military lines, and manned by persons on deputation from the para-military forces of India: three Border Security Force, three Central Reserve Police Force, two Central Industrial Security Force, two Indo-Tibetan Border Police, two Sashastra Seema Bal and one of the Assam Rifles.
- The "Apex Body for Disaster Management" in India is the National Disaster Management Authority.
- The Chairman of the NDMA is the Prime Minister.
- The responsibility of managing disasters

in India is that of the State Government.

- The 'Nodal Ministry' in the central government for management of natural disasters is the Ministry of Home Affairs (MHA).

### THE ELECTRONIC SUPREME COURT REPORTS (E-SCR) PROJECT

In News: The Supreme Court is set to launch the electronic Supreme Court Reports (e-SCR) Project to further the digitisation of the Indian Judiciary.



#### More on the Topic:

- The project will provide free digital access to more than 34,000 judgments of the Supreme Court to lawyers, law students, and the common public.
- These verdicts will be available on the apex court's website, its mobile app, and on the judgment portal of the National Judicial Data Grid (NJDG).
- They will be presented in the manner they are reported in the official law report – 'Supreme Court Reports' (SCRs).
- The e-SCR project will showcase replica soft copies of SCRs, which would be available in a PDF format.
- The entire gamut of judgments of the Supreme Court, from its inception in 1950, would now be available in the digital repository.
- The Court has also worked with the National Informatics Center (NIC) to generate metadata on the large repository of files, to enable functions like free text search, search within search, case type, etc.

#### Significance:

- The Indian judiciary has long been accused of being inaccessible to the public at large. Judicial pronouncements are not easily accessible, and they are often long and unreadable.

- Accessing these reports earlier used to cost lakhs of rupees, and was therefore limited to a select few.



## DELEGATED LEGISLATION

**In News:** Supreme Court has stated in a judgement that Delegated legislation, including rules and regulations formed by State and Central authorities, should not supplant but supplement the parliamentary statute from which it draws power from.



### More on the Topic:

- Delegated legislation, also known as auxiliary legislation, is an act made by someone or something other than Parliament. According to the Act of Parliament, Parliament can give power to another person or body to enact legislation.
- In usual case MP/MLAs make the law only in a broad skeletal form.
- Then executive (union/state Government and its bureaucrats) fill up the minor technical details.
- When legislators delegates the part of law making work to the executives usually Bureaucrats, this is known as Delegated Legislation / subordinate legislation.
- In other words, delegated legislation is when the Parliament confers the law making power to the executive.
- This happens mainly due to paucity of time, the legislature limits itself to policy matters; delegating the task of rule and regulations to executive or any subordinate to supplement parliamentary statute.

## REMOTE VOTING FOR MIGRANT WORKERS

**In News:** The Election Commission (EC) has announced that it is ready to pilot remote voting for domestic migrants, so they don't have to travel back to their home states to vote.

### More on the Topic:

- ECI has developed a prototype for a Multi-Constituency Remote Electronic Voting Machine (RVM) that can handle multiple constituencies from a single remote polling booth.

### Migration-based disenfranchisement:

- While registered voters do not end up voting for a variety of reasons, **domestic migration is a major contributor in the Indian context.**
- As per the 2011 census (the numbers will have risen since then), there are nearly 45.36 crore migrants in India (both intra and inter state) – amounting to **approximately 37% of the country's population.**
- Migration can be driven by a variety of different reasons from marriage to natural disaster to employment.

### The proposed solution: Remote EVMs

- The EC had formed a "Committee of Officers on Domestic Migrants", which submitted a report in late 2016 after considering various possible solutions such as internet voting, proxy voting, early voting and postal ballots for migrant workers.
- However, all of these ideas were rejected due to reasons such as the lack of secrecy of the vote, the lack of sanctity of one person one vote principle, issues of accessibility for unlettered voters, etc.
- Thus, a technological solution was proposed which relies on the creation of a robust electoral roll and identification mechanisms (to stop duplicate voting), and allow voters to vote remotely, in a safe and controlled environment.
- The RVM was developed with the assistance of Bharat Electronics Limited (BEL) and the Electronics Corporation of India Limited (ECIL). It is based on the currently used EVM system.



### Specification of EVM for Remote Voting:

- The RVMs are “stand alone, non-networked systems,” effectively providing the voter the same experience as currently used EVMs.
- They will be set up in remote locations outside the state under similar conditions as current polling booths.
- The unique feature of RVMs is that a single Remote Ballot Unit (RBU) will be able to cater to multiple constituencies (as many as 72) by using a “dynamic ballot display board” instead of the usual printed paper ballot sheet on EVMs.
- The Ballot Unit Overlay Display (BUOD) will show the requisite candidates based on the constituency number read on the voter's Constituency card. A barcode scanning system will be used to read these cards.

### CENTRE VS DELHI GOVERNMENT ON CONTROL OVER SERVICES

In News: A five-judge Constitution Bench of the Supreme Court is hearing a dispute between the Delhi government and the Centre over the control of services.



### More on the Topic:

- Almost five years ago, another Constitution Bench had ruled in favour of the Aam Aadmi Party-led state government in a similar tussle.

- Present case deals with matters pertaining to control over the transfers and the overall functioning of administrative services in the National Capital Territory (NCT) of Delhi.

### About Article 239 AA:

- Article 239 AA was inserted in the Constitution by the 69th Amendment Act, 1991, and conferred Special Status upon Delhi following the recommendations of the S Balakrishnan Committee that was set up in 1987 to look into Delhi's demands for statehood.
- According to this provision, the NCT of Delhi will have an Administrator and a Legislative Assembly.
- Subject to the provisions of the Constitution, the Legislative Assembly, “shall have the power to make laws for the whole or any part of the NCT with respect to any of the matters in the State List or Concurrent List in so far as any such matter is applicable to Union territories” except on the subjects of police, public order, and land.

### How administration of Delhi is different from administration of other states having a legislature?

- The status of Delhi being a Union Territory under Schedule 1 of the Constitution but christened the ‘National Capital Territory’ under Article 239AA, engrafted by the Constitution (69th Amendment) Act.
- The 69th amendment to the Constitution of India inserted Article 239AA, which declared the Union Territory of Delhi to be administered by a L-G who works on aid and advice of the elected legislative assembly.
- However, the ‘aid and advice’ clause pertains only to matters on which the elected Assembly has powers under the State and Concurrent Lists With the exception of public order, police, and land.
- Further, the Article 239AA also notes that L-G has to either act on the aid and advice of the Council of Ministers, or he is bound to implement the decision taken by the President on a reference being made by him.
- Also, Article 239AA, empowers the L-G to refer a difference of opinion on ‘any matter’ with the Council of Ministers to the President.
- Thus, this dual control between L-G and the elected government leads to a power tussle.

## Way Ahead:

- **Collaborative structure that can be worked only through constitutional trust:** The Supreme Court through various verdicts had rightly concluded that the scheme set out in the Constitution and the Government of National Capital Territory of Delhi Act, 1991 envisages a collaborative structure that can be worked only through constitutional trust.
- **Principle of Subsidiarity:** Subsidiarity which is a foundational principle of fiscal federalism necessitates empowered sub-national governments.
- For this reason central government should move towards allocating greater powers to sub national governments.
- In this context, India should take inspiration from several large megapolis around the globe, from Jakarta and Seoul to London and Paris, which have had strong sub-national governments.

## LOKUR COMMITTEE

**In News:** Despite being described as 'obsolete', cumbersome' and 'condescending' by the government's own task force, the Office of Registrar-General of India still follows the criteria laid down by the 1965 Lokur Committee for categorising any community as Scheduled Tribe.

### More on the Topic:

- The criteria of the Lokur Committee for recognition of any community under the ST list are indications of primitive traits, distinctive culture, geographical isolation, shyness of contact with the community at large, and backwardness.
- Over the years, the criteria have come under severe criticism.
- A new Task force in 2014 came up with new criteria:
- Socio-economic, including educational, backwardness, vis-a-vis, the rest of the population of the state;
- Historical geographical isolation which may or may not exist today; Distinct language/ dialect;
- Presence of a core culture relating to life-cycle, marriage, songs, dance, paintings, folklore;
- Endogamy, or in case of exogamy, marital relationship primarily with other STs

- This criterion is for scheduling of a community as ST and not for determining ST status of an individual.

## UAPA

**In News:** The Centre has declared People's Anti-Fascist-Front (PAFF), a proxy outfit of the banned terror group Jaish-e-Mohammed (JeM), and all its manifestations and front organisations as a 'terrorist' organisation under the Unlawful Activities (Prevention) Act 1967.



### More on the Topic:

- The First Schedule of the UAPA contains the list of terrorist organisations.
- UAPA was passed in 1967. It aims at effective prevention of unlawful activities associations in India.
- Unlawful activity refers to any action taken by an individual or association intended to disrupt the territorial integrity and sovereignty of India.
- The Act assigns absolute power to the central government, by way of which if the Centre deems an activity as unlawful then it may, by way of an Official Gazette, declare it so.
- It has death penalty and life imprisonment as highest punishments.
- Under UAPA, both Indian and foreign nationals can be charged. It will be applicable to the offenders in the same manner, even if crime is committed on a foreign land, outside India.
- The 2004 amendment, added "terrorist act" to the list of offences to ban organisations for terrorist activities, under which 34 outfits were banned.
- A tribunal headed by a High court judge is constituted by the Central Government to confirm a ban on a political organisation based on evidence and analysis of the allegations.



## THE BUREAU OF INDIAN STANDARDS

In News: BIS has celebrated its foundation Day recently.



### More on the Topic:

- On the occasion today, Union Minister Shri Piyush Goyal also launched the following:
- **Launch of Standards National Action Plan (SNAP) 2022- 27:** The document to serve as strong foundation for standardization to meet the emerging technologies and concerns of sustainability and climate change.
- The implementation of key recommendations and strategies of the document will be pivotal in enriching and strengthening "Quality Culture" in the Nation.
- **Launch of Revision Exercise of National Building Code of India (NBC 2016):** BIS is initiating the Exercise of Revision National Building Code of India to include sustainable city planning norms; new and sustainable building materials, design concepts, construction technologies and building and plumbing services
- **Launch of Revised National Electrical Code of India 2023:**
- The National Electrical Code of India 2023 (NEC 2023), a comprehensive electrical installations Code prepared by BIS, is a national instrument providing guidelines for regulating the Electrical Installations practices across the country.
- **Launch of Training Courses on National Building Code of India 2016 and National Electrical Code of India:** To ensure quality and safety of the buildings. BIS through its training arm, the National Institute of Training for Standardization (NITS) has designed training courses for national capacity building which were also launched on the occasion.
- **Standards Clubs in Schools:** Through Standards

Clubs, BIS aims to expose science students of class 9th and above to the concepts of Quality and Standardization through student centric activities.

- BIS has till date established over 4000 Standards Clubs across India.

### About BIS:

- The Bureau of Indian Standards is the National Standards Body of India under Department of Consumer affairs, Ministry of Consumer Affairs, Food and Public Distribution, Government of India.
- It is established by the Bureau of Indian Standards Act, 2016.
- It is intended for the harmonious development of the activities of **standardization**, **marking** and **quality certification** of goods.

## E-HRMS 2.0 PORTAL

In News: Department of Personnel and Training (DoPT) has launched revamped e-HRMS 2.0 (e Human Resources Management System 2.0) portal for central government employees.



### More on the Topic:

- The revamped e-HRMS 2.0 Portal will provide the services like transfers (rotation or mutual), deputation, private foreign visits, vigilance status, deputation opportunities, service books and other basic HR services like leave, tours, reimbursements among others, in digital mode to the employees.
- The revamped portal is the **first digital system in the government of India to provide end-to-end HR services.**
- Presently, no other government service cadre system in India is as advanced in its reach and applications as the revamped e-HRMS 2.0.

## Significance:

- With the aid of e-HRMS DoP&T will be moving towards total digitisation of HR services.
- e-HRMS 2.0 will save several thousand man-hours and tons of printing paper.
- This will also go a long way in improving employee satisfaction, promoting ease of doing or processing of HR work and enhancing productivity and transparency in administrative functioning
- The new and revamped probity portal and capturing of real-time information using such a platform will send a clear signal that 'non-performance' and 'inefficiency' of the government employees will not be tolerated and that the right attitude towards public service with 'integrity' and 'probity' is expected from every government servant.

## NATIONAL SINGLE WINDOW SYSTEM

**In News:** 11 states/UTs have been onboarded onto the National Single Window System (NSWS) for Voluntary Vehicle-Fleet Modernization Program (V-VMP) to attract private investment in the vehicle scrapping ecosystem.

The banner for the National Single Window System (NSWS) Soft-Launch features Prime Minister Narendra Modi on the right. On the left, there is a graphic with the text 'NATIONAL SINGLE WINDOW SYSTEM (SOFT-LAUNCH)' and a tagline 'Single Platform to Enable Investors Identify & Obtain Approvals & Clearances'. Below this, a section titled 'Online Services Available' lists six services in a 2x3 grid:

Online Services Available	
Know Your Approval Service	Applicant Dashboard
Common Registration Form	Document Repository
State Registration Form	E-Communication module

## More on the Topic:

- NSWS provides was created by Department of Promotion of Industry and Internal Trade.
- It aims to create an ecosystem for phasing out unfit and polluting vehicles in an eco friendly manner.

## The Vehicle Scrappage Policy:

- The vehicle scrappage policy (V-VMP) has come into effect from April 1, 2022.
- V-VMP or Vehicle Scrappage Policy, has come effect from 1st April, 2022, primarily aims to develop an ecosystem for phasing out of unfit and polluting vehicles in an eco-friendly way and replace them with modern and new vehicles on Indian roads.
- Phasing out unfit and polluting vehicles will assist the country in achieving a lower carbon footprint in the country.
- The policy was announced in country's Union Budget 2021-22.
- It provides for fitness tests for personal vehicles after 20 years, while for commercial vehicles, test is required after the completion of 15 years.
- The vehicles will be scrapped if they fail the fitness test. On the other hand, the policy also provides the owners of the vehicles certain benefits for scrapping their old vehicles.
- Example – under the new policy, Centre has directed that states and UTs will extend up to 25% rebate on road tax for vehicles that are purchased after scrapping old vehicles.

## Multilateral export control regime:

- A multilateral export control regime is an informal group of like-minded supplier countries that seek to contribute to the non-proliferation of weapons of mass destruction, delivery systems, and advanced conventional weapons through national implementation of guidelines and control lists for exports.

## Some key takeaways of the vehicle scrappage scheme are as follows:

- It aims at reducing the problem of pollution by scrapping of old unfit vehicles, which are responsible for harmful emissions
- The policy is such that it improves passenger, road and vehicular safety.
- Generate employment in the automobile sector
- Motivate people to go green and become environmentally aware
- Formalise the current highly informal vehicle scrappage industry
- Improving fuel efficiency and lowering maintenance costs for vehicle owners



- Increase availability of low-cost raw materials for automotive, steel and electronics industry

## GOVERNMENT SCHEMES

### SALE OF LOOSE CIGARETTES

**In News:** The Parliamentary Standing Committee on Health and Family Welfare in its latest report about cancer management, prevention and diagnosis recommended that the government institute a ban on the sale of single sticks of cigarettes.

#### More on the Topic:

- It also recommended that the government increase taxes on all tobacco products and utilise the acquired revenue for cancer prevention and awareness.
- There is an urgent need to disincentivise the consumption of tobacco and alcohol in the country.
- It noted that tobacco consumed in different ways accounts for nearly 50% of all cancers, collectively referred to as tobacco-related cancers which can be prevented.

### ELECTORAL PHOTO ID CARD (E-EPIC) OR DIGITAL VOTER ID

**In News:** 67 lakh voters have downloaded their electronic Electoral Photo ID Card (E-EPIC) or digital voter ID till 23rd December 2022.



#### More on the Topic:

- The digital version of EPICs is available for download from the Voter Helpline app, voterportal.eci.gov.in and nvsp in.
- It is a non-editable PDF that can be downloaded on the phone and stored on the DigiLocker app or self-printed.
- The ECI is working to link voters' registrations to their Aadhaar, following the passage of the Election Laws (Amendment) Act, 2021.

### AKSHAYA BIG CAMPAIGN FOR DOCUMENT DIGITISATION (ABCD)

**In News:** Kerala's Wayanad is the first district in the country to provide basic documents to all tribal persons through ABCD campaign.



#### More on the Topic:

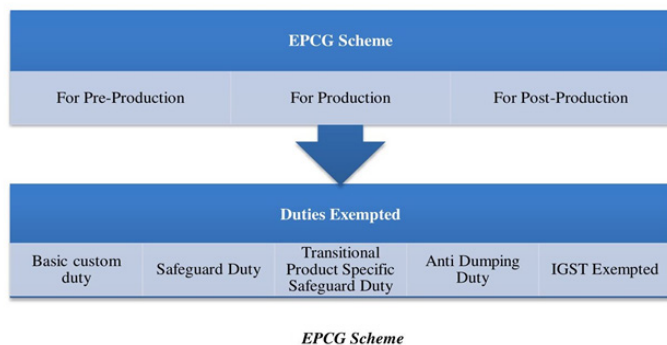
- The basic documents provided in the campaign include Aadhaar cards, ration cards, election ID cards, bank accounts, birth and death certificates, and health insurance.
- These documents are digitized and saved in DigiLocker accounts.
- Digitalising the documents through DigiLocker will help the beneficiaries easily retrieve the documents in case these are lost or damaged.

### EXPORT PROMOTION CAPITAL GOODS SCHEME

**In News:** The government has announced a one-time relaxation from maintaining average export obligations and an option to extend the export obligation period for certain sectors under the Export Promotion Capital Goods (EPCG) scheme.

#### More on the Topic:

- EPCG Scheme was launched in the 1990s to facilitate import of capital goods with the aim to enhance the production quality of goods and services, thereby, increasing India's international manufacturing competitiveness.



- EPCG Scheme allows import of capital goods for pre-production, production and post-production at zero customs duty.
- Second-hand capital goods may also be imported without any restriction on age under the EPCG Scheme.
- The EPCG scheme is administered by the Directorate General of Foreign Trade (DGFT) and is governed by the Foreign Trade Policy of India.

## GRAMEEN UDYAMI SCHEME

**In News:** The felicitation ceremony of 200 tribal women under Grameen Udyami Scheme was held recently.



### More on the Topic:

- Grameen Udyami Scheme was launched to augment skill training in tribal communities for their inclusive and sustainable growth.
- Under the programme, the endeavor is to multi-skill India's youth and impart functional skills to them for enabling livelihoods.
- The overall aim is to expand the rural/local economy, enhance employment opportunities, reduce forced migration and also lead to the conservation of natural resources.
- Transportation, boarding & lodging during the learning period is provided to candidates
- The training under the project will be conducted in the Job roles which are relevant to the local economy.
- It is funded by National Skill Development

Corporation (NSDC) that aims to train tribal students in 6 states: Maharashtra, Rajasthan, Chhattisgarh, Madhya Pradesh, Jharkhand, and Gujarat.

## BHARAT PRAVAH

**In News:** The new government initiative 'Bharat Pravah – India along its Shores' was launched recently.



### More on the Topic:

- The program is to highlight the role of rivers-ports-shipping in the everyday life of a common man through literature, dialogue and communication.
- Bharat Pravah will serve as a common platform to bring together stakeholders from different walks for the purpose of creating a larger vision of shipping, rivers, seas & people.
- It will highlight the challenges, policy issues and future goals relating to the maritime sector.

## SPECIAL ASSISTANCE FOR CAPITAL INVESTMENT SCHEME

**In News:** Through Union Budget 2023 Centre will allocate additional 2,000 crore to states under the Special Assistance for Capital Investment scheme.



Ministry of Finance  
Government of India



### More on the Topic:

- In the 2022-23 Budget, the government introduced the 'Special Assistance to States for Capital Investment' scheme with an outlay of 1.05 lakh crore.
- Under the scheme, financial assistance is being provided to state governments in the form of 50-year interest free loan for capital projects.
- To encourage states to scrap condemned government vehicles or those vehicles which are older than 15 years, the Central government has earmarked the above mentioned additional 2,000 crore under the scheme.
- Also, the government is mulling to provide tax concessions to individuals for scrapping old vehicles.

### CONSTITUTION LITERATE DISTRICT

**In News:** The Indian district of Kollam has become the country's first constitution literate district.

#### More on the Topic:

- The district's success is the result of a seven-month campaign launched by the Kollam district panchayat, District Planning Committee, and the Kerala Institute of Local Administration (KILA) to educate citizens about the country's laws and their rights.
- As part of campaign called 'the Citizen' around 16.3 lakh people in district above the age of 10 have been educated on various aspects of the Constitution.
- Kollam, also known as Quilon, is an ancient port city located on the banks of the Ashtamudi Lake in the Indian state of Kerala. Kollam was once a major center of international trade.

### EAT RIGHT SCHOOL MOVEMENT

**In News:** Eat Right School was launched by FSSAI has shown positive impacts.

#### More on the Topic:

- Eat Right School aims at creating awareness about food safety, nutrition and hygiene among school children and through them among the community at large.
- The plan is to assess the quality of food served in canteens and replace them with a

healthy and nutritious diet.

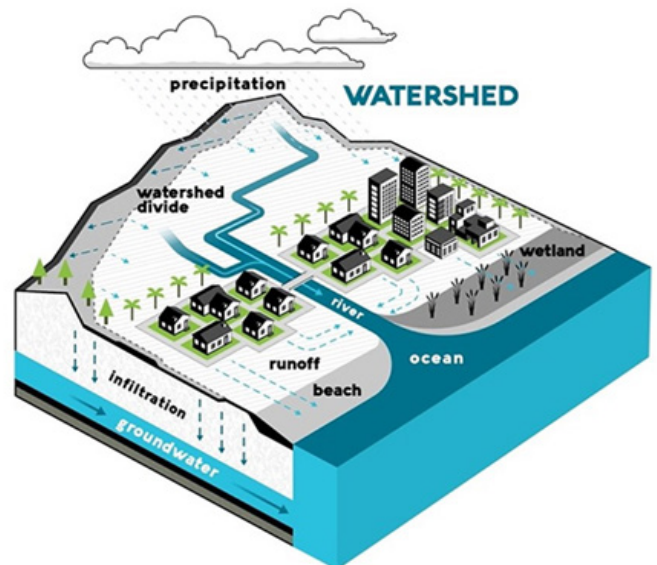
- It is designed to deliver and reinforce the message of safe and nutritious food through both curricular and co-curricular activities.



- An Eat Right Matrix has been developed for the schools to be certified as Eat Right School.

### REWARD PROJECT

**In News:** World Bank will get Sub-Saharan farm officials to Karnataka to learn from its REWARD watershed model.



#### More on the Topic:

- Karnataka's performance in the implementation of the Rejuvenating Watershed for Agricultural Resilience through Innovative Development (REWARD) scheme has

been acknowledged world wide.

- The project aims to help national and state institutions adopt improved watershed management practices to help increase farmers' resilience to climate change, and promote higher productivity and better incomes.
- REWARD is being implemented in three to four Indian States for 6 years for:
- prevention of soil run-off, regeneration of natural vegetation, rainwater harvesting, and recharging of the groundwater table.
- Enabling multi-cropping and the introduction of diverse agro-based activities.

#### **Watershed Management:**

- Watershed is geographical area drained by a watercourse and is considered an useful planning unit for integrated water and land resource management.
- Effective watershed management can help enhance livelihoods in rainfed areas, while building a more resilient food system.

#### **DIGITAL INDIA LAND RECORDS MODERNIZATION PROGRAMME(DILRMP)**

In News: Cadastral maps of 35% of over six lakh villages in country have so far been geo-referenced under DILRMP.



#### **More on the Topic:**

- DILRMP is implemented by Department of Land Resources under Ministry of Rural Development.
- It is a Central Sector scheme that has been extended to 2023-24, to complete its original targets as well as expand its ambit with a slew of new schemes
- This programme is aimed at achieving ease of access to land records through a digital platform which is set to ensure more transparency in the Revenue Department,

a department otherwise marred with corruption for several decades.

- The introduction of DILRMP is **expected to reduce property disputes** and ensure conclusive titles to immovable properties in Jammu & Kashmir.
- The Government claims that the digitilisation process will be followed by a survey, resurvey and updation of all survey and settlement records, integration of property registration with land records and cadastral maps (Cadastral Maps, also referred to as Bhu Naksha, are a digital form of land records that show all the boundaries of different parts of land pieces based on their length, area, and direction) to ensure the authenticity of record.

#### **MAARG PLATFORM**

In News: Commerce and industry minister Piyush Goyal will launch the MAARG platform (Mentorship, Advisory, Assistance, Resilience, and Growth).



#### **More on the Topic:**

- It would facilitate mentorship between startups and entrepreneurs across sectors, stages, and functions.
- Objectives of MAARG portal include,
- Provide guidance, handholding, and support to startups throughout their lifecycle.
- Facilitates intelligent matchmaking and an outcome-oriented mechanism between mentors and their respective mentees.

#### **PRAJJWALA CHALLENGE**

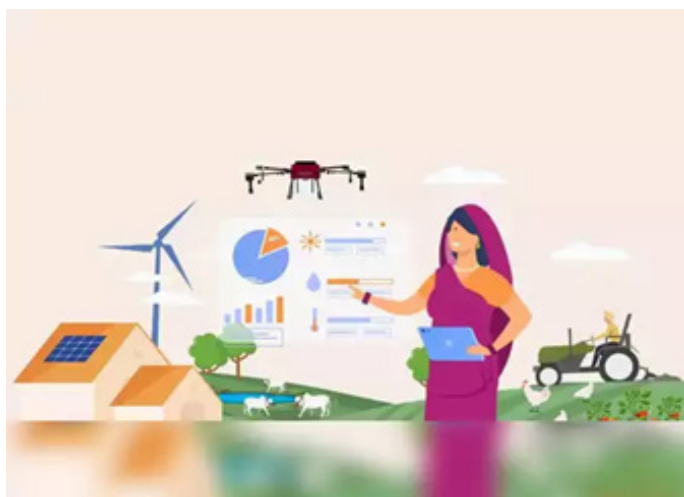
In News: With an aim to invite ideas, solutions and actions that can transform rural economy, the Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) has launched the Prajjwala Challenge.

#### **More on the Topic:**

- It is one of the platforms where ideas are invited from individuals, Social Enterprises,

Start up, Private Sector, Civil Society, Community Based Organization, Academic Institution, Start-ups, Incubation centres, Investors etc having potential to transform the rural economy.

- The Mission is looking for ideas and solutions around Innovative Technology Solution, Inclusive Growth, Value Chain Interventions, Enhanced Women Entrepreneurship, Cost effective Solutions, Sustainability, place-based employment, localised models etc.
- The broad contours fall into following categories:
  - a) Focus on Women and Marginalized section of community
  - b) Localised Models
  - c) Sustainability
  - d) Cost Effective solutions
  - e) Multi sectoral ideas and solutions etc
- The top 5 ideas will be rewarded with Rs. 2 Lakh each.



### **Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM):**

- DAY-NRLM is one of the flagship poverty alleviation programs of the Ministry of Rural Development, which aims at creating efficient and effective institutional platforms of the rural poor, enabling them to increase household income through sustainable livelihoods enhancements and improved access to financial services.
- It is mainly implemented through mobilizing rural poor households into SHGs and provide them long-term support such that they diversify their livelihoods, improve their incomes etc.

## **INTEGRATED OMBUDSMAN SCHEME**

**In News:** Reserve Bank of India's integrated ombudsman scheme will be available soon.



### **More on the Topic:**

- The integrated ombudsman scheme amalgamates three ombudsman scheme of RBI - banking ombudsman scheme of 2006, ombudsman scheme for NBFCs of 2018 and ombudsman scheme of digital transactions of 2019.
- The unified ombudsman scheme will provide redress of customer complaints involving deficiency in services rendered by RBI regulated entities viz. banks, NBFCs and pre-paid instrument players if the grievance is not resolved to the satisfaction of the customers or not replied within a period of 30 days.
- The scheme also includes non-scheduled primary co-operative banks with a deposit size of Rs 50 crore and above.
- The integrated scheme makes it a "One Nation One Ombudsman" approach and jurisdiction neutral.

## **VIBRANT VILLAGES PROGRAMME**

**In News:** Home Minister asked the border-guarding forces to use Vibrant Village Programme (VVP) to populate border villages to enhance border security.





### More on the Topic:

- Vibrant Villages Programme (VVP) has been announced in the Finance Minister's Budget Speech 2022.
- The programme envisages **coverage of border villages on Northern border having sparse population, limited connectivity and infrastructure, which often get left out from the development gains.**
- Convergence of existing schemes is proposed under VVP.
- Infrastructure will be improved in states like Uttarakhand, Himachal Pradesh, and Arunachal Pradesh.
- Under the programme, residential and tourist centres will be constructed.
- It focuses on livelihood generation, road connectivity, housing, rural infrastructure, renewable energy, television and broadband connections.
- This objective will be met by **strengthening infrastructure across villages** located near the Line of Actual Control (LAC).

### Objectives of the Scheme:

- The programme is a counter to China's model villages but the name has been carefully chosen so as to not cause any consternation in the neighbouring country.
- China has established new villages along the LAC in the past few years, particularly across the Arunachal Pradesh border.
- While China has been settling new residents in border areas, villages on the Indian side of the frontier have seen unprecedented out-migration.

## CONTINUATION OF DEVELOPMENT SCHEMES IN NORTH EAST

**In News:** The Union Cabinet has approved continuation of schemes of Ministry of Development of North Eastern Region for the balance period of the 15th Finance Commission (2022-23 to 2025-26).

### More on the Topic:

- The NESIDS, a central sector scheme with **100% central funding**, has been restructured having two components - NESIDS (Roads) and NESIDS (other than road infrastructure).
- The ministry's new scheme titled Prime

**Minister's Development Initiative For the North Eastern Region or PM DevINE** (with an outlay of 6,600 crore), had been approved earlier in October 2022.

- Under PM DevINE, larger and high impact proposals under infrastructure, social development and livelihood sectors are taken up.



### Objectives of PM DevINE:

- The objectives of the schemes of the MDoNER is to supplement the efforts of the different Central Ministries & Departments on one hand and the felt needs of the NE Region States on the other, for uncovered development/welfare activities.
- The MDoNER Schemes help provide **gap-filling support to the eight North Eastern States as per their felt needs**, by taking up projects – e.g., for developing infrastructure to mitigate connectivity and social sector deficits and enhancing livelihood and employment opportunities in the region.

### Recent Developments In The Region:

- Massive efforts have been undertaken for infrastructure development in the region and improving connectivity has been the prime focus.
- **Air connectivity has also improved massively.** In 68 years, the northeast had only nine airports. The number jumped to 17 in a short span of eight years.
- Air traffic movement in the northeast has increased by 113% since 2014.
- Before 2014, there was only **one national waterway in the northeast** but now, the number has gone up to 18.

- Micro, small and medium enterprises (MSMEs) have been promoted under various schemes to boost entrepreneurship development.
- According to the Department for Promotion of Industry and Internal Trade (DPIIT), 3,865 startups are registered from the northeast.
- A total of 19 state cancer institutes and 20 tertiary care cancer centres have been approved under the strengthening of the tertiary care of cancer scheme

## BIND SCHEME

In News: 'Broadcasting Infrastructure and Network Development (BIND)' scheme has been approved by Cabinet committee on economic Affairs.



### More on the Topic:

- BIND is a Central Sector Scheme.
- It intends to bring modernisation to public broadcaster Prasar Bharati i.e. All India Radio (AIR) and Doordarshan (DD).
- It would provide necessary financial support to improve infrastructure to increase public broadcasters reach and develop high-quality content.
- AIR FM (Frequency Modulation) transmitters coverage to reach 80% of geographical area from 66%.

## PM SHRI SCHEME

In News: More than 55,000 schools have applied for the Pradhan Mantri Schools for Rising India (PM SHRI schools) Yojana.

### More on the Topic:

- The PM SHRI scheme aims to upgrade 14,500 schools in line with the National Education Policy (NEP) 2020.

More than 14500 Schools across the country to be upgraded & developed

To act as exemplar schools & also offer mentorship to other schools in their vicinity

To showcase all components of the National Education Policy 2020

Pedagogy adopted in these schools will be more experiential, holistic, integrated & play/toy-based

To benefit lakhs of students across the country



- It is centrally sponsored scheme.
- These schools will be digitally-equipped and pedagogy adopted in these schools will be more experiential, holistic, integrated, learner-centered.
- The government will select a maximum of two schools, including one elementary and one secondary or senior secondary school, in every block. The selection will be based on 60 "point-based" criteria like availability of drinking water, playground, boundary wall and more.
- It'll provide leadership to other schools in their respective regions by providing mentorship.

# GOVERNMENT SCHEMES

## THE NATIONAL ASSET RECONSTRUCTION COMPANY LTD (NARCL)

**In News:** The National Asset Reconstruction Company Ltd (NARCL) has acquired its first stressed asset from lenders.

### More on the Topic:

- NARCL has been incorporated under the Companies Act and has applied to Reserve Bank of India for license as an Asset Reconstruction Company (ARC).
- NARCL has been set up by banks to aggregate and consolidate stressed assets for their subsequent resolution.
- PSBs will maintain 51% ownership in NARCL.
- In simpler terms NARCL is bad bank for taking over stressed assets of lenders. It was announced in the Budget for 2021-22.
- The new entity is being created in collaboration with both public and private sector banks.
- Majority-owned by state-owned banks, the NARCL will be assisted by the India Debt Resolution Company Ltd (IDRCL), in turn majority-owned by private banks, in resolution process in the form of a Principal-Agent basis.

### Significance of NARCL:

- Indian banks are sitting on Gross NPAs of nearly 8%. A substantial chunk of large NPAs on the books of Indian banks are unresolved for several years.
- The government announcement came at a time when banks are likely to witness a surge of NPAs in the wake of COVID-19.
- NARCL will reduce NPAs of banks, improving financial system stability and efficiency.
- It will also improve recoveries and promote competition, as NARCL allows Swiss Challenge to get the best for banks from stressed assets. (SCM is a form of public procurement by way of a bidding process, where in a bidder (original bidder) makes an unsolicited Bid to the auctioneer).

### How is the NARCL different? How can it operate differently?

- The proposed bad bank will have a public sector character since the idea is mooted by

the government and majority ownership is likely to rest with state-owned banks.

- At present, ARCs typically seek a steep discount on loans. With NARCL, the valuation issue is unlikely to come up since this is a government initiative.
- The government-backed ARC will have deep pockets to buy out big accounts and thus free up banks from carrying these accounts on their books.

### About Asset Reconstruction company:

- An asset reconstruction company is a special type of financial institution that buys the debtors of the bank at a mutually agreed value and attempts to recover the debts or associated securities by itself.
- The asset reconstruction companies or ARCs are registered under the RBI and regulated under the Securitisation and Reconstruction of Financial Assets and Enforcement of Securities Interest Act, 2002 (SARFAESI Act, 2002).
- The ARCs take over a portion of the debts of the bank that qualify to be recognised as Non-Performing Assets. Thus ARCs are engaged in the business of asset reconstruction or securitisation or both.
- The ARCs also have to maintain a capital adequacy ratio of 15% of its risk weighted assets.

## INFLATION TARGETING

**In News:** A new paper published by the International Monetary Fund (IMF) has found that there is no definitive evidence to show that inflation targeting policies by central banks actually work in bringing down inflation.

### More on the Topic:

- Inflation targeting is a monetary policy adopted by central banks where they set a target for the inflation rate, make this public, and refine their policies to make sure that inflation remains at the target level.
- The principle of inflation targeting is based on the belief that long-term economic growth is best achieved by maintaining price stability, and price stability is achieved by controlling inflation.



## RBI's Inflation Targeting:

- The RBI adopted a 'flexible inflation targeting' framework in May 2016, when the RBI Act was amended to provide a statutory basis for such a policy.
- The 'flexibility' of the policy is due to the fact that the RBI provided a band of comfort – of 2% above and below the target of 4%. In other words, the RBI is okay with inflation an inflation rate between 2 and 6%.
- Target and bands are revised every five years. In March 2021, the existing targets were carried forward.
- Inflation targeting appeared in 1990 when the Bank of New Zealand first deployed it.

## How Inflation Targeting Works?

- Increasing rate is believed to bring down inflation by curtailing economic activity.
- Decreasing rate increases inflation level by increasing economic activity.

## Pros of Inflation Targeting:

- Inflation targeting allows central banks to respond to shocks to the domestic economy and focus on domestic considerations. Stable inflation reduces investor uncertainty, allows investors to predict changes in interest rates, and anchors inflation expectations.
- If the target is published, inflation targeting also allows for greater transparency in monetary policy.

## Criticism of Inflation Targeting:

- Inflexible
- Can promote speculative bubbles
- Inflation may not be the right target to promote economic stability
- Can constrain economic growth in some economies

## MUNICIPAL BONDS

**In News:** Markets regulator Sebi has launched an information database on municipal bonds.

### More on the Topic:

- The information database contains a wide range of information in the form of statistics and regulations, circulars, guidance note and Frequently Asked Questions issued by SEBI in respect of municipal debt securities.



- The repository contains various checklists for pre-listing requirements and sample letters and certificates from various intermediaries to be obtained by an issuer who plans to tap the municipal bond market.

## About Municipal Bonds:

- The term municipal bond refers to a type of debt security issued by local, county, and state governments.
- They are commonly offered to pay for capital expenditures, including the construction of highways, bridges, or schools.
- **Municipal bonds act like loans, with bondholders becoming creditors.**
- In exchange for borrowed capital, bondholders/ investors are promised interest on their principal balance the latter being repaid by the maturity date.
- Municipal bonds are often exempt from most taxes, which makes them attractive to people in higher income tax brackets.
- Types of municipal bonds include government obligations and revenue bonds.
- In India Whenever the local government body wants to raise funds, they issue these bonds.

## Skill SEBI Guidelines for Municipal Bonds in India:

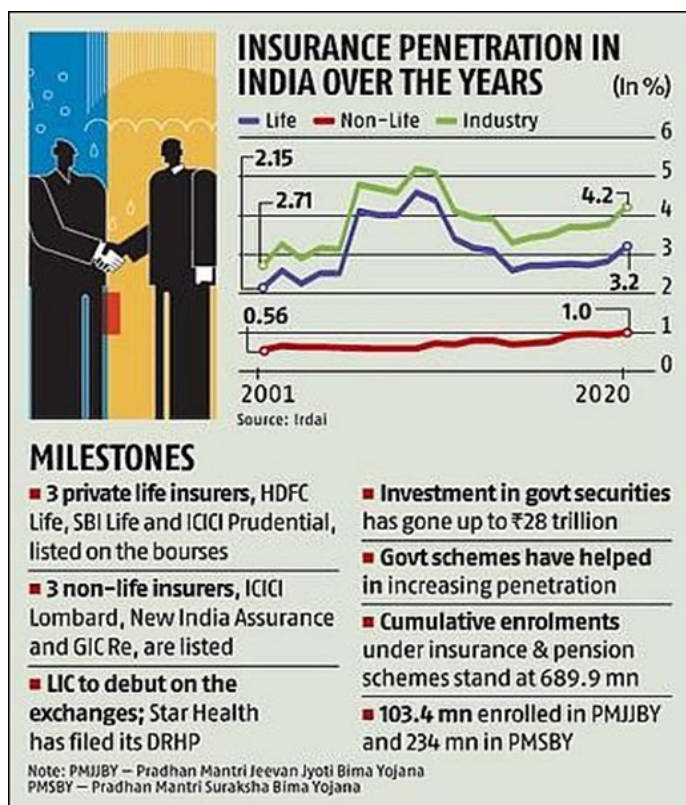
- The municipal body shall not have a negative net worth in all the 3 years preceding the issuance of these bonds.
- The municipality must have no default in repayment of debt securities or loans acquired from banks or financial institutions in the past year.
- The municipality, its group company, promoters or directors shall not be mentioned in the wilful defaulter's list published by the RBI

and should not default any payment regarding debt instruments issued to the public.

- It is mandatory for the credit rating for these bonds. They must have a rating above the investment grade for the public issue.
- After these bonds are issued and subsequently traded in the secondary market, i.e. stock exchange.

## INDIA-INSURANCE PENETRATION

**In News:** Insurance Regulatory and Development Authority of India chairman has commented that the Insurance sector needs to infuse approximately Rs 50,000 crore of capital every year in order to double Insurance penetration in the country.



### More on the Topic:

- If India have to double the insurance penetration then every year there is a need to infuse additional Rs 50,000 crore.
- Some of it will come from existing players itself by way of ploughing back their profits and some of it will have to come as an additional (capital).

### About Insurance Penetration:

- Insurance penetration is used as an indicator of insurance sector development within a country and is calculated as the ratio of

total insurance premiums to gross domestic product in a given year.

- For instance, if a country generates a total insurance premium of say, USD10 billion and that country's GDP for the same period is USD100 billion, insurance penetration translates to 10% (i.e USD10b/USD100b \* 100).

### Challenges faced by Indian Insurance sector:

- **Rurban Divide:** Relatively few buyers and sellers in rural areas lead fixed costs to remain high, further leading to lower penetration.
- **Insurance Gap:** The insurance penetration (ratio of total premium to GDP (gross domestic product)) and density (ratio of total premium to population) stood at 3.69% and US\$ 73, respectively for FY18 (fiscal year 2017-18), which is low in comparison with global levels.
- These low penetration and density rates reveal the uninsured nature of large sections of population in India, and the presence of an insurance gap.
- **Less Private Players:** Public-sector insurers hold a greater share of the insurance market even though they are fewer in number. There are private players who provides a competitive market, which now reduces the state monopoly but this has to grow much more to reach the level of Global best case scenarios.
- **Life Insurance Dominance:** There are only few takers for non life insurance. Non-life insurance sector, motor, health, and crop insurance segments are driving growth. India's non-life insurance penetration is below 1%.
- **Lack of Investment:** The insurers suffer from capital crunch due to lesser investment available for the sector.

### Way Ahead: :





- More and more awareness generation is needed especially in the non life insurance sectors.
- **Rural centric approach** of insurance sector is needed to break the cycle of Rururban divide.
- **Technological interventions** like 'InsurTech', designed to make the claim process simpler and more comprehensible can be utilised to make the process of insurance user friendly and attractive.

## INDIA'S FIRST FOURTH INDUSTRIAL REVOLUTION CENTRE ON HEALTHCARE, LIFE SCIENCES

**In News:** Hyderabad will host a World Economic Forum Centre for the Fourth Industrial Revolution (C4IR), the first thematic centre in India to focus on life sciences and healthcare.

### Navigating the next industrial revolution



Revolution	Year	Information
	1	1784 Steam, water, mechanical production equipment
	2	1870 Division of labour, electricity, mass production
	3	1969 Electronics, IT, automated production
	4	? Cyber-physical systems

### More on the Topic:

- The centre will be an **autonomous, non-profit organisation** focusing on policy and governance for healthcare and life sciences.
- The proposed hub will **advance and accelerate the development and adoption of newer technologies** including genomics, personalised medicine and healthcare manufacturing, with a focus on the interplay between life sciences and technology in the region and globally.

### About Fourth Industrial Revolution:

- The First Industrial Revolution used water and steam power to mechanize production.
- The Second used electric power to create mass production.
- The Third used electronics and information technology to automate production.
- Now a Fourth Industrial Revolution is building on the Third, the **digital revolution** that has been occurring since the middle of the last century.
- It is characterized by a **fusion of technologies** that is blurring the lines between the physical, digital, and biological spheres.
- The fusion of technologies include artificial intelligence (AI), robotics, the Internet of Things (IoT), 3D printing, genetic engineering, quantum computing, and other technologies.

### How can Industrial Revolution 4.0 help India?

- It can aid in India's efforts to alleviating poverty.
- Better and low-cost health care can be

achieved through the implementation of AI- driven diagnostics, personalized treatment, early identification of potential pandemics, and imaging diagnostics, among others.

- **Farmer's income could be enhanced** by providing them with the latest technologies, improvement in crop yield through real-time advisory, advanced detection of pest attacks, and prediction of crop prices to inform sowing practices.
- Last mile connectivity of various technologies could be achieved.
- Artificial intelligence can be used to **empower and enable specially-abled people**.
- It will improve **ease of living and ease of doing business** using smart technologies.

## MICRO FINANCE INSTITUTION

**In News:** The joint study conducted by consultancy major Price water house Coopers(PwC) and the Association of Micro finance Institutions of India has commented that MFIs will play a leading role in the growth process of India.



### More on the Topic:

- The future course of the industry will be determined by the **ability of MFIs to forge partnerships, develop new products and investment channels and leverage technology**.
- The challenges that the MFI sector will face are the **diverse nature of customer segments** such as small farmers, vendors and labourers.
- The **dependence on physical modes of interaction** poses a challenge for MFIs to



reach last-mile borrowers, which has been evident during the pandemic when group gatherings could not be held.

- **Only technological integration** will be able to assist MFIs in providing services as well as repayment collection processes.

#### **About Indian Micro Finance Institutions:**

- Micro finance institutions in India provide small loans and other financial services to low-income individuals and groups who are not served by traditional banks.
- These institutions include non-governmental organisations (NGOs), micro finance companies, and self-help groups (SHGs). Some of the largest micro finance institutions in India include Bandhan Bank, Grameen Financial Services, and SKS Micro finance.
- The Reserve Bank of India (RBI) and the National Bank for Agriculture and Rural Development (NABARD) are the main regulatory bodies for micro finance institutions in India.

#### **Indian Models of Micro Financing:**

- **Grameen Bank Model:** Developed by Muhammad Yunus, this model is based on the principle of **group-based lending**, where a group of individuals are responsible for repaying loans. This model has been successful in providing credit to women and has been replicated in many countries.
- **Self-Help Group (SHG) model:** Under this model, groups of individuals come together to save money and then borrow from their own savings. This model is popular in rural areas and is promoted by the government.
- **Joint Liability Group (JLG) model:** This model is similar to the SHG model, but involves larger groups and a higher loan amount. JLG members are jointly liable for the loan, and the group is responsible for repaying the loan.
- **Individual lending model:** This is the traditional model of micro finance, where loans are given to individuals rather than groups. It is based on the creditworthiness of the borrower and their ability to repay the loan.
- **Micro finance institutions (MFIs) model:** MFIs are organisation's that provide small loans and other financial services to low-income individuals and groups who are not served by traditional banks. They can be non-governmental organisations (NGOs), micro finance companies, or self-help groups (SHGs).

#### **Significance of MFIs:**

- MFIs help to **promote economic development and reduce poverty** by allowing individuals and small businesses to invest in education, health care, and other areas that can improve their lives.
- Additionally, MFIs can help to **promote financial inclusion**.
- It help in **women empowerment** especially through SHGs.

#### **FINANCIAL SERVICES INSTITUTIONS BUREAU (FSIB)**

**In News:** The Financial Services Institutions Bureau (FSIB) has recommended names for the posts of managing directors of Bank of Baroda and Bank of India.

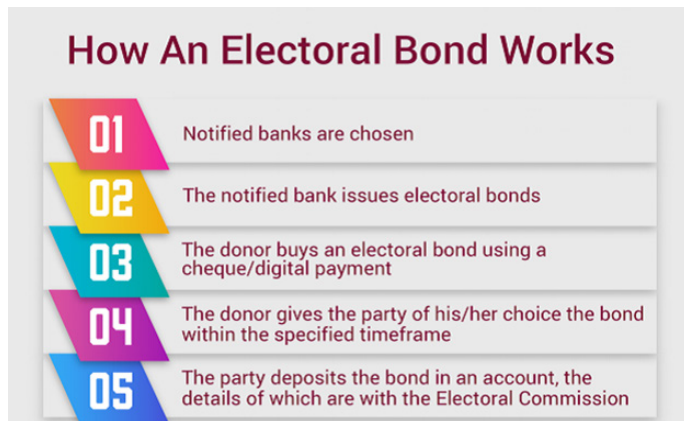


#### **More on the Topic:**

- Banks Board Bureau is an autonomous body of the Government of India tasked to Search and Select appropriate personnel for Board of Public Sector Banks, Public Sector Financial Institutions and Public Sector Insurance Companies and recommend measures to improve Corporate Governance in these Institutions.
- FSIB has replaced Banks Board Bureau.
- With FSIB, the intent is to **go beyond the man-manager role and assist the government in formulating a code of conduct and ethics** for whole-time directors in these entities.
- It would also monitor and assess the performance of public sector banks, government-owned financial institutions and insurance companies.

## ELECTORAL BONDS

**In News:** The Union Finance Ministry had announced the sale of electoral bonds from January 19 to January 28 at 29 authorised State Bank of India branches.



### More on the Topic:

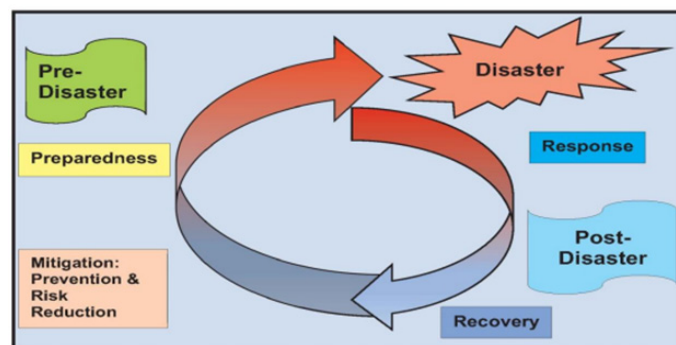
- The Government has notified the scheme of Electoral Bonds to cleanse the system of political funding in the country.
- Electoral Bond would be a bearer instrument in the nature of a Promissory Note and an interest free banking instrument.
- A citizen of India or a body incorporated in India will be eligible to purchase the bond.
- Electoral bond would be issued/purchased for any value, in multiples of `1,000, `10,000, `1,00,000, `10,00,000 and `1,00,00,000 from the specified branches of the State Bank of India (SBI).
- The purchaser would be allowed to buy electoral bond(s) only on due fulfilment of all the extant KYC norms and by making payment from a bank account.
- It will not carry the name of payee. Electoral Bonds would have a life of only 15 days during which it can be used for making donation only to the political parties registered under section 29A of the Representation of the Peoples Act, 1951 (43 of 1951) and which secured not less than 1% of the votes polled in the last general election to the House of the People or a Legislative Assembly.
- The bonds under the Scheme shall be available for purchase for a period of 10 days each in the months of January, April, July and October, as may be specified by the Central Government.
- An additional period of 30 days shall be specified by the Central Government in the

year of the General election to the House of People.

- The bond shall be encashed by an eligible political party only through a designated bank account with the authorised bank.

## DISASTER MANAGEMENT PLAN FOR POWER SECTOR

**In News:** The Central Electricity Authority (CEA) has released the disaster management plan (DMP) for the power sector.



### More on the Topic:

- It is hinted to evolve a proactive and integrated approach to strengthen disaster mitigation, preparedness, emergency response, and recovery efforts.
- The DMP provides a framework and direction to the utilities in the power sector for all phases of the disaster management cycle (Mitigation, Preparedness, Response, and Recovery).
- It aims to guide all agencies within the sector with a general concept of potential emergencies and roles and assignments before, during, and following emergency situations,

### Significance of DMP.

- Accurately assessing climate risks is difficult because of the uncertainty in predicting the level and timing of climate threats.
- While uncertainty caused by climate change is unavoidable, electric utilities can manage risks by considering different climate scenarios and potential impacts on their assets, the investment options available, and the robustness of the proposed options.
- Risk assessment of electric power generation stations, transmission, distribution, and grid operations infrastructure is an important step in ensuring reliable power supply and

quick restoration even in times of extreme weather events and natural disasters.

### Importance of Social Media in DMP:

- The plan suggests the use of social media for emergencies and disasters on an organisational level to be conceived of in two broad categories.
- First, social media can be used passively to disseminate information and receive user feedback via incoming messages, wall posts, and polls.
- Second involves the use of social media as an emergency management tool for conducting emergency communications and issuing warnings;
- monitoring user activities and posts to establish situational awareness and, using uploaded images to create damage estimates, among others.

### CREDIT DEFAULT SWAPS

In News: Securities and exchange board of India (SEBI) allowed alternative investment funds (AIFs) to participate in Credit Default Swap transactions.



#### More on the Topic:

- A credit default swap (CDS) is a financial derivative that allows an investor to swap or offset their credit risk with that of another investor.
- To swap the risk of default, the lender buys a CDS from another investor who agrees to reimburse them if the borrower defaults.

#### Alternative Investment Funds:

- Investment schemes that allocate their funds to financial instruments other than traditional investment options are called alternative investment funds.

- They include angel funds, commodities, real estate, venture capital, private equity, etc.

### RUPAY DEBIT CARD, BHIM-UPI

In News: The Cabinet has approved a 2,600 crore scheme for promoting RuPay debit cards and low-value BHIM-UPI transactions.



#### More on the Topic:

- Under the scheme, banks will be provided financial incentives for promoting Point of Sale (PoS) and e-commerce transactions using RuPay and UPI in the current financial year.
- The scheme would help in building a robust digital payment ecosystem. It would also promote UPI Lite and UPI123PAY as economical and user-friendly digital payments.
- UPI Lite is an 'on-device wallet' feature by National Payments Corporation of India (NPCI) to allow users to make small-value payments (upto 200) offline.
- UPI 123PAY is an instant payment system for feature phone (non-smartphone) users.
- The move is as a result of the need sought by National Payments Corporation of India (NPCI) to incentivise BHIM-UPI and RuPay Debit Card transactions to create a cost-effective value proposition for ecosystem stakeholders.
- It also intends to increase merchant acceptance footprints and faster migration from cash payments to digital payments.

#### About UPI:

- Unified Payments Interface is an instant real-time payment system developed by National Payments Corporation of India.



- The interface facilitates inter-bank peer-to-peer and person-to-merchant transactions.
- It is used on mobile devices to instantly transfer funds between two bank accounts

#### About Rupay:

- RuPay is an Indian multinational financial services and payment service system, conceived and launched by the National Payments Corporation of India on 26 March 2012.
- It was created to fulfil the Reserve Bank of India's vision of establishing a domestic, open and multilateral system of payments.

### NATIONAL LEVEL COOPERATIVE SOCIETY FOR ORGANIC PRODUCTS

**In News:** The Union Cabinet has approved a historic decision of setting up and promoting a national level cooperative society for organic products under the Multi State Cooperative Societies (MSCS) Act, 2002.

**Multi-State Cooperative Export Society**

*Cabinet approves setting up of national level Multi-state cooperative export society*

- To be registered under Multi State Cooperative Societies (MSCS) Act, 2002
- Will act as an umbrella organization for export of surplus goods/services.
- Primary to national level cooperatives societies including primary societies, district, state and national level federations and multi state cooperative societies can become its Member.
- All these cooperatives will have their elected representatives in the Board of society as per its bye-laws.

**CABINET DECISION**  
11 JANUARY 2023

1/2

#### More on the Topic:

- The initiative is intended to streamlining Primary Agricultural Credit Societies (PACS) across all States and to allow them to perform multifarious activities to improve their financial health.
- **Membership:** Primary to national level cooperatives societies including primary societies, district, state and national level

federations, multi state cooperative societies and Farmers Producer Organisations (FPOs) can become its Member.

- All these cooperatives will have their elected representatives in the Board of the society as per its bye-laws.

#### Significance:

- The cooperative society will manage various activities related to organic sector by providing **certified and authentic organic products**.
- It will help in unlocking demand and consumption potential of organic products in domestic as well as in global markets.
- This society will also help cooperatives and ultimately their farmer members in getting benefits of high price of organic products through aggregation, branding and marketing on large scale by facilitating testing and certification at affordable cost.

#### Ambit of Work:

- The cooperative society will also provide **institutional support for aggregation, certification, testing, procurement, storage, processing, branding, labelling, packaging, logistic facilities**.
- It will also help in marketing of organic products and arranging financial assistance to the organic farmers through its members cooperatives including Primary Agricultural Credit Societies/Farmers Producer Organisations (FPOs) and will take up all promotion and development related activities of organic products with the help of various schemes and agencies of the Government.
- It will **empanel accredited organic testing labs and certification bodies** who meet the criteria specified by the society to bring down the cost of testing and certification.

### DRAFT NATIONAL RETAIL TRADE POLICY

**In News:** The Department for Promotion of Industry and Internal Trade (DPIIT) has sought views of 16 departments and ministries on its draft national retail trade policy.

#### More on the Topic:

- It is aimed at overall development of all formats of the sector.
- The policy would focus on formulating strategies to provide a globally competitive and sustainable environment for overall

development of retail trade through targeted efforts.

### Objectives of the Policy:

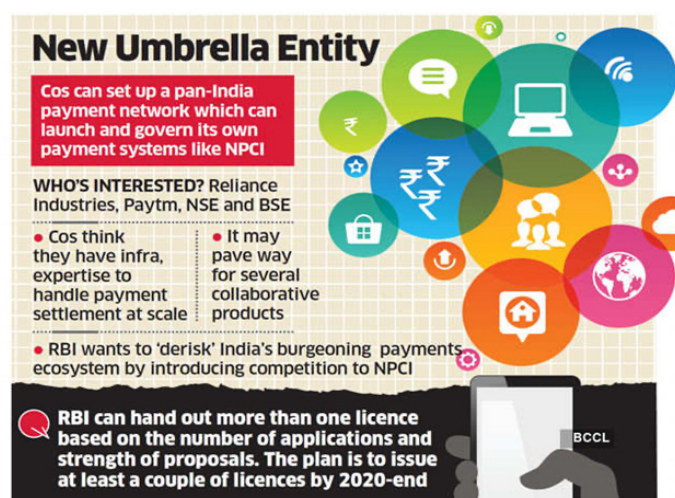
- The objectives of the policy include ensuring easy and quick access to affordable credit, facilitating modernisation and digitization of retail trade by promoting modern technology and superior infrastructural support;
- Development of physical infrastructure across the distribution chain; promotion of skill development
- To improve labour productivity, and providing an effective consultative and grievance redressal mechanism for the sector.

### About India's Retail Industry:

- India is the world's fifth-largest global destination in the retail space.
- According to a report of CII-Kearney on retail, a cohesive national retail policy can help generate 30 lakh more jobs by 2024.
- The retail industry is likely to see 10% annual growth to reach about USD 2 trillion by 2032.

## NEW UMBRELLA ENTITY

**In News:** The Reserve Bank of India (RBI) has reportedly put the issuance of licences for the new umbrella entity (NUE) network, a retail payment system that was to compete with the National Payments Corporation of India (NPCI), on hold.



### More on the Topic:

- Six conglomerates, including Facebook, Google, Amazon, and Flipkart, who had applied for the NUE licence have fallen short of the RBI's expectations and hence, will not be granted permission to commence business.

- Reducing the dominance of the National Payments Corporation of India (NPCI) is the RBI's objective by licensing NUE.
- It also will address the "risk concentration" of only one platform and offer consumers more options.

### New Umbrella Entity:

- NUE was supposed to be a non-profit entity that will set-up, manage and operate new payment systems, especially in the retail space such as ATMs, white-label PoS; Aadhaar-based payments and remittance services.
- Further, it was supposed to manage clearing and settlement systems for participating banks and non-banks.
- It was supposed to monitor developments in the retail payment system and related issues, both in India and abroad, in order to avoid shocks.
- The NUE was supposed to be set up as a separate entity that could reduce risks of overload on the UPI infrastructure and work as an alternative to the NPCI, promoted by banks.

### RBI framework for NUE:

- The RBI had released the framework for the authorisation of the NUE in August 2020. Post that, several major players in the Indian banking and payments landscape came together to apply for the licence.
- As per the central bank's framework for the NUE, the entities were required to have a minimum paid-up capital of INR 500 Cr to support/ address the need of capital for managing risks, invest in technological infrastructure, and for business operations, among others.
- Besides, no single promoter/ promoter group could have more than 40% investment in the capital of the NUE. The promoter/ promoter group shareholding was also mandated to be diluted to a minimum of 25% after 5 years of the commencement of business of the NUE.

### About NPCI:

- The National Payments Corporation of India (NPCI) is an initiative taken by the Reserve Bank of India (RBI) and Indian Bank's Association (IBA) to operate the retail payments and settlement systems in India.
- This organisation was founded in the year 2008 under the Payment and Settlement Systems Act, 2007.

- NPCI has been incorporated as a 'not for profit' company under section 8 of Companies Act 2013.

## FIRST ADVANCE ESTIMATES OF NATIONAL INCOME, 2022-23

**In News:** The National Statistical Office (NSO), Ministry of Statistics and Programme Implementation has released the First Advance Estimates (FAE) of National Income at both Constant (2011-12) and Current Prices, for the financial year 2022-23.



### More on the Topic:

- India's GDP (gross domestic product) may grow 7% for the financial year 2022-23.
- First Advance Estimates are also known as the "advance" estimates because they are published long before the financial year (April to March) is over.
- They are the "first" official estimates of how GDP is expected to grow in that financial year.
- The significance of FAE lies in the fact that they are the GDP estimates that the Union Finance Ministry uses to decide the next financial year's budget allocations.

## DOMESTIC SYSTEMICALLY IMPORTANT BANKS (D-SIBS)

**In News:** The Reserve Bank of India (RBI) issued its list of Domestic Systemically Important Banks (D-SIBs) for 2021.

### More on the Topic:

- In line with the 2020 list of D-SIBs, SBI, ICICI Bank, and HDFC Bank are still categorized as Domestic Systemically Important Banks (D-SIBs).

## TOO BIG TO FAIL

Domestic Systemically Important Banks (D-SIBs) classified into five grades (buckets)	Bucket	Banks	Additional common equity tier I need as % of RWAs*
	5	—	1
	4	—	0.8
	3	SBI	0.6
	2	—	0.4
	1	ICICI	0.2

• RBI to announce list every August starting this year

• Banks will have to fulfil extra capital requirement norms (common equity tier I capital)

• Banks must meet the extra norms in three years by April 1, 2019

• Common equity tier I capital usually comprises a bank's equity capital, retained earnings and share premium

\*RWAs: Risk weighted assets

- In simple terms, D-SIBs are those interconnected entities, whose failure can impact the whole of the financial system and create instability.
- Systemically important banks attract closer supervision and regulation from the country's central bank as these entities are considered to be too big-to-fail banking companies.
- Central banks world-over began to look at 'too-big-to-fail' banking institutions closely after the 2008 global financial crisis.

### Stricter rules:

- In addition to the usual capital conservation buffer, D-SIBs will need to maintain additional Common Equity Tier 1 (CET1).
- The RBI first issued the framework for dealing with D-SIBs on July 22, 2014.
- The D-SIB framework requires the central bank to disclose the names of banks designated as D-SIBs starting from 2015 and place these banks in appropriate buckets depending upon their systemic importance.
- Based on the bucket in which a D-SIB is placed, an additional common equity requirement has to be applied to it.
- Similarly, in case a foreign bank having branch presence in India is a Global Systemically Important Bank (G-SIB), it has to maintain additional CET1 capital surcharge in India as applicable by the rules concerning G-SIBs.

### Advantages of Becoming D-SIBs:

- Receive government support in times of financial distress and attract closer supervision and regulation from country's central bank.



## GOODS SERVICE TAX

**In News:** The GST collection record shows increase Year-on-Year. The revenues for the month of December 2022 are 15% higher than the GST revenues in the same month last year.



### More on the Topic:

- The goods and services tax (GST) is a value-added tax (VAT) levied on most goods and services sold for domestic consumption. The GST is paid by consumers, but it is remitted to the government by the businesses selling the goods and services.
- For this reason it is considered as destination based tax.
- Introduction of the GST required **amendments in the Constitution** so as to simultaneously empower the Centre and the States to levy and collect this tax.
- The Constitution of India has been amended by the Constitution (one hundred and first amendment) Act, 2016 for this purpose.
- Article 246A of the Constitution empowers the Centre and the States to levy and collect the GST.

### About The centre State Devision:

- It would be a dual GST with the Centre and States simultaneously levying it on a common tax base.
- The GST to be levied by the Centre on intra-State supply of goods and / or services would be called the Central GST (CGST) and that to be levied by the States would be called the State GST (SGST).
- Similarly Integrated GST (IGST) will be levied and administered by Centre on every inter-state supply of goods and services.

### Why is Dual GST required?

- India is a federal country where both the Centre and the States have been assigned the powers to levy and collect taxes through

appropriate legislation.

- Both the levels of Government have distinct responsibilities to perform according to the division of powers prescribed in the Constitution for which they need to raise resources.
- A dual GST will, therefore, be in keeping with the Constitutional requirement of fiscal federalism.

### What are the benefits which the Country will accrue from GST?

- Introduction of GST was a very significant step in the field of indirect tax reforms in India.
- It amalgamated a large number of Central and State taxes into a single tax and allowing set-off of prior-stage taxes, it has mitigated the ill effects of cascading and pave the way for a common national market.
- For the consumers, the biggest gain would be in terms of a **reduction in the overall tax burden on goods**, which was estimated at 25%-30%.
- Introduction of GST also made **Indian products competitive** in the domestic and international markets.
- There is also be revenue gain for the Centre and the States due to widening of the tax base, increase in trade volumes and improved tax compliance.
- The tax because of its transparent character, would be easier to administer.

## PURCHASING MANAGERS INDEX

**In News:** Purchasing managers' index (PMI) has been releases recently.

### 5 Key Indicators Under Purchasing Managers' Index (PMI)

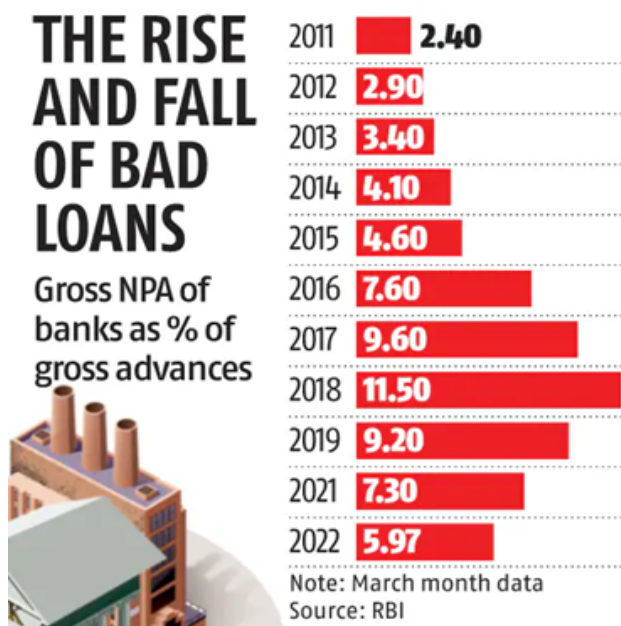


### More on the Topic:

- Purchasing managers' indexes (PMI) are economic indicators derived from monthly surveys of private sector companies.
- PMI or a Purchasing Managers' Index (PMI) is an indicator of **business activity** – both in the manufacturing and services sectors.
- It is a survey-based measures that asks the respondents about changes in their perception of some **key business variables** from the month before.
- It is calculated **separately for the manufacturing and services sectors** and then a composite index is constructed.
- The index is compiled by **S&P Global** from responses to questionnaires sent to purchasing managers in a panel of around 400 manufacturers.
- The PMI is derived from a series of **qualitative questions**. Executives from a reasonably big sample, running into hundreds of firms, are asked whether key indicators such as output, new orders, business expectations and employment were stronger than the month before and are asked to rate them
- A figure **above 50 denotes expansion** in business activity. Anything below 50 denotes contraction.

### IMPROVEMENT IN NPA RECOVERY

**In News:** According to RBI, Non-performing assets (NPAs) recovered by scheduled commercial banks (SCBs) improved to 18.4% of the amount involved in FY22 against 14% in FY21.



### More on the Topic:

- The improvement in recovery happened through multiple channels including Lok Adalats, Debt Recovery Tribunals, Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, and Insolvency and Bankruptcy Code (IBC) – in FY22.
- Although the number of cases referred under Lok Adalats and SARFAESI Act increased by 336% and 335%, respectively, the IBC mechanism was the leader in terms of the amount involved
- As fresh insolvency cases could be admitted after the one-year suspension during Covid-19, admissions under the IBC increased by 65% during FY22 to 885 cases against 536 cases in FY21.

### Insolvency and Bankruptcy Code (IBC):

- The Insolvency and Bankruptcy Code (IBC) code was introduced to **overhaul the corporate distress resolution regime in India** and consolidate previously available laws to create a time-bound mechanism with a creditor-in-control model as opposed to the debtor-in-possession system.
- When insolvency is triggered under the IBC, there can be two outcomes: **resolution or liquidation**; all attempts are made to resolve the insolvency by either coming up with a restructuring or new ownership plan and if resolution attempts fail, the company's assets are liquidated.

### About Non Performing Assets:

- A nonperforming asset (NPA) refers to a classification for **loans or advances that are in default or in arrears**.
- A loan is in arrears when principal or interest payments are late or missed.
- A loan is in default when the lender considers the loan agreement to be broken and the debtor is unable to meet his obligations.

### RIGHT TO REPAIR PORTAL

**In News:** Right to repair portal has been launched recently.

### More on the Topic:

- On the 'right to repair' portal, manufacturers will share the manual of product details with customers so that they can either repair by self, by third parties, rather than depend on original manufacturers.

- Initially, mobile phones, electronic, consumer durables, automobile and farming equipment will be covered.

**IF YOU CAN'T FIX IT, YOU DON'T OWN IT.**

**REPAIR IS BETTER THAN RECYCLING**  
Making our things last longer is both more efficient and more cost-effective than mining them for raw materials.

**REPAIR SAVES YOU MONEY**  
Fixing things is often free, and usually cheaper than replacing them. Doing the repair yourself saves you money.

**REPAIR TEACHES ENGINEERING**  
The best way to find out how something works is to take it apart.

**REPAIR SAVES THE PLANET**  
Earth has limited resources. Eventually we will run out. The best way to be efficient is to reuse what we already have.



### Significance:

- It was proposed that allowing right to repair would allow the growth of repair shops.
- Monopoly on repair parts and processes violates the customer's "right to choose". It also hampers the local shops' growth.
- It would also ensure sustainability of the products and promote employment generation.
- It would also prevent customers from discarding gadgets that were deemed difficult or expensive to repair with the original manufacturers.
- The launch of right to repair portal will now reduce the dependency of consumers on manufacturers in case their product fails to operate.
- After its launch, India joined the clutch of countries like the United States (US) and the United Kingdom (UK).

### About Right to Repair:

- The right to repair refers to proposed government legislation that would allow consumers the ability to repair and modify their own consumer products (e.g. electronic, automotive devices or farm vehicles such as tractors).
- Otherwise the manufacturer of such products requires the consumer to use only their offered services by restricting access to tools and components, or software barriers put in place to hinder independent repair or modification.
- These obstacles often lead to higher consumer costs or drive consumers to replace devices instead of repairing them.
- While the global community is concerned over the growing volume of the waste stream (especially electronic components)

## ENVIRONMENT AND ECOLOGY

### RAT HOLE MINING

**In News:** The Meghalaya High court appointed committee has refuted the Meghalaya Government's estimate of coal extracted before the National Green Tribunal (NGT) banned the hazardous rat-hole mining in April 2014.



### More on the Topic:

- High Court of Meghalaya had appointed Justice B.P. Katakey committee a year ago to ascertain whether the State government cracked down on illegal coal mining as directed by the Supreme Court and the NGT.
- Accidents in coal mines have killed at least 30 people since December 2018 in Meghalaya.
- Rat hole mining involves digging of very small tunnels, usually only 3-4 feet high, which workers (often children) enter and extract coal.
- The National Green Tribunal (NGT) banned it in 2014, on grounds of it being unscientific and unsafe for workers.

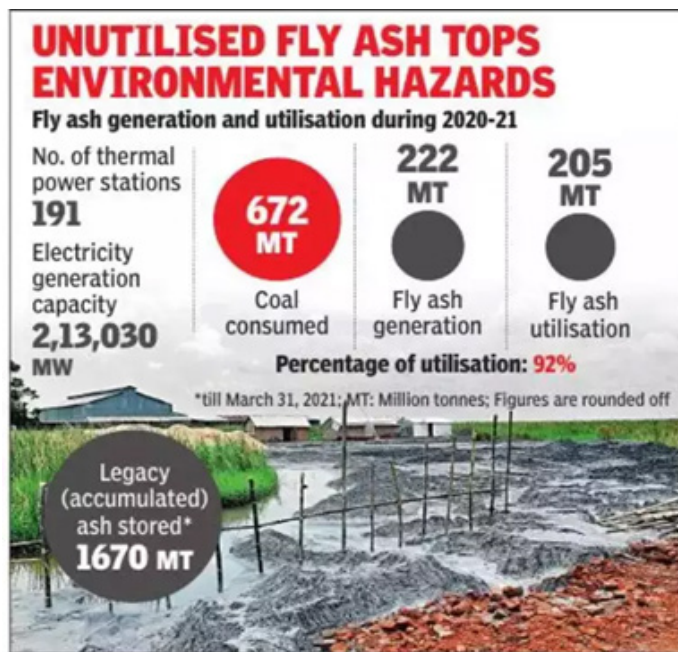
### UTILISATION OF FLY ASH FOR THERMAL POWER PLANTS (TPP)

**In News:** The Union Ministry of Environment, Forests and Climate Change (MoEF&CC) clarified the compliance dates for the complete utilisation of fly ash for thermal power plants (TPP) in a new notification.

### More on the Topic:

- The ministry has been releasing notifications for fly ash for the last two decades.
- Though there is substantial utilisation of fly ash, it is very poor in many TPPs.





supplementary cementitious material.

### Issues Associated with Fly Ash:

- Fly ash is considered as an environmental hazard worldwide, since it generally contains organic pollutants, probable toxic metals like Selenium, Arsenic, Mercury and radionuclides like Uranium, Thorium.
- When combined with water they cause leaching of heavy metals in ground water.
- It also pollutes the soil, and affects the root development system of trees.
- Fly Ash is associated with the destruction of mangroves, drastic reduction in crop yields.
- The pollution of groundwater in the Rann of Kutch from the ash sludge of adjoining Coal power plants has been well documented.

### Following are the highlights of new guideline:

- Areas where fly ash is stored can also be reclaimed by setting up solar and wind power plants, along with plantations.
- The new notification has done away with the price cap on fly ash bricks.
- Fly ash bricks utilise waste from TPPs and reduce greenhouse emissions by reducing dependency on red bricks that use topsoil and pollute the environment.
- The utilisation of legacy ash was not required in areas where reclamation has taken place with greenbelts or plantations.

### About Fly Ash:

- Fly ash is a fine gray powder consisting mostly of spherical, glassy particles that are produced as a byproduct in coal-fired power stations.
- Depending upon the source and composition of the coal being burned, the components of fly ash vary considerably, but all fly ash includes substantial amounts of silicon dioxide (SiO<sub>2</sub>), aluminium oxide (Al<sub>2</sub>O<sub>3</sub>) and calcium oxide (CaO), the main mineral compounds in coal-bearing rock strata.
- **Minor constituents include:** arsenic, beryllium, boron, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium, along with very small concentrations of dioxins and PAH compounds. It also has unburnt carbon.
- Fly ash has pozzolanic properties, meaning that it reacts with lime to form cementitious compounds. It is commonly known as a

### HAIDERPUR WETLAND

**In News:** The Uttar Pradesh irrigation department drained out Haiderpur wetland.

#### More on the Topic:

- This was done under pressure from farmers who complained of water logging in their fields due to high ground water level.
- Haiderpur wetland is one of the largest human-made wetland that was formed in 1984 after the construction of Madhya Ganga Barrage.
- The region is fed by the Ganges and its tributary Solani river.
- The wetland lies in the strategic Central Asian Flyway which is an important stop over site for the winter migratory birds.
- It supports species like the critically endangered gharial and hog deer (EN), black-bellied tern (EN), Indian skimmer (EN) and golden mahseer (EN).
- It is located within the boundaries of Hastinapur Wildlife Sanctuary.

### BHOPAL RAMSAR WETLAND

**In News:** The National Green Tribunal has directed the Central Pollution Control Board (CPCB) and Madhya Pradesh Pollution Control Board (MPPCB) to periodically monitor the activities of a cruise vessel polluting the Bhoj wetland.

### More on the Topic:

- According to the petition which led to the NGT direction, **Small cruise vessels with passengers act as floating colonies that pollute water bodies with sewage, wastewater and other contaminants.**
- A mid-sized cruise vessel can consume 150 tonnes of fuel each day and dump toxic waste in water.
- The state government has permitted the operation of the cruise with a capacity of 50 passengers, but even broad estimates suggest that **human sewage of 19,000 litres will be generated in a week alone.**

### The Important Laws and Rules Governing Wetlands:

- Environment Protection Act, 1986, which states prevention of water pollution
- Biological Diversity Act of 1974 and 2002
- Wetland Conservation and Management Rules 2017

### About Bhojtal Wetland:

- The wetland is a Ramsar site with international importance and has two lakes, Upper lake, also called Bhojtal and Lower Lake or Chhota Talaab.
- It is located at Bhopal, MP.
- It provides drinking water to 1.2 million people.
- Upper lake hosts 15 varieties of fish and turtles.
- About 2,500 migratory birds across the world visit the wetland that serves as a breeding and nesting habitat for them.

## GROUND WATER URANIUM CONTAMINATION

**In News:** Recent report on the state of groundwater released by the Central Groundwater Board, revealed that Twelve Indian states have uranium levels beyond permissible limits in their groundwater.

### More on the Topic:

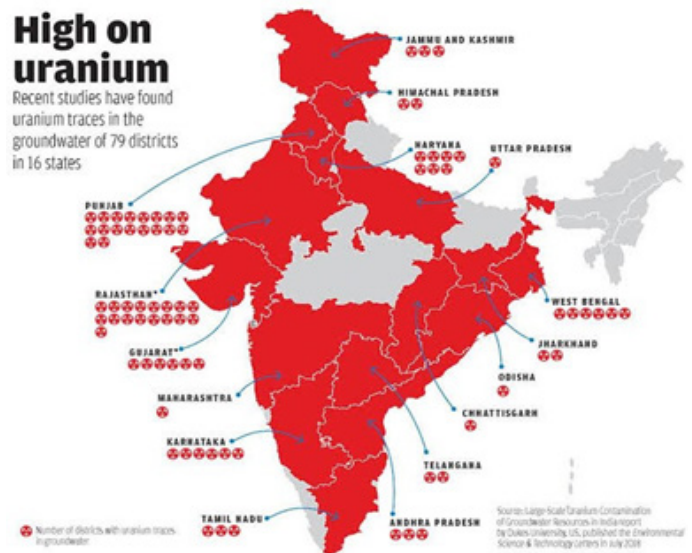
- **Uranium concentrations in the country's shallow groundwater range from 0-532 parts per billion (ppb),** according to the document titled Groundwater yearbook 2021-2022.
- Uranium concentration is found to be within safe limits in 13 states and none of the samples collected from Kerala had its presence.
- **Punjab is the worst-affected state in terms**

of the percentage of wells found to have uranium concentration of more than 30 ppb – the safe levels prescribed by the Bureau of Indian Standards (BIS) and the World Health Organization (WHO).

- Haryana is the second state in terms of uranium prevalence in groundwater.
- The state also recorded the second-highest concentration of uranium in the country.

### High on uranium

Recent studies have found uranium traces in the groundwater of 79 districts in 16 states



### Adverse Effects of Uranium:

- Uranium is a **nephrotoxic element** and can have an adverse impact at very high concentrations.
- This means that people dependent on groundwater containing the element are at a **higher risk of impaired renal function and kidney disease.**
- Exposure to uranium may also lead to other adverse health impacts, including **bone toxicity.**

### Causes of contamination:

- **Geogenic processes** are responsible for uranium contamination.
- High levels of uranium are largely due to natural uranium content in aquifer rocks, oxidation state and groundwater chemistry.
- **Extreme bicarbonate levels** were also found at the sites with high uranium levels. Bicarbonates help to bring the uranium out of the source rocks and is a reason for the high occurrence of the element.
- **Human-made causes too could be behind this.** Groundwater-table decline, nitrate pollution and over-exploitation of groundwater from irrigation further exacerbate uranium mobilisation.



## INDIA PLASTIC RECYCLING SCENARIO

**In News:** According to a new report by Centre for Science and Environment (CSE) the country is not properly collecting and recycling the trash, thus leading to lethal plastic pollution.



### More on the Topic:

- The document highlighted that unless the entire life cycle of plastic from source to disposal is not together considered as the root cause of the pollution it causes, the problem is not going away.
- Currently though, the focus is entirely on downstream issues related to collection, management, diversion and disposal of plastic waste.

### Issues of Indian Plastic Recycling:

- Management of plastic waste involves two distinct steps: collection and recycling or end-of-life disposal. Both are not executed properly in India.
- The collection of plastic waste is the responsibility of local government bodies, producers, importers and brand owners.
- As high as 42-86% of the plastic waste in India flows through the informal sector to material recovery facilities operated by multinational corporations in partnership with local governments or otherwise.
- Also, brand owners outsource the work of waste collection and recycling to third parties and exempt themselves of taking responsibility for their actions.
- The Indian government claims that the country is recycling 60% of its plastic waste. However, this is limited to specific types of polymers (plastics) like PET bottles.
- Maharashtra, Gujarat and Tamil Nadu together contribute 38% to total plastic waste generated in India.

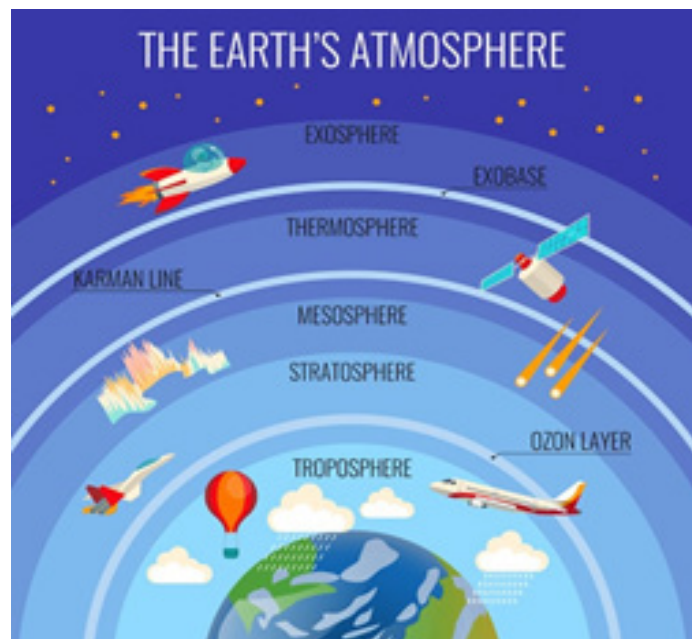
- 94% of recycled plastic waste is shredded in India using mechanical recycling method.

### Recommendations:

- Landfill and incineration taxes must be levied in India to encourage recycling
- Brands should be mandated to have a proactive disclosure policy to continually report the amount of plastics put out by them in the market each year.
- The amount of plastic they collect back and send for recycling and burning should also be made available in the public domain.
- Authorise 'pay-as-you-throw' system, which requires citizens to pay a variable rate per kilogram for a bag of mixed garbage.
- Regulate entire life cycle of plastic bags from manufacturing, imports to disposal.
- The government should include the informal sector in the formal value chain of plastic waste management and protect it from the rapid privatisation of plastic waste management services.

## OZONE LAYER

**In News:** In a report published every four years on the progress of the Montreal Protocol, the panel confirmed the phase-out of nearly 99% of banned ozone depleting substances.



### More on the Topic:

- The Montreal Protocol was signed in September 1987 and is a landmark multilateral environmental agreement that regulates the consumption and production of nearly 100



man-made chemicals, or 'ozone-depleting substances' (ODS).

- The overall phase-down has led to the notable recovery of the protective ozone layer in the upper stratosphere and decreased human exposure to harmful ultraviolet (UV) rays from the sun.

#### **Ozone recovery:**

- The discovery of a hole in the Ozone Layer was first announced by three scientists from the British Antarctic Survey, in May 1985.
- According to the Panel's report, if current policies remain in place, the layer is expected to recover to 1980 values by 2040.
- Over the Antarctic, this recovery is expected by around 2066, and by 2045 over the Arctic.
- Variations in the size of the Antarctic ozone hole, particularly between 2019 and 2021, were driven largely by meteorological conditions.
- Nevertheless, the Antarctic ozone breach has been slowly improving in area and depth, since the year 2000.

#### **Impacts on climate change:**

- The Montreal Protocol has already benefitted efforts to mitigate climate change, helping avoid global warming by an estimated 0.5°C.
- In 2016 an additional agreement to the Montreal Protocol, known as the Kigali Amendment required a phase-down of the production and consumption of some hydrofluorocarbons (HFCs).
- HFCs do not directly deplete ozone but are powerful gases which contribute to global warming and accelerated climate change.
- It's estimated the amendment will avoid another 0.3–0.5°C of warming by 2100.

#### **New technology warning:**

- The panel cautioned against the use of a potential method to reduce climate warming by increasing sunlight reflection.
- For the first time, they examined the potential effects on the ozone arising from the intentional addition of aerosols into the stratosphere, known as a stratospheric aerosol injection (SAI).
- But they warned that an "unintended consequence" of SAI was that it "could also affect stratospheric temperatures, circulation and ozone production and destruction rates and transport."

#### **About Ozone Layer:**

- The ozone layer is the common term for the high concentration of ozone that is found in the stratosphere between 15 and 30km above the earth's surface.
- The ozone layer absorbs 97 to 99% of the Sun's medium-frequency ultraviolet light (from about 200 nm to 315 nm wavelength), which otherwise would potentially damage exposed life forms near the surface
- But this "good" ozone is gradually being destroyed by man-made chemicals referred to as ozone-depleting substances (ODS), including chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride, and methyl chloroform.

#### **NATIONAL CLEAN AIR PROGRAM**

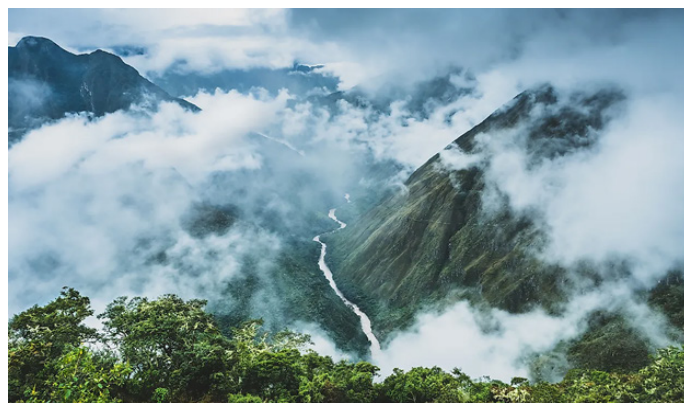
**In News:** India's Clean Air Program has completed 4 Years.



#### **More on the Topic:**

- Since its launch over Rs 6897.06, crores have been released to 131 cities for air pollution management measures.
- Data shows that some of the top polluted cities in 2019 have marginally improved their pollution levels but continue to breach the Central Pollution Control Board's safe limits, whereas most of the least polluted cities have seen increased levels of pollution.
- In 2019, the NCAP set a target of reducing ultra-fine particulate matter levels in non-attainment cities by 20-30% by 2022. This target was moved forward by the Union government in September 2022, to a 40% reduction of pollution levels by 2026.
- However, even in 2022, pollution levels in non-attainment cities remained much higher than the Central Pollution Control Board's (CPCB) annual average safe limits.
- Most cities ranked in the top ten most polluted list in 2022 are found in the Indo-Gangetic plain according to the NCAP tracker.

- The cleanest cities with the lowest concentration of PM<sub>2.5</sub> and PM<sub>10</sub> are Srinagar and Kohima respectively.
- Despite being on the list of cleanest cities amongst those under non-attainment, 9 out of 10 cities on the list still breached the CPCB's annual permissible limit for PM<sub>10</sub>, showing that the air quality in the least polluted cities is still not safe to breath.
- While many of the rankings on the most polluted cities list have remained relatively constant, the least polluted cities from 2019 have seen a deterioration in air quality in the last four years.



### Goods About Clean Air Program:

- National Clean Air Program (NCAP) is a long-term, time-bound, national-level strategy to tackle the air pollution problem across the country in a comprehensive manner, Launched by the central government in 2019.
- The target of the program is to achieve a 20% to 30% reduction in Particulate Matter (PM) concentrations by 2024 keeping 2017 as the base year for the comparison of concentration.
- Since the establishment of the NCAP, 131 cities have been added to the list of non-attainment cities, due to their failure to meet the NAAQS under the the National Air Quality Monitoring Program (NAMP).
- The city-specific action plans have been prepared which include measures for strengthening the monitoring network, reducing vehicular or industrial emissions, increasing public awareness, etc.
- Implementation of the city-specific action plans is regularly monitored by Committees at the Central and State level namely Steering Committee, Monitoring Committee, and Implementation Committee.
- Progress is monitored by PRANA portal (Portal for Regulation of Air-pollution in Non-Attainment cities).

### CLOUD FORESTS

**In News:** A new report has advocated that a Cloud Forest Bond will incentivise governments to protect their cloud forests.

### More on the Topic:

- Cloud forests are the forest that on top tropical mountains, largely shrouded in mist.
- They are generally tropical or subtropical, evergreen, montane, moist forest characterised by a persistent, frequent or seasonal low-level cloud cover, usually at the canopy level.
- Cloud forests often exhibit an abundance of mosses covering the ground and vegetation, in which case they are also referred to as mossy forests.
- Mossy forests usually develop on the saddles of mountains, where moisture introduced by settling clouds is more effectively retained.
- Cloud forests are among the most biodiversity rich ecosystems in the world with a large amount of species directly or indirectly depending on them.

### MANUFACTURED SAND

**In News:** Coal India's subsidiary NCL will soon start production of M-Sand, a material used for construction works.



### More on the Topic:

- M-Sand is artificial sand produced from crushing hard stones into small sand-sized angular shaped particles, washed and finely graded to be used as construction aggregate. It is an alternative to river sand for construction works.

- Eyeing business diversification while focusing on the ecological balance, the company has set up a sand manufacturing plant using its over burden as a raw material.
- This pro-environment move of the company will help in conserving river bed erosion and preserve aquatic ecosystems.
- Disadvantages of M sand includes Rough and angular texture can increase water and cement requirements.
- Higher concentration of Micro fine particles can affect strength and workability.

## INDIAN DAMS TO LOSE 26% STORAGE CAPACITY

**In News:** A new study by the UN University's Institute for Water, Environment and Health revealed that about 3,700 large dams across India could lose up to 26% of their original storage capacity due to sedimentation build-ups by 2050.



### More on the Topic:

- Globally the storage capacity of dams across the world could be lost by 25%.
- The UN study looked at data from more than 47,000 dams in 150 countries and said 16% of the original capacity had already been lost.
- The decrease in available storage by 2050 in all countries and regions will challenge many aspects of national economies, including irrigation, power generation, and water supply.
- The new dams under construction or planned will not offset storage losses to sedimentation.
- India's Central Water Commission had in 2015 reported that among 141 large reservoirs over 50 years old, one-quarter had already lost at least 30% of their initial storage capacity.

## Concerns Regarding Reduced Capacity of Dams:

- Sediment can enter and obstruct intakes and greatly accelerate abrasion of hydraulic machinery, thereby decreasing its efficiency and increasing maintenance costs.
- It will affect reservoir's life expectancy.
- Affects safety of dams and reduces discharge capacity and flood attenuation capabilities
- Increases loads on dam and gates, damages mechanical equipment and creates a wide range of environmental impacts.

## LIQUIFIED NATURAL GAS

**In News:** The EU is weaning itself off piped Russian gas by rapidly expanding imports of liquified natural gas, much of it fracked in the US.



### More on the Topic:

- LNG is natural gas reduced to a liquid state (liquefaction) through intense cooling to around -161 degrees Celsius (-259 Fahrenheit).
- This liquid gas is 600 times smaller than the original volume and is half the weight of water.
- The compressed fossil fuel, which is constituted almost wholly of methane— a potent greenhouse gas —, can be transported around the world by ship.
- After arriving at its destination, the cargo is regasified in a floating terminal and redistributed through pipelines.
- But despite LNG's export potential, the high cost of liquefaction and producing LNG has limited its market.
- In Germany, the estimated cost of building floating LNG terminals for imports to substitute Russian gas has doubled, due in part to higher



operating and infrastructure costs.

- The cooling, liquefying and transport processes, as well as the post-transport regasification procedures, also require a lot of energy.
- Between 10-25% of the energy of the gas is being lost during the liquefaction process.

#### What's the climate impact?

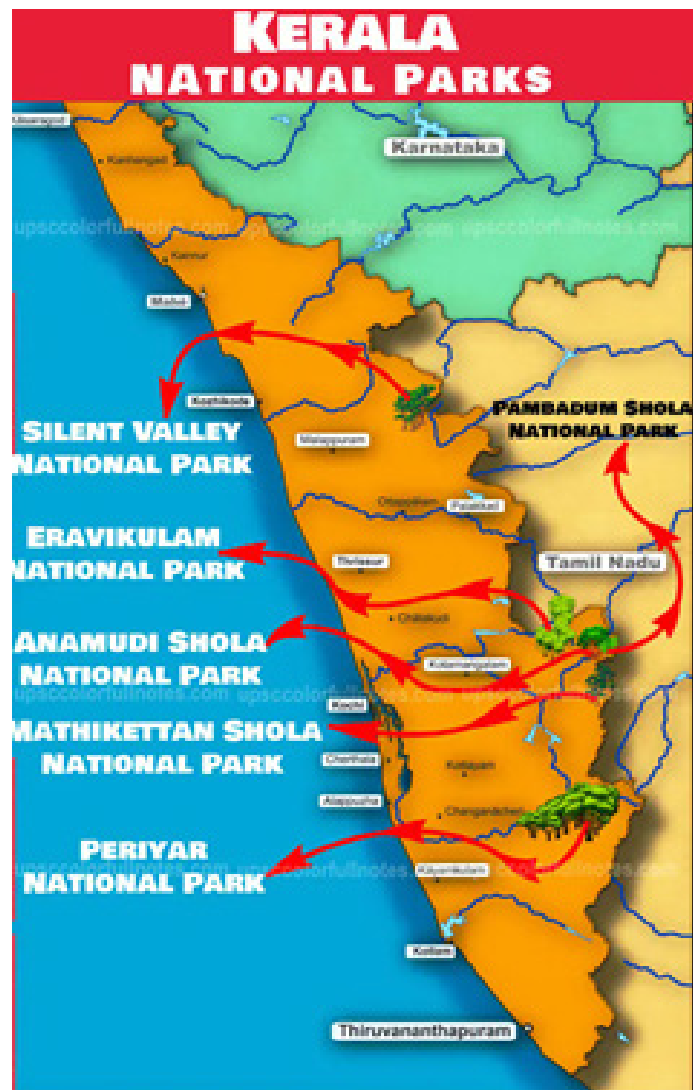
- A lot of energy is required to extract natural gas from a reservoir, to transport from the gas field to the LNG facility for processing, to chill gas to such low temperatures, and to hold it at that temperature before it is warmed and regasified following a long sea or train journey.
- Methane loss across the supply chain risks also contributes to LNG's high emissions.
- Because of LNG's much more complex production and transport process, the risks of methane leakages along the production, transport and regasification chain are simply much higher and therefore much more emissions-intensive.

#### India and LNG:

- The share of natural gas in the primary energy mix is envisaged to increase to 15% by 2030 by boosting domestic production and procuring LNG.
- LNG imports are under Open General Licensing (OGL) category and the establishment of LNG infrastructure, including LNG terminals, is also under 100% FDI (automatic route).
- Market of natural gas is being created by the expansion of gas infrastructure including City Gas Distribution, Gas Grid Network and the establishment of LNG retail outlets.
- Ministry of Road Transport and Highways has notified LNG as a transport fuel. LNG Terminals/Pipelines/City Gas Distribution Networks are being established to expand gas market.
- India first began importing LNG in 2004, and by 2015 India had become the world's fifth largest importer of LNG behind Japan, South Korea, China, and Taiwan.

### SILENT VALLEY NATIONAL PARK

In News: Bird survey conducted at the Silent Valley National Park.



#### More on the Topic:

- The survey has identified 17 new bird species. So far, 175 species of birds have been spotted in Silent Valley.
- SV is located in the border of Mannarkkad Taluk of Palakkad district, Nilambur Taluk of Malappuram district, Kerala, and Nilgiris district of Tamil Nadu.
- It is located in the rich biodiversity of Nilgiri Biosphere Reserve.
- A perennial river named Kunthipuzha is passing through the western side of the park, from north to south direction finally merging into Bharathapuzha.
- Birds such as Crimson-backed sunbird, Yellow-browed bulbul, Black bulbul, Indian white-eye and Indian swiftlet were found in abundance in Silent Valley.
- The indigenous tribal groups that live within park boundaries include Irulas, Kurumbas, Mudugas and Kattunaikkars.

## DEEPOR BEEL

**In News:** Deepor Beel, the only Ramsar site of Assam, recorded over 26,000 birds of 97 different species during a recent bird count.



### More on the Topic:

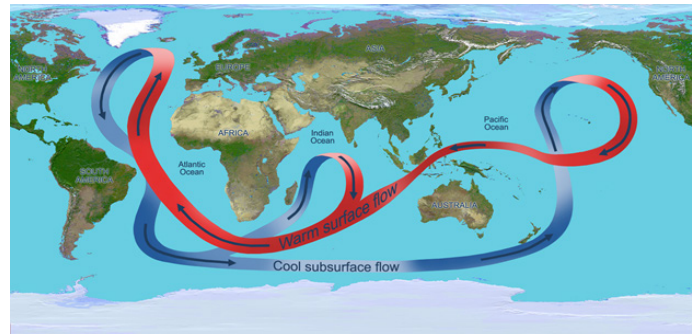
- It is located to the south-west of Guwahati city, in Kamrup Metropolitan district of Assam, India
- It is a permanent freshwater lake, in a former channel of the Brahmaputra River, to the south of the main river.
- It is also called a wetland under the Ramsar Convention which has listed the lake in November 2002, as a Ramsar Site for undertaking conservation measures on the basis of its biological and environmental importance.

### An experts' team identified the following major threats to the Deepor Beel ecosystem:

- Fragmentation of the hydrological regime, siltation, pollution, encroachment and land reclamation, species invasion, including alien species, unregulated recreation and tourism, over-harvesting of resources and climate change.

## GLOBAL OVERTURNING CIRCULATION

**In News:** Studies have indicated that tectonically driven changes in the ocean gateways such as the closure of the Central American Seaway, a body of water that once separated North America from South America, since the late Miocene period, had a dramatic impact on the Global Overturning circulation.



### More on the Topic:

- Global overturning circulation is the equator-ward transport of cold, deep waters and the poleward transport of warm, near-surface waters which controls ocean heat distribution and atmospheric carbon dioxide levels, thus playing a critical role in global climate.
- It is thought that tectonic changes might have led to the formation of two separate water bodies — northern component water in the North Atlantic and Antarctic Bottom Water (AABW) in the Southern Ocean.
- Consequently, it is also hypothesised that there would have been large-scale changes in the Deep Water Circulation (DWC) in the oceans across the world, thus impacting global climate through ocean-atmosphere carbon dioxide and heat exchanges.
- Now, National Centre for Polar and Ocean Research reconstructed Deep Water Circulation record of Indian Ocean and provided evidence in support of theory that closure of CAS led to evolution of modern form of GOC.

### Indian Oceans Role in Global overturning circulation:

- The Indian Ocean does not have any major deep-water formations of its own.
- It acts only as a host for NCW and AABW.
- Further, the northern parts of the Indian Ocean are located at one of the terminal ends of the GOC, far away from the deep-water formation regions and oceanic seaways.
- These specific features could make the northern Indian Ocean an ideal basin to do this.

## WATER VISION 2047

**In News:** 1st All India Annual States' Ministers Conference on "Water Vision@2047" has begun recently.



### More on the Topic:

- The objective of the conference is to deliberate on Water Vision for India for the next 25 years i.e., till 2047 as part of the larger plan of India@2047.
- The forum aims to bring together key policymakers for debating and deliberating on ways to optimally utilise water resources for holistic economic and human development in a sustainable manner.
- The conference has highlighted the need to focus on the 4 Es of Water Governance i.e., Ecology, Equity, Efficiency and Economics.
- The conference intends to bring in synergies between different government programmes / schemes in terms of planning, process and implementation.

### The Initiatives launched under the mission include,

- The National Framework on Reuse of Treated Waste Water
- National Framework for Sedimentation Management: Optimal use of reservoirs capacity by structural and functional measures.
- Best practices under Jal Shakti Abhiyan: Catch the Rain - to people active participation in rain water harvesting
- A sub-portal of 'Jal Itihas' under the WRIS portal: Jal Itihas showcases selected water heritage structures more than 100 years old.
- India- Water Resources Information System (WRIS) provides a single window solution for all water resources data and standardised information.

### India's water situation:

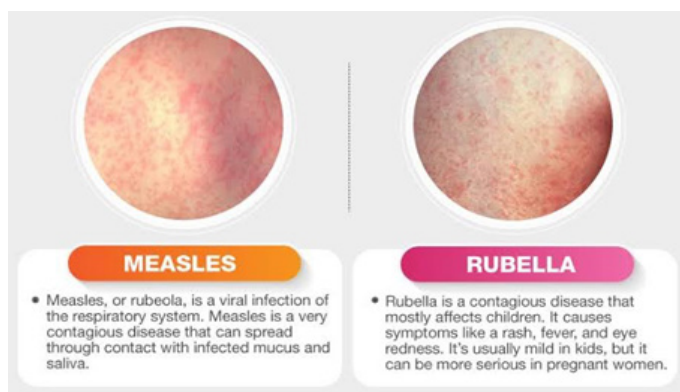
- India's water availability of 4,000 BCM through rain, glaciers or international basins, out of which, total harvestable component which is usable is half of this.
- Climate change has changed rainfall patterns with scanty and erratic rainfall which has

and continues to negatively impacted this harvestable component.

- Along with climate change, rapid urbanisation, increased demand of water and water pollution together have reduced the per capita availability of water from 5000 CM to 1500 CM and by 2047 it might further reduce to 1200 CM.
- By 2047, our requirement is likely to surpass the availability of water.

## MEASLES AND RUBELLA

**In News:** India had set a target to eliminate measles and rubella (MR) by 2023, having missed the earlier deadline of 2020, due to a variety of reasons, exacerbated by disruptions due to the pandemic.



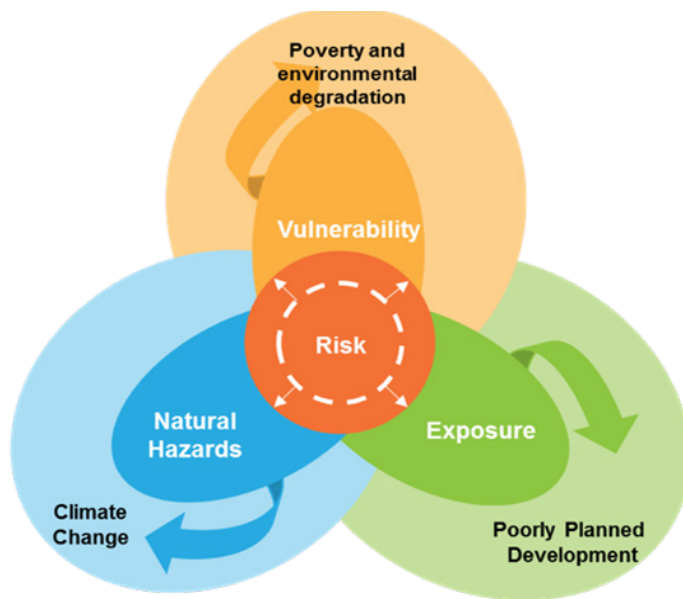
### More on the Topic:

- An earlier target that was set for 2015 was also missed. It was in 2019 that India adopted the goal of measles and rubella elimination by 2023, anticipating that the 2020 goal could not be reached.
- The measles virus is one of the world's most contagious human viruses that kills more than 1,00,000 children every year globally, and rubella is a leading vaccine-preventable cause of birth defects, according to the World Health Organization (WHO).
- Both measles and rubella can be prevented by just two doses of a safe and effective vaccine.
- Over the past two decades, the measles vaccine is estimated to have averted more than 30 million deaths globally, as per the WHO's statistics.
- In both diseases, the symptoms are a rash and fever.
- While measles has a high fatality rate, rubella infection in a pregnant woman will have an impact on the foetus, resulting in birth defects.



## NATURE RISK PROFILE

In News: The UN Environment Programme (UNEP) and S&P Global announced the launch of the Nature Risk Profile.



### More on the Topic:

- It is a new methodology for analyzing companies' impacts and dependencies on nature.
- The Nature Risk Profile is aimed at enabling the financial sector to measure and address nature-related risk by providing scientifically robust and actionable analytics on nature impacts and dependencies.
- The new methodology outlines metrics and data that enable companies and investors to identify and quantify nature-related exposure.
- The methodology covers several key areas, including risks arising from companies' impacts on biodiversity, risks arising from companies' dependencies on biodiversity and potential risks via proximity to biodiverse areas.

### The Kunming-Montreal Global Biodiversity Framework:

- The launch of the Nature Risk Profile methodology follows on the heels of the adoption of the Kunming-Montreal Global Biodiversity Framework, in December 2022.
- The Global Biodiversity Framework includes a target for governments to take legal, administrative or policy measures to encourage and enable businesses to regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity.
- Governments furthermore agreed that these

requirements apply to all large as well as transnational companies and financial institutions along with their operations, supply and value chains, and portfolios.

## ALIEN SPECIE OF PLANTS IN TIGER RESERVES

In News: A new study by Wildlife Institute of India has found that Several alien invasive plants growing together can have a detrimental effect to the biodiversities in tiger habitats.



### More on the Topic:

- The study was conducted at Kanha Tiger Reserve.
- India's biodiverse ecosystems are threatened by a variety of alien plants like *Lantana camara*, *Parthenium hysterophorous*, *Prosopis juliflora*, etc, introduced during British colonisation.
- Lantana alone has pervasively invaded 44% of India's forests.

### The Harmful Effects of Alien Plant Specie:

- The plants can put pressure on native forage plants and drive away wild herbivores which are the food source for the big cats.
- Multiple alien species together affected soil nutrients, which may have depleted the richness of diverse plants.
- The abundance of rich grasses and herbs, the signature component of these ecosystems, was the most affected.
- There was hardly any regeneration of important plants like amla or even the most common tree the sal.
- Native wild herbivores like chital and sambhar did not prefer the commonly found plants in invaded areas. They preferred rare forage plants, which were already depleted in infested areas.
- Reduced forage availability for herbivores

like sambar and chital, which are major prey for tiger, leopard, and dhole in this landscape, threaten the sustenance of these carnivores in invaded regions.

#### Way Ahead:

- It is highly recommended to prioritise restoration investments in the least invaded regions to retain native biodiversity and slowly upscale such restored habitats.
- There is a need of investments in scientific restoration in India to mitigate the impacts of biological invasions.

#### About Kanha Tiger Reserve:

- It stretches over an area of 940 square km in the two districts - Mandla and Balaghat - of Madhya Pradesh.
- It has a significant population of Bengal tiger, Indian leopard, dhole, sloth bear, Bengal fox and Indian jackal. The barasingha is adapted to swampy areas. The gaur inhabits meadows and waterholes in the park. Blackbuck has become very rare.
- It is the first tiger reserve in India to officially introduce a mascot, Bhoorsingh the Barasingha.
- It is home to Gond and Big tribes as well.

#### RARE WHITE TUFTED ROYAL BUTTERFLY

**In News:** A team of butterfly observers and researchers have found White Tufted Royal Butterfly, a rare butterfly species at Kerala.



#### More on the Topic:

- It was earlier spotted in Agasthyakoodam and Shendurney Wildlife Sanctuary. It is protected under Schedule 2 of the Wildlife Protection Act, 1972.

- Butterflies, along with the moths and the skippers, make up the insect order Lepidoptera.
- Shendurney Wildlife Sanctuary is a protected area in the Western Ghats, India, located in Kollam district of Kerala and comes under the control of Agasthyamalai Biosphere Reserve.

#### INDIAN SKIMMER

**In News:** Godavari estuary in Andhra Pradesh has become prime habitat for Indian Skimmer.



#### More on the Topic:

- Around 250 Indian Skimmers, which has been included in the IUCN Red list of endangered species, were sighted in Coringa Wildlife Sanctuary in a day during the Asian Waterbird Census-2023.
- Indian skimmer (*Rynchops albicollis*) can 'skim' over water to snap up fish, is characterised by a bright orange bill.
- They are found in the coastal estuaries of western and eastern India.
- It occurs primarily on larger, sandy, lowland rivers, around lakes and adjacent marshes and, in the non-breeding season, in estuaries and coasts.
- It is presently confined only to India, Pakistan, Bangladesh, Nepal and Myanmar.
- It is considered as extinct in Lao PDR, Cambodia and Viet Nam.
- In India about 20% of the total population of fewer than 2,500 birds nest along river Chambal.
- Habitat degradation, excessive and widespread increases in disturbance of rivers and predations.

## LIVING ROOT BRIDGES OF MEGHALAYA

**In News:** Meghalaya is known for its living root bridges, locally known as jingkieng jri.



### More on the Topic:

- They are on the tentative list of UNESCO's World Heritage sites. Many bridges across the State are over a century old.
- Although the exact history of the living root bridges remains undocumented, it is **believed that they were built to overcome natural calamities**, especially since Meghalaya is highly prone to floods due to the excessive rainfall during the monsoon.
- These bridges are taking forward the culture of the tribes. They feed into the idea and practice of sustainability, keeping in mind the good of future generations.
- **These bridges are built by the Khasi and Jaintia tribes** that live in the state and can be found mostly along the southern edges of Meghalaya including the villages of Nohwet (Riwai, Mawlynnong), Nongriat, Nongthymmai, Mawkyrnnot, Nongblai, Khonglah, Padu, Kudeng Rim, Shnongpdeng and others.
- The main crop in the area is areca nut along with orange, lemon, lychee and some medicinal plants. **Rubber fig trees were originally planted by the elders in the village to make bridges.**
- At present, there are about 100 known living root bridges spread across 72 villages in the state.

### How the Bridge is Constructed:

- The bridges are constructed by **planting ficus trees on both sides of the waterways.**
- Hollowed out a betel nut (Areca catechu) trunk are used to propagate the aerial roots from one side of the river to the other.
- When they reach the other side, **they're allowed to take root in the soil.**
- The roots are woven and nurtured until they

mature and are able to bear the weight of people walking on them.

- This entire process can take **15 to 25 years to complete and the bridges formed can last for hundreds of years.**
- Some bridges are as long as 100 feet and can take loads of more than 50 people.

## KWEDA OIL FROM ODISHA'S GANJAM REGION

**In News:** There is rising demand for Ganjam regions Kweda oil.



### More on the Topic:

- Ganjam kewda (*Pandanus fascicularis*) oil is **steam-distilled from the flower of the aromatic screwpine plant** and used as an aromatic in the food industry and other sectors.
- It is registered under the **Geographical Indications of Goods (Registration and Protection) Act, 1999** by the Government of India.
- The flower is harvested from around 5,000 hectares in the district.
- Its oil is produced in Ganjam, Chatrapur, Chikiti and Rangeilunda blocks of the district.
- For around 200,000 people living in 220 villages of the district, it is the main source of income.
- The farmers and collectors receive an advance from Ganjam's oil makers who buy the flowers from them during June to September – the harvesting season.
- Farming of kewda flowers has been a source of livelihood for the communities of the region since the time of their ancestors.



## NEELAKURINJI

**In News:** The Ministry of Environment, Forest and Climate Change (MoEF) has listed Neelakurinji ( *Strobilanthes kunthiana*) under Schedule III of the Wildlife (Protection) Act, 1972.



### More on the Topic:

- Neelakurinji is a shrub that is found in the shola forests of the Western Ghats in Kerala, Karnataka and Tamil Nadu.
- The purplish blue flower blossoms only once in 12 years, and gave the Nilgiri Mountains range its name, from the Tamil language Kurinji (flower).
- The Paliyan tribal people living in Tamil Nadu used it as a reference to calculate their age. This plant flowers during September–October.
- Plant is named after the famous Kunthi River which flows through Kerala's Silent Valley National Park, where plant occurs abundantly.
- Eravikulam National Park, near Munnar, is known for widespread blooming of kurinji.

## INDIAN STAR TORTOISE

**In News:** The According to new researches Indian Star Tortoise has lost its genetic diversity.



### More on the Topic:

- It is due to massive trade and unscientific translocation, the genetic diversity of the animal might have wiped out its different population level across its range distribution.
- The Star Tortoise- a medium-sized reptile species distributed in Peninsular India up to deserts in the west and elsewhere in Pakistan and Sri Lanka is facing considerable threats from habitat destruction, forest fire and illegal pet trade.
- Although local communities in most parts of India have emotional attachment with the star tortoises, international demand for the species in pet trade has become a serious matter of concern.
- It is included in Appendix I of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora).
- IUCN Status: **Vulnerable**

## IMPACT OF NOISE POLLUTION OVER DOLPHINS

**In News:** Dolphins in noisy environments struggle to communicate and cooperate on tasks, researchers from the University of Bristol, UK, have found.



### More on the Topic:

- Dolphins have to 'shout' to hear each other over ocean noise pollution.
- The dolphins produced louder and longer whistles to compensate for the increasing noise levels but were still less successful as the noise got louder.
- Sound travels far further underwater than light, and up to three times faster in water than in air, making it an essential form of communication for dolphins and other marine mammals.
- They rely on vocalisation to find prey and

mates, to navigate, and to work together.

- In recent decades, **human-made underwater noise pollution has dramatically increased.**
- Shipping, drilling for projects like offshore wind farms, fishing vessels, military sonar and tourism are all culprits.
- The European Commission found that **underwater background noise levels have doubled every decade in the last 60 years, mainly because of shipping.**

### What are the Implications?

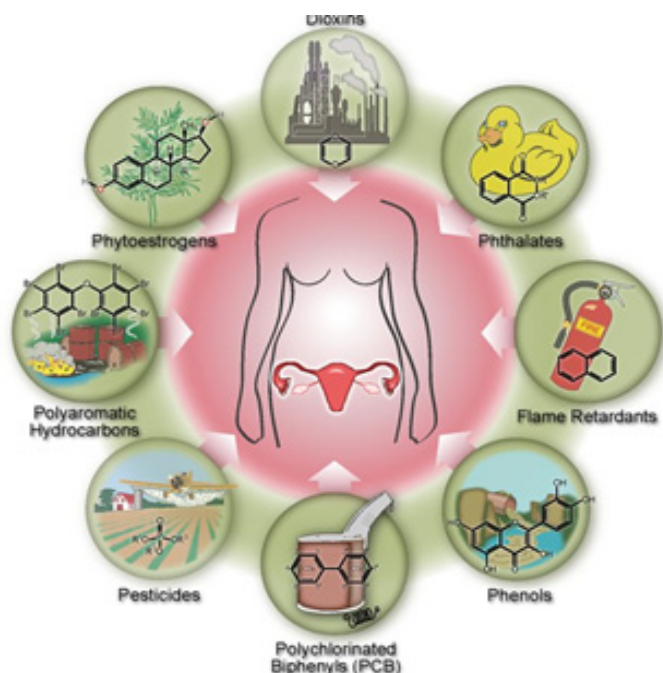
- Noise pollution can **disrupt 'echolocation'**, the sensory ability of whales and dolphins to find food, socialise, and navigate underwater.
- **In extreme cases, it can even cause physical harm**, including temporary hearing loss, according to the World Wide Fund (WWF).
- When food intake and reproduction are suppressed, marine populations, food chains and biodiversity may be impacted.

### How can we reduce human-made under water noise pollution?

- **Regulations could be introduced** to reduce underwater noise pollution from shipping and other sources.
- **Measures to reduce vessel collisions** with marine mammals have already been implemented in some places, including most recently along the US east coast.
- These include instructions to avoid areas with known concentrations of whales, and to reduce speed in vulnerable areas.
- **Investment in electric shipping**, which is quieter conventional shipping, could help combat noise pollution too.
- **Underwater pile driving** is another significant source of ocean noise pollution. Among other things, it is used to install offshore wind farms. Floating wind farms reduce the need for pile driving.

## ENDOCRINE DISRUPTING CHEMICALS

**In News:** The Centre for Development of Advanced Computing (C-DAC), in collaboration with ICAR-CIFRI under the 'National programme on Electronics and ICT applications in Agriculture and Environment (AgriEnIcs)' has developed a biosensing system for detection of Endocrine Disrupting Chemicals (EDC) in aquatic ecosystems.



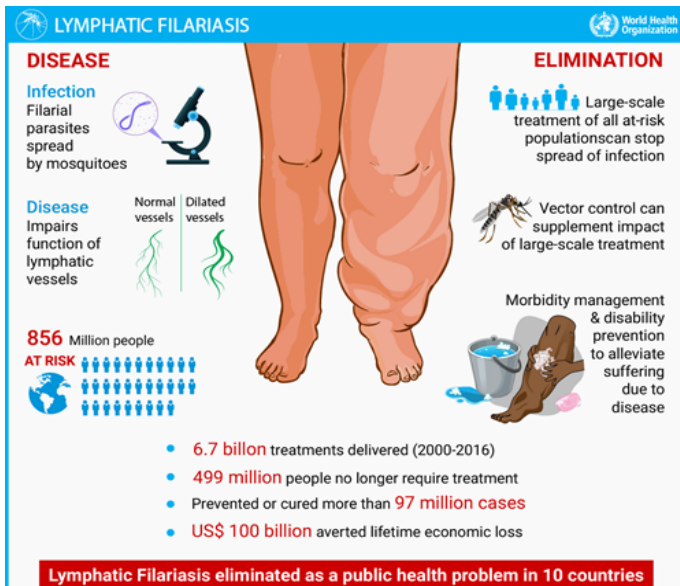
### More on the Topic:

- The Bio sensing system intense for **qualitative and quantative analysis of EDC content in water bodies.**
- The endocrine system, which regulates the body's hormones, may be mimicked or interfered with by a variety of chemicals, both natural and man-made.
- These substances, often known as endocrine disruptors, have been associated with developmental, reproductive, brain, immunological, and other issues.
- Endocrine-disrupting chemicals (EDCs) are found in **many everyday products, including plastic bottles and containers, liners of metal food cans, detergents, flame retardants, food, toys, cosmetics, and pesticides.**
- Agriculture and Environment (AgriEnIcs)' programme aims to solve problems in Agriculture and Environment domain by using Electronics and ICT technologies.

## LYMPHATIC FILARIASIS

**In News:** Union health minister informed that India is committed to eliminate Lymphatic Filariasis (LF) by 2027 three years ahead of the global target through mission mode through the five-pronged roadmap.





### More on the Topic:

- The elimination of the disease will be achieved via **multi-drug administration (MDA)** campaign twice a year synchronized with national deworming day.
- It is a **tropical, parasitic disease** that affects the **lymph nodes and lymph vessels**.
- Lymphatic filariasis is spread by **infected mosquitoes**. Their bites deposit a parasite that travels to the lymph system.
- The worms are spread by the bites of infected mosquitoes.
- Three types of worms are known to cause the disease: *Wuchereria bancrofti*, *Brugia malayi*, and *Brugia timori*, with *Wuchereria bancrofti* being the most common.
- Most cases are symptomless. Rarely, long-term damage to the lymph system causes swelling in the legs, arms and genitalia.
- It also increases the risk of frequent bacterial infections that harden and thicken the skin (elephantiasis).
- A drug taken yearly can kill the parasites.

### KEN BETWA LINK PROJECT

In News: Jal Shakti Ministry has held 3rd meeting of Ken-Betwa Link project steering committee.

### More on the Topic:

- Discussions were held on issues such as engagement of Project Management Consultancy, land acquisition and Resettlement and Rehabilitation (R&R) of affected villages, the establishment of offices of Ken-Betwa Link Project Authority, implementation of integrated landscape management plan prepared by Wildlife Institute of India for Greater Panna,
- A Greater Panna Landscape council is also being constituted for implementation of the Landscape Management Plan (LMP) and Environment Management Plan (EMP) of the project.

### About Ken- Betwa Link Project:

- The Ken-Betwa Link Project is the first project under the National Perspective Plan for interlinking of rivers.
- Under this project, water from the Ken river will be transferred to the Betwa river. Both these rivers are tributaries of river Yamuna.
- The Ken-Betwa Link Project has two phases.
- Under Phase-I, one of the components – Daudhan dam complex and its appurtenances like Low Level Tunnel, High Level Tunnel, Ken-Betwa link canal and Power houses – will be completed.
- While in the Phase-II, three components – Lower Orr dam, Bina complex project and Kotha barrage – will be constructed.
- The project is expected to provide annual irrigation of 10.62 lakh hectares, drinking water supply to about 62 lakh people and also generate 103 MW of hydropower.



### Which region will get the benefits of the KBLP?

- The Ken-Betwa Link Project lies in **Bundelkhand**, a **drought-prone region**, which spreads across 13 districts of Uttar Pradesh and Madhya Pradesh.
- It will pave the way for more interlinking of river projects to ensure that scarcity of water does not become an inhibitor for development in the country.

### BASMATI RICE

**In News:** FSSAI has releases standards For Basmati Rice to regulate trade practices and prevent adulteration.



#### More on the Topic:

- Various identity and quality criteria for Basmati rice are also specified in these standards.
- Basmati rice should only have **natural basmati rice flavours and aromas**, and it shouldn't contain any artificial colouring, polishing agents, or scents.
- The standards are aimed at **establishing fair practices in the trade of Basmati rice and protect consumer interest**, both domestically and globally.

#### About Basmati Rice:

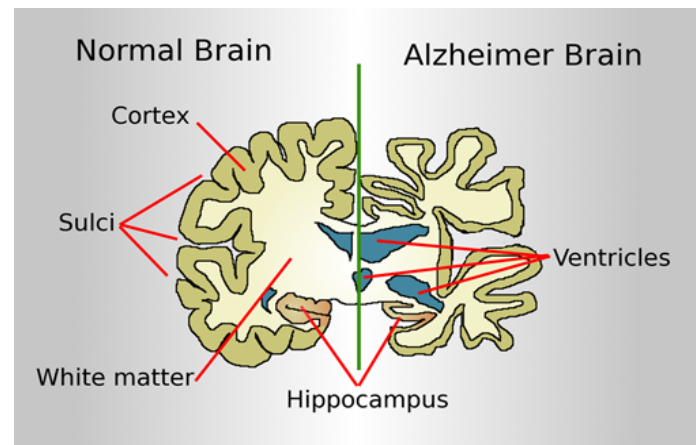
- The premium form of rice known as basmati is grown in the **Indian subcontinent's Himalayan foothills** and is prized for its large grains, fluffy texture, and distinctive flavour and aroma.
- The special agro-climatic conditions of the regions where Basmati rice is grown, as well

as the manner in which the rice is harvested, processed, and aged, all add to the distinctiveness of Basmati rice.

- Basmati rice is a popular variety both domestically and internationally because to its distinct quality characteristics, **and India supplies two-thirds of the global market.**

### ALZHEIMER'S DISEASE

**In News:** US Food and Drug Administration has granted approval to Alzheimer's drug lecanemab.



#### More on the Topic:

- The medicine has shown to slow cognitive decline in patients in early stages of the illness.
- Alzheimer's is a progressive disease that destroys memory and other important mental functions.
- Brain cell connections and the cells themselves degenerate and die, eventually destroying memory and other important mental functions.
- Memory loss and confusion are the main symptoms.
- No cure exists, but medication and management strategies may temporarily improve symptoms.

### NEW DINOSAUR SPECIES IN CHILEAN VALLEY

**In News:** Scientists have discovered the fossils of four dinosaur species – including a megaraptor – at the Chilean Patagonia.

#### More on the Topic:

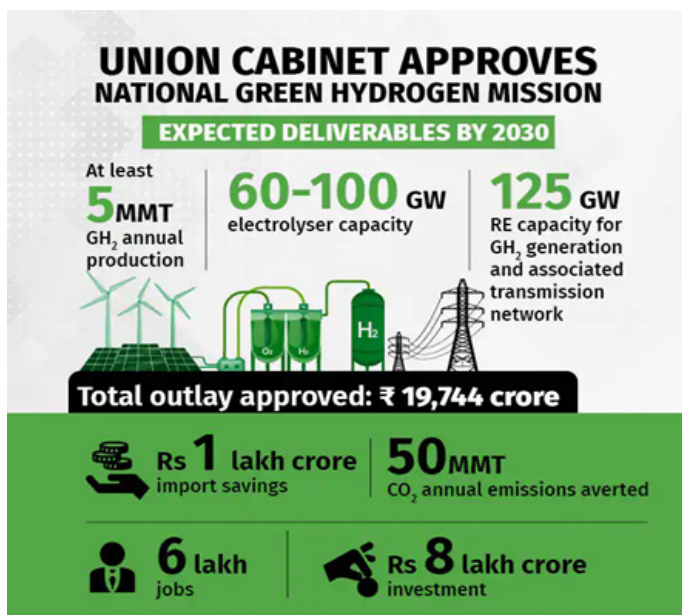
- These carnivorous dinosaurs had **raptor claws, small teeth for tearing, and large upper limbs** which, as per research, put them at the top of the food chain in the region.



- They inhabited between 66 and 75 million years ago, at the end of the Cretaceous period.
- They also identified two specimens of *Unenlagiinae*, closely related to velociraptors and which have a novel evolutionary character, which would indicate that this is a new species of unenlagine or perhaps a representative of a different clade (group).

## NATIONAL GREEN HYDROGEN MISSION

In News: The Union Cabinet has approved the National Green Hydrogen Mission.



### More on the Topic:

- The goal of the mission is to develop a green hydrogen production capacity of at least five million metric tonnes (mmt) and an associated renewable energy capacity addition of about 125 gigawatts (GW) by 2030.
- The Mission aims to abate nearly 50 mmt of annual greenhouse gas emissions by 2030 by facilitating demand creation, production and utilisation of green hydrogen in various sectors.

- According to NITI Ayog, Green hydrogen can potentially reduce 3.6 gigatonnes of carbon dioxide (CO<sub>2</sub>) emissions by 2050.
- The Mission also plans to create a coordinated skill development programme.
- This will lead to the creation of 0.6 million job opportunities.
- Most importantly, the Mission aims to increase the export of green hydrogen and simultaneously reduce fossil fuel imports of over Rs 1 lakh crore.
- Over Rs 8 lakh crore in investments is expected for infrastructure development.

### Strategic Interventions for Green Hydrogen Transition (SIGHT):

- The first disbursement for the Mission will include an outlay of Rs 17,490 crore under the Strategic Interventions for Green Hydrogen Transition (SIGHT) programme.
- The programme's incentive is to target the domestic manufacturing of electrolyzers along with the production of green hydrogen.
- Electrolysis powered by renewable electricity is used to produce green hydrogen.

### The difference between green hydrogen and blue hydrogen:

- Blue hydrogen is when natural gas is split into hydrogen and CO<sub>2</sub> either by Steam Methane Reforming (SMR) or Auto Thermal Reforming (ATR), but the CO<sub>2</sub> is captured and then stored.
- As the greenhouse gasses are captured, this mitigates the environmental impacts on the planet.
- The 'capturing' is done through a process called Carbon Capture Usage and Storage (CCUS).
- Green hydrogen is hydrogen produced by splitting water by electrolysis.
- This produces only hydrogen and oxygen. We can use the hydrogen and vent the oxygen to the atmosphere with no negative impact.
- To achieve the electrolysis we need electricity. This process to make green hydrogen is powered by renewable energy sources, such as wind or solar.
- That makes green hydrogen the cleanest option – hydrogen from renewable energy sources without CO<sub>2</sub> as a by-product.

## FOREST CONSERVATION RULES

**In News:** The Union Ministry of Environment, Forest and Climate Change (MoEF&CC) informed that it is not legally possible to put the new Forest Conservation Rules, 2022 on hold as demanded by the National Commission on Scheduled Tribes (NCST).



### More on the Topic:

- The Forest Conservation Rules, 2022 were notified in the last week of June 2022 to implement the Forest Conservation Act (FCA), 1980.
- NCST had written to MoEF&CC saying the new FCA rules will dilute Scheduled Tribes And Other Traditional Forest Dwellers (Recognition Of Forest Rights) Act, 2006, also known as the Forest Rights Act, 2006 (FRA).
- This is because the new rules eliminated the need for Gram Sabha consent before Stage II clearance of projects on indigenous land, the commission noted.
- The MoEF&CC, however, observed that FCA and FRA are 'parallel statutory processes' and the new rules do not dilute the FRA.

### About Forest Conservation Rules:

- The broad aims of the Forest Conservation Act are to protect forest and wildlife, act as a check on the State Governments' attempts to divert forest land for commercial projects and strive to increase the area under forests.
- **Approval by Union Government:** For forest land beyond 5 hectares, approval for diverting land must be given by the Union Government.
- This is through a specially constituted committee, called the Forest Advisory Committee (FAC).
- The Committee examines whether the user agency has made a convincing case for the upheaval of that specific parcel of land.
- It also examines whether users have a plan in place to ensure that the damage from felling of trees in that area and denuding the local landscape will be minimal.

- The Committee also ensures that diversion of land doesn't cause damage to wildlife habitat.
- Once the FAC is convinced and approves (or rejects a proposal), it is forwarded to the concerned State Government where the land is located. The State Government then has to ensure that provisions of the Forest Right Act, 2006 are duly complied.
- The FAC approval also means that the future users of the land must provide compensatory land for afforestation as well as pay the net present value (ranging between 10-15 lakh per hectare.)

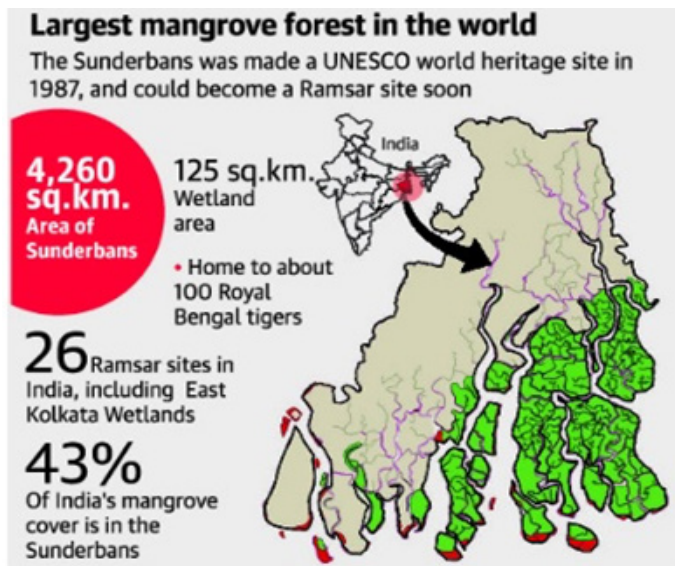
### New Changes:

- The latest version of the rules, which consolidates changes to the Act over the years from various amendments and court rulings, was made public in June 2022.
- **Private plantations:** The new rules have a provision which allows private parties to cultivate plantations and sell them as land to companies who need to meet compensatory forestation targets.
- **Forest dwelling Communities:** No mention of tribals and forest-dwelling communities whose land would be hived off for developmental work.
- Prior to the updated rules, state bodies would forward documents to the FAC that would also include information on the status of whether the forest rights of locals in the area were settled.
- **Strategic projects:** No permission required for converting forest for strategic purposes like security projects.
- **Definition of Forest land:** Forest land are which are notified as deemed forests listed by state governments up to 1996. Land which belonged to Railways or other ministries and on which forest has come up will no longer be considered forests.

## SUSTAINABLE SHRIMP CULTIVATION AT SUNDERBANS MANGROVES

**In News:** Sustainable shrimp cultivation is providing hope for mangrove restoration in Sundarbans.





- The area is known for its wide range of fauna, including 260 bird species, the Bengal tiger and other threatened species such as the estuarine crocodile and the Indian python.

#### **Mangrove Ecosystem:**

- A mangrove is a shrub or tree that grows in coastal saline or brackish water.
- There are about 80 different species of mangrove trees.
- All of these trees grow in areas with low-oxygen soil, where slow-moving waters allow fine sediments to accumulate.
- Mangroves, seagrass beds, and coral reefs are often found together and work in concert.
- The trees trap sediment and pollutants that would otherwise flow out to sea.
- Seagrass beds provide a further barrier to silt and mud that could smother the reefs. In return, the reefs protect the seagrass beds and mangroves from strong ocean waves. Without mangroves, this incredibly productive ecosystem would collapse.

#### **The importance of mangrove include:**

- Protecting water quality by removing nutrients and pollutants from stormwater runoff before they reach seagrass habitats and coral reefs.
- The thickets of mangroves that buttress tidal mudflats also provide a buffer zone that protects the land from wind and wave damage.
- Absorbs water during heavy rains and storm surge, reducing the chances of coastal flooding.
- Being a nursery habitat for many commercial fish and shellfish, and thus contribute to the local abundance of seafood.
- Serve as nesting areas for coastal birds such as little blue herons, great egrets and brown pelicans.
- Mangroves are also great carbon sinks. They isolate carbon at two to four times the rate of tropical forests

#### **More on the Topic:**

- Under the initiative, Sustainable Aquaculture In Mangrove Ecosystem (SAIME), farmers have taken up cultivation of shrimp at different districts of West Bengal's Mangrove eco system.
- The rate of survival of planted mangrove saplings, which is usually 5-10%, has ranged between 30-50% in the initiative.
- The farmers involved in the project had received higher incomes compared to previous years.
- They are also cultivating indigenous varieties of shrimps such as black tiger shrimp (*P. monodon*) and giant freshwater prawn (*M. rosenbergii*).
- The community-based initiative of sustainable shrimp cultivation is being conceived by NEWS and Global Nature Fund (GNF), Naturland Bangladesh Environment and Development Society (BEDS).

#### **The Sunderbans:**

- The Sundarbans forest is about 10,000 sq. km across India and Bangladesh, of which 40% lies in India.
- The Sundarbans mangrove forest, one of the largest such forests in the world (140,000 ha), lies on the delta of the Ganges, Brahmaputra and Meghna rivers on the Bay of Bengal.
- It is adjacent to the border of India's Sundarbans World Heritage site inscribed in 1987.
- The site is intersected by a complex network of tidal waterways, mudflats and small islands of salt-tolerant mangrove forests, and presents an excellent example of ongoing ecological processes.

#### **CENTRAL POLLUTION CONTROL BOARD REPORT ON RIVERS**

**In News:** A report by the Central Pollution Control Board released recently shows little to no improvement in the river water quality over the last two years.

## STATE OF RIVER POLLUTION

### 30% sites have polluted water

Of the 222 sites monitored by the Central Water Commission for water quality between 2012-13 and 2016-17, water quality at 67 locations was beyond the permissible limits. Out of the 67 sites, 14 sites fell in category I (severely polluted) and 12 sites fell under category II. This includes Ganga and Brahmaputra, the two most important and polluted river basin systems.

**What is Biochemical Oxygen Demand (BOD)?**  
The amount of dissolved oxygen that must be present in water in order for microorganisms to decompose the organic matter in the water. It is used as a measure of the degree of pollution. The BOD value is most commonly expressed in milligrams of oxygen consumed per litre (mg/L). If the BOD level is higher than 5mg/L, it is unsafe for drinking.

#### THE OTHER STORIES

**Rivers in distress** | River pollution is threatening the supply of clean water to over 650 cities.

**275 rivers**

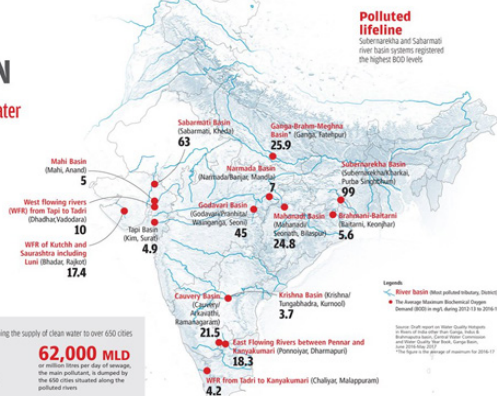
are polluted out of the monitored 480 rivers. It was 121 in 2009.

**302**

the number of polluted river stretches. It was 158 in 2009.

**62,000 MLD**

of treated effluent per day of average, the most pollution is caused by the 650 cities situated along the polluted rivers.



## Administrative Jurisdiction over Water:

- As per the Indian Constitution, 'Water' is a state subject.
- Water quality management is performed under provision of Water (Prevention and Control of Pollution) Act, 1974.
- However, the union government carries out various programmes such as National Water Monitoring Programme and Atal Mission on Rejuvenation and Urban Transformation in collaboration with state governments, and provides funds with technical support.

## INVASIVE SPECIES OF MUSSEL

**In News:** Fishermen have raised concern over invasive species of mussel in Ennore and Pulicat.



### More on the Topic:

- The mussel prevents prawns from grazing by spreading over the riverbed like a carpet; its spread is wiping out the locally prevalent yellow clams and green mussels.
- The invasive specie is known as kakka aazhi among the fishermen.
- It is a South American mussel species that is spreading due to the discharge of ballast waters from ships visiting the ports of Kattupalli

### About Mussel:

- Mussel is the common name used for members of several families of bivalve molluscs, from saltwater and freshwater habitats.
- These groups have in common a shell whose outline is elongated and asymmetrical compared with other edible clams, which are often more or less rounded or oval.

### More on the Topic:

- The number of Polluted River Stretches (PRS) in 323 rivers has fallen from 351 in 2018 to 311 in 2022.
- While improvement in water quality has been observed in 180 out of 351 stretches, the most polluted stretches continue to remain the same.
- Gujarat and Uttar Pradesh had maximum number of Priority I stretches-each at six, Maharashtra had the overall highest number of polluted stretches at 55.

### Categories of River Pollution:

- The CPCB monitors water quality at 4,484 locations in 28 states and seven UTs including rivers, lakes, creeks, drains, and canals.
- It classifies rivers based on Biological Oxygen Demand (BOD) - into five categories, namely Priority I to V.
- BOD levels above 3 mg/L are called polluted locations. Two or more polluted locations identified on a river in a sequence are considered a "polluted river stretch".
- Moreover, stretches with BOD above 30 mg/L are considered Priority I and need the most urgent remediation.

### Biochemical Oxygen Demand

- Biochemical oxygen demand (BOD) is the amount of dissolved oxygen (DO) needed (i.e. demanded) by aerobic biological organisms to break down organic material present in a given water sample at a certain temperature over a specific time period.
- The BOD value is most commonly expressed in milligrams of oxygen consumed per litre of sample during 5 days of incubation at 20 °C and is often used as a surrogate of the degree of organic pollution of water.



## Invasive Species:

- An invasive species is an **organism that is not indigenous, or native, to a particular area**. Invasive species can cause great economic and environmental harm to the new area.
- To be invasive, a species must **adapt to the new area easily**. It must **reproduce quickly**. It must **harm property, the economy, or the native plants and animals of the region**.
- Many invasive species are introduced into a new region accidentally.

## INDIGENOUS LIVESTOCK BREEDS

**In News:** In the last one year, the Indian Council of Agricultural Research (ICAR) has registered 10 new breeds of livestock species, including cattle, buffalo, goat and pig. This has taken the total number of indigenous breeds to 212.



### More on the Topic:

- The registration was done by ICAR-National Bureau of Animal Genetic Resources (NBAGR). The registration process involves identification and surveying of these breeds through visits to the native areas.
- The 10 new breeds included three new cattle breeds (Kathani, Sanchori, Masilum), one buffalo breed (Purnathadi), three goat breeds (Sojat, Karauli, Gujari) and three pig breeds (Banda, Manipuri Black, Wak Chambil).
- **Purnathadi buffalo** is found in the Vidarbha region of Maharashtra. The population of Kathani, a dual purpose cattle, is also distributed in the region. It possesses good draft ability and is suited to marshy land for paddy cultivation.
- **Masilum** is a small-sized but well-built and sturdy cattle of Meghalaya. Well adapted to the hill ecosystem, it is reared by the Khasi and Jaintia communities for sports, manure and socio-cultural festivals. Sanchori is found in

the Jalore district of Rajasthan.

- Among goats, all the three new breeds are from different regions of Rajasthan. Of the new pig breeds, Manipuri Black is a native of Manipur, Banda is from Jharkhand and Wak Chambil is from the Garo hills of Meghalaya.
- The identification and registration of indigenous breeds started only after 2010. Those breeds which are not registered or identified are called 'non-descript'.

### About Significance of Indigenous Breed:

- Indigenous breeds are **better suited to climate resilience**.
- These are **more heat tolerant, have better immunity and disease resistance**. But there is a declining trend in some of the indigenous livestock, especially cattle.
- In the 20th Livestock Census, while the population of exotic / crossbred cattle increased by 29.3%, compared to the 2012 Census, the population of indigenous cattle declined by 6%.
- There is a big untapped potential of the indigenous breeds of cattle as well as buffaloes that also possess key adaptability characteristics to Indian climatic conditions.

## LUMPY SKIN DISEASE

**In News:** Centre has Signed a Pact With IVBP For Commercial Production Of Lumpy Skin Disease's Vaccine.

### More on the Topic:

- Lumpi-ProVac is used for the **prophylactic immunization of animals against lumpy skin disease, with an efficacy period of 1 year**.
- It is a **homologous, live attenuated vaccine to protect cattle against LSD virus**.
- The temperature required to store the vaccine is 4 degrees Celsius.
- Also, it is necessary that it be shipped on ice and utilised in few hours post reconstitution.
- India discovered Lumpy Skin Disease in 2019, with reporting the first case in Odisha. This was followed by its spread throughout the country's various states.
- It led to death of a large number of cattle, especially from the North-West part of the country.



- LSD is a viral disease, caused by **Capripoxvirus**, that affects cattle. It does not affect humans.

## PROJECT NILGIRI TAHR

**In News:** Project Nilgiri Tahr has been launched by Tamil Nadu government.



### More on the Topic:

- It is aimed at restoring the state animal's original habitat and stabilising its population.
- The project will be tasked to **explore the possibility of undertaking captive breeding** of the animal for reintroduction in forest patches where it has become locally extinct.

### About Nilgiri Tahr:

- Nilgiri Tahr is an **endangered wild goat species living on mountains in Southern India**. As per WWF data from 2015, the species was earlier found along the entire stretch of the Western Ghats, but they now remain restricted to small fragmented pockets in Tamil Nadu and Kerala.
- Most of its population has been wiped out from its historical range.
- The species has become locally extinct in around 14% of its traditional habitat in the past few decades.
- Locally known as **Varaiaadu**, they are protected under **Schedule-I of the Wildlife (Protection) Act of India, 1972** and considered **endangered by the IUCN**.

## ASSAM IS SAFE HOME FOR RHINOS

**In News:** The Chief Minister of Assam announced on 1st January 2023 that no rhinos were poached in Assam in the year 2022.



### More on the Topic:

- In 2021, the Assam government established a **22-member task force and followed a zero-tolerance policy**. With this effort, in 2021 there were only 2 incidents of poaching.
- Further, strict measures were taken like the installation of CCTVs, armed commandos were deployed and even drones and dog squads were put to action.
- Also, the people living in the forests were sensitised and coordinated communication was built with the police of the states of Arunachal Pradesh, Manipur and Nagaland.
- Even in 2005, Indian Rhino Vision 2020 was launched. It was also a major effort to protect one-horned rhinos. It was a collaborative effort between various organisations, including the International Rhino Foundation, Assam's Forest Department, Bodoland Territorial Council, World Wide Fund – India, and the US Fish and Wildlife Service.

### Why the one-horned rhinos are under threat:


- The Indian rhino is found only in the Brahmaputra valley, parts of North Bengal, and parts of southern Nepal.
- It has a **single black horn that can grow up to 60 cm** and it is believed to treat various illnesses. This is the reason that rhinos are hunted.
- As a result of **habitat destruction and climatic changes** their range has gradually been reduced so that by the 19th century, they only survived in the Terai grasslands of southern Nepal, northern Uttar Pradesh, northern Bihar, northern Bengal, and in the Brahmaputra Valley of Assam
- It is significant to note that **the Indian rhino plays an important role in sustaining biodiversity and ensuring a healthy ecosystem**. It is the only large mammal species in Asia to be down-listed from **endangered to vulnerable** in the International Union for

Conservation of Nature (IUCN) Red list in 2008.

## KALA-AZAR

**In News:** There has been a 98.7% decline in cases of Kala-azar from 44,533 in 2007 to 834 in 2022 in India.

### WHAT IS KALA-AZAR

<ul style="list-style-type: none"> <li>A slow progressing indigenous disease</li> <li>Caused by protozoan parasite of genus <i>Leishmania</i></li> <li>In India, <i>Leishmania donovani</i> is the only parasite causing the disease</li> <li>The parasite primarily infects reticuloendothelial system</li> </ul>	<b>Signs &amp; Symptoms</b> <ul style="list-style-type: none"> <li>Recurrent fever</li> <li>Loss of appetite</li> <li>Weakness</li> <li>Spleen enlargement</li> <li>Anaemia</li> </ul>
<b>Transmission</b> <ul style="list-style-type: none"> <li>Sandfly of genus <i>Phlebotomus argentipes</i> only known vector of kala-azar in India</li> </ul>	
 <ul style="list-style-type: none"> <li>Indian kala-azar has a unique epidemiological feature of being anthroponotic</li> <li>Development and multiplication in the gut of sandflies and move to mouthparts</li> </ul>	<ul style="list-style-type: none"> <li>Female sandflies pick up parasite while feeding on infected human host</li> </ul>
<ul style="list-style-type: none"> <li>Parasite undergoes morphological change to become flagellate</li> </ul>	<ul style="list-style-type: none"> <li>Healthy human hosts get infection when an infective sandfly vector bites them</li> </ul>

### More on the Topic:

- India is committed to eliminating Kala-azar from the country by 2023.
- Kala-azar is considered the second deadliest parasitic killer in the world after Malaria.
- About 90 pc of global cases of Kala-azar were reported from eight countries: Brazil, Eritrea, Ethiopia, India, Kenya, Somalia, South Sudan and Sudan in 2021, with India contributing 11.5 pc of total cases reported globally.
- Kala-azar (Black Fever Disease) is a Neglected Tropical Disease (NTD) caused by a protozoan parasite of genus *Leishmania* and spread by infected female sandfly bites.
- India contributes 11.5% of total cases reported globally.
- It is a treatable and curable disease.
- Currently, more than 90% of the Kala-azar cases are contributed by Bihar and Jharkhand.

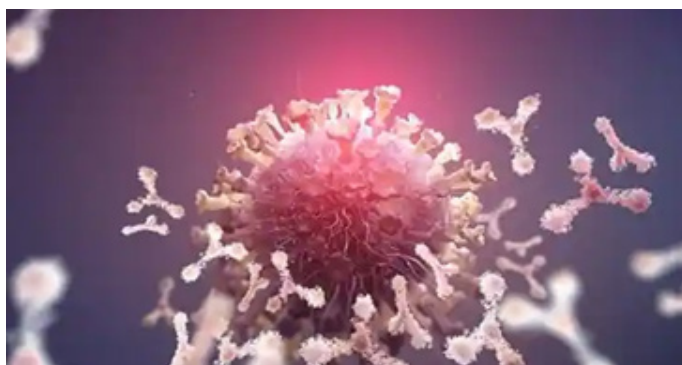
- Uttar Pradesh (2019) and West Bengal (2017) states have achieved their elimination targets at the block level.

### Government Intervention:

- The government has taken several steps towards the elimination of Kala-azar by 2023.
- National Kala Azar Elimination Programme was launched to control the disease.
- National Vector Borne Disease Control Programme (NVBDCP) for prevention and control of Malaria, Dengue, Lymphatic Filariasis, Kala-azar, etc.
- From interventions like pucca houses through PM-AWAS yojana, rural electrification, timely testing, treatment, and periodic high-level review, to incentivising through award distribution, the government along with its stakeholders are ensuring a robust ecosystem for early detection of the disease and its timely treatment.
- The Central Government is supporting the states in active case detection, surveillance, treatment, and supply of diagnostic kits, medicines, sprays, etc.

## VIROVORE

**In News:** The first known "virovore"- an organism that eats viruses- has been found recently.



### More on the Topic:

- Scientists found that a species of Halteria - who are microscopic ciliates that populate freshwater throughout the world - can eat huge numbers of infectious chloroviruses. Both share an aquatic habitat.
- They're made up of nucleic acids, a lot of nitrogen, and phosphorous.
- The new findings may change our understanding of the role viruses play in the food chain at a microscopic level.

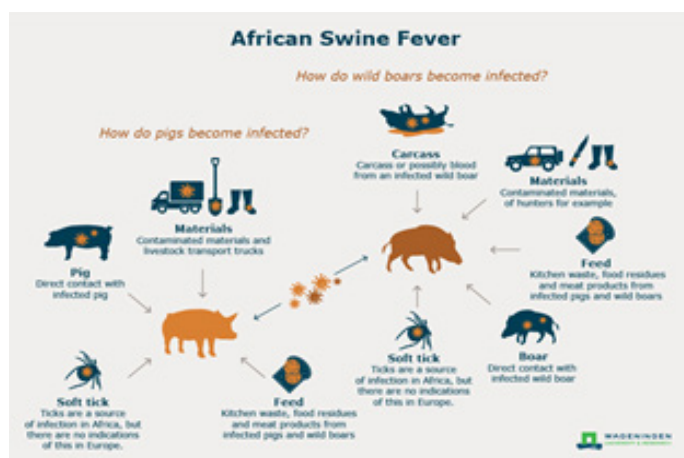


## About Virus:

- A virus is a submicroscopic infectious agent that replicates only inside the living cells of an organism.
- Viruses infect all life forms, from animals and plants to microorganisms, including bacteria and archaea.
- Since Dmitri Ivanovsky's 1892 article describing a non-bacterial pathogen infecting tobacco plants and the discovery of the tobacco mosaic virus by Martinus Beijerinck in 1898, more than 9,000 virus species have been described in detail of the millions of types of viruses in the environment.
- Viruses are found in almost every ecosystem on Earth and are the most numerous type of biological entity.
- The study of viruses is known as virology, a subspeciality of microbiology.

## AFRICAN SWINE FEVER

In News: African swine fever has killed 27 wild boars in Tamil Nadu.



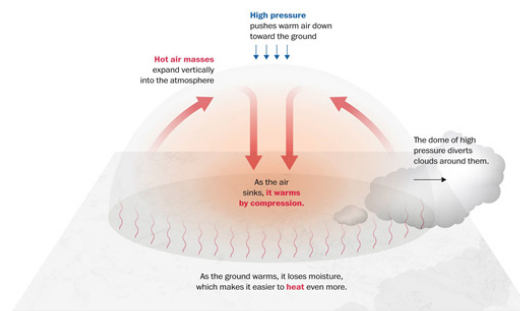
### More on the Topic:

- African Swine Fever is a viral disease that attacks pigs and boars and has a high mortality rate. It is endemic to sub-Saharan Africa but has spread to many other regions of the world, including Asia and Europe.
- It is not known to affect human beings.
- There is no cure or precaution available for the infection yet.
- The virus is highly resistant in the environment so it can survive on clothes, boots, wheels, and other pork products such as ham.

## GEOGRAPHY

### HEAT DOME

In News: Several parts of Europe is experiencing a Heat dome.



### More on the Topic:

- A heat dome occurs when an area of high-pressure traps warm air over a region, just like a lid on a pot, for an extended period of time.
- The longer that air remains trapped, the more the sun works to heat the air, producing warmer conditions with every passing day.
- Heat domes generally stay for a few days but sometimes they can extend up to weeks, which might cause deadly heat waves.
- Scientists suggest that any region of high pressure, whether a heat dome or not, forces air to sink and once it reaches the ground, it gets compressed and becomes even warmer.
- Moreover, when air sinks, it gets drier and further raises the temperature of the area.

### The relationship between heat domes and the jet stream:

- The heat dome's formation is related to the behaviour of the jet stream — an area of fast-moving air high in the atmosphere.
- The jet stream is believed to have a wave-like pattern that keeps moving from north to south and then north again.
- When these waves get bigger and elongated, they move slowly and sometimes can become stationary.
- This is when a high-pressure system gets stuck and leads to the occurrence of a heat dome.
- Although heat domes are likely to have always existed, researchers say that climate change may be making them more intense and longer.
- They suggest with the rising temperatures, it is expected that the jet stream will become more wavy and will have larger deviations, causing more frequent extreme heat events.



## Jet Streams:

- The Jet Stream is a **geostrophic** wind blowing horizontally through the upper layers of the troposphere, generally from west to east, at an altitude of 20,000 - 50,000 feet.
- **Jet Streams develop where air masses of differing temperatures meet.** So, usually surface temperatures determine where the Jet Stream will form.
- Greater the difference in temperature, faster is the wind velocity inside the jet stream.
- Jet Streams extend from 20 degrees latitude to the poles in both hemispheres.

## LAND SUBSIDENCE AT JOSHIMATH TOWN IN UTTARAKHAND

**In News:** Following incidents of local land subsidence, residents of Joshimath Town in Uttarakhand's Chamoli district have been evacuating their homes in search of safer locations.

### More on the Topic:

- Huge cracks have appeared in the houses of the area due to this land subsidence which is known as the **vertical sinking of land in an area.**
- Land subsidence is a **gradual settling or sudden sinking of the Earth's surface due to removal or displacement of subsurface earth materials.**
- The principal causes include:
  - aquifer-system compaction associated with groundwater withdrawals
  - drainage of organic soils
  - underground mining
  - natural compaction or collapse, such as with sinkholes or thawing permafrost
- Subsidence is a global problem.

### Causes of Joshimath Land Subsidence:

- It is situated in an **old landslide zone.** This make the town to have a unstable foundation.
- It is situated in the middle slopes of the hill bound by streams such as Karmanasa and Dhaknala along with Dhauliganga and Alaknanda rivers. This makes the town to have close proximity to major tectonic discontinuities.
- This ecologically sensitive area is pressured with dams, numerous homes, resorts etc. This aide in destabilisation of the region.

## INDIA CHINA TRADE RELATIONS

**In News:** India's trade deficit with China crossed \$100 billion for the first time, with Indian imports also increasing to an all-time high despite bilateral relations taking a plunge since the Galwan clash along the disputed border area in 2020.



### More on the Topic:

- The top commodities that India bought were "electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers and parts; nuclear reactors, boilers, machinery and mechanical appliances and parts of thereof; organic chemicals; plastic and plastic articles; and fertilisers."
- The most-valued Chinese items that India imported were personal computers, which followed by monolithic integrated circuits -digital, lithium-ion used in batteries, solar cells and urea.
- Most of the imports from China help Indian businesses as **they are intermediate goods.** He says imports from China help India contain inflation.
- **Indian Exports to China :** The top commodities that China bought from India were ores, slag and ash; organic chemicals, mineral fuels, mineral oils and products of their distillation, bituminous substances, mineral waxes; iron and steel; aluminium and articles of thereof; and cotton.

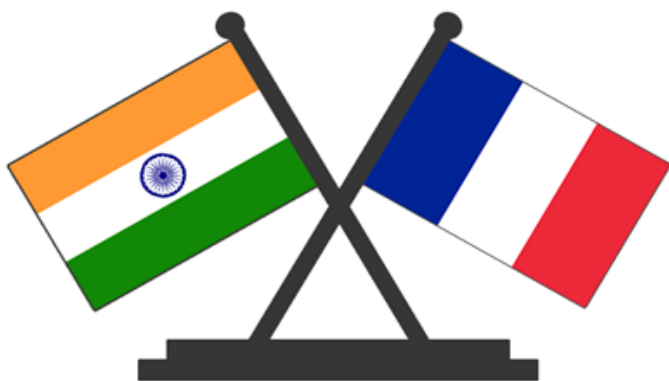
### Reasons for the Trade Deficit:

- The growth of trade deficit with China is mainly due to two factors:

- Narrow basket of commodities that India export to China
- Market access impediments India faces like agricultural products, sectors like pharmaceuticals, IT/ItES, etc.
- Actual size of the deficit is a concern.
- The imbalance has continuously been widening year after year to reach US \$58.04 billion in 2018.
- In 2019, India's trade deficit with China stood at US \$ 56.95 billion, a minor y-o-y decline of 1.88%, with trade deficit declining for the first time since 2005.

## INDIA FRENCH STRATEGIC DIALOGUE

In News: India and France held their 36th Strategic Dialogue in New Delhi.



### More on the Topic:

- India and France held discussions on various issues including the current global security situation in the context of the conflict in Ukraine.
- Discussion over regional security in the context of Afghanistan and cyber security was also taken up during the meeting.
- During the 36th Strategic Dialogue, both the sides also agreed to deepen the most significant three pillars of the India-France strategic partnership, including defence to counter-terrorism, civilian nuclear energy, space and cybersecurity.

### India French Relations:

- India and France have traditionally close and friendly relations. The relationship has been positive since India's independence.
- Indian Defence force has French aircrafts and fleets since 1960s.
- In 1984 when the US had backed out of

the agreement to supply nuclear fuel for Tarapur nuclear plant citing domestic legal constraints, France had stepped in then to supply nuclear fuel.

- France helped in setting up the Sriharikota launch site.
- Even during cold war era France was a reliable partner of India.
- In 1998, the two countries entered into Strategic Partnership.
- France was one of the first countries that accommodated India's position after the 1998 Nuclear Tests. France supported India's political and security compulsions regarding the nuclear weapons.
- India and France regularly conduct joint military exercises. These include Varuna (Naval), Garuda (Air Force) and Shakti (Army).

## H1 AND L1 VISA

In News: Thousands of Indian IT professionals in the US, who have lost their jobs due to the series of recent layoffs at companies like Google, Microsoft and Amazon, are now struggling to find new employment within the stipulated period under their work visas following the termination of their employment to stay in the country.

L1 versus H1B		
<b>EMPLOYER</b> <b>L1</b> Can be filed only by the parent, subsidiary, branch of the company where the applicant has worked for at least one year in the preceding three as a manager, executive or special knowledge worker <b>H1B</b> Any US-based employer can hire a foreign worker	<b>QUOTA</b> <b>L1</b> None <b>H1B</b> Only 65,000 H1-B visas are issued in a year, with 6,800 of those reserved for certain countries. An additional 20,000 are issued to new graduates with Master's degrees	<b>DEPT OF LABOUR APPROVAL</b> <b>L1</b> Not required <b>H1B</b> Approval of Labour Condition Application required. Need attestation from the employer that qualified US workers are unavailable
	<b>WAGE CLAUSES</b> <b>L1</b> No requirements because the L1 visa holder is really working on behalf of a foreign qualifying entity <b>H1B</b> Must be paid at least the prevailing wage	

### More on the Topic:

- Over 30 to 40% of the Indian IT professionals have been laid off in the US.
- A significant number of whom are H-1B and L1 visa holders.
- The H-1B visais a non-immigrant visa that allows US companies to employ foreign workers in speciality occupations that require

theoretical or technical expertise.

- Technology companies depend on it to hire tens of thousands of employees each year from countries like India and China.
- L-1A and L-1B visas are available for temporary intracompany transferees who work in managerial positions or have specialised knowledge.

## INDIAN TECHNICAL AND ECONOMIC COOPERATION PROGRAM (ITEC)

**In News:** Indian Coast Guard (ICG) has successfully conducted technical course under the aegis of Indian Technical and Economic Cooperation Programme (ITEC) for Officers and Sailors of Maritime Security Agencies from six Friendly Foreign Countries (FFCs).



सत्यमेव जयते



# ITEC

INDIAN TECHNICAL AND ECONOMIC COOPERATION PROGRAMME  
MINISTRY OF EXTERNAL AFFAIRS, GOVERNMENT OF INDIA

### More on the Topic:

- Indian Technical and Economic Cooperation Programme (ITEC) is a bilateral assistance programme run by the Government of India.
- It is a demand-driven, response-oriented programme that focuses on addressing the needs of developing countries through innovative technological cooperation between India and the partnering nation.
- Along with its corollary the Special Commonwealth Assistance for Africa Programme, ITEC covers 158 countries across Asia, Africa, Latin America, Central and Eastern Europe, and several Pacific and Caribbean nations.

## CHINA BUILDS NEW DAM IN TIBET NEAR INDIAN BORDER

**In News:** In a development that is a matter of concern to both India and Nepal, China is constructing a new dam on the Mabja Zangbo river in Tibet, close to the tri-junction.

### More on the Topic:

- The new dam is located around 16 km north of the tri-junction and is opposite the Kalapani area of Uttarakhand.

- Mabja Zangbo originates in Nagari county of Tibet, flows through Nepal into the Ghaghara river before joining the Ganga in India.

### Concerns for India:

- In addition to using water as leverage, the possibility of a military establishment by China near the tri-junction cannot be ruled out as the country had developed the same in the Yarlung Zangbo river near Arunachal Pradesh.
- China could use this dam to not only divert but also store water which could lead to a scarcity in the regions dependent on the Mabja Zangbo river as also lead to lower water levels in rivers such as the Ghaghara and the Karnali in Nepal.
- Dams close to the border could be used by China to strengthen its claim on the disputed areas in the region.

### About Yarlung Zangbo River:

- The Yarlung Zangbo, as the Brahmaputra is known in Tibet, originates in the Himalayas in Tibet, enters India in Arunachal Pradesh, passes through Assam and then Bangladesh before emptying into the Bay of Bengal.

## SAARC

**In News:** Nepal said it was making efforts to activate the eight-member regional grouping SAARC, which has not been very effective.



# SAARC

South Asian Association  
for Regional Cooperation



Afghanistan



Bangladesh



Bhutan



India



Maldives



Nepal



Pakistan



Sri Lanka

### More on the Topic:

- The SAARC has not been very effective since 2016 as its biennial summits have not taken place since the last one in Kathmandu in 2014.
- The 2016 SAARC Summit was to be held in Islamabad. But after the terrorist attack on an Indian Army camp in Uri in Jammu and Kashmir that year, India expressed its



inability to participate in the summit due to "prevailing circumstances".

- The summit was called off after Bangladesh, Bhutan and Afghanistan also declined to participate in the Islamabad meet.
- When almost all the regional blocks participated actively during the Corona pandemic, SAARC didn't do anything which effectively helped the region.

#### **The Reason for SAARC Failure:**

- Lack of trust among the member countries has been the most significant factor for the inactiveness of SAARC especially between India and Pakistan.
- In recent times, Pakistan's non-cooperation has stalled some major initiatives under SAARC.
- For example, despite India's keen interest in cooperating and strengthening intra-regional connectivity by backing the SAARC-MVA during the 18th summit of SAARC, the agreement was stalled following Pakistan's reluctance.
- SAARC does not have any arrangement for resolving disputes or mediating conflicts. This escalates the problems.
- Entry of China into regional geo politics also been considered as a reason for the block's failure.

#### **About SAARC:**

- In 1985 Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka created the SAARC regional forum.
- The South Asian Association for Regional Cooperation (SAARC) was established with the goal of contributing "to mutual trust, understanding and appreciation of one another's problems."
- The first SAARC meeting took place in Dhaka in 1985, and there have been 18 summits till date.
- Afghanistan was admitted as a member in 2007.
- Headquarters: Kathmandu, Nepal

#### **PERU STATE EMERGENCY**

**In News:** Amid ongoing violent clashes in Peru which erupted last month following the ousting of former President Pedro Castillo, a 'State of Emergency' in the country has been extended.



#### **More on the Topic:**

- Peru is a country in South America that's home to a section of Amazon rainforest and Machu Picchu, an ancient Incan city high in the Andes mountains.
- The region around Machu Picchu, including the Sacred Valley, Inca Trail and colonial city of Cusco, is rich in archaeological sites.
- On Peru's arid Pacific coast is Lima, the capital, with a preserved colonial center and important collections of pre-Columbian art.
- Peru is bordered by Bolivia, Brazil, Chile, Colombia, and Ecuador.

#### **ONE SUN - ONE WORLD - ONE GRID PROGRAMME**

**In News:** India-Myanmar-Thailand interconnection plan is in line with OSOWOG programme under International Solar Alliance (ISA).



#### **More on the Topic:**

- Under the plan, the Indian grid would be linked to those of the Middle East, South Asia and Southeast Asia to form a common grid.
- The focus on linking the power grids is also a part of India's Act East policy, with the country trying to improve its economic ties with Southeast Asian countries and counter China's influence.
- In South Asia, India is establishing connectivity with national grids of neighbouring countries.

Under the Bangladesh, Bhutan, India, Nepal (BBIN) sub-regional initiative, India has set up connectivity with all the member nations.

- OWOSOG was launched jointly by India and UK during COP 26 in 2021.
- It aimed for connecting solar energy supply across borders.
- It will be developed under World Bank's technical assistance.

## GLOBAL PARTNERSHIP FOR FINANCIAL INCLUSION

**In News:** 3-day G20 meet on Global Partnership for Financial Inclusion concluded recently.



### More on the Topic:

- The members and invitee countries shared updates on the progress made on the Financial Inclusion Action Plan (FIAP) 2020 and the road ahead for FIAP 2023.
- The conference discussed several issues including **digital financial inclusion, remittances and availability of finance for small and medium-sized enterprises (SMEs).**
- Discussions took place on the **progress towards reducing the cost of remittances and innovative payment services to bring down the rates.**
- It also discussed upon leveraging digital public infrastructure for financial inclusion and productivity gains.
- G20 leaders focused on the **high remittance cost for workers outside India** and efforts are underway to bring the rate down to an average of 3% by 2027.
- At present, the remittance cost, on average, stands at around 6% of each transaction.

## MUTUAL LEGAL ASSISTANCE TREATY (MLAT)

**In News:** India and Saudi Arabia are in talks to sign a Mutual Legal Assistance Treaty (MLAT) to obtain formal assistance from each other in investigations related to criminal cases.

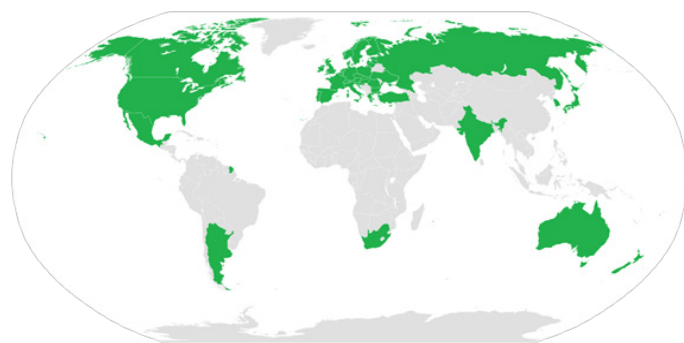


### More on the Topic:

- Saudi Arabia is only among a dozen other countries that does not have either an MLAT or any other bilateral agreement with India to facilitate such investigations. India has so far signed MLATs with 45 countries, and is also in talks to finalise MLATs with Italy and Germany.
- MLAT is “a mechanism whereby countries cooperate with one another in order to provide and obtain formal assistance in prevention, suppression, investigation and prosecution of crime to ensure that the criminals do not escape or sabotage the due process of law for want of evidence available in different countries.”

## WASSENAAR ARRANGEMENT (WA)

**In News:** India has assumed the chairmanship of the Wasseenaar Arrangement (WA) for a period of one year.



### More on the Topic:

- The US, the UK, Japan, South Korea, France, Germany and Australia are some key members of the WA. Prominent non-members include China and Israel. India will take over from Ireland.
- India joined the Wassenaar Arrangement (WA) in 2017 and became its 42nd member.

### About Wassenaar Arrangement:

- WA is a multilateral export control regime, which, through regular information exchange among members on transfers of conventional arms and dual-use goods and technologies, seeks to promote transparency and greater responsibility in such transfers and prevent destabilising accumulations.
- The primary goal of the organisation is to restrict access to sensitive technologies for terrorist outfits.
- The Wassenaar Arrangement came into being in 1996 and has 42 members.
- The WA operates on a voluntary basis and decisions are made by consensus.
- Every six months, members exchange information on deliveries of conventional arms to non-Wassenaar members that fall under eight broad weapon categories.
- They are battle tanks, armored combat vehicles (ACVs), large-caliber artillery, military aircraft/unmanned aerial vehicles, military and attack helicopters, warships, missiles or missile systems, and small arms and light weapons.

### Multilateral export control regime:

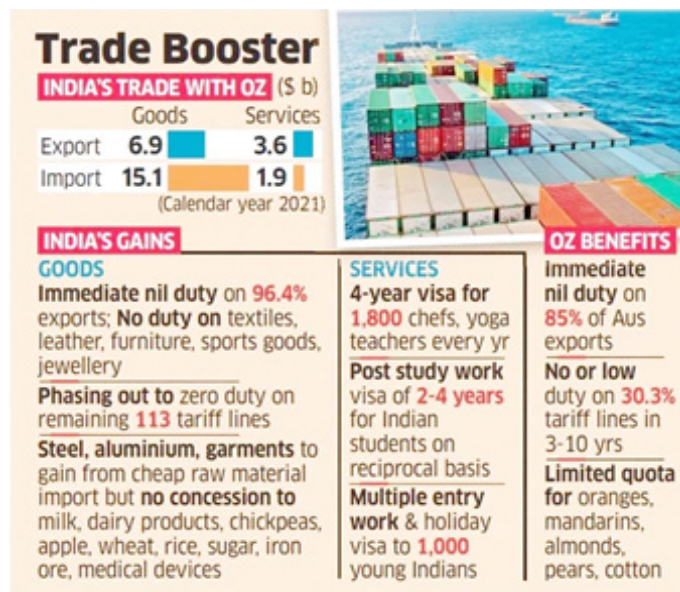
- A multilateral export control regime is an informal group of like-minded supplier countries that seek to contribute to the non-proliferation of weapons of mass destruction, delivery systems, and advanced conventional weapons through national implementation of guidelines and control lists for exports.
- There are currently four such regimes:
- The Wassenaar Arrangement (WA) on Export Controls for Conventional Arms and Dual-Use Goods and Technologies
- The Nuclear Suppliers Group (NSG), for the control of nuclear and nuclear-related technology - India is not a member.
- The Australia Group (AG) for the control of

chemical and biological technology that could be weaponized - India is a member

- The Missile Technology Control Regime (MTCR) for the control of rockets and other aerial vehicles capable of delivering weapons of mass destruction - India is a member.

## INDIA-AUSTRALIA ECONOMIC COOPERATION AND TRADE AGREEMENT

In News: India-Australia Economic Cooperation and Trade Agreement



### More on the Topic:

- The Ind-Aus ECTA provides an institutional mechanism to encourage and improve trade between the two countries.
- It covers almost all the tariff lines dealt by India and Australia.

### Benefit to India:

- India will benefit from preferential market access provided by Australia on 100% of its tariff lines, including all the labour-intensive sectors of export interest to India, such as Gems and Jewellery, Textiles, leather, footwear, furniture, food, and agricultural products, engineering products, medical devices and Automobiles.
- On the other hand, India will be offering preferential access to Australia on over 70% of its tariff lines, including lines of export interest to Australia, which are primarily raw materials and intermediaries such as coal, mineral ores and wines.
- As regards trade in services, Australia has offered wide-ranging commitments in



around 135 sub-sectors and Most Favoured Nation (MFN) status in 120 sub-sectors covering key areas of interest to India.

- It is estimated that an additional 10 lakh jobs would be created in India under ECTA.
- Indian Yoga teachers and chefs are set to gain with the annual visa quota. Over 1 lakh Indian students would benefit from post-study work visa (for 18 months to 4 years) under the ECTA.
- The agreement is also likely to increase investment opportunities, promote exports, create significant additional employment and facilitate strong bonding between the two countries.

#### **Benefit to Australia:**

- On the other hand, India has offered market access to Australia in around 103 sub-sectors and Most Favoured Nation status in 31 sub-sectors from the 11 broad service sectors such as 'business services', 'communication services', 'construction and related engineering services', and so on.
- Both sides have also agreed to a separate Annex on Pharmaceutical products under this agreement, which will enable fast-track approval for patented, generic and biosimilar medicines.

#### **India Australia Strategic Relations:**

- Australia is an important strategic partner of India.
- They are also part of the four nation QUAD, Trilateral Supply Chain Initiative and the Indo-Pacific Economic Forum (IPEF).
- Engagement between the Royal Australian Navy and the Indian Navy has advanced significantly through the key bilateral exercise, AUSINDEX.
- For the first time, the Indian Air Force participated in Exercise Pitch Black in Darwin in 2018.

#### **EXERCISE CYCLONE - I**

**In News:** The first-ever joint exercise between the special forces of the India and Egypt named 'Exercise Cyclone-I' is in progress in Rajasthan.

#### **More on the Topic:**

- The exercise aims to bolster defence co-operation between the two nations.



- The exercise engages both the contingents on professional skill sharing and Special Forces interoperability in desert terrain.
- It also conducts counterterrorism, reconnaissance, raids, and other Special Forces operations in a mechanised warfare setting as well as surgical strikes.

#### **AMPHEX 2023**

**In News:** The biennial Tri-Services Amphibious Exercise, AMPHEX 2023 was conducted at Kakinada, Andhra Pradesh recently.



#### **More on the Topic:**

- It is aimed at joint training of elements of all three services in various facets of amphibious operations to enhance interoperability and synergy.
- AMPHEX 23 is the first time that the exercise was undertaken at Kakinada, and was the largest ever AMPHEX conducted till date.
- The participating forces undertook complex exercises in all domains of amphibious operations over five days. The exercise culminated in a successful Amphibious Assault.
- The exercise witnessed the participation of a number of amphibious ships consisting of Large Platform Dock (LPD), Landing Ships and Landing Crafts, Marine Commandos (MARCOS), helicopters and aircraft from the Indian Navy.

# SCIENCE & TECHNOLOGY

## GREEN COMET

**In News:** On February 1, a bright-green comet named C/2022 E3 (ZTF) will make a close approach to Earth for the first time in 50,000 years.

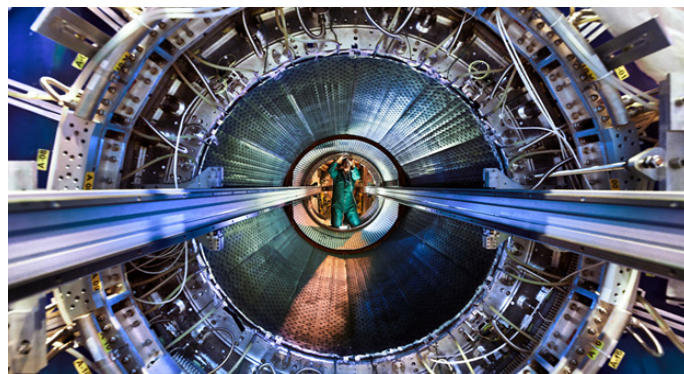


### More on the Topic:

- Comets are frozen leftovers from the formation of the solar system composed of dust, rock, and ices.
- They range from a few miles to tens of miles wide, but as they orbit closer to the Sun, they heat up and spew gases and dust into a glowing head that can be larger than a planet.
- This material forms a tail that stretches millions of miles.
- Short-period comets originate in the Kuiper belt or its associated scattered disc, which lie beyond the orbit of Neptune.
- Long-period comets originate in the Oort Cloud, a spherical cloud of icy bodies extending from outside the Kuiper belt to halfway to the nearest star.
- Long-period comets are set in motion towards the Sun from the Oort cloud by gravitational perturbations caused by passing stars and the galactic tide.

## LARGE HADRON COLLIDER (LHC)

**In News:** The CERN Large Hadron Collider (LHC) laboratory has shortened the running period of by a month at the wake of the energy crisis fuelled by the Russia-Ukraine war.



### More on the Topic:

- Shortening the run can impact data collection.
- The war has also impacted research. In March 2022, the number of new research papers on experiments at LHC stood at zero.
- Condemning the Russian invasion of Ukraine, CERN announced that it will not engage in new collaborations with Russia until further notice. Russia has observer status at CERN and about 8% of CERN's staff are Russian scientists.
- This has impacted the collaborative research and research papers scientists were undertaking.

### About LHC:

- LHC is the world's largest and most powerful particle accelerator. It consists of a 27-kilometre ring of superconducting magnets with several accelerating structures to boost the energy of the particles.
- LHC was reignited after a three-year gap in July 2022. It was lit up for the first time in November 2008 and continued through 2013. The accelerator is best known for discovering the god particle or Higgs Boson in 2012.

### About the Aim of LHC:

- LHC is used to smash accelerated protons or lead ions to measure energies, directions and velocities of these particles at four particle detectors- ATLAS, CMS, ALICE and LHCb.
- The idea behind the proposed project is to discover new particles and go beyond the Standard Model of Physics.
- The Standard Model of Physics is a theory that



describes the most basic building blocks of the universe.

- It explains how quarks (consisting of protons and neutrons) and leptons (which include electrons) make up matter.
- Following the discovery of the Higgs Boson, scientists observed the various ways in which the Higgs boson breaks down.

#### About CERN:

- CERN is the **European Organization for Nuclear Research** where scientists probe the fundamental structure of the universe.
- India is the associate member of CERN and USA has observer status at CERN.
- CERN is located in Geneva and it is an official Observer to the United Nations (UN).
- Its most important function is to provide the **particle accelerators** and other related infrastructure required for high-energy physics research.

## METEORITE

**In News:** Rare 7kg meteorite was found in Antarctica.



#### More on the Topic:

- In simplest terms, a meteorite is a rock that falls to Earth from space.
- Meteorites are rocks, but they are not like Earth rocks.
- Most are far older, and they provide some of the only samples we have of other worlds – other planets, asteroids and possibly comets in our solar system.
- When meteoroids enter Earth's atmosphere at high speed and burn up, the fireballs or shooting stars are called meteors.
- When a meteoroid survives a trip through the

atmosphere and hits the ground, it's called a meteorite.

## GIANT METREWAVE RADIO TELESCOPE (GMRT)

**In News:** A radio signal originating from atomic hydrogen in an extremely distant galaxy was detected by the Giant Metrewave Radio Telescope (GMRT) located in Pune.



#### More on the Topic:

- This is the largest astronomical distance over which such a signal has been picked up.
- Atomic hydrogen is the basic fuel required for star formation in a galaxy.
- When hot ionised gas from the surrounding medium of a galaxy falls onto the universe, the gas cools and forms atomic hydrogen.
- This then becomes molecular hydrogen and eventually leads to the formation of stars.

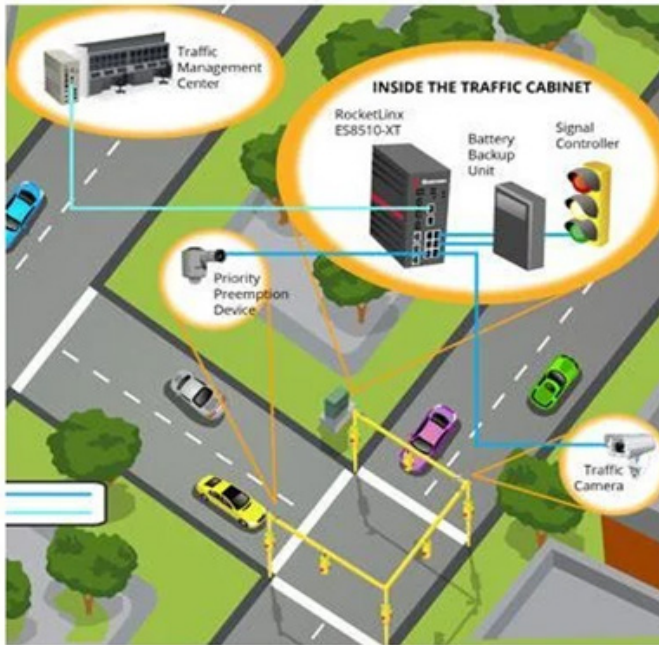
#### About GMRT:

- GMRT is an array of thirty fully steerable parabolic radio telescopes of 45 meter diameter.
- It is operated by the National Center for Radio Astrophysics of the Tata Institute of Fundamental Research (NCRA-TIFR).
- GMRT is an indigenous project.
- The location for GMRT, Pune meets several important criteria such as low man-made radio noise, availability of good communication, vicinity of industrial, educational and other infrastructure and, a geographical latitude sufficiently north of the geomagnetic equator in order to have a reasonably quiet ionosphere and yet be able to observe a good part of the southern sky as well.



## ADVANCE TRAFFIC MANAGEMENT SYSTEM (ATMS)

**In News:** The National Highways Authority of India (NHAI) is implementing Advance Traffic Management System (ATMS) on national highways and expressways for managing incidents of road crashes and enforcement of speed limit and other regulations on highways.

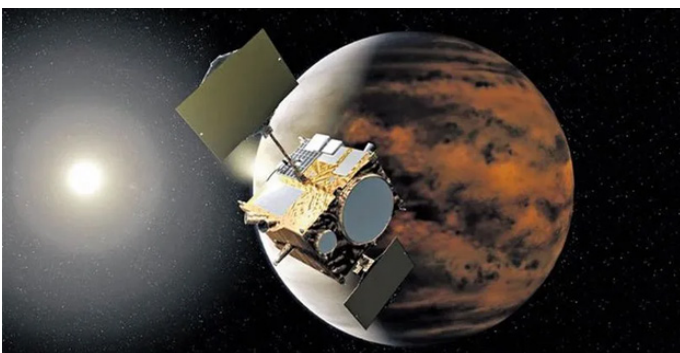


### More on the Topic:

- ATMS is an integrated solution to manage highway traffic through real time information and ensure safety.
- ATMS has been implemented for around 3,000 km of National Highways.
- NHAI is also looking at leveraging GIS technology for analysing drone videos and Network Survey Vehicle data for identifying safety issues on highway.

## SHUKRAYAAN 1

**In News:** Shukrayaan 1 is yet to receive approval from the Indian government for the Venus mission and that the mission could as a result be postponed to 2031.



### More on the Topic:

- ISRO's Venus mission, called Shukrayaan I, was expected to be launched in December 2024.
- Optimal launch windows from Earth to Venus occur once around every 19 months.
- Shukrayaan I will be an orbiter mission. Its scientific payloads currently include a high-resolution synthetic aperture radar and a ground-penetrating radar.
- The mission is expected to study Venus's geological and volcanic activity, emissions on the ground, wind speed, cloud cover, and other planetary characteristics from an elliptical orbit.

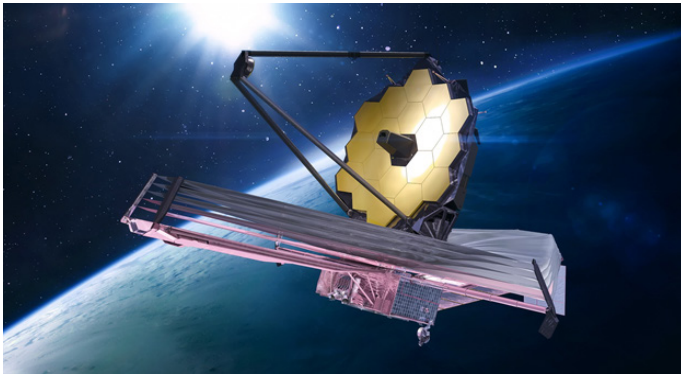
### About Venus:

- Venus is the **second planet from the Sun**. It is sometimes called Earth's "sister" or "twin" planet as it is almost as large and has a similar composition.
- As an interior planet to Earth, Venus (like Mercury) appears in Earth's sky never far from the Sun, either as morning star or evening star.
- Aside from the Sun and Moon, **Venus is the brightest natural object in Earth's sky**, capable of casting visible shadows on Earth at dark conditions and being visible to the naked eye in broad daylight.
- **Venus is the second largest terrestrial object of the Solar System**. It has a surface gravity slightly lower than on Earth and has a very weak induced magnetosphere.
- The atmosphere of Venus consists mainly of carbon dioxide, and, at the planet's surface, is the densest and hottest of the atmospheres of the four terrestrial planets.
- With an atmospheric pressure at the planet's surface of about 92 times the sea level pressure of Earth and a mean temperature of 737 K (464 °C; 867 °F), the carbon dioxide gas at Venus's surface is in the supercritical phase of matter.
- **Venus is shrouded by an opaque layer of highly reflective clouds of sulfuric acid**, making it the planet with the highest albedo in the Solar System.
- It may have had water oceans in the past, but after these evaporated the temperature rose under a runaway greenhouse effect.

- The possibility of life on Venus has long been a topic of speculation but convincing evidence has yet to be found.

## JAMES WEBB TELESCOPE

**In News:** The James Webb Space Telescope has discovered its first new exoplanet.



### More on the Topic:

- Researchers have labelled the planet as LHS 475 b, and it's roughly the same size as Earth.
- Located just 41 light-years away, the planet orbits very close to a red dwarf star and completes a full orbit in just two days.
- Discovering exoplanets is quite tough as they are small and hard to spot around their bright host stars.
- Scientists rely on indirect methods, such as the **transit method**, which is "measuring the dimming of a star that happens to have a planet pass in front of it".

### What are exoplanets?:

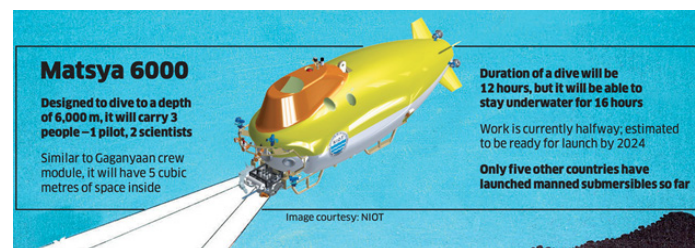
- Exoplanets are planets that orbit other stars and are beyond our solar system.
- According to NASA, to date, more than 5,000 exoplanets have been discovered. Scientists believe that there are more planets than stars as each star has at least one planet orbiting it.
- Exoplanets come in a host of different sizes. They can be gas giants bigger than Jupiter or as small and rocky as Earth. They are also known to have different kinds of temperatures boiling hot to freezing cold.
- Studying exoplanets not only broadens our understanding of other solar systems but also helps us piece together information about our own planetary system and origin.

### About James Webb Telescope:

- It is the most **powerful infrared telescope** launched by NASA.
- The telescope is the result of an international collaboration between NASA, the European Space Agency (ESA), and the Canadian Space Agency.
- Objectives of the Webb space telescope include
  - **Search for the galaxies** that formed the very beginning after the Big Bang.
  - Determine the **evolution of galaxies** from their earlier formation until now.
  - Observe the **stages of the formation of stars** until the formation of planetary systems.
  - Measure the **physical and chemical properties of planetary systems** and investigate the potential for life in such systems.

## SAMUDRAYAN MISSION

**In News:** A three-member crew will be sent around 6,000 metres below sea level as part of a Samudrayaan Mission expected to be completed by 2026.



### More on the Topic:

- **Matsya**, an Indian-made deep-submergence vehicle developed under the Deep Ocean Mission plan for the exploration of rare minerals, will carry the crew for the exploration of deep-sea resources such as minerals.
- This mission is expected to be realised in next three years.
- **Matsya-6000** is being designed and developed by the National Institute of Ocean Technology (NIOT) in Chennai under the ministry of earth sciences.

### About Samudyan Mission:

- The Samudrayaan project is a part of the deep-sea ocean mission under MoES approved in 2021.

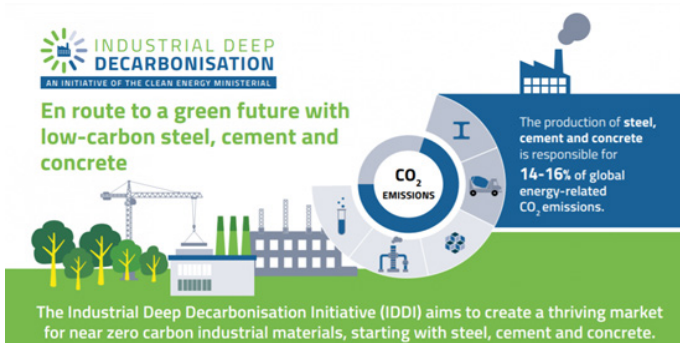
- Samudrayaan Mission is aimed to develop a self propelled manned submersible to carry 3 human beings to a water depth of 6000 meters in the ocean with a suite of scientific sensors and tools for deep ocean exploration.
- It has an endurance of 12 hours of operational period and 96 hours in case of emergency.
- The manned submersible will allow scientific personnel to observe and understand unexplored deep sea areas by direct interventions. Further, it will enhance the capability for deep sea man rated vehicle development.
- The projected timeline is five years for the period 2020-2021 to 2025-2026.

#### About Deep Ocean Mission:

- Indian Space Research Organisation (ISRO) is one of the collaborators of the Ministry of Earth Sciences for implementation of Deep Ocean Mission (DOM).
- The objectives of the mission include:
  - To develop technologies for mining of deep sea resources like Polymetallic nodules
  - To provide the future projections or predictions on the trends in sea level along the Indian coast, cyclone intensity and frequency, storm surges, wind waves, biogeochemistry and ecosystem that affect the fishery etc.
  - To install deep ocean observations (below 2 km depth) over the Indian Ocean.
  - Development of DNA bank of deep-sea fauna of Northern Indian Ocean through systematic sampling using Remotely Operated Vehicle.
- Support Blue Economy.

## GREEN STEEL AND CEMENT

**In News:** According to the Energy Technology Perspectives 2023 report, Most net-zero emission (NZE) routes for steel and cement production are not yet commercially available.



#### More on the Topic:

- Key technologies such as carbon capture, utilisation and storage for cement and steel industries and hydrogen-based steel manufacturing are still in prototype and demonstration stages.
- Current manufacturing goals can't meet NZE target when it also comes to components such as batteries, electrolyzers, off-shore wind parts, and heat pumps.
- In order to achieve the same, battery manufacturing capacity for electronic vehicles has to multiply by six times the present capacity by 2030,
- Global co-operation and international knowledge transfer is vital in this regard.
- The researchers suggest that these gaps can be met with heavy investment at around \$650 billion a year by 2030, which is more than three times the present investment in clean energy technologies.
- In order to meet their pledges to the Paris agreement, most countries will have to engage more workers to install and manufacture clean energy technologies widely.

#### About Green Steel:

- Green Steel is the manufacturing of steel without the use of fossil fuels.
- This can be done by using low-carbon energy sources such as hydrogen, coal gasification, or electricity instead of the traditional carbon-intensive manufacturing route of coal-fired plants.

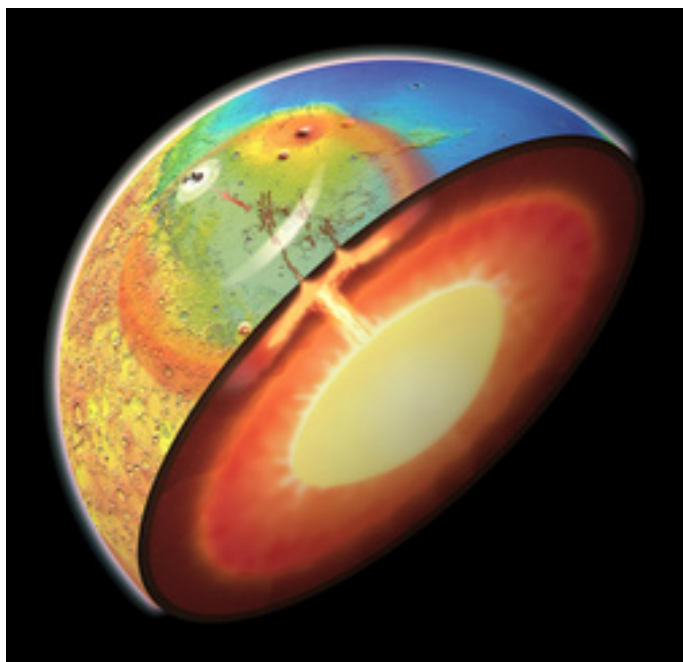
#### About Green Cement:

- Green Cement is an eco-friendly cement that uses a carbon-negative process of manufacturing.
- The major raw materials used to produce green cement include mostly the discarded waste from the industry.
- The slag from the blast furnace and fly ash are the chief materials used in the manufacturing of green cement.

## MARS MANTLE PLUMES

**In News:** According to scientists, a giant mantle plume may be situated underneath a low-lying area of the Mars.





### More on the Topic:

- Scientists have often considered Mars to be a dead planet due to the lack of the geological activity that rocks Earth and Venus.
- However, a new study shows evidence of what could be an active mantle plume beneath the surface of the red planet.
- The mantle plume is situated underneath a low-lying area called Elysium Planitia that lies north to the equator.
- Though an otherwise indistinctive area, scientists found unexpected evidence of geological activities in Elysium in the recent past.

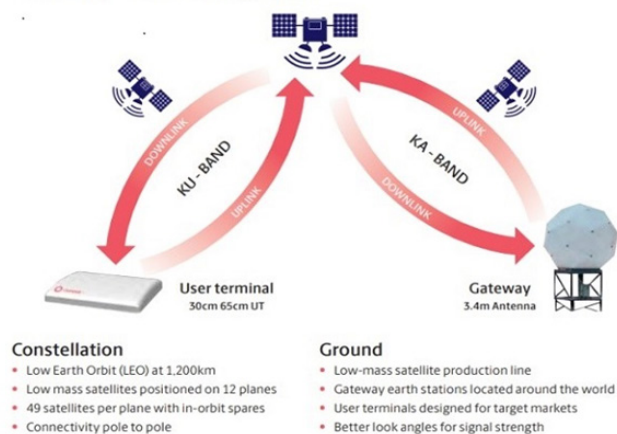
### About Mantle Plumes:

- Mantle plumes are large blobs of molten rock that rise towards the surface from the interiors of a planet.
- They push through the intermediate or mantle layers and accumulate at the base of the crust.
- This geological phenomenon can be witnessed on Earth in Hawaii where the warm materials from the plume ooze out of fissures to create great volcanic plains.

## ONEWEB

**In News:** OneWeb, the London-based satellite internet services company backed by Indian conglomerate Bharti Enterprises and the UK government has announced the successful deployment of 40 of its satellites launched by SpaceX.

### How our connectivity works



### More on the Topic:

- With the launch, OneWeb has a total of 542 operation satellites in orbit (two satellites failed), which is more than 83% of the total 648 satellites planned by the company.
- OneWeb plans to provide low-latency high-speed satellite internet services using constellations of low-Earth satellites.
- OneWeb will play an increasingly important role in offering connectivity to enterprises and in areas where terrestrial networks cannot reach easily.

### About OneWeb:

- It is a global communications network, powered from space, enabling connectivity for governments, businesses, and communities.
- OneWeb Constellation operates in a LEO Polar Orbit
- Satellites are arranged in 12 rings (Orbital planes) with 49 satellites in each plane.
- Each satellite completes a full trip around the earth every 109 minutes.
- The earth is rotating underneath satellites, so they will always be flying over new locations on the ground.

### About Satellite Internet Services:

- Satellite Internet Services is a wireless internet connection which uses satellites to get an internet signal from Internet Service Provider (ISP) to users.
- It operates using two way satellites like VSAT (Very Small Aperture Terminal) or telecommunication satellites to liaison between ISPs and Users with satellite dishes.
- These can be geostationary satellites or satellites in LEO.

- It is different from satellite television as Internet signals have to go both ways with a much greater amount of bandwidth to move all that data.

## FLOATOVOLTAICS

**In News:** Floatovoltaics, floating solar plants, or FSPV (floating solar photovoltaic) are considered future of solar energy.



### More on the Topic:

- They are panel structures that are installed on water bodies like lakes, basins, and reservoirs instead of on solid structures like a roof or terraces.
- The biggest impetus behind the rise of large-scale FSPV has been that it doesn't take up any land space, which could be then used for construction and agriculture.
- In recent years, floating solar power plants have become part of India's plans of solar expansion.
- According to a 2020 study by TERI (The Energy and Resources Institute) reservoirs cover 18000 square Kilometer in India and can generate 280 GW through floating solar panels.

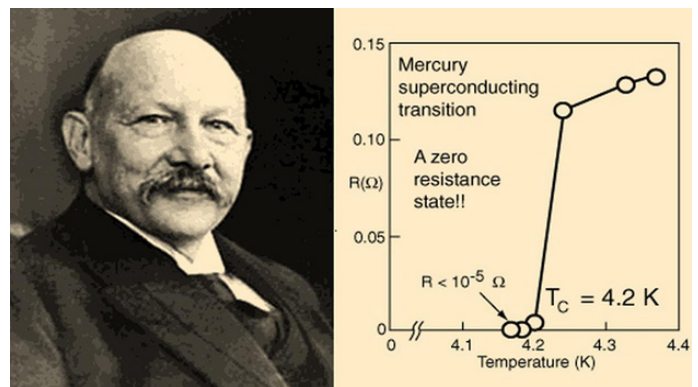
### The Advantages and Disadvantages of Floatovoltaics:

- The Pros: it doesn't occupy land which could be used for other purposes.
- But it is much costlier than land-based solutions, about 15 to 30% more than its terrestrial counterparts.
- And it is not ideal for households, it is usually done for government projects, corporates, and commercial entities.
- The water beneath the solar modules provides a cooling effect to the modules, resulting in much more improved efficiency than their terrestrial counterparts.

- But one of the pitfalls of this is that **the algae and other aquatic life get affected**, because of the lack of direct sunlight that they thrive upon.
- There are also a lot of maintenance issues associated with floating plants, special care is needed to be given to electrical safety.

## SUPERCONDUCTIVITY OF MERCURY

**In News:** For the first time, physicists have a complete microscopic understanding of why Mercury is having Super conductivity.



### More on the Topic:

- Superconductivity is the ability of a material to conduct electricity without any resistance.
- It is observed in many materials when they are cooled below a critical temperature  $T_c$  that marks the transition to the superconducting state.
- In the Bardeen-Cooper-Schrieffer (BCS) theory of conventional superconductivity, this transition occurs when electrons overcome their mutual electrical repulsion to form so-called "Cooper pairs" that then travel unhindered through the material as a super current.
- In 1911, Dutch physicist Heike Kamerlingh Onnes discovered superconductivity in mercury. He found that at a very low temperature, called the threshold temperature, solid mercury offers no resistance to the flow of electric current.
- While scientists have used the BCS theory to explain superconductivity in various materials, they have never fully understood how it operates in mercury-the oldest superconductor.

### Mercury's Superconductivity:

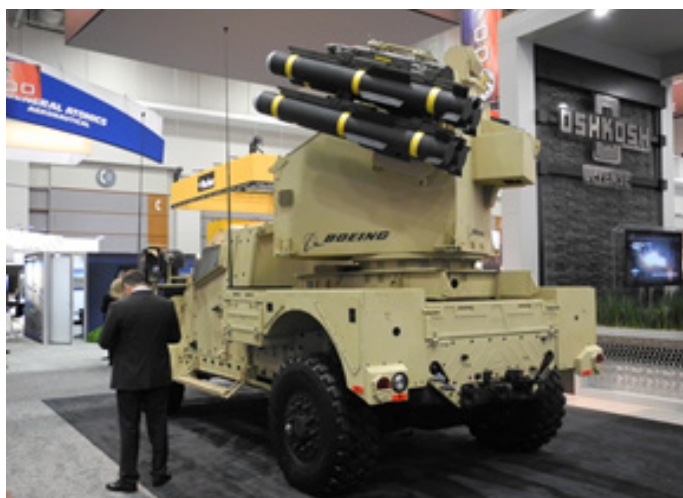
- When the researchers accounted for the relationship between an electron's spin

and momentum, they could explain why mercury has such a low threshold temperature (around  $-270^{\circ}\text{C}$ ).

- The group found that one electron in each pair in mercury occupied a higher energy level than the other.
- This lowered the Coulomb repulsion (like charges repel) between them and nurtured superconductivity.
- Thus, the group has explained how mercury becomes a superconductor below its threshold temperature.
- The findings suggest that we could have missed similar anomalous effects in other materials, leading to previously undiscovered ones that can be exploited for new and better real-world applications.

## VSHORAD MISSILE

In News: Defence Research and Development Organisation (DRDO) has successfully conducted test of the Very Short Range Air Defence System (VSHORADS) missile.



### More on the Topic:

- These are short-range, lightweight and portable surface-to-air missiles. These can be fired by individuals or small groups to destroy aircraft or helicopters.
- It is a man-portable air defence system (MANPADS).
- It is designed and developed by the Defence Research and Development Organisation (DRDO).
- Propelled by a dual thrust solid motor, it incorporates many novel technologies including miniaturised Reaction Control System (RCS) and integrated avionics.

## PRITHVI-II

In News: India has carried out a successful test launch of tactical ballistic missile Prithvi-II from a test range off the Odisha coast.

**Indigenously developed**  
**Nuclear capable**  
**Surface-to-surface**

**Prithvi-II missile** **Test-fired**

As part of a user trial by the Army

**Strike range: 350 km**  
**Payload: 500-1,000 kilogram of warheads**  
**Thrust by liquid propulsion twin engines**  
**Uses advanced inertial guidance system with manoeuvring trajectory to hit its target**

The entire launch activities were carried out by the specially formed Strategic Force Command of Army and monitored by scientists of DRDO as part of training exercise

Chandipur  
 Balasore

PTI GRAPHICS

### More on the Topic:

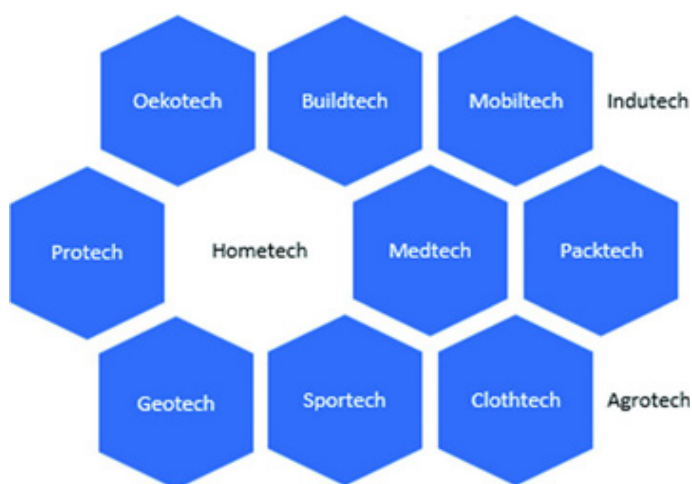
- Prithvi was developed by the DRDO under the Integrated Guided Missile Development Programme.
- It is an indigenously developed Surface-to-Surface Missile Short-Range Ballistic Missile (SRBM), which has a range of around 250 km-350km and can carry a one tonne payload.
- Prithvi II class is a single-stage liquid-fueled missile having a maximum warhead mounting capability of 500 kg, but with an extended range of 250 km (160 mi).
- It was developed with the Indian Air Force being the primary user.
- It was first test-fired on 27 January 1996 and the development stages were completed in 2004.



- This variant has been inducted into the army as well. In a test, the missile was launched with an extended range of 350 km (220 mi) and had improved navigation due to an inertial navigation system. The missile features measures to deceive anti-ballistic missiles.

## TECHNICAL TEXTILES

**In News:** The central government has issued guidelines to enable new undergraduate and postgraduate technical textiles degree programmes and update existing conventional degree programmes with new papers on Technical Textiles for private and public institutes.



### More on the Topic:

- The Ministry of Textiles has given clearance to two guidelines -- 'General Guidelines for Enabling of Academic Institutes in Technical Textiles - for Private & Public Institutes' and 'General Guidelines for Grant for Internship Support in Technical Textiles (GIST)' -- under the flagship programme of National Technical Textiles Mission.
- A grant of upto 20,000 per student per month shall be provided to the empaneled companies for providing internships to B.Tech students of relevant Departments/Specializations in Public/Private Institutes under the GIST guidelines.
- This move will support in creating quality manpower, especially industry-trained engineers and professionals, and highly skilled workmen both for manufacturing and application areas of technical textiles along with fostering Academia – Industry linkages in the field of Technical Textiles.

### About Technical Textiles:

- A technical textile is a textile product manufactured for non-aesthetic purposes, where function is the primary criterion.
- Technical textiles include textiles for automotive applications, medical textiles (e.g., implants), geotextiles (reinforcement of embankments), agrotextiles (textiles for crop protection), and protective clothing (e.g., heat and radiation protection for fire fighter clothing, molten metal protection for welders, stab protection and bulletproof vests, and spacesuits).
- Depending upon their application areas, **Technical Textiles products are divided into 12 broad categories:** Agrotech, Buildtech, Clothtech, Geotech, Homotech, Indutech, Mobiltex, Meditech, Protech, Sportstech, Oekotech, Packtech.

### National Technical Textiles Mission:

- To increase the penetration level of technical textiles in India while leveraging the extraordinary growth rate of the sector, the Ministry of Textiles has launched the National Technical Textiles Mission.
- The aim of the mission is to position India as a global leader in Technical Textiles.
- It also supports the 'Make in India' initiative promoting domestic manufacturing of related machinery and equipment.

### The mission will comprise of the following four components:

- Research, Innovation and Development
- Promotion and Market Development
- Export Promotion
- Education, Training, Skill Development

## BLOCKCHAIN FOR IMPROVING FARM EXPORTS

**In News:** India's natural farming could soon get a technological push through blockchain.

### More on the Topic:

- The government plans to use the technology across all export-driven crops to increase the country's food shipments and incentivise farmers to take up chemical-free processes.

## Tech Take

**Blockchain to help store**  
data of the crop and its  
produce

**Storage and supply**  
chain to be monitored  
at all levels

**Will help in better quality**  
production, reduce wastage

**Pilot project**  
launched in  
HP for apples

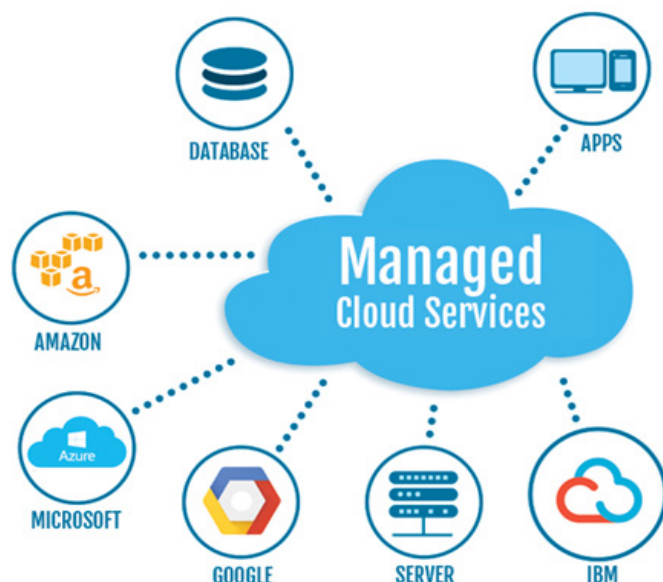
**Model will**  
be replicated  
for grapes,  
mangoes and  
others



technology could be misapplied or misused, putting food security at risk.

## CLOUD SERVICES

**In News:** Many of India's startups are having their business oriented at cloud services.



- The Niti Aayog has launched a pilot project in collaboration with the Himachal Pradesh government on apple farming, to ensure quality production while also monitoring the produce across the entire storage and supply chain.
- Lack of quality produce and traceability has hampered India's food exports apart from disincentivising growers. Blockchain technology can help bridge this gap.
- Blockchain will help bridge this gap by removing redundant processes, ensuring quality control and monitoring produce across entire storage and supply chain.

### Application of Block chain in Agriculture:

- Blockchain technologies can track all types of information about plants, such as seed quality, and crop growth, and even generate a record of the journey of the plant after it leaves the farm.
- This data can improve supply chain transparency and eliminate concerns associated with illegal and unethical operations.
- By allowing information to be traced across the agricultural supply chain, blockchain agriculture enhances food safety.
- The ability of blockchain to store and manage data allows for traceability, which is used to aid in the development and implementation of intelligent farming and index-based crop insurance systems.
- IoT devices and sensors are being introduced by agritech companies, and blockchain technology can be used to consolidate data on a variety of topics, including seed quality, crop tracking, and the path of crops from the farm to the market.

### Concerns:

- Small-scale farmers, who lack the necessary size, technological know-how, and scalability to take advantage of blockchain technology, may be left behind.
- Concerns have been raised that blockchain

### More on the Topic:

- Cloud storage is a service model in which data is transmitted and stored on remote storage systems, where it is maintained, managed, backed up and made available to users over a network - typically, the internet.
- Users generally pay for their cloud data storage on a per-consumption, monthly rate.
- Cloud storage is based on a virtualized storage infrastructure with accessible interfaces, near-instant elasticity and scalability, multi-tenancy, and metered resources.
- Cloud-based data is stored in logical pools across disparate, commodity storage servers located on premises or in a data center managed by a third-party cloud provider.
- Cloud service providers manage and maintain data transferred to the cloud.
- Storage services are provided on demand in the cloud, with capacity increasing and decreasing as needed.
- Organizations opting for cloud storage eliminate the need to buy, manage and maintain in-house storage infrastructure.
- Cloud storage has radically driven down the per-gigabyte cost of storage, but cloud storage providers have added operating expenses that can make the technology

considerably more expensive, depending on how it's used.

### Types of Cloud:

- **Public cloud:** These storage services provide a multi-tenant storage environment that is most suited for unstructured data on a subscription basis.
- This market sector is dominated by the following services:
  - Amazon Simple Storage Service (S3);
  - Google Cloud Storage; etc
- **Private cloud:** A private cloud storage service is an in-house storage resource deployed as a dedicated environment protected behind a firewall.
- **Hybrid cloud:** This cloud storage option is a mix of private cloud storage and third-party public cloud storage services, with a layer of orchestration management to operationally integrate the two platforms.

### NASA - OSIRIS-REX

**In News:** OSIRIS-REx is now fast returning to Earth with up to a kilogram of precious asteroid samples stored aboard.



### More on the Topic:

- The Origins Spectral Interpretation Resource Identification Security – Regolith Explorer, mercifully more commonly known as OSIRIS-REx, is a NASA mission to near-Earth asteroid Bennu.
- A key goal of this robotic mission was to acquire samples of Bennu and return them to Earth for analysis.
- If all goes well, the capsule will detach from the spacecraft, enter the Earth's atmosphere and parachute to a soft landing in the deserts of Utah on September.
- Asteroid sample return has only been

achieved once before, by the Japanese Space Agency's Hayabusa 2 mission in 2020.

### About Asteroid Bennu:

- Bennu is an approximately diamond-shaped world just half a kilometre in size, but has many interesting characteristics.
- It is believed to have broken off from a much larger asteroid in the first 10 million years of the Solar System.
- Some of the minerals detected within it have been altered by water, implying that Bennu's ancient parent body possessed liquid water.
- It also has an abundance of precious metals, including gold and platinum.
- Finally, Bennu is classed as a potentially hazardous object with a (very) small possibility of Earth impact in the next century.

### ESA JUICE MISSION

**In News:** The European Space Agency (ESA) is set to launch the Jupiter Icy Moons Explorer (Juice) mission.



### More on the Topic:

- It will be Europe's first dedicated robotic mission to Jupiter.
- Juice is due to reach the planet in July 2031 after performing an incredible flight path through the Solar System.
- The mission will enter into orbit around Jupiter and perform numerous flybys of its large icy moons: Europa, Ganymede and Callisto.
- After four years of moon flybys, Juice will then enter into orbit around Ganymede, the largest moon in the Solar System becoming

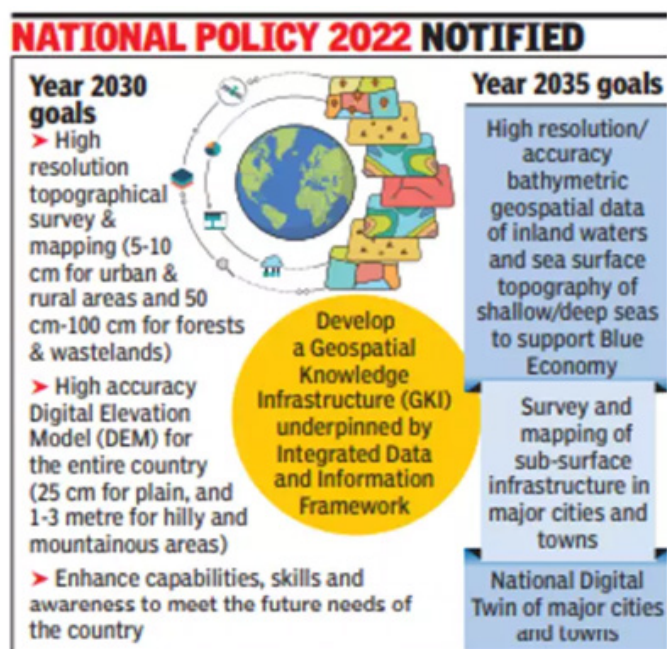


the first spacecraft ever to reach orbit around the moon of another planet.

- The icy moons of Jupiter are interesting as they are all believed to host oceans of liquid water beneath their frozen surfaces.
- Europa, in particular, is regarded as one of the most likely abodes in the Solar System for extra-terrestrial life.
- Juice will be equipped with ten scientific instruments including ice-penetrating radar to study the internal oceans.

## NATIONAL GEOSPATIAL POLICY

In News: The National Geospatial Policy was unveiled by Ministry of Science and Technology recently.



### More on the Topic:

- The policy has spelt out 13 milestones for the country to achieve to have a thriving geospatial industry involving private enterprises.
- The aims include creating a high accuracy digital elevation model for the entire country by 2030 and digital twins of major cities and towns by 2035.
- Digital Twin is a virtual replica of a physical asset, process or service that lies at the core of the new digital revolution.
- National Digital Twin would be an ecosystem of smart, dynamic, connected Digital Twins, enabled by secure and interoperable data sharing, to facilitate better decision-making.

## Geospatial Technology:

- Geospatial Technology is a term used to describe a range of modern tools like the Geographic Information System (GIS), Remote Sensing (RS) and Global Positioning System (GPS).
- Geospatial technology uses tools like GIS, GPS and Remote Sensing for geographic mapping and analysis.
- These tools capture spatial information about objects, events and phenomena (indexed to their geographical location on earth, geotag).
- The location data may be Static or Dynamic.
- Geospatial technology enables us to acquire data that is referenced to the earth and use the data for analysis, modelling, simulations and visualisation.
- It enables better measurement, management, and maintenance of assets, monitoring of resources and even providing predictive and prescriptive analysis for forecasting and planned interventions.

### India's Geospatial Market:

- India's geospatial market, including domestic and exports, is estimated to be worth approximately Rs 27,650 crore in 2025, rising from Rs 22,940 crore in 2019.
- The sector is expected to grow to Rs 63,000 crore by 2030.
- The past decade has seen an increase in the use of geo-spatial data in daily life with various apps.
- These include food delivery apps like Swiggy or Zomato, e-commerce like Amazon, cab hailing apps like Ola and Uber and many weather apps.
- However, the sector is still dominated by the Government as well as government-run agencies such as the Survey of India (SOI).

### Guidelines for Geospatial Data, 2021:

- Guidelines for Geospatial Data, 2021: The guidelines were released by the Ministry of Science and Technology in February 2021 to deregulated existing protocols.
- The guidelines eliminated the requirement of permissions as well as scrutiny, even for security concerns for Indian Companies.

## BRAHMOS AIR LAUNCHED MISSILE

**In News:** The Indian Air Force today successfully tested the extended range version of the BrahMos Air Launched missile against a ship target from Su-30 MKI fighter jet.

### BrahMos-A

The air-launched version of BrahMos Will arm Su-30MKI of IAF as a standoff weapon

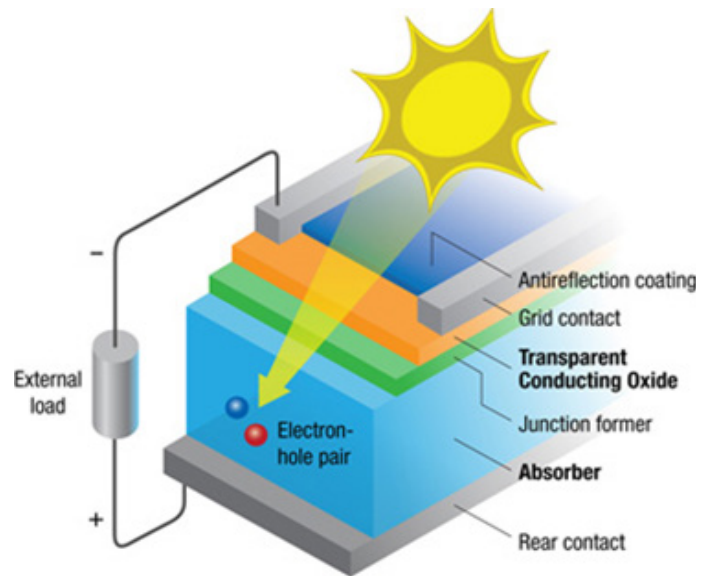
**25 June 2016:**  
Successful demonstration flight carried out at HAL Nashik

**22 November 2017**  
Specially modified Su-30 MKI of IAF test fired the Brahmos A missile on a ship stationed 280 km away in the Bay of Bengal

India became a part of elite group of nations who have capability to launch air launched cruise missile

PTI GRAPHICS Source: Wikipedia

Specifications	
Missiles per aircraft	One
Length	8550 mm
Diameter	648 mm
Weight	2550 kg
Range	up to 290 km
Velocity	up to 2.8 Mach
Ground Clearance	-1000 mm
Release Height	500 m-9000 m
Release Speed	0.55-0.8 Mach
Free fall	100-150 m
Altitude- cruise phase	up to 14000 m



### More on the Topic:

- The BrahMos is a medium-range stealth ramjet supersonic cruise missile that can be launched from submarine, ships, airplanes or land.
- It is a joint venture between India and Russia.
- BrahMos is a two-stage missile with a solid propellant booster engine.
- Its first stage brings the missile to supersonic speed and then gets separated.
- The liquid ramjet or the second stage then takes the missile closer to three times the speed of sound in cruise phase.
- The missile has a very low radar signature, making it stealthy, and can achieve a variety of trajectories.
- The 'fire and forget' type missile can achieve a cruising altitude of 15 km and a terminal altitude as low as 10 m to hit the target.

## ORGANIC SOLAR CELLS

**In News:** IIT Kanpur scientists have developed organic solar cell gadgets.

### More on the Topic:

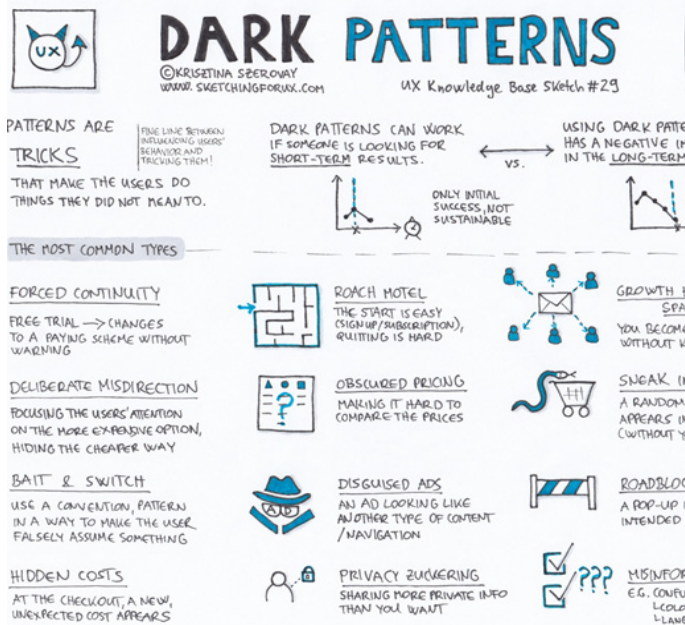
- Solar cells can convert a steel roof into an energy-producing device more efficiently than currently.

- An organic solar cells consisting of a combination of an organic polymer and PCBM (an organic semiconductor) developed on steel substrates can potentially convert a steel roof into an energy-producing device with greater efficiency than those currently available in the market.
- The potential of third-generation solar cell technologies lies in their integration with flexible and conformal surfaces.
- However, this integration requires developing new top transparent conducting electrodes as alternatives to indium tin oxide, an optoelectronic material currently in use and poses limitations because of its brittleness and as its optoelectronic efficiency varies with temperature.
- The new technology demonstrated the integration of multi-layered electrodes of configuration MoO<sub>3</sub>/Au/MoO<sub>3</sub> with the organic solar cells.
- These electrodes offer higher optical transmission as compared to only metallic electrodes.
- The devices with multilayer electrodes showed a clear improvement in the photovoltaic performance by 1.5 times, as compared with those obtained with single-layer top metal electrodes of gold.

## DARK PATTERNS

**In News:** Some Internet-based firms have been tricking users into agreeing to certain conditions or clicking a few links. Such acceptances and clicks are flooding inboxes of the users with promotional emails they never wanted, making it hard to unsubscribe or request deletion.





- Dark patterns confuse users, introduce online obstacles, make simple tasks time-consuming, have users sign up for unwanted services/products, and force them to pay more money or share more personal information than they intended.
- Internet users who are able to identify and recognise dark patterns in their daily lives can choose more user-friendly platforms that will respect their right to choice and privacy.

## ARTIFICIAL PHOTOSYNTHESIS

**In News:** A study published recently has reported a way to achieve a relatively high efficiency in an artificial photosynthesis reaction in which water is split into oxygen and hydrogen using sunlight and a catalyst. The technique is called photocatalysis.

### More on the Topic:

- The technology could help lower the cost of green hydrogen.
- Photocatalytic STH is inspired by photosynthesis, where leaves use energy from incident sunlight to split water into oxygen and hydrogen.
- Here, "the process consists of a semiconductor photocatalyst wafer immersed in freshwater or seawater.
- When photons in sunlight strike the wafer, they dislodge electrons in its atoms, which trigger a redox reaction in the water and separate hydrogen and oxygen.
- The energy source is sunlight and the feed-stock is water – both abundant on Earth and green by nature.

## TRANS FAT

**In News:** According to WHO, Five billion people globally are exposed to harmful trans fat, increasing their heart disease and death risk.



### More on the Topic:

- Such patterns are unethical user interface designs that deliberately make your Internet experience harder or even exploit you. In turn, they benefit the company or platform employing the designs.
- By using dark patterns, digital platforms take away a user's right to full information about the services they are using, and reduce their control over their browsing experience.

### How do companies use dark patterns?

- Social media companies and Big Tech firms such as Apple, Amazon, Skype, Facebook, LinkedIn, Microsoft, and Google use dark or deceptive patterns to downgrade the user experience to their advantage.
- Example: Amazon came under fire in the EU for its confusing, multi-step cancellation process for the Amazon Prime subscription.
- After communicating with consumer regulators, Amazon this year made its cancellation process easier for online customers in European countries.
- Google-owned YouTube nudges users to sign up for YouTube Premium with pop-ups, obscuring the final seconds of a video with thumbnails of other videos – a way of disrupting what should have been an otherwise smooth user experience.

### Concerns Associated with Dark Patterns:

- Dark patterns endanger the experience of Internet users and make them more vulnerable to financial and data exploitation by Big Tech firms.



### More on the Topic:

- The data was published in the Report titled as Countdown to 2023 - WHO report on global trans fat elimination.
- Trans fat is considered the worst type of fat to eat. Unlike other dietary fats, trans fats also called trans-fatty acids raise "bad" cholesterol and also lowers "good" cholesterol.
- A diet laden with trans fats increases the risk of heart disease, the leading killer of adults.
- Most of the trans fat in the foods we eat is formed through a manufacturing process that adds hydrogen to vegetable oil, which converts the liquid into a solid fat at room temperature. This process is called hydrogenation.
- This partially hydrogenated oil is inexpensive and less likely to spoil, so foods made with it have a longer shelf life. Some restaurants use partially hydrogenated vegetable oil in their deep fryers, because it doesn't have to be changed as often as do other oils.
- Some meat and dairy products have a small amount of naturally occurring trans fats. However, it's not clear how these trans fats affect health.
- Artificial trans fat has been banned in many nations, but it is still widely consumed in developing nations, resulting in hundreds of thousands of excess deaths each year.

### Proposed Solutions:

- **Mandatory National Limit of two grams of industrially produced trans fat per 100 grams of total fat in all foods;**
- **Mandatory National Ban on the production or use of partially hydrogenated oils (a major source of trans fat) as an ingredient in all foods.**

### ADVISORY TO ENSURE SAFETY OF WOMEN IN EDUCATIONAL INSTITUTIONS

**In News:** National Commission for Women has issued an advisory to the Chief Secretaries of all the States and Union Territories to ensure the safety of women in educational institutions.



### More on the Topic:

- Direct concerned authorities to conduct awareness program on Sexual Harassment of Women at Workplace Act, 2013 among all stakeholders in order to ensure that cases of sexual harassment at work are reported responsibly and effectively.
- Be ensured that coaching centres are registered with the relevant authorities.
- The Commission has also requested that a background check be conducted on those responsible for running the centres and that all of these coaching/educational institutions create a safe environment for female students' reads the official notice.

### PoSH Act:

- The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act was passed in 2013.
- It defined sexual harassment, lay down the procedures for a complaint and inquiry, and the action to be taken.
- It broadened the Vishaka guidelines, which were already in place.

### Key Features of PoSH Act:

- The sexual harassment has been defined and provided with redressal of complaint mechanism.

- Additionally, the Act mentions five circumstances that amount to sexual harassment.
- The Ministry of Women & Child Development's Handbook on Sexual Harassment of Women at Workplace constitutes more stances of sexual harassment.
- District Officer to constitute Local Committee to receive complaints from organisations with less than 10 workers or if complaint is against the employer itself.
- Procedure for complaint has been widened. It is not compulsory for the aggrieved victim to file a complaint for the ICC to act. If the woman cannot complain because of physical or mental incapacity or death or otherwise, her legal heir may do so.
- Under the Act, the complaint must be made within 3 months from the date of the incident. However, the ICC can extend the time limit upon its satisfaction.
- An internal complaints committee (ICC) is mandatory in every private or public organisation that has 10 or more employees.

## CASTE BASED CENSUS OF BIHAR

**In News:** The Supreme Court refused to entertain various pleas challenging the State Government's notification to conduct caste-based census in Bihar.



### More on the Topic:

- The Bihar Government launched the caste survey on January 2023.
- The plan is to compile data on each family digitally through a mobile application in the survey from the panchayat to the district level.
- The pleas implored the Supreme Court to quash the State Government's notification to conduct caste-based census.
- SC directed the petitioners to approach the High Court.

### About Caste Based Census:

- Caste census is the procedure of systematically acquiring and recording the caste-wise tabulation of particular population.
- Caste was included as a parameter in Census data only during the 1931 Census.
- Ever since independence, the Census had only the data related to SC and ST populations.
- Caste Census is under the administrative control of Ministry of Home Affairs.
- Rohini Commission was the recent attempt by categorisation within OBCs for better targeted service delivery.

### Significance of Caste Base Census:

- The According to Oxfam inequality data 5% of Indians own more than 60% of the country's wealth, while the bottom 50% of the population possess only 3% of the wealth.
- Considering the fact that Indian society is also stratified on the basis of caste we need to look into the caste based composition of the top 5%, middle 40% and bottom 50% of the Indian population in order to arrive at a fair conclusion about what the data actually represents for various caste groups in India.
- Caste based data is also necessary to justify the preservation of caste-based affirmative action programmes for better planning and targeting of welfare schemes.
- It will also provide quantifiable data to support the existing levels of reservation as required by Supreme court for groups like OBC.
- To have democratic debates and conversation which addresses on issues like disproportionate benefits from reservation by particular groups within each category.
- It will also help to address the inequities in the society.

### Arguments Against Caste Based Census:

- May breach 50% reservation bench mark of the SC of India.
- Might disrupt the existing social existence of different castes and communities.
- May hinder present norms associated with health, education, employment etc.

# REPORTS AND INDICES

## GENDER GAP REPORT

**In News:** The World Economic Forum (WEF) will take into account the participation of women at panchayat level to rank countries in its future Global Gender Gap reports, which will better India's position at the global level.



### More on the Topic:

- There are 1.4-million women in the Indian panchayat system whose political contribution will now be enumerated.
- So far, the WEF looked at four major verticals to assess gender gap in a country-economic participation, political participation, health and education levels.
- For women's political participation, the WEF looks at the number of women in the Union Cabinet and members in both houses of Parliament.
- It did not consider Ministers of State, women MLAs and state ministers, which is considered as a big omission and needed to be rectified.

### New Initiatives by WEF for India:

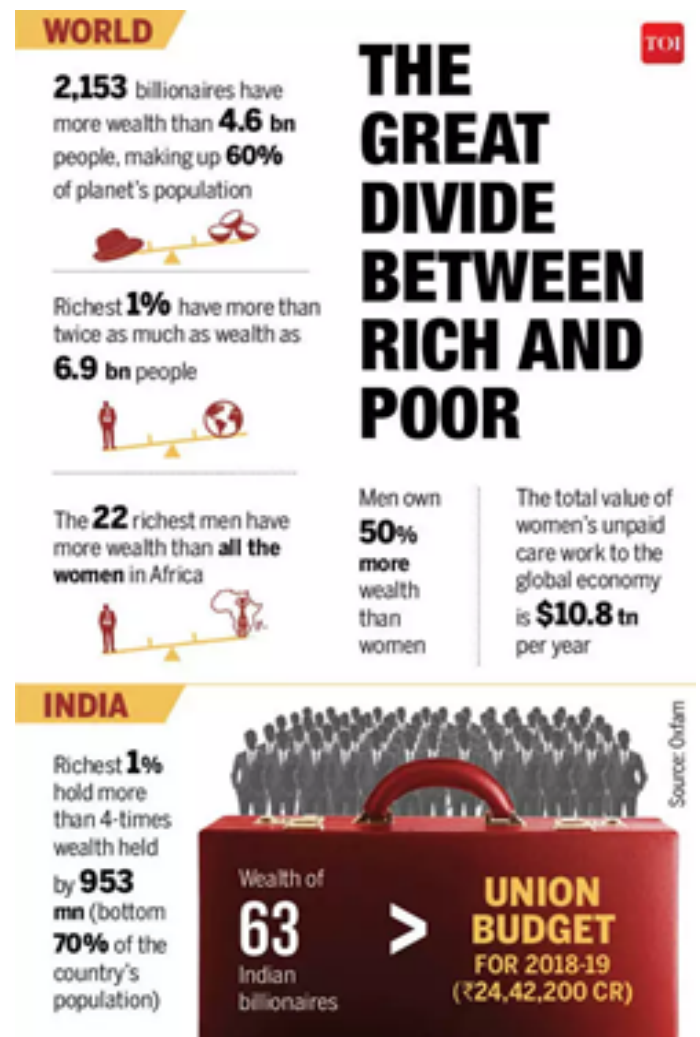
- The WEF will showcase on its digital platform' the impact achieved by the Indian government through its gender-budgeting system, "promoting gender equality in all sectors and at all levels of governance". For this, the WEF will collaborate with the 15th Finance Commission.
- The WEF will also establish a 'Skills and Gender Parity Accelerator' in India to identify and scale up targeted public-private initiatives that will prepare the Indian workforce for the future.

## About India's Performance in the Gender Gap Report:

- The World Economic Forum (WEF) ranked India at 135 out of 146 countries in its Global Gender Gap (GGG) Index for 2022.
- India's overall score has improved from 0.625 (in 2021) to 0.629, which is its seventh-highest score in the last 16 years.
- In 2021, India was ranked 140 out of 156 countries.
- Officials feel the inclusion of data on women's participation at the panchayat level will surely push India's ranking up on the global stage.
- The gender gap is the difference between women and men as reflected in social, political, intellectual, cultural, or economic attainments or attitudes.

## OXFAM REPORT ON RICH POOR DIVIDE

**In News:** OXFAM has presented a report on economic inequality in India.





## More on the Topic:

- According to the report, **50% of India's population owns only 3% of the country's wealth.** The country's 21 billionaires have more wealth than the wealth of 700 million Indians.
- From the time the pandemic began till November last year, billionaires in India have seen their wealth surge by 121%.
- With Rs 54.12 lakh crore wealth, India's 100 richest can fund the entire Union Budget for more than 18 months!
- Approximately **64% of the total Rs 14.83 lakh crore in Goods and Services Tax (GST) came from bottom 50% of the population in 2021-22**, whereas only 3% of GST came from the top 10%.
- The report further draws attention to the total number of billionaires in India increasing from 102 in 2020 to 166 billionaires in 2022.
- The analysis in the report further shows that if India's billionaires are taxed once at 2% on their entire wealth, it would support the requirement of Rs 40,423 crore for the nutrition of malnourished in the country for the next three year.
- From 2012 to 2021, **40% of the wealth created in India has gone to just 1% of the population and only a mere 3% of the wealth has gone to the bottom 50%.**
- The number of hungry Indians increased to **350 million in 2022 from 190 million in 2018.** The widespread hunger is resulting in 65% of the deaths among children under the age of 5 in 2022.

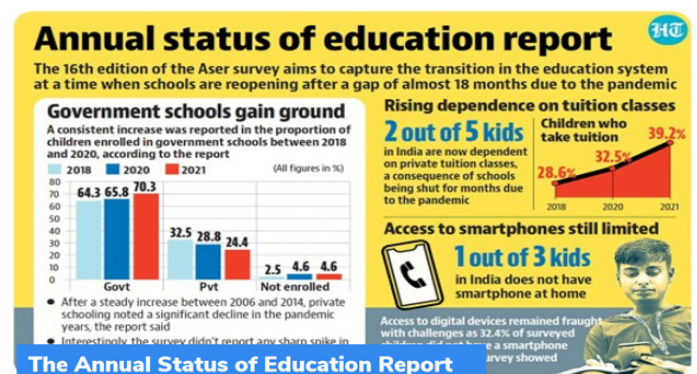
## Recommendation:

- **Taxing the Rich:** Permanently increase taxes on the richest 1%. The finance minister must especially **raise taxes on capital gains**, which are subject to lower tax rates than other forms of income. And also implement inheritance, property, and land taxes, as well as net wealth taxes.
- Introduce **one-off solidarity wealth taxes and windfall taxes to end crisis profiteering.**
- **Strengthen the Health Sector:** Enhance the budgetary allocation of the health sector to 2.5% of GDP by 2025, as envisaged in the National Health Policy, to reinvigorate the public healthcare system, reduce OOP expenditure and strengthen health prevention and promotion.

- **Strengthen Primary Health Centres (PHCs), Community Health Centres (CHCs) and government hospitals** with an adequate number of doctors, nurses, paramedics, equipment and other infrastructural requirements as per Indian Public Health Standard (IPHS) norms to make quality health service available within 3 Km radii of peoples' residence or workplace.
- **Increase Expenditure on Education/Reduce Inequality:** Enhance the budgetary allocation for education to the global benchmark of 6% of GDP, as also committed in the National Education Policy. The government must frame a year-wise financial roadmap to achieve the 6% mark.
- **Reduce existing inequality in education** by spending more on programs (for example Pre Metric and Post Metric scholarships) meant for improving educational status of students from marginalised sections (SC/ST/Girls).
- **Basic Minimum Wages:** Ensure workers in formal and informal sector are paid basic minimum wages. The minimum wages should be at **par with living wages** which is essential for to live a life with dignity.

## THE ANNUAL STATUS OF EDUCATION REPORT (ASER) 2022

In News: The Annual Status of Education Report (ASER) 2022, was released by the NGO Pratham recently.



## More on the Topic:

- As schools reopened after nearly two years of closure due to COVID-19, **student enrolments increased to more than pre-pandemic levels** but the learning gap widened for foundational skills in reading and arithmetic, reversing several years of improvement.

- Despite school closures during the pandemic, the overall enrolment figures, which have been above 95% for the past 15 years for the 6 to 14 years age group, increased from 97.2% in 2018 to 98.4% in 2022.
- The proportion of children in this (3-16 years) age group who are not currently enrolled also dropped to its lowest level ever to 1.6% from 2.8% in 2018.
- Government schools have seen a sharp increase in children enrolled from 65.6% in 2018 to 72.9% in 2022,.
- Children's basic literacy levels have taken a big hit, with their reading ability as compared to numeracy skills worsening much more sharply and dropping to pre-2012 levels.
- The percentage of children in Class 3 in government or private schools who were able to read at the level of Class 2 dropped from 27.3% in 2018 to 20.5% in 2022.
- Nationally, the proportion of children enrolled in Class 5 in government or private schools who can at least read a Class 2-level text fell from 50.5% in 2018 to 42.8% in 2022.
- The ASER reading test assesses whether a child can read letters, words, a simple paragraph at Class 1 level of difficulty, or a story at Class 2 level of difficulty.

#### About the Survey:

- ASER 2022 is first field-based 'basic' nationwide ASER since 2018.
- In ASER 2022, children in age group of 3 to 16 years were surveyed to record their schooling status and assess their basic reading and arithmetic skills.
- ASER (first conducted in 2005) is an annual, citizen-led household survey to understand whether children in rural India are enrolled in school and whether they are learning.
- Additional Information: National Achievement Survey (NAS) is undertaken by Ministry of Education. It provides structured feedback on student learning levels at District, State, and national levels.

## GLOBAL RISKS REPORT 2023

In News: A World Economic Forum has published Global Risk Report 2023.

Global Risks Report 2023

### Top 10 Risks

"Please estimate the likely impact (severity) of the following risks over a 2-year and 10-year period"

WORLD  
ECONOMIC  
FORUM



#### More on the Topic:

- The cost of living crisis as the biggest short-term risk facing the world right now, with climate change as the biggest long-term threat.
- The most-cited two-year term risks included natural disasters, geoeconomic confrontation, the erosion of social cohesion, widespread cybercrime, large-scale involuntary migration and natural resource crises, alongside climate change.
- Cybercrime and migration also featured as long-term risks, though climate-related issues took the top four spots.
- Economic aftereffects of COVID-19 and Ukraine war resulted in rising inflation, rapid normalization of monetary policies, low-growth, low-investment era.
- Technology such as AI, quantum computing and biotechnology, etc. will exacerbate inequalities and digital divide.
- The report states that governments will face "trade-offs" in the coming years as they try to navigate societal challenges, the environment, and security risks.
- The report stresses the need for more effective collaboration on climate mitigation and adaptation over the next decade to avoid "ecological breakdown" and continued global warming.

## RBI FINANCIAL STABILITY REPORT

In News: RBI has published the Financial Stability Report recently.



## **RBI'S FINANCIAL STABILITY REPORT (FSR)**

### **More on the Topic:**

- The gross non-performing asset (GNPA) ratio of scheduled commercial banks (SCBs) fell to a seven-year low of 5% in September 2022.
- Banks would be able to withstand even severe stress conditions.
- Banks would be able to comply with the minimum capital requirements even under severe stress scenarios.
- Buoyant demand for bank credit and early signs of a revival in investment cycle are benefiting from improved asset quality, return to profitability and strong capital and liquidity buffers of scheduled commercial banks (SCBs).

### **About RBI Financial Stability Report:**

- The Financial Stability Report (FSR) is a biannual report released by the Reserve Bank of India (RBI).
- The FSR reflects the collective assessment of the Sub-Committee of the Financial Stability and Development Council (FSDC) on risks to financial stability, as also the resilience of the financial system.

## **INDIA'S UNEMPLOYMENT RATE**

**In News:** Data from the Centre for Monitoring Indian Economy (CMIE) have showed that India's unemployment rate in December increased to a 16-month high at 8.30% from 8.00% in the previous month.

### **More on the Topic:**

- The urban unemployment rate rose to 10.09% in December from 8.96% in the previous month, while the rural unemployment rate slipped to 7.44% from 7.55%.
- The rise in the unemployment rate was "not as bad as it may seem," as it came on top of a **healthy increase in the labour participation rate**, which shot up to 40.48% in December, the highest in 12 months.

- India needs to move from a single focus on GDP growth to growth with employment, skilling of youth and creating production capacities with export prospects.

### **Definitions related to Employment.**

- The unemployment ratio is defined as the percentage of persons unemployed among the persons in the labour force.
- Unemployment occurs when a person who is actively searching for employment is unable to find work.
- **Worker-Population Ratio (WPR)** is defined as the percentage of employed persons in the population.
- **Labour Force Participation Rate (LFPR)** is defined as the percentage of persons in the labour force who are working or seeking or available for work in the population, in urban areas for persons aged 15 and above.

### **Periodic Labour Force Survey:**

- The National Statistical Office (NSO), Ministry of Statistics & Programme Implementation launched the **Periodic Labour Force Survey (PLFS)** in April 2017 to make the availability of labour force data at more frequent time intervals.
- The **key employment and unemployment indicators** (viz. Worker Population Ratio, Labour Force Participation Rate, Unemployment Rate) are published in the short time interval of three months for the urban areas only in the **Current Weekly Status (CWS)**.

## **ROAD ACCIDENTS IN INDIA – 2021**

**In News:** The Ministry of Road Transport and Highways has published the annual report 'Road accidents in India – 2021'.

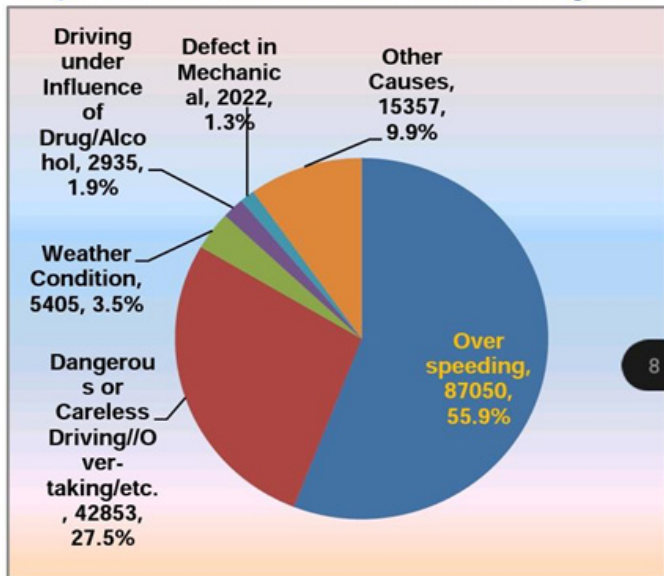
### **More on the Topic:**

- As per the report, there were **4,12,432** unfortunate incidences of road accidents during 2021 which claimed 1, 53,972 lives and caused injuries to 3, 84,448 persons.
- During the previous year 2020, country saw an **unprecedented decrease in accidents, fatalities and injuries**.
- This was due to the unusual outbreak of COVID-19 pandemic and resultant stringent nation-wide lockdown.



FIGURE-1A.6

Major Causes of Road Accident Deaths during 2021



As per data provided by States/UTs.

- Major indicators related with accidents have performed better in 2021 when compared to 2019.
- Road accidents decreased by 8.1% and injuries decreased by 14.8% in 2021 compared to 2019.
- Fatalities, however, on accounts of road accidents increased by 1.9% in 2021 corresponding to the same period in 2019.

**Government Efforts to Reduce Road Accidents:**

- Grant of Financial Assistance for Administering Road Safety Advocacy and Awards for the Outstanding Work Done in the Field of Road Safety.
- Crash Safety Norm of the vehicles have been revised.
- To strengthen the system of driver licensing and training to improve the competence and capability of drivers, Ministry of Road Transport and Highways is setting up model Institutes of Driving Training and Research (IDTR) Centres.
- The Motor Vehicles (Amendment) Act, 2019, expected to bring reforms in the various segments such as enforcement of Road Safety norms and guidelines, bring citizen facilitation, transparency, and reduce corruption with the help of information technology and removing intermediaries.
- A central repository, Integrated Road Accident Database (iRAD) system has been developed by Ministry for reporting, management, claim processing and analysis of road accidents data to enhance road safety in the Country.

# ANCIENT, MODERN INDIA AND ART & CULTURE

## BANJARA COMMUNITY

In News: Prime Minister Narendra Modi symbolically distributed Hakku Patra (land title deeds) to five families of the Banjara (Lambani) community.



### More on the Topic:

- Hakku patras or title deeds is a **property ownership document**, and the bearer of the document owns the land.
- The title deeds **enable owners to avail of bank loans** with the said document. They will also be eligible to buy or sell land to which the title deed is granted by the government.

### About Banjara Community:

- Banjara is a **nomadic tribe of India** and were the vital supply chain for villages.
- With roots in Rajasthan, Banjaras now live in several states and are known by different names like Lambada or Lambadi in Andhra Pradesh, Lambani in Karnataka; Gwar or Gwaraiya in Rajasthan etc.
- They were **commercial nomads**, that is, hundreds of years ago they distributed salt and other essential items to interior villages, but they did have a connection with the land.
- The Banjaras were among many tribes that resisted the British attempt to seize their lands for plantations and enrol them as labour.
- The Banjaras are a **key scheduled caste sub-group** in Karnataka, although they are

considered to be a tribal group in terms of the lives they lead.

- The Scheduled Castes and Scheduled Tribes together make up nearly 24% of the state population.

## PURANA QILA

**In News:** One of Delhi's landmark monuments, Purana Quila – will soon see a fresh round of excavation.



### More on the Topic:

- In earlier excavations it has come to light that there was continuous habitation of 2,500 years in Purana Quila and it was identified as the ancient settlement of Indraprastha.
- The artefacts recovered in the past include painted grey ware belonging to 900 BC, an earthen pottery sequence from Maurya to Shunga, Kushana, Gupta, Rajput, Sultanates and Mughal periods. Other objects found include terracotta toys and figurines, sickles, beads, kiln-burnt bricks, and seals.

### The About Purana Qila:

- Purana Qila is one of the oldest forts in Delhi, India.
- Purana Qila is built on the banks of river Yamuna. Purana Qila was renovated by Humayun in 1533 and it took around five years to complete.
- The fort was built inside Din Panah which was a small city in Delhi. Sher Shah Suri defeated Humayun in 1540 and captured the fort.
- Sher Shah Suri ruled for five years and in his reign he constructed many structures inside the fort and named the fort as Shergarh.

- After winning again, the renovation of the fort continued by Humayun.

## JAGANNATH TEMPLE PURI

**In News:** Odisha Governor Ganeshi Lal has backed the entry of foreign nationals inside the world-famous Jagannath Temple in Puri.



### More on the Topic:

- Only Hindus are allowed inside the shrine to offer prayers to the sibling deities in the sanctum sanctorum.
- It has been the practice for centuries even though there is no clearly articulated reason for it.
- Some historians believe that multiple attacks on the Temple by Muslim rulers might have led the servitors to impose restrictions on the entry of non-Hindus.
- Others have said that this was the practice from the time the Temple was built.

### About the Temple:

- The Temple is one of the four dhams (char dham) where Lord Jagannath, a form of Lord Vishnu, is worshipped along with his elder brother Lord Balabhadra and sister Devi Subhadra.
- The present temple was rebuilt from the 10th century onwards, on the site of an earlier temple, and begun by Anantavarman Chodaganga Deva, the first king of the Eastern Ganga dynasty.
- The Puri temple is famous for its annual Rath Yatra, or chariot festival, in which the three principal deities are pulled on huge and elaborately decorated temple cars.

### The Architecture:

- Main temple is constructed in Kalinga



architecture in such a way that no shadow of temple falls on the ground any time of the day.

- The temple has four distinct sectional structures, namely:
- Deula, Vimana or Garba griha (Sanctum sanctorum) where the triad deities are lodged on the ratnavedi (Throne of Pearls). In Rekha Deula style;
- Mukhashala (Frontal porch);
- Nata mandir/Natamandapa, which is also known as the Jagamohan (Audience Hall/Dancing Hall), and
- Bhoga Mandapa (Offerings Hall)

## ASSAM'S CHARAIDEO MOIDAMS

**In News:** Assam Chief Minister Himanta Biswa Sarma announced that the Centre will send a proposal to UNESCO for nominating Charaideo moidams of the Ahom kingdom as a World Heritage Site.



### More on the Topic:

- The Charaideo moidams are **royal burial sites of the Ahom dynasty**, which ruled over much of Assam and the North East from 1228 to 1826 AD.
- Located around 30 km from Sivasagar town in eastern Assam, even today, the tumuli in Charaideo are considered sacrosanct by many locals.

### What are moidams?

- A moidam is a tumulus (a mound of earth raised over a grave ) of Ahom royalty and aristocracy.
- A typical moidam at Charaideo contains one or more chambers in a vault.
- On top of these is a **hemispherical earthen mound**, rising high above the ground, covered in grass.
- On top of this mound, there is a **pavilion**, known as the chow chali. A low octagonal

wall surrounds the mound with one entrance.

- Ahom kings and queens were buried inside these moidams.
- The height of a moidam is typically indicative of the power and stature of the person buried inside.
- Inside the chambers of the moidam, the dead king would be buried along with items he needed for the "afterlife", as well as servants, horses, livestock and even their wives.
- It is the similarity of the Ahom burial rites with that of the ancient Egyptians that give Charaideo moidams the moniker of "Pyramids of Assam."

### Why was Charaideo important?

- While the Ahoms shifted capitals multiple times over their 600-year history, Charaideo is considered to be their first capital city established in 1253 AD by king Sukaphaa.
- Throughout the Ahom rule, it remained a **symbolic and ritual centre of power**, due to its salience in the dynasty's founding.
- After Sukaphaa was laid to rest in Charaideo in 1856, subsequent royals also chose it as their own resting place.

### Who were the Ahoms and what is their present-day relevance?

- The Ahoms were one of India's **longest-reigning ruling dynasties**. At their peak, their kingdom stretched from modern-day Bangladesh to deep inside Burma.
- Known to be able administrators and valiant warriors, the Ahom dynasty has enduring cultural appeal in Assam.
- The Ahoms represented a time when the "Assamese race was united and able to fight an alien, formidable force such as the Mughals".

## GUJARAT'S HARAPPAN NECROPOLIS

**In News:** Excavation at Gujarat's Harappan necropolis has revealed death rituals of 5,000 years ago.

### More on the Topic:

- Archaeologists found rows of graves with **skeletal remains, ceramic pots, plates and vases, beaded jewellery, and animal bones** that piqued their interest.





- Over time, it emerged as one the biggest Harappan burial sites, with the possibility of 500 graves, of which about 125 have been found so far.
- These are from 3,200 BCE to 2,600 BCE, predating Dholavira—a Unesco world heritage site—and several other Harappan sites in the state.
- The site is important because others like Dholavira have a cemetery in and around the town, but no major habitation has been discovered near Juna Khatiya,
- The site demonstrates the transition from earth-mound burials to stone graves.

#### **Specification of the Artefacts:**

- The pottery from the site have features and style similar to those excavated from early Harappan sites in Sindh and Balochistan.
- The rectangular graves were made of shale and sandstone, which are common rocks in the area, and other than items like clay bowls and dishes, prized possessions like beads and bangles of terracotta, seashells, and lapis lazuli were interred with dead.
- The majority of burial pits had five to six pots. In one, 62 pots were found. We have not found any metal artefact from the site so far.
- Some of the burial structures have boulders of basalt as coverings. Pebbles of local rock, basalt, soil, sand, etc were used for construction, and clay was used to bind them together," said Rajesh, delivering a lecture at IIT Gandhinagar last week.

#### **About Necropolis:**

- A necropolis is a large, designed cemetery with elaborate tomb monuments.
- The name stems from the Ancient Greek meaning "city of the dead". The pyramid at Giza, in Egypt, is an example of a necropolis – it's the tomb of an Egyptian pharaoh.

#### **About Indus Valley Civilisation:**

- Indus Valley Civilization was the first major civilization in South Asia, which spread across a vast area of land in present-day India and Pakistan (around 12 lakh sq.km).
- The time period of the mature Indus Valley Civilization is estimated between BC. 2700-BC.1900 ie. for 800 years. But early Indus Valley Civilization had existed even before BC.2700.
- Harappan Sites was discovered by Dayaram Sahni (1921) at Montgomery district, Punjab, Pakistan.
- Mohanjodaro was discovered by R. D. Banerji at Larkana district, Sind, Pakistan.
- The city was divided into Citadel(west) and Lower Town(east).

#### **MINIATURE VOTIVE STUPAS**

**In News:** Archeological Survey of India (ASI) has discovered two 1200-year-old miniature votive stupas during landscaping activities near Sarai Tila mound within the premises of 'Nalanda Mahavihara'.



#### **More on the Topic:**

- Beginning in the 7th century CE in India, small miniature terracotta stupas became popular as votive offerings.
- The stupas are votive stupas. They offered in fulfilment of a vow.
- Devout pilgrims visiting various holy sites and temples throughout Asia would either purchase small votive offerings or make their own.

### About Stupas:

- The Sanskrit term **stupa** refers to a heap.
- Stupas were constructed in sacred locations. These places were considered sacred because they were associated with **Buddha's life**.
- The ashes of the Buddha were buried in stupas built at locations associated with important events in the Buddha's life.
- It includes **Lumbini** (where he was born), **Bodh Gaya** (where he achieved Enlightenment), **Deer Park at Sarnath** (where he preached his first sermon sharing the Four Noble Truths (also called the dharma or the law), and **Kushinagara** (where he died).
- The choice of these sites and others were based on both real and legendary events.

### Important Stupa Architecture:

- Stupas consist of a cylindrical drum with a circular **anda** and a **harmika** and a **chhatra** on the top.
- **Anda**: Hemispherical mound symbolic of the mound of dirt used to cover Buddha's remains (in many stupas actual relics were used).
- **Harmika**: Square railing on top of the mound.
- **Chhatra**: Central pillar supporting a triple umbrella form.

### KUKI-CHIN COMMUNITY

**In News:** As another round of refugee crisis brews on the Mizoram-Bangladesh border, several members of the Kuki-Chin community were "pushed back" by the Border Security Force (BSF).



### More on the Topic:

- They had fled their village in **Ruma sub-district**, in **Bandarban district** of the **Chittagong Hill Tracts**, to escape alleged persecution at the hands of the Bangladesh security forces.
- Most of the refugees are from the **Bawm tribe**, a sub-tribe of the **Lai tribe**, which is part of the larger **Kuki-Chin ethnic community**.
- The Kuki-Chin tribes are spread out across the porous borders of **Mizoram in India**, **Bangladesh**, and **Myanmar** and share close ties.
- In Bangladesh, members of the community are part of the **Kuki-Chin National Army**, an armed wing of the **Kuki-Chin National Front**.
- It emerged around 2008, and has since been demanding a separate state in the **Chittagong Hill Tracts** to protect the interests and preserve the culture of the ethnic communities.
- In October, the **Bangladesh Rapid Action Battalion** had launched an operation against the **Front** as part of its broader action aimed at "separatists and militants".

### GAAN NGAI FESTIVAL - MANIPUR

**In News:** Zeliangrong Community Celebrated Gaan Ngai Festival in Manipur.



### More on the Topic:

- A **heat dome** occurs when an area of high-pressure traps warm air over a region, just like a lid on a pot, for an extended period of time.
- The **Gaan Ngai festival** is one of the major festivals of **Manipur** which is celebrated every year after harvesting.

- The festival also marks the end of the year when the farmers have stored their foodgrain in their granaries.
- During the festival, the Zeliarong community shows their gratitude by offering to the almighty a good harvest and praying for a better and prosperous life in the coming year.
- It is a custom to produce new fire by rubbing dry wood and split bamboo pieces and distributing them to every household on the day of the festival to mark the beginning of the new year.
- The Zeliarong community in Manipur comprises Rongmei, Liangmei, and Zeme tribes.

## SHIKHARJI JAIN TEMPLE

**In News:** Jains are protesting over Shri Sammed Shikharji.



### More on the Topic:

- Shikharji, often spelled Sammed or Sammet Shikharji, is a holy place in the Indian state of Jharkhand's Giridih district.
- The word 'Shikharji' in itself means a 'venerable peak'. Interestingly, the word 'Parasnath' comes from 'Parshvanatha', the 23rd Jain tirthankara who attained moksha here.
- The highest mountain in the state of Jharkhand, Parasnath Hill, is where it is situated.
- Both Digambara and Svetambara consider it to be the most significant Jain Tirtha (pilgrimage destination), as it is the location where twenty of the twenty-four Jain tirthankaras, together with numerous other monks, obtained Moksha.
- The Jnattrdharmakatha, one of the twelve

fundamental texts of Jainism, has the first mention of Shikharji as a Tirth (place of pilgrimage).

- According to beliefs of the Jain community, Shikharji is ranked with Ashtapad, Girnar, Dilwara Temples of Mount Abu and Shatrunjaya as the 'Svetambara Pancha Tirth' or the five principal pilgrimage shrines.
- If someone wants to do a pilgrimage of Shikharji, they must start with Palganj on Giridih road, where there is a small shrine dedicated to Parshvanatha.
- Then, they can make some offerings to the temples of Madhuban located at the base of Parasnath hill.
- Pilgrims have to cover a long trek of about 27km while doing a circumambulation of Shikharji.

## BHIMA KOREGAON BATTLE

**In News:** Lakhs of followers offered tributes at the Bhima Koregaon obelisk at Perne village on the occasion of the 205th-anniversary celebrations of the battle of Bhima Koregaon.



### More on the Topic:

- Battle of Koregaon was fought on 1 January 1818 between the British East India Company and the Peshwa faction of the Maratha Confederacy, at Koregaon Bhima.
- The 'Jaystambh' is obelisk in Bhima-Koregaon village commemorates the British East India Company soldiers who fell in a battle on January 1, 1818, where the British, with just 834 infantrymen – about 500 of them from the Mahar community – and 12 officers defeated the 28,000-strong army of Peshwa Bajirao II.



- The battle was part of the Third Anglo Maratha war, a series of battles that culminated in the defeat of the Peshwa rule and subsequent rule of the British East India Company in nearly all of Western, Central and Southern India.

### Significance of the 'Jaystambh' :

- The Mahars were considered untouchable in the contemporary caste-based society.
- The Peshwas, who were the 'high-caste' Brahmins, were notorious for their mistreatment and persecution of the untouchables.
- Because of this, the Dalits, after independence, saw the Koregaon obelisk as a symbol of their victory over the high-caste oppression.
- **B. R. Ambedkar visited the site on 1 January 1927.**
- To commemorate his visit to the site, now thousands of his followers visit the site every New Year's Day.
- A number of Mahar gatherings have also been held at the place.
- On 1 January 2018, clashes erupted between different groups during the commemoration of this battle.
- This led to further violent protests and rioting in Mumbai and Maharashtra for two days.

### SAGOL KANGJEI

**In News:** Home Minister ha inaugurated statue of player of Sagol Kangjei: The ancient polo of Manipur.

#### More on the Topic:

- It is believed that Sagol Kangjei, the modern-day Polo game originated in Manipur.
- In Sagol Kangjei game, **players ride horses**, specifically the Manipur Ponies, which are referenced in records dating back to the 14th century.
- The Manipur Pony is one of five recognised equine breeds of India, and has a powerful cultural significance for Manipuri society.

### LOSAR FESTIVAL

**In News:** Ladakh has celebrated Losar Festival on December 24, to mark the Ladakhi New Year.



#### More on the Topic:

- It marks the beginning of the Tibetan new year in the traditional schedule of Tibetan Buddhism and is an important festival of Ladak.
- It dates back to the pre-Buddhist era in Tibet when Tibetans used to follow the Bon religion.
- The Losar festivities continue for nine more days from the new year with the offering of prayers in the name of God and Goddess, dances and songs in honour of Ibex and the pilgrimage of Mount Kailash.

### RUDRESHWARA TEMPLE (RAMAPPA)

**In News:** President Murmu has launched PRASAD scheme pilot project at Ramappa temple.



#### More on the Topic:

- Rudreswara Temple, also known as the Ramappa Temple at Palampet, near Warangal in the state of Telangana has been inscribed on UNESCO's World Heritage list.
- The temple was built by a Kakatiya General **Recharla Rudra Reddy**, during the period of the Kakatiya ruler Ganapati Deva in 13th century.
- The temple is a Sivalayam, where Lord Ramalingeswara is worshipped.
- Marco Polo, during his visit to the Kakatiya Empire, called the temple "the brightest star in the galaxy of temples".

# PERSONALITIES IN NEWS

## SATYENDRA NATH BOSE

**In News:** 129th birth anniversary of Satyendra Nath Bose was remembered by the nation.



### More on the Topic:

- Born on January 1, 1894, Bose collaborated with Einstein to develop what we now know as the Bose-Einstein statistics.
- Today, in honour of his legacy, any particle that obeys the Bose-Einstein statistics is called a boson.
- He has derived Planck's law for black body radiation (which refers to spectrum of light emitted by any hot object) without any reference to classical electrodynamics).
- He was awarded Padma Vibhushan in 1954.

## QUEEN AHILYADEVI HOLKAR

**In News:** Maharashtra Education Minister has sought a proposal from the district administration to rename the Western Maharashtra city of Ahmednagar as Punyashlok Ahilyadevi Nagar.

### More on the Topic:

- Born in Ahmednagar to the village head Mankoji Shinde, Ahilyabai was one of the few women rulers of Medieval India.
- While the education of girls and women was rare at that time, Mankoji insisted on it for his daughter.
- Ahilyabai took control of Malwa after her husband's death in the Battle of Kumbher against the king of Bharatpur in 1754.
- She excelled at administrative and military strategies under the guidance of her father-in-law, who believed she should lead her people, and not die by Sati after Khande Rao passed away.
- After the death of her father-in-law and son a few years later, she petitioned the Peshwa to

become the ruler, backed by the support of her army.

- community especially women worship and exchange seeds through a celebratory mode of songs and dances at village level.
- "Millets are the identity of Kutia Kondhs". Millets have been the integral part of both their biodiverse farming and food practices. However there has been a significant decline in the millet diversity and also shift in their food practice in the community.
- Festivals like Burlang Yatra bring back the importance of millets and biodiversity to their lives.
- Seed sharing remains a highlight of the festival where women shared seeds with younger women thereby transferring their knowledge to next generation.

### About Kutia Kondha Tribes:

- Kutia Kondha is one of the primitive sections of Kondha tribe.
- The Kondha's who live in hill top and valleys are known as Kutia Kondha.
- Whereas those who live in high land and near the streams are called Dongria Kondha and kondhas who are residing in plain area are known as Desia kondh.
- Kutia kondh are mostly dependent on shifting cultivation, cultivation of minor agriculture products and collection of Non-timber forest products (NTFPs).

## Practice Questions



1) Which of the following statement/s is/are true?

1. China has less than half the number of MSMEs when compared to India
2. The government launched Udyam Assist Platform (UAP), developed by SIDBI, to bring all the Informal Micro Enterprises (IMEs) into the formal ambit.

- (a) 1 only (b) 2 only  
(c) Both 1 and 2 (d) Neither 1 nor 2

2) "World Economic Situation and Prospects" report is launched by?

- (a) World Economic Forum (b) United Nations Department of Economic and Social Affairs  
(c) World Bank (d) None of the above



3) 'Trade-plus-one' (T+1) Strategy is associated with?

- (a) IMF Tanche (b) Economic Policy to diversify from Chinese dependence  
(c) Ease of trading in Stock exchange (d) Climate financing

4) Which of the following statement/s are true?

1. Geothermal energy is heat that is generated within the Earth.
2. It is a renewable resource.

- (a) 1 only (b) 2 only  
(c) Both 1 and 2 (d) Neither 1 nor 2



5) Emergency Credit Line Guarantee Scheme (ECLGS) is intended for the benefit of which of the following sectors?

- (a) PSUs (b) MSMEs  
(c) Banks (d) NBFCs

6) Which of the following statement/s is/are true?

1. CERN is the European Organization for Nuclear Research where scientists probe the fundamental structure of the universe.
2. CERN is located in Geneva and it is an official Observer to the United Nations (UN).

- (a) 1 only (b) 2 only  
(c) Both 1 and 2 (d) Neither 1 nor 2







7) Gender Gap Report is published by?

- (a) World Bank
- (b) World Trade Organisation
- (c) International Monetary Fund
- (d) World Economic Forum

8) For cotton cultivation which among the following soils is considered most suitable?

- (a) Black soil
- (b) Red soil
- (c) Laterite soil
- (d) Alluvial soil



9) Which of the following statement/s is/are true?

- 1. Trans fat is considered the worst type of fat to eat.
  - 2. Hydrogenated vegetable oil is a huge source of Trans fat.
- (a) 1 only
  - (b) 2 only
  - (c) Both 1 and 2
  - (d) Neither 1 nor 2

10) Which of the following is a correct sequence of sea ports of India from "South to North"?

- (a) Cochin – Thiruvananthapuram – Calicut – Mangalore
- (b) Calicut – Thiruvananthapuram – Cochin – Mangalore
- (c) Thiruvananthapuram – Cochin – Calicut – Mangalore
- (d) Neither 1 nor 2



## Mains Questions

- 1. Blockchain technology will revolutionize the agricultural sector in India. Analyse.
- 2. Discuss the significance of the Right to Repair in India.

- 1. b    2. b    3. c    4. c    5. b
- 6. c    7. d    8. a    9. c    10. c



# TEST SERIES TO ENHANCE PRELIMS 2023 PREPARATION

The Prelims exam is a decisive prerequisite in moving on to the next stage of Mains in UPSC. The Prelims exam is that stage in UPSC where the screening process is the most dynamic. One sure shot way of clearing the Prelims exam for an aspirant is through a vigorous Prelims Test Series. The RV Training Academy has put together a well-integrated Prelims Test Series to assist students in their Prelims Exam preparations.

**TEST SERIES COMPRISES OF:  
TOTAL 35 TESTS (6 NCERT TESTS + 11 SECTIONAL TESTS + 4  
CURRENT AFFAIRS TESTS + 4 CSAT TESTS + 10 FULL LENGTH TESTS)**

**NCERT TEST SERIES**

**SECTIONAL TEST SERIES**

**CSAT TEST SERIES**

**CURRENT AFFAIRS TEST SERIES**

**SIMULATION TEST SERIES /  
FULL LENGTH TESTS**



Scan to know more



**RV Educational  
Institutions®**

*Go, change the world®*

## **FOR ENQUIRY AND ADDITIONAL INFORMATION PLEASE CONTACT**

Office : RV Training Academy, No. 18, 2nd Floor, BBMP Building Kanakpura Road, Tata Silk Farm, Jayanagar, Bengaluru, Karnataka - 560028



080-26765004  
+91-9108119970



rvta@rvei.edu.in