

**MARCH
2024**

KSG

An Institute For **IAS** Exam...



WITH LOADED FEATURES

- **PHILOSOPHY OF THE MONTH** • **PRE-SHOTS** • **MAP CONNECT**
- **THEMATIC ESSAYS** • **CONTEMPORARY ETHICS CASE STUDIES**

“GET YOUR MAINS ANSWER EVALUATED THROUGH THIS COPY”

MESSAGE FROM DR. KHAN

Dear Students,

One of the most frequently visited quotes of our times, "Life is Short," has become so ingrained in our minds that we want everything to be fast and save our time. We want every target to be short yet achievable and every problem to be short and resolvable.

*It's all about perspective. In real life, if you are at a particular point, in a specific spot, and you don't seem joyful about it, **don't worry, it will pass. Things will come along.** You should be in a position to **appreciate the big picture.** We must always remember that **life offers no permanency. Nothing is fixed.** All the negatives and positives we encounter in our lives are also transient.*

***UPSC Civil Services Examination is not something like a quick fix.** It is not like you work hard today and will get positive results tomorrow. **No!** This journey is a marathon, not a 100m race, so **every step matters.** It demands consistency. So, I would like you to remember that if you keep running in the **forward pack of the game,** I am sure you will be the one with all the **energy in store to "peak at the right time"**.*

*"Peak at the right time" refers to performing exceedingly well at the most opportune moment. To be able to do this, **keeping your goal crystal clear is paramount.***

*When describing his success, famous athlete **Usain Bolt says, "I trained 4 years to run 9 seconds."** Athletes **time their peak** during their training to succeed at the most important **"seconds" of their sporting career.** Peaking at the **right time and place** is an art worth investing your energy in, for the returns can be substantial.*

***Training and struggle are cardinal requirements for a well-made career.** Thus, cherish what comes out of your journey phase, for it will make the destination much more satisfying.*

My best wishes are always with you!

Stay Blessed!

GS CONNECT

It gives us immense pleasure to present an innovative approach to mastering current affairs. Current is a passing wind and diverse issues happen at the same time. It is to an extent chaotic. Newspapers, magazines, and various other sources report the chaos per se. With our experience of current affairs, we have tried to give "the current" a medium to travel. It is the syllabus of the UPSC with its components that are the medium through which the "Current is Passed" to the readers. **Ever since the new syllabus of the UPSC came into existence, the current has been gaining significance both at prelims as well as mains examination.** This book is meant to cover current affairs and related questions arising from those events. We have not only covered the current events for their factual contents but also presented them in such a way that any question asked from that topic gets covered. Moreover, topics are also "peppered" with the relevant facts/key concepts that are related to the theme. We have also given **questions for practice both, subjective and objective,** so that candidates are oriented to the examination mode. It is a collection covering myriad sources yet in a manageable size. To use this book, we recommend you to, master the components of the General Studies (GS) syllabus as broken into rows and columns (provided on the subsequent page). Each cell comprising the portion of GS becomes the connection for the current and every news subsequently covered guides the reader to the address of the syllabus. It is logical to expect that the same issue may be connected to more than one topic of the syllabus. Further, the news also has some additional vistas opened for the readers by adding a box with the title **"PEPPER IT WITH"** where we expect the students to build further around the theme. We are also trying to reach the remotest part of the country with our spirit and zeal of "Mains Answer Writing", which has been admired by students, CSE rank holders, and other scholars. Continuing in line with the effort, we have started **programs like Destinaire, Navigator, NEEV, AWSDP plus, KOL, DL& MP, Advance Foundation Course, Weekend Courses as well as Optional Courses (PSIR and Sociology).** When it comes to evaluation, we are all together at a different level. We are also reaching every nook and corner with this expertise for the aspirants of CSE. Now you can write a Mains Answer and get it evaluated by our Expert Team and can get Feedback. **Drop a mail at evaluation@ksgindia.com** to register yourself in our race to perfection. Don't wait, it's your golden chance to crack this exam and fulfill your passionate dream.

Team KSG

S. No.	GS - I	GS- II	GS- III	GS-IV	Mis
1	Indian Culture-Art Forms, Literature and Architecture from ancient to modern times.	Indian constitution- Amendments, acts and bills.	Various measures to boost Indian economy- planning, policies, management	Ethical issues related to family society, education, Corruption etc.	
2	Indian History significant events, personalities, issues and the Freedom Struggle.	Legislative, executive and judicial processes.	Government budgeting and issues related to budget.	Ethics in public and private administration	
3	Post independence issues, National boundary and disputes.	Constitutional, non-constitutional, judicial, quasi-judicial, administrative and other types of bodies.	Agriculture, animal husbandry and transport	Issues	
4	Indian society features, issues, globalization and diversity	Federal structure and local bodies. Their powers and functions.	Food security- measures to boost food security and food processing. Issues related to land- land reforms	Related laws and rules	
5	Women - issues and developments	Government policies and various governance issues like transparency, accountability and – governance	Industries and infrastructure- their growth and investment model	Governance/e- Governance	
6	Urbanization – problems and remedies	Committees and schemes.	Space and technology, IT space, robotics and computer	Ethics in international issues	
7	Distribution of industries and resources – India and world	Non-government issues, self-help groups and role of civil society	Disease, biotechnology and human welfare	Personalities and their teachings	
8	Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone etc	Vulnerable sections of our society and social sector issues like Poverty, Hunger, Education, and their initiatives.	Innovations, intellectual property, Awards, POI and other important aspects of S&T	Other important topics	
9		International Relation- India and other countries, various Indian and international agreements, effects of other countries on India and international institutions.	Environment; government initiatives, various judgment, pollution, degradation and conservation efforts		
10			Disaster & Disaster Management		
11			Challenges to internal security, Various Security forces and agencies and their mandate. Cybersecurity; money laundering and its prevention.		



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POLITY

Centre notifies CAA rules

News Excerpt:

The Ministry of Home Affairs has notified the rules for implementing the **Citizenship (Amendment) Act, 2019**.

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Key Highlights:

- Insertion of **Rule 10A** provides an application for a grant of citizenship by registration or naturalization by persons eligible under Section 6B of the Act.
- Insertion of **Rules 11A** provides the authority to which application may be made by a person applying under Section 6B of the Act.
- Scrutiny of applications by an **Empowered Committee**.

What is CAA?

- The notification enabled the implementation of the **Citizenship (Amendment) Act (CAA) 2019**, which, for the first time, **allows citizenship based on religion**.
- It amended the **Citizenship Amendment Act 1955**, making **two key changes to facilitate citizenship for undocumented migrants** belonging to **six non-Muslim communities—Hindu, Sikh, Buddhist, Jain, Parsi, or Christian** from **Afghanistan, Bangladesh, and Pakistan—**who **entered India on or before December 31, 2014**.
 - The Act **reduces the period to qualify for citizenship** by naturalization from the existing 11 years **to 5 years**.

What the rules state

Centre has implemented CAA, 4yrs after the law was passed, as it notified rules ahead of expected announcement of LS polls

THE 39-PAGE NOTIFICATION... of the Citizenship (Amendment) Rules, 2024

... STATES THAT AN APPLICANT WILL HAVE TO SUBMIT

- Form VIII A, with affidavits verifying statements and character of applicant
- Declaration that they have adequate knowledge of a language specified in 8th schedule of Constitution
- Supporting papers like a passport, or identity document to show someone in lineage was a citizen of one of the three countries

APPLICANT MUST ALSO PROVE

- 1 They entered India before December 31, 2014
- 2 The applicant or either of his parents was a citizen of Independent India

WHAT IS THE 2019 ACT?

CAA made people from Hindu, Sikh, Jain Buddhist, Christian and Parsi faiths who entered India from Afghanistan, Bangladesh and Pakistan eligible for citizenship

Key provisions of the rules:

- The Rules specify documents that **must be uploaded to an online portal before the citizenship application can be processed**.
- **Providing details of passport and visa is optional**, but the following documents are mandatory:
 - A document issued by a government authority in the three countries.
 - These include **birth certificates, school or educational certificates, any identity document, licence**, etc.
 - **land or tenancy records** issued by the government of Afghanistan, Bangladesh, or Pakistan,
 - any document that shows that **either of the parents or grandparents or great grandparents of the applicant is or had been a citizen of one of the three countries** or
 - **registration certificate or residential permit** issued by the Foreigners Regional Registration Officer (FRRO) in India.
 - One document issued by Indian authorities:
 - The applicant must upload **any of the 20 listed documents**, such as **Aadhar, PAN card, electricity bill, marriage certificate**, etc. to prove entry in India before December 31, 2014.
 - A sworn affidavit declaring the country of origin and date of entry in India and that the applicant 'irrevocably' renounces the existing citizenship.
 - An **eligibility certificate** issued by a locally reputed community institution certifying that a **person follows one of the six faiths is mandatory**.

Significance of CAA:

- CAA removes legal barriers to rehabilitation and citizenship for members of these six communities.
 - It will give a dignified life to refugees who have suffered for decades, and such citizenship rights will protect their **cultural, linguistic, and social identity**.
 - It will also ensure **economic, commercial, free movement, and property purchase rights**.

Areas Where CAA Does Not Apply:

- These amendments do not apply to areas covered by the Constitution's **6th schedule**.
 - These are the autonomous tribal-dominated councils in **Assam, Meghalaya, Tripura, and Mizoram**.
- CAA also does not apply to states with an **inner-line permit (ILP) regime**, primarily in **Northeast India**.

- The ILP is in place in parts of Arunachal Pradesh, Nagaland, Mizoram, and Manipur.

The committee in charge of processing the citizenship applications:

- While citizenship applications were made to the district collector earlier, the new Rules provide for an **Empowered Committee** and a **District Level Committee (DLC)** to be instituted by the Centre to receive and process the applications to be submitted electronically.
 - Applications will be made to the DLC, and the Empowered Committee will take the final decision.
 - The **Empowered Committee can conduct any inquiry** it considers necessary to ascertain the applicant's suitability, including obtaining a report from the security agency.
- MHA issued a separate notification for the formation of an **empowered committee** and **district-level committees** to grant citizenship under CAA.
- The empowered committees in the states or Union territories shall be headed by **the Director (Census Operations) of the state or Union territory** concerned.
 - **Members:** an officer of the **Subsidiary Intelligence Bureau** not below the rank of deputy secretary, jurisdictional Foreigners Regional Registration Officer (FRRO), the State Informatics Officer of the National Informatics Centre of the State or Union Territory concerned, or the Postmaster General of the State or Union Territory concerned.
 - A representative from the **state home department** and the **railways** will be **invited** to the committee.
- The jurisdictional senior superintendent or superintendent of post will head district committees.

Opposition of CAA and Government's Defence:

- Opposition to CAA has been based on concerns of **discrimination against Muslims** and its potential **impact on the Assam Accord of 1985** and the **National Register of Citizens (NRC)** process. They argue that it violates the right to equality enshrined in the Constitution.
- However, the government defends CAA on grounds of **historical obligation, humanitarian grounds**, and the **protection of religious minorities** facing persecution in the neighbouring countries.

Challenges:

- **The legal challenge:**
 - The amendment was challenged before the Supreme Court in 2020 by the Indian Union Muslim League (IUML).
 - Since then, more than 200 petitions have been filed and tagged with the IUML's challenge.
- **The right to equality:**
 - The CAA is challenged because it violates **Article 14 of the Constitution**, which states that "**the State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India.**"
 - The petitioners argue that **using religion as a qualifier or a filter violates the fundamental right to equality.**
 - The petitioners have argued that the **National Register of Citizens (NRC)** in Assam to identify illegal immigrants, along with the CAA, will result in the targeting of Muslims.
 - The Court will have to look into whether the special treatment given to the so-called "persecuted minorities" from the three Muslim-majority neighbouring countries is only a reasonable classification under Article 14 for granting citizenship and whether the state is discriminating against Muslims by excluding them.
 - The Supreme Court has held that the law has to clear two legal hoops to pass the equality test when it is challenged on the grounds of Article 14. First, any differentiation between groups of persons must be founded on an **"intelligible differentia"**; second, **"that differentia must have a rational nexus to the object sought to be achieved by the Act"**.
 - The government has said that Muslims have been excluded from the group of **"persecuted"** minorities because Pakistan, Afghanistan, and Bangladesh are Islamic countries where Muslims are in majority.
 - However, it will be tested whether these three countries were picked essentially to keep Muslims out — this is because groups like Tamil Hindus in Sri Lanka, the Rohingya in Myanmar, or minority Muslim sects like Ahmadiyyas and Hazaras are also persecuted minorities in these countries.
- Making **religion a ground for citizenship** eligibility violates secularism, a basic feature of the Constitution.
- **The CAA and Assam:**
 - Apart from the equality argument, part of the challenge to the CAA also rests on the fate of Section

- 6A of The Citizenship Act, 1955, which too is under challenge before the SC.
- In December 2023, a five-judge Constitution Bench led by Chief Justice of India D Y Chandrachud reserved its verdict on the validity of Section 6A, which was introduced in the Citizenship Act after the signing of the Assam Accord between the Centre and the leaders of the Assam movement in August 1985.
- The Accord determines who is a foreigner in the state of Assam.
 - Clause 5 of the Accord states that January 1, 1966, shall serve as the base cut-off date for the detection and deletion of "foreigners", but there are provisions for the regularization of those who arrived in the state after that date, and up to March 24, 1971.
 - This was also the basis of the final NRC, which was published in 2019.
- **Section 6A of the Act** allows foreign migrants who came to Assam after January 1, 1966, but before March 25, 1971, to seek Indian citizenship.
 - If the effective cut-off date of March 24, 1971, is upheld by the SC as the cut-off date for entry into the state, the CAA could fall foul of the Assam Accord since it creates a different timeline.

Related:

National Population Register- A register of residents in India that includes demographic and biometric data.

National Register of Citizens- A register of all Indian citizens so that illegal immigrants can be identified and deported.

CAA, 2019- To grant citizenship to persecuted minorities from neighbouring Muslim-majority countries of Pakistan, Bangladesh, and Afghanistan.

The **Matua**, a closely knit group belonging to the Namashudra (Dalit/SC) community of West Bengal (Hindu refugees from East Pakistan (now Bangladesh), have welcomed the CAA rules. The notification coincides with the birth anniversary of Harichand Thakur, a founder of the Matua sect, who was born in 1812 in present-day Bangladesh.

Way Forward:

- Develop a more inclusive refugee policy for India in line with the UN Refugee Convention.
- Promote public understanding of the principles enshrined in the Indian Constitution.

PEPPER IT WITH:
National Population Register, CAA Assam Accord

- Ensure that citizenship laws prioritise principles of equality and non-discrimination.
- Assist individuals, particularly marginalised communities, in obtaining the necessary documentation to prove their citizenship status.
- Help individuals navigate the citizenship verification process, thereby mitigating the risk of statelessness through support services and resources.
- Facilitate meaningful Stakeholder Engagement, dialogue and consultation with civil society organisations, religious leaders, and communities against it to address grievances related to the CAA.
- Engage with neighbouring countries, particularly Pakistan, Afghanistan, and Bangladesh, to address concerns related to religious persecution and human rights violations.
- India should also work towards regional cooperation and diplomatic initiatives to promote religious freedom and tolerance.
- Conduct educational and awareness campaigns to disseminate accurate information about citizenship laws and dispel misinformation.

AI, elections, disinformation

News Excerpt:

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As India will now go through the **18th general elections, countering artificial intelligence (AI) generated disinformation** will be a major challenge for the political parties and administrative authorities.

Background:

- The **Cambridge Analytica scandal of 2018** brought the **impact of social media on electoral politics** into mainstream public discourse.
 - **This scandal brought to the forefront concerns about manipulating Facebook user data for political purposes.**

Three-way trouble by AI:

- AI can accelerate the **production and diffusion of disinformation** in broadly three ways and contribute to persuading people to vote in a certain way.
 - **First**, AI can magnify the scale of disinformation by **thousands of times**.
 - **Second**, hyper-realistic **deep fakes of pictures, audio, or video could powerfully influence voters** before they can be fact-checked.
 - **Third**, and perhaps most importantly, by microtargeting.
- AI can potentially flood voters with **highly personalized propaganda** on a scale that dwarfs the Cambridge Analytica scandal.

- The persuasive capabilities of AI models surpass those of **bots** and **automated social media** accounts commonly used for spreading disinformation.
- This scenario could significantly amplify propaganda's impact on public opinion and electoral outcomes.
- The risks are compounded by social media companies such as **Facebook** and **Twitter** significantly cutting their fact-checking and election integrity teams.
 - While **YouTube, TikTok and Facebook** do require labelling of election-related advertisements generated with AI, that may not be a foolproof deterrent.

AI as Imminent danger:

- A new study published in **PNAS Nexus predicts that disinformation campaigns** will increasingly use generative AI to propagate election falsehoods.
 - The fallout could potentially affect election results in more than 50 countries.
- **The World Economic Forum's Global Risks Perception Survey** ranks misinformation and disinformation among the top 10 risks. Easy-to-use interfaces of large-scale AI models are enabling a **boom in false information and "synthetic" content**—from sophisticated voice cloning to fake websites.
 - The report also warned that disinformation in these elections could destabilise societies by discrediting and questioning the legitimacy of governments.

The potential of AI to disseminate fake news:

- Generative AI companies with the most popular visual tools prohibit users from creating **"misleading" images**.
 - However, researchers with the British nonprofit **Centre for Countering Digital Hate (CCDH)**, who tested four of the largest AI platforms — **Midjourney, OpenAI's ChatGPT Plus, Stability.ai's DreamStudio, and Microsoft's Image Creator** — succeeded in making deceptive election-related images more than 40% of the time.

Regulatory tightrope:

- The Indian government has asked **digital platforms to provide technical and business process solutions** to prevent and weed out misinformation that can harm society and democracy.
- The Minister for IT and Communications has said that a **legal framework against deepfakes and disinformation** will be finalised after the elections.
- **The IT Ministry had issued an advisory to companies** such as Google and OpenAI, and to those running foundational models and wrappers, that their **services should not generate responses that are illegal** under

Indian laws or **"threaten the integrity of the electoral process"**.

Way Forward:

- **Regulation of AI and disinformation** is the need of the hour. The government should work for it by properly discussing the issues with the involved stakeholders.
- A **public awareness campaign** will also be one key measure to inform the people of India about deep fakes and disinformation and to verify the source and content every time.
- The **Election Commission should ensure proper surveillance** so that fair elections can be conducted.

PEPPER IT WITH:

Generative AI, GPAAI, Frontier AI

EU clears world's 1st major law to regulate AI

Key features of the new law:

- The AI Act would nudge the future of AI in a **human-centric direction**, where humans are in control of the technology and it helps us leverage new discoveries, economic growth, societal progress, and unlock human potential.
- The AI Act was initially intended to act as consumer safety legislation, taking a **"risk-based approach" to products or services that use artificial intelligence**.
 - **The riskier an AI application, the more scrutiny it faces.**
- The vast majority of **AI systems, such as content recommendation systems or spam filters, are expected to be low risk**.
 - Companies can choose to follow voluntary requirements and codes of conduct.
- **High-risk uses of AI**, such as in medical devices or critical infrastructure like water or electrical networks, **face tougher requirements** like using high-quality data and providing clear information to users.
- **Some AI uses are banned because they're deemed to pose an unacceptable risk**, like social scoring systems that govern how people behave and some types of predictive policing and emotion recognition systems in schools and workplaces.
- **Other banned uses include police scanning faces in public** using AI-powered remote "biometric identification" systems, except for serious crimes like kidnapping or terrorism.

Regulation of AI uses across the globe:

- **Brussels (Belgium) first suggested AI regulations in 2019**, taking a familiar global role in ratcheting up scrutiny of emerging industries.
- In the **U.S.**, President Joe Biden signed a working on their **own AI legislation**.

- **China** has proposed its **Global AI Governance Initiative for fair and safe use of AI**, and authorities have issued "interim measures" for managing generative AI, which applies to text, pictures, audio, video and other content generated for people inside China.

Model Code of Conduct

News Excerpt:

The Election Commission of India (ECI) has announced the dates for the upcoming Lok Sabha elections and asked all political parties to strictly adhere to the Model Code of Conduct (MCC).

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What is the Model Code of Conduct?

- The MCC is a **set of guidelines** issued by the **ECI**.
 - MCC aims to establish **standards of conduct** for **political parties** and **candidates** during **election campaigns and polling**.
 - It maintains the **integrity of the electoral process** and promotes **free and fair elections**.
 - Compliance with the MCC is **mandatory** for all parties and candidates participating in elections in India.
- The **code comes into force when the EC announces the poll schedule and remains operational until the result is announced**.

Origin of Model Code of Conduct:

- In **1960**, **Kerala** was the **first state** to adopt a draft code of conduct for assembly elections.
- Later, the EC decided to emulate Kerala's example and circulate the draft among all recognised parties and state governments for the **1962 Lok Sabha elections**.
- However, the EC released a formal MCC only in **1974**, just before the **mid-term general elections**.

Is the MCC a law?

- The MCC is **not a statutory document**.
 - The MCC has evolved as part of the ECI's drive to ensure **free and fair elections** and was the result of a consensus among major political parties.
 - This means anybody breaching the MCC **can't be prosecuted** under any clause of the Code. Everything is **voluntary**.
 - The EC uses **moral sanction** or **censure** for its enforcement.
- In 1990, the **Goswami Committee on Electoral Reforms** made significant recommendations for reforms in MCC.
 - It is recommended that the MCC's weaknesses be overcome by giving it statutory backing and making it enforceable through law.

Who is bound by MCC?

- The MCC applies to all elections to the **Lok Sabha** and **State Assemblies**.
 - It is also applicable for **State Legislative Council** elections from **Local Bodies and Graduates' and Teachers' Constituencies**.
- It is **enforced throughout India in case of General elections** and the **State up for polls** in case of Legislative Assembly elections.
- All organizations, committees, corporations, and commissions (e.g., Transport authorities, Jal boards) **funded wholly or partially by the Centre or State** are bound by the MCC.
- While listed political parties and candidates are bound to follow the MCC, even **non-political organisations that hold campaigns favouring a political party** or candidate are bound to follow specific guidelines mentioned by the EC.

Guidelines for parties and candidates:

- Political parties and candidates are advised to **avoid discussing the personal lives** of leaders and workers from opposing parties.
 - Criticisms should be confined to the **opposition's policies, programs, past records, and accomplishments**.
 - Social media content should refrain from insulting opponents.
 - The emphasis should be on **constructive debate** focused on **substantive issues** rather than personal attacks.
- Appeals to **caste, communal or linguistic feelings** for securing votes are also **prohibited**.
- Restrictive or prohibitory orders in force at any public place where meetings are held must be adhered to.
 - **Permission to use public spaces and loudspeakers** must be obtained from **local police**.
 - In the case of **the public procession**, details of the time and place of the start and end point and the route to be followed must be informed and cleared by the police.
- All **political workers** engaged in electioneering must display **badges or identity cards** and **leave the constituency after the campaign period** if they are not a voter, candidate, or candidate's election agent from that constituency.
- No political party can pay over **₹10,000 in cash in a day** to any person/company/entity.
- Parties must also not resort to **bribing/intimidating/impersonating voters**.
 - They **must also not transport voters** to and from polling stations or **serve/distribute liquor**.
- **Canvassing within 100 metres of polling booths is not allowed**.

- Displaying **posters, flags, symbols, or any propaganda material** is prohibited at **polling places**.
- **Loudspeakers are restricted** between **10 p.m. and 6 a.m.**, except with written permission from local authorities.
- **No election campaigning** is allowed within the constituency **48 hours before** the close of polls.

Guidelines for governments:

- Union Ministries must obtain **prior approval** from the Election Commission for **policy announcements, fiscal measures, taxation issues, and financial reliefs** during the MCC period.
 - **Communication** with the Election Commission should be channelled through the **Cabinet Secretariat** rather than directly contacting the EC.
- Similarly, **State governments** are subject to similar guidelines, requiring proposals to be referred to a **screening committee**.
 - The **screening committee will then forward the proposals to the Chief Electoral Officers, who will only escalate them to the EC if the applicable instructions are unclear.**
- Ministers and authorities shall **not announce financial grants** or lay foundation stones of projects or schemes when MCC is in force.
 - They must also **not make promises of construction of roads**, provision of **drinking water** facilities, etc., to influence voters in favour of the Party in power.
 - They **cannot sanction grants/payments out of discretionary funds** – funds sanctioned in the budget in a generic manner prior to MCC's enforcement.
 - **Official visits cannot be combined with electioneering work**, and no official machinery, vehicles, guest houses, or personnel can be used for campaigning.
- State and Union governments must keep public places like **maidans and helipads available impartially** for all parties and candidates to ensure a level playing field.
- During an election year, the Union government **cannot present a complete Budget** due to the potential change in the ruling government post-election.
 - Under the MCC, the government is not allowed to announce any **major scheme** that could influence voters or present an **Economic Survey** in the **interim budget**.
 - However, it is **allowed to revise tax rates**.
- Instead, the government may opt to seek a **vote on account** which includes presenting its **fund requirement for salaries, ongoing projects and other expenditure for the transitional period**.
 - The vote on account is passed via the Lok Sabha.

- **Ex-gratia payments, release of PM/CM's relief funds for medical treatments, emergency relief work, and new works to mitigate natural disasters are allowed by the EC.**
 - However, the EC's approval is required for the declaration of an area as **drought/flood affected** or affected **by any such calamity**.
- Fresh release of **funds** from Members of Parliament Local Area Development (**MPLAD**) schemes is **prohibited**.
- **Writing off loans** by state governments for any individual, company, firm, etc., during the period when MCC is in force without EC's approval is **not allowed**.
- **Ad-hoc appointments** of officers are **prohibited** during MCC.
- The issue of **advertisements and hoardings** at the cost of public exchequer in **electronic or print media** highlighting the achievements of the government is **not allowed** when MCC is in force.
 - Such advertisements **cannot be published in non-polling states, either**.
 - Photographs of the **Prime Minister, Chief Ministers, Ministers** and other **political functionaries** highlighting government work **should not be displayed** when MCC is in force.

Poll manifestos:

- In **2019**, an **amendment** concerning **election manifestos** was introduced in MCC, directing parties to refrain from making promises "**repugnant to the ideals of the Constitution**."
 - They must reflect the rationale for **welfare scheme** promises and indicate ways to meet the financial requirements for it.
 - The manifesto documents **must not be released during the prohibitory period (when MCC kicks in)**.

How are violations dealt with?

- Any complaint regarding elections should be brought to **EC observers, Returning Officer, local magistrate, Chief Electoral Officer or the Election Commission itself**.
- In response, any directions issued by the EC, Returning Officer, or District Election Officer shall be strictly complied with.

Way Forward:

- To provide **statutory backing** and enhance its enforceability, MCC should be made legally binding by being incorporated into the RPA, 1951.

PEPPER IT WITH:

ECI, State & National Parties, polling booth

- **Expand MCC's coverage** to address emerging issues such as digital campaigning and electoral funding transparency.
- **Monitor and prevent violations of the MCC by leveraging technology**, such as AI-based systems, particularly on social media platforms where misinformation and propaganda may be disseminated.
- **Grant greater independence to the ECI**, similar to the Comptroller and Auditor General (CAG), to empower it to take more stringent actions for the implementation of the MCC.
- ECI has not been consistent in applying MCC lately. It must be **implemented in the right spirit and even-handedly**.

Electoral Bond Scheme struck down

News Excerpt:

A **five-judge Constitution Bench** of the **Supreme Court** unanimously **struck down** the **Electoral Bond Scheme (EBS)**, which facilitates anonymous political donations for being **unconstitutional**.

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Failure of test of Proportionality:

- The Court's reasoning is unexceptionable, as it found that the **primary justification** for the EBS — **curbing the use of 'black money'** for political or electoral funding by allowing donations through banking channels — **failed the test of Proportionality**, as it was not the least restrictive measure to abridge the voters' right to know.

Violation of Right to Information:

- The Court found that the Electoral Bond Scheme (EBS) violated the Constitution, particularly voters' **right to information**.
 - The judgment is a natural follow-up to a principle laid down years ago that voters' freedom of expression under **Article 19(1)(a)** will be **incomplete** without **access to information** on a candidate's background.
 - The principle has now been extended to removing the veil on **corporate donors** who may have funded ruling parties in **exchange for favours**.
 - It has also mandated **disclosure** of donation details **since 2019**.

Previous interventions regarding Election reforms:

- Its earlier interventions led to the featuring of the **'None of the Above'** option on the ballot, the removal of the protection given to legislators from **immediate disqualification** on conviction for a criminal offence, the **mandatory disclosure of the assets and criminal antecedents** of candidates in their election affidavits and **expedited trials** for MPs and MLAs involved in criminal offences.

Connection between Corporate Donations and Policy Decisions:

- The Court found the **amendment** to the **Companies Act** manifestly **arbitrary**, as it removed the **cap of 7.5%** of a **company's profit** that can be donated to political parties without any requirement to disclose details of the recipient parties in its profit and loss accounts.
 - It has made the **logical connection** between unidentified **corporate donations** and the likelihood of **tailored policy decisions** to suit the donors.

Key concerns:

- A question arises whether the scheme's validity could have been **decided earlier** or whether the issuance of bonds on a regular basis **stayed**.
 - This was a **fit case** for the grant of an interim stay.
- How much of the thousands of crores of rupees given to parties under this scheme resulted in **policy measures favourable to the donors** or helped fund the deployment of additional campaign resources will **never be known**.

About Electoral Bond:

- It is a **financial tool** used to make donations to political parties. Bonds are available only at specific branches of the **State Bank of India**. One can purchase them digitally, by demand draft, or by cheque. The bonds are issued in **multiples** of Rs 1,000, Rs 10000, Rs 1,00,000, and Rs 1 crore.
- A donor with a KYC (Know Your Customer) compliant account can purchase the bonds and donate to a political party. The political Party can encash the bonds **within fifteen days**.
- These are available for **ten days** at the **beginning of every quarter**, viz, January, April, July, and October.
- Any party registered under **section 29A** of the Representation of the Peoples Act, 1951, and has secured **at least 1%** of the **votes** polled in the most recent **general** or **assembly elections** is entitled to receive electoral bonds.

Way Forward:

The verdict will help **ease donors' hold** on governance through **money power**.

PEPPER IT WITH:
RTI, Corporate donations, test of Proportionality

- We need **public disclosure of funding** because political parties are the pillars of representative democracy, and transparent accounts are the key to preserving citizens' trust in parties and politicians.
- The public disclosure of political funding would also help **maintain the rule of law and remove corruption in the electoral and political process**.

- The outcome of elections should not depend on which Party has more money to campaign and woo or buy voters.
- The **separation of wealth from power** is a basic condition of a democratic system.
- We need to make our democracy healthy by enacting legislation that regulates political party funding and mandates public disclosure.

Related News:

According to a report by the **Association for Democratic Reforms (ADR)**, almost 60% of the funds received by political parties in 2022 cannot be traced and came from "unknown" sources.

- ADR was established in 1999 by a group of professors from the Indian Institute of Management (IIM) Ahmedabad **to improve governance and strengthen democracy** through continuous work in the area of Electoral and Political Reforms.

Key Observations from the report:

- National parties declared ₹3,076.88 crore as income in 2022-23.
 - ₹1,832.87 crore — or **more than 59%** of this money came from **unknown sources**.
 - Of total unknown sources, the **share of income from electoral bonds** was ₹1,510.61 crore, or **82.42%**.
- The **vast majority** of these funds went to the **BJP**. During 2022-23, the ruling Party declared ₹1,400.23 crore as its income from unknown sources.
- The **Congress came a distant second**, claiming 17.19% of the money and declaring ₹315.11 crore as its income from unknown sources.

Impact of unknown political donations:

- Anonymous donations of high value tend to **undermine electoral democracy and governance** as they facilitate a **quid pro quo culture** involving donors and beneficiaries.
- The ADR has suggested stringent measures to enhance **transparency and accountability** in political funding:
- All donors should be **fully disclosed** under the **Right to Information (RTI) Act**.
- The EC's recommendation to grant **tax exemption** only to parties contesting and winning seats in elections should be implemented.
- There should be a provision for disclosure of donor's names contributing above Rs 2,000.

SC ends immunity for legislators taking bribes

News Excerpt:

The Supreme Court (SC) has ruled that lawmakers cannot claim immunity from prosecution in bribery cases.

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Key points:

- In a significant move, the SC ruled that Members of Parliament (MPs) and Members of the Legislative Assembly (MLAs) cannot claim immunity from prosecution in cases of bribery for votes or speeches in the House.
- A seven-judge Constitution Bench headed by Chief Justice of India (CJI) D.Y. Chandrachud unanimously overruled the **1998** judgment in **P.V Narasimha Rao v. State** and opened the doors for law enforcement agencies to initiate prosecution against legislators in bribery cases under the **Prevention of Corruption Act, 1988 (Act)**.

The SC verdict:

- The SC held that **"Parliamentary privileges do not protect bribery."** Corruption and bribery are destructive of the aspirations and deliberative ideals of the Constitution and create a polity that **deprives citizens of a responsible, responsive, and representative democracy**.
 - This verdict is significant in **addressing the challenge of cash-for-votes trading and safeguarding the integrity of electoral mandates**.
- The recent verdict by the apex court overturns the 1998 judgment in the PV Narasimha Rao case.
 - Here, the SC had ruled with a 3:2 majority that MPs and MLAs were immune from prosecution in bribery cases as long as they fulfilled their end of the bargain.
- The Court also clarified that the principles enunciated by the verdict regarding legislative privileges will apply equally to elections to the Rajya Sabha and to appoint the President and Vice-President of the country.
 - Accordingly, it overruled the observations in **Kuldip Nayar v. Union of India (2006)**, which held that elections to the Rajya Sabha are not proceedings of the legislature but a mere exercise of the franchise and, therefore, fall outside the ambit of parliamentary privileges under Article 194.
- **The offence of bribery:**
 - The Court emphasised that the **offence of bribery is complete when the legislator accepts the bribe**, whether or not it is followed up by voting or making a speech in the manner wanted by the giver of the bribe. Equally, the place where the bribe was offered or received did not matter.
 - The verdict further asserted that the first explanation strengthens such an interpretation since it expressly states that the **"obtaining, accepting, or attempting"** to obtain an undue advantage shall itself constitute an offence, even if the performance of a public duty by a public servant has not been improper.

'Articles' dealing with the powers and privileges of MPs and MLAs:

- **Articles 105 and 194 of the Constitution** deal with the powers and privileges of MPs and MLAs in the Parliament and the Legislative Assemblies.
 - **Clause (2) of Article 105 has two provisions:**
 - A member of Parliament shall not be liable before any court with respect to **"anything said or any vote given"** by them in Parliament or any committee thereof.
 - No person shall be liable before any court **"in respect of"** the publication by or under the authority of either House of Parliament of any report, paper, vote, or proceedings.
 - They grant them **freedom of speech and protect them from being prosecuted for their remarks in the House or any vote** they may participate in.
 - These provisions were put in place to ensure that MPs and MLAs can work without the fear of legal action being taken against them.

PEPPER IT WITH:

Article 105 & 194, bribery,

Way Forward: Cash-for-vote and other bribery incidents are some of the bigger issues in parliamentary functions. The recent judgement of the SC to stop bribery will help strengthen democracy and the parliamentary process.

A 'broad' definition of forests

News Excerpt:

The Supreme Court has passed an order directing that **States and Union Territories** must act as per the definition of **"forest"** laid down in the **1996** judgment in the **T.N. Godavarman case**.

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What is the present case?

- Recently, a three-judge Bench led by the Chief Justice of India (CJI) passed the order on petitions that **challenged the 2023 amendments to the Forest (Conservation) Act, 1980 (FCA)** on the ground that the modifications had **"substantially diluted" the definition of forest** and had reduced the ambit of the Act.
- The Supreme Court has directed the governments to **follow the "broad and all-encompassing" definition of forest** as laid down in its 1996 judgment in the **T. N. Godavarman case** until a consolidated record of all kinds of forests across the country is prepared.
 - The case concerned whether sandalwood could be declared an endangered species and declared a "specified plant." The Court found it could, and all licenses with wood-based industries were cancelled.

The **Forest (Conservation) Act of 1980** came into force with effect from October 25, 1980.

Objective: **Regulate the indiscriminate diversion of forest lands for non-forestry uses**

Maintain a logical balance between the developmental needs of the country and the conservation of natural heritage.

Prior approval of the Central Government is essential for the diversion of forest lands for non-forestry purposes.

Guidelines have been issued from time to time to simplify the procedures, reduce delays, and make the Act more user-friendly.

A **monitoring cell** is also being set up in the MoEFCC to **monitor the movement of proposals at various stages** and the compliance with the conditions stipulated in the forestry clearances by the user agencies.

The Court ruled in favour of Thirumulpad, **directing the sustainable use of the forest.**

Why was the Forest (Conservation) Act amended in 2023?

- The Environment Minister told the Parliament that the amendments were necessary to **remove ambiguities** created by the judgment, which had made the FCA applicable to all areas that resembled the **dictionary meaning of 'forest'**.
 - After the **T. N. Godavarman case**, the provisions of the Act were applied in recorded forests that had already been put to various types of **non-forestry use**, thereby **restraining the authorities from undertaking any change** in the land use and allowing any development or utility-related work.
- As a remedy, the **amendment made the FCA applicable only to notified forests** and lands identified as **'forests'** in government records.

Government Arguments:

- The government justified the 2023 amendments as a means to address the development needs of forest-dwelling tribes.

- The FCA comes in the way of building even toilets in schools for tribal girls.
- MoEFCC assured that the amended FCA would still apply to **all unclassified forests, forests that were “proposed to be notified”**, like the land recorded as forest by even **local bodies**, and also the forest-like areas identified by the **expert committees** set up in pursuance of the 1996 SC order.

Major concerns related to the amended Forest (Conservation) Act, 1980:

- The major apprehension was the potential **exclusion of 28% of India’s forests** that lie outside Recorded Forest Areas from the purview of the FC Act.
- **Pending finalization of the consolidated record of forests** is required to be completed within one year under the amended 2023 Rules, and land parcels that would have been considered forests under the 1996 judgment **could now be used for non-forest purposes without requiring any clearance under the FCA.**

How SC defines ‘forest’ for the purposes of the Act?

- The Court ruled that the **FCA would apply to all land parcels** recorded as ‘forest’ or resembled the dictionary definition of forest.
- **In T. N. Godavarman’s case**, the SC said that the word ‘forest’ must be understood according to its dictionary meaning. This description covers all statutorily recognized forests, whether designated as reserved, protected or otherwise.
 - The term ‘forest land’ will not only include ‘forests’ as understood in the dictionary sense but also **any area recorded as forest in the Government record, irrespective of ownership.**
- Recently, the CJI-led three-judge Bench reaffirmed this principle, stating that the Court had adopted the dictionary meaning of forests to **align with Parliament’s intent behind legislating the FCA in 1980.**

What happens now?

- States and Union Territories will submit **comprehensive records of forests** identified by the expert committees constituted as per the 1996 judgment.
 - During identification, the expert committees are **free to expand the protection umbrella** to any forest land that is worth protecting.

Way Forward:

The Supreme Court’s directive to define forests broadly as per its 1996 judgment in the T. N.

PEPPER IT WITH:

FCA, State of Forest Report, Notified forest

Godavarman case is crucial for upholding environmental conservation. It ensures that the Forest (Conservation) Act of 1980 applies to all areas resembling forests, safeguarding them from development and highlighting the importance of sustainable land use.

Cross voting in Rajya Sabha elections

News Excerpt:

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The Rajya Sabha (RS) elections in the States of Uttar Pradesh, Himachal Pradesh and Karnataka witnessed cross-voting by MLAs belonging to different parties, raising concerns about the sanctity of the election process.

How are RS elections held?

- As per **Article 80** of the Constitution, representatives of each State to the RS are elected **indirectly** by the **elected members of their Legislative Assembly.**
 - The polls for RS will be required only if the number of candidates exceeds the number of vacancies.
- Till 1998, the outcome of the RS elections was usually a foregone conclusion.
 - The candidates nominated by various parties, according to their strength in the Assembly, used to be elected unopposed.
 - However, the June 1998 RS elections in Maharashtra witnessed cross-voting that resulted in the loss of a Congress party candidate.

Open ballot system of election:

- An amendment to the **Representation of the People Act of 1951** was carried out in **2003 to rein in the MLAs from such cross-voting.**
 - **Section 59** of the Act was amended to provide that **elections to RS shall be conducted by open ballot.**
 - The MLAs of political parties are required to **show their ballot paper** to the **authorized agent of their Party.**
 - **Not showing the ballot paper to the authorised agent or showing it to anyone else will disqualify the vote.**
 - **Independent MLAs are barred from showing their ballots to anyone.**

What does the Tenth Schedule state?

- The **52nd constitutional amendment** introduced the **‘anti-defection’ law** through the **Tenth Schedule in 1985.**
 - This Schedule provides that a member of a House of Parliament or State legislature who **voluntarily gives up the membership** of their political Party or votes against the instructions of their Party in a House is liable for disqualification from such House.
 - This instruction with respect to voting is issued by the **‘whip’** of a party.

- However, the elections to RS are **not treated** as a proceeding within the Legislative Assembly.
 - **The Election Commission**, drawing reference to Supreme Court judgments, issued a clarification in **July 2017**.
 - **It specified that the provisions of the Tenth Schedule, with respect to voting against the party's instruction, will not apply to an RS election.**
 - Furthermore, political parties **cannot issue any 'whip'** to their members **for RS elections**.
 - This voting is not inside the House but is conducted by the Election Commission.

What have the courts ruled?

- The Supreme Court in **Kuldip Nayar v. Union of India (2006)** upheld the system of open ballots for RS elections.
 - It reasoned that if **secrecy becomes a source of corruption**, then **transparency can remove it**.
 - However, in the same case, the Court held that an elected MLA of a political party **would not face disqualification** under the Tenth Schedule **for voting against their party candidate**.
 - He/she may, at the most, attract disciplinary action from their political Party.
- The Supreme Court has also held in **Ravi S. Naik and Sanjay Bandekar vs Union of India (1994)** that voluntarily giving up membership under the Tenth Schedule is not synonymous with only formally resigning from the Party to which the member belongs.
 - The **conduct of a member both inside and outside the House** can be looked into to infer if **it qualifies as voluntarily giving up membership**.

Way Forward:

- It is necessary to uphold the higher principle of **free and fair elections** and its purity.
 - It would be wishful thinking to expect any further amendments to strengthen the laws against such voting practices since political parties benefit from such unprincipled tactics.
- The Supreme Court observed in the case relating to the **Chandigarh Mayoral election** that **it would not allow democracy to be murdered as cross-voting** in RS elections is a **serious threat to democracy**.

PEPPER IT WITH:

RS Nominations and allocation of seats. Tenth Schedule, Article 80, RPA 1951, NOTA

PRE-SHOTS

Right to adopt a child is not fundamental

News Excerpt:

The Delhi High Court (HC) has stated that the **right to adopt a child** is not a fundamental right under **Article 21** of the Constitution, and the **prospective adoptive parents (PAPs)** do not have any right to choose **who to adopt**.

What Delhi HC has stated in the matter?

- The HC upheld the retrospective application of a regulation **permitting couples with two or more children to adopt only children with special needs or those hard to place**.
- The right to adopt **cannot be raised to the status of a fundamental right** within **Article 21**, nor can it be raised to a level that grants **PAPs the right to demand their choice of who to adopt**.
- The adoption process entirely operates on the **premise of the welfare of children**, and therefore, the rights flowing within the adoption framework do not place the rights of the PAPs at the forefront.

About Central Adoption Resource Authority (CARA):

- It is a statutory body under the **Ministry of Women & Child Development**, Government of India under the Juvenile Justice Act, 2015.
- It functions as the nodal body for the adoption of Indian children and is mandated to monitor and regulate **in-country and inter-country adoptions**.
- CARA is designated as the Central Authority to deal with inter-country adoptions in accordance with the provisions of the **Hague Convention on Intercountry Adoption, 1993**, ratified by the Government of India in 2003.

Main Eligibility criteria for PAPs under Adoption Regulations 2022:

- The PAPs shall be **physically, mentally, emotionally and financially capable**; they shall not have any life-threatening medical condition, and they should **not have been convicted of a criminal act of any nature or accused** of any case of child rights violation.
- Any PAPs, irrespective of their marital status and whether or not they have a biological son or daughter, can adopt a child subject to the following namely:
 - (a) The **consent of both spouses** for the adoption shall be required in the case of a married couple;
 - (b) A **single female can adopt a child of any gender**;
 - (c) A **single male shall not be eligible to adopt a girl child**;
- No child shall be given in adoption to a couple unless they have **at least two years of stable marital**

relationship except in the cases of relative or step-parent adoption.

- The age criteria for PAPs shall not be applicable in the case of relative adoptions and adoption by step-parents.

Centre Amends Surrogacy Rules

News Excerpt:

The Central Government has amended the **Surrogacy (Regulation) Rules, 2022** and notified that **both gametes (egg or sperm)** need not come from a married couple in case they are certified as suffering from a medical condition.

Changes introduced by the amendment:

- Earlier, **Surrogacy (Regulation) Rules, 2022**, stated that couples undergoing surrogacy must have **both gametes from the intending couple**.
- The couple can have a child born through surrogacy but **must have at least one gamete from the intending couple**.
- The **District Medical Board** can certify that either husband or wife constituting the intending couple suffers from a medical condition necessitating the use of donor gamete (egg or sperm), then surrogacy using donor gamete is allowed.
- A **single woman (widow or divorcee)** undergoing surrogacy **must use self-eggs** and donor sperm to avail of surrogacy procedures.

Key provisions of the Surrogacy (Regulation) Rules, 2022:

- The rules **Prohibit commercial surrogacy**.
- The surrogacy is allowed only for **heterosexually married Indian couples with proven infertility**.
 - Additionally, **surrogate mothers must be aged between 25 and 35**, and they must have a husband and at least one child of their own.
- Provision for **mandatory counselling sessions** for **both intended couples and surrogate mothers**.
- Establishment of a **dedicated Surrogacy Board** for oversight and regulation.

Gamete and Gamete donation:

- A gamete is a reproductive cell of an animal or plant.
- In humans, **female gametes are called ova or egg cells**, and **male gametes are called sperm**.
- Ova and sperm are haploid cells, with each cell carrying only one copy of each chromosome.
- **Gamete and embryo donation is using eggs, sperm, or embryos from someone else** in order to help an intended parent(s) have a child.

ONOE Panel recommends simultaneous polls

News Excerpt:

The **high-level committee** headed by former President **Ram Nath Kovind** has **recommended simultaneous elections to the Lok Sabha and State Assemblies** as the first step, followed by synchronised local body polls within a 100-day phase.

Key highlights of the report:

- To synchronise the elections, the Panel has suggested that the **President set an 'Appointed Date', which would mark the beginning of the new electoral cycle**, through a notification issued at the first sitting of the Lok Sabha after the general elections.
- **State Assemblies formed after the appointed date and before the completion of the Lok Sabha's term would conclude before the subsequent general elections.**
 - Afterwards, elections to the Lok Sabha and all State Assemblies would be held simultaneously.
- The Panel recommended that **fresh elections could be held to constitute a new Lok Sabha in the event of a hung House, a no-confidence motion, or any such event.**
 - Still, the **House's tenure** will be **"only for the unexpired [remaining] term of the immediately preceding full term of the House."**
- When **fresh elections** are held for **Legislative Assemblies**, such new Assemblies—unless sooner dissolved—shall **continue until the end of the full term of the Lok Sabha**.
- To effect these changes, the **Panel has recommended amendments to Article 83 (duration of Houses of Parliament) and Article 172 (duration of State legislatures) of the Constitution**.
- The **Panel recommended suitable amendments to Article 324A of the Constitution to allow simultaneous elections in panchayats and municipalities and Article 325 to allow the Election Commission of India (ECI), in consultation with State election authorities, to prepare a common electoral roll and voter ID cards.**
 - Presently, the ECI is responsible for Lok Sabha and Assembly polls, while State election commissions manage local body polls for municipalities and panchayats.
- In all, **18 amendments to the Constitution** and other statutes have been suggested.
- The **Panel studied election processes in several countries**, including South Africa, Sweden, Germany, Japan, Indonesia, the Philippines and Belgium, **before recommending simultaneous polls** for India's Lok Sabha and State Assemblies.

Way Forward:

- The **22nd Law Commission**, which is examining the simultaneous polls issue, is **also expected to submit its report to the Law Ministry and recommend simultaneous polls from the 2029** general election cycle.
- Many feasibility studies and reports appreciate the proposed solution of ONOE.
- The **ECI, Law Commission, and Parliamentary Standing Committee on Law and Personnel Ministries** have, in principle, supported the idea of simultaneous elections and a single voter list.
- **ONOE** and a single voter list offer a **“one-stop solution”** to mitigate the stress caused by the recurring election cycle.

Democracy Report 2024

News Excerpt:

India, which was downgraded to the status of an **“electoral autocracy”** in 2018, has declined even further on multiple metrics to emerge as **“one of the worst autocratizers”**, according to the **‘Democracy Report 2024’**.

About Democracy Report 2024:

- The report was released by the **Gothenburg-based V-Dem Institute**, which **tracks democratic freedoms worldwide**.
 - **V-Dem’s Democracy Report** is a collaborative project based on 31 million datasets that cover 202 countries from 1789 to 2023.
 - The institute is based at the Department of Political Science at the University of Gothenburg in **Sweden**.
- The V-Dem report categorises countries into four regime types based on their score in the **Liberal Democratic Index (LDI)**:
 - **Liberal Democracy**
 - **Electoral Democracy**
 - **Electoral Autocracy**
 - **Closed Autocracy**
- Their annual report, which maps each country on a matrix of whether they are turning more **democratic** (‘democratising’) or more **autocratic** (‘autocratising’), stated that in **2023, 42 countries (home to 35% of the world’s population) were undergoing autocratisation**.

Key Findings of the report:

- **India**, with 18% of the world’s population, accounts for about half of the population **living in autocratising countries**.
- **Democratisation was taking place only in 18 countries**, accounting for just 400 million people, or 5% of the world’s population.

- **71% of the world’s population — 5.7 billion people — live in autocracies**, an increase from **48% ten years ago**.
- The **level of democracy** enjoyed by the **“average person in the world is down to 1985-levels”**, with the **sharpest decline** occurring in **Eastern Europe, and South and Central Asia**.
- Almost all components of democracy were getting worse in more countries than they were getting better.
 - The report singled out **freedom of expression, clean elections, and freedom of association/civil society as the three worst affected components** of democracy in autocratising countries.
 - The autonomy of the electoral management bodies **“is weakening substantially in 22 of the 42 autocratising countries”**.
- India’s “autocratisation process has been well documented, including gradual but substantial **deterioration of freedom of expression, compromising the independence of the media, crackdowns on social media, harassments of journalists critical of the government, as well as attacks on civil society.**”
- The only liberal democracy in the whole of South and Central Asia was **Bhutan**.
- On the **60 countries that will go to the polls in 2024**, the report observed that **more than half of these (31) were in periods of democratic decline**.
 - The elections in autocratising countries are **“critical events”** that can **“either trigger democratisation, enable autocratisation, or aid stabilisation of autocratic regimes.”**
 - **A majority of elections in 2024** would be in highly contested spaces, making 2024 a critical year for the **future of democracy in the world**.

National Cooperative Database

News Excerpt:

The **Union Ministry of Cooperation** has launched the **National Cooperative Database**, which will help **expand and develop cooperatives** in the country.

National Cooperative Database:

- National Cooperative Database is a **web-based digital dashboard** where the data of cooperative societies, including **national and state federations**, have been captured.
- There are more than **8 lakh registered cooperative societies** in the country, with over **30 crore** people connected with them.
- The Cooperative Database will play a crucial role in the **expansion, development, and delivery** of cooperatives.

- **Give direction to the development** of the Cooperative sector like a **Compass**.
- **Identify gaps** where we have a **lesser number of Cooperatives**.
- An invaluable resource for **policymakers, researchers and stakeholders**.
- Along with the database, the '**National Cooperative Database 2023 Report**' was also launched by the minister.

Ministry of Cooperation:

- The **Ministry of Cooperation** was constituted in July 2021.
- The mandate of the Ministry is to **strengthen the cooperative movement** in the country & deepen its reach up to the grassroots.
- Under the Constitution's **Seventh Schedule, state governments have jurisdiction over cooperatives**.
 - However, the **Centre has control over policymaking** for **cooperatives that operate in more than one state**, known as **multi-state cooperatives**.

Initiatives of the Ministry:

- The Ministry has introduced 20 new activities to be associated with **Primary Agricultural Credit Societies (PACS)**, enabling them to generate profits.
- By 2027, there will be PACS in every village in the country.

Fali S Nariman

News Excerpt:

Constitutional jurist and Senior Advocate **Fali S Nariman passed away** at the age of 95.

About Fali Sam Nariman:

- **Fali S Nariman** was an eminent jurist of unparalleled distinction.
- Born in **1929 in Rangoon (now Yangon), Myanmar**, Nariman embarked on a remarkable legal career that spans over seven decades, **shaping the course of constitutional jurisprudence in India**.

Notable cases of his career:

- **The Second Judges Case: Supreme Court Advocates-on-Record Association v. Union of India (1993):**
 - In this case, the nine-judge Constitution Bench **overruled the decision in the S. P. Gupta case**.
 - In the S.P. Gupta case, the Court had held that the Central government has primacy in matters of appointment and transfer of judges.
 - Nariman, who represented the **Supreme Court Advocates-on-Record Association (SCAORA)**, argued that "**consultation**" in the context of judicial

appointments means more than merely seeking advice.

- He stated that the advice given through **consultation with the CJI must be seen as binding in order to protect the independence of the judiciary**, as judges would be in a better position to determine the suitability and competence of candidates.
- The nine-judge bench agreed with Nariman's arguments and **established the Supreme Court Collegium**.
- It's a body comprising the **5 (3 in 1993) seniormost Supreme Court judges**, which is tasked with making binding recommendations for the appointment of judges to the apex court and High Courts.
- **The Third Judges Case: In re: Special Reference 1 (1998):**
 - The President of India, K. R. Narayanan, exercised his power under **Article 143** of the Constitution to send a "**reference**" to the Supreme Court and asked for **clarification on the procedure for the appointment of judges** following the second judge case.
 - In this case the Court expanded the size of the **Supreme Court Collegium to five seniormost judges from the existing three**.
- **National Judicial Appointments Commission case: Supreme Court Advocates-on-Record Association v. Union of India (2015):**
 - The **Constitution (Ninety-ninth Amendment) Act, 2014** amended the Constitution to insert **Article 124A**, which created a **six-person commission for judicial appointments, NJAC**.
 - This Commission would comprise the **CJI, two other senior SC Judges, the Union Minister of Law and Justice, and two "eminent persons"**.
 - Nariman represented the **SCAORA** in the case and argued that the **NJAC would encroach upon the independence of the judiciary** if the central government and the legislature were allowed to participate in the selection and appointment of judges.
 - **Four of the five judges** on the bench agreed with this view in 2015 and **struck down the NJAC**, in effect **reinstating the collegium system** for judge appointments.
- **Parliament cannot curtail fundamental rights: I.C. Golak Nath v. State of Punjab (1967):**
 - Two brothers in Punjab challenged the **Constitution (Seventeenth) Amendment Act, 1964**, as it amended Article 31A of the constitution, dealing with the **acquisition of estates**.

- Fali Nariman appeared on behalf of the intervenors who supported the petitioners in this case.
 - He argued that Parliament's power to amend the Constitution under Article 368 did not include articles contained in Part III of the Constitution dealing with fundamental rights.
 - A majority of six judges from the eleven-judge bench agreed with his arguments, pointing out that **Article 13(2)** states that **Parliament cannot make a law that infringes on fundamental rights**.
- **Golak Nath's judgement was overruled in the Kesavananda Bharati case.**
- **Rights of minorities to establish and administer education institutions: TMA Pai Foundation v. State of Karnataka (2002):**
 - Nariman argued in the landmark **TMA Pai case in support of minority rights** to establish and administer educational institutions under Article **30(1)** of the Constitution.
 - The Court observed that **'minority' has to be determined on a state-wise basis and not country-wise**, thus giving impetus to **local diversity and case-specific definition of minority**.
- **Governor to act only upon the aid and advice of the Council of Ministers, Chief Minister: Nabam Rebia, and Bamang Felix v. Deputy Speaker (2016):**
 - The Supreme Court in 2016 was tasked with navigating the political crisis in Arunachal Pradesh following the rebellion of 21 Congress MLAs in 2015.
 - In this case, the Court held that the **Governor's powers to summon, dissolve and advance a session is within the scope of judicial review**.
 - For the **first time in its history, the Court effectively nullified the President's rule** and restored the previous State government with Nabam Tuki as Chief Minister.

New Press and Registration of Periodicals Act, 2023

News Excerpt:

The new Press and Registration of Periodicals Act, 2023, came into effect on March 1, 2024, as announced in the official Gazette.

- The new **Press and Registration of Periodicals Act, 2023**, has replaced the **old Press and Registration of Books Act, 1867**.

Provisions of the Act:

- Responsibilities of **overseeing the Act** will fall under the purview of the office of the **Press Registrar General of India (PRGI)**, formerly known as the **Registrar of Newspapers for India (RNI)**.
- In alignment with the **Digital India** initiative, the **PRP Act** introduces an **online system** to streamline the **registration process for newspapers** and other periodicals across the country.
 - The new system **replaces the cumbersome manual processes** involving multiple steps and approvals at various stages, which caused **unnecessary hardships to the publishers**.
- Newspaper registration and periodicals have moved online through the **Press Sewa Portal**.
 - The Press Sewa Portal ensures **paperless processing** and offers services with an **e-sign facility**, a **digital payment gateway**, and **QR code-based digital certificates** for instant download.
 - It also intends to put in place a **chatbot-based interactive grievance resolution mechanism**.
 - The portal is accompanied by a **new website (prgi.gov.in)** with all the related information and a user-friendly interface.
- The new PRP Act **removes books and journals from the purview of registration** necessitated by the old law.
 - It defines a **periodical** as "any publication including a newspaper which is published and printed at **regular intervals** containing **public news** or **comments on public news** but **does not include a book or a journal** of **scientific, technical, and academic nature**."
- As per the new Act, all **applications for periodical registration** must be submitted **exclusively online** through the **Press Sewa Portal**.

Benefits:

- The likelihood of application discrepancies is significantly reduced, leading to expedited application processing.
- Applicants will receive real-time updates on their application status, to ensure transparency.

SOCIAL ISSUES

Human Development Report (HDR) 2023-24

News Excerpt:

According to the **United Nations Development Programme (UNDP)** report '**Breaking the Gridlock: Reimagining Cooperation in a Polarised World**,' **India ranks 134 out of 193** countries on the global Human Development Index (HDI).

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Key highlights of the report:

● India:

- With an HDI value of 0.644, the latest HDR places **India** in the **medium human development category**.
- **Between 1990 and 2022**, the country's HDI (Human Development Index) value **increased by 48.4 per cent**, from 0.434 in 1990 to 0.644 in 2022.
- **India** has also shown **progress in reducing gender inequality**, ranking **108th out of 166 countries in the GII** (Gender Inequality Index) 2022.
 - The GII measures gender inequalities in three key dimensions – reproductive health, empowerment, and labour market.
 - The country's GII value of 0.437 is better than the global average of 0.462 and the South Asian average of 0.478*.
- **India's reproductive health performance is better** than that of other countries in the medium human development group or **South Asia**.
 - India's adolescent birth rate in 2022 was 16.3 (births per 1,000 women ages 15-19), an improvement from 17.1 in 2021.
- **India** has one of the **largest gender gaps in the labour force participation rate** - a 47.8 percentage point difference between women (28.3%) and men (76.1%).
- India's southern neighbour, **Sri Lanka**, is **ranked much ahead at 78**, while **China** is ranked **75**. Both are classified under the **High Human Development category**.
- **India** ranks **below Bhutan**, which is 125th, and **Bangladesh**, which is 129th.
 - India, Bhutan, and

Bangladesh are all in the Medium Human Development category.

- **Switzerland** has been **ranked number one**.
- Nepal (146) and Pakistan (164) have been ranked lower than India.
- **India's life expectancy at birth has slightly improved from 67.2 years in 2021 to 67.7 years in 2022**.
 - There was an **overall increase (5.88%) in expected years of schooling (EYS) from 11.9 to 12.6**, which improved 18 places when the EYS aspect was considered.
- **India's Gross National Income (GNI) per capita** has **improved** from \$6,542 to \$6,951.
- **Global:**
 - The report notes that **inequality worldwide is rising again**: after 20 years of convergence, the gap between the richest and poorest countries has started to widen from 2020.
 - These global inequalities are compounded by **substantial economic concentration**.
 - **Almost 40% of global trade in goods is concentrated in three or fewer countries**.
 - In 2021, the market capitalization of each of the three largest tech companies surpassed the Gross Domestic Product (GDP) of more than 90% of countries that year.
 - **India's loss in HDI due to inequality is 31.1%**.
 - South Asia's loss in the HDI due to inequality is among the highest in the world (after sub-Saharan Africa), followed by the Pacific.

PEPPER IT WITH:
HDI, GDP, GNI,
Expected years of
schooling



The report proposes four areas for immediate action to break through the current deadlock and reignite a commitment to a shared future:

- **Planetary public goods for climate stability** as we confront the unprecedented challenges of the Anthropocene.
- **Digital global public goods for greater equity** in harnessing new technologies for equitable human development.
- **New and expanded financial mechanisms** include a novel international cooperation track that complements humanitarian assistance and traditional development aid to low-income countries.
- **Dialling down political polarisation** through new governance approaches focused on enhancing people's voices in deliberation and tackling misinformation.

Recommendations for how to improve the provision of different types of global public goods

Aggregation	Provision prognosis	Recommendations
Best-shot (for example, scientific breakthrough)	Likely to be provided if incentives are strong enough for the best shooter to contribute	Rich or dominant country fosters provision, but multilateral institutions can pool actions or coordinate among multiple potential best shooters
Summation (for example, climate change mitigation)	Tendency for underprovision due to free or easy riding because contributions are perfectly substitutable	Grants and loans are needed to foster fairness, and multilateral institutions are needed to monitor and track contributions
Weakest link (for example, disease control)	More likely to be provided if interests and capacities are similar; if there is a need to shore up poor countries, free riding concerns may emerge if support is to be pooled across high countries; risk of a "spoiler" blocking provision	Capacity building is essential to enhance the contributions of those least able to contribute; income redistribution makes provision more likely

Source: Human Development Report Office based on Buchholz and Sandler (2021).

PHFI is 2nd in the global ranking of Public Health Institutions

News Excerpt:

In the first global rankings for schools of public health, the **Public Health Foundation of India (PHFI)** has secured an impressive **second place, surpassing Harvard.**

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About the Public Health Academic Ranking (PHAR):

- The rankings are part of a report titled **'A New Model for Ranking Schools of Public Health: The Public Health Academic Ranking'** published in the International Journal of Public Health.

About Health centres:

- Health centres are at the bottom of the health chain of India's public health system, offering accessible and affordable primary care.
- They are conceptualized as a three-tier system:
 - **Sub-centres (later renamed as health and wellness centres)**
 - **Public health centres (PHCs) and**
 - **Community health centres (CHCs).**
- 94% of these centres are located in rural areas, but reports show that less than 20% of them function effectively, **pushing disadvantaged communities to rely on expensive, exploitative private health care.**

- The PHAR is the **first international bibliometric university ranking system** designed for academic public health.
- The **Institute of Global Health, University of Geneva, funded the ranking project.**
- Bibliometric data was collected on **26 schools of public health from each continent between August and September 2022.**
 - **Eleven research indicators/scores covering four criteria** were included - Productivity, Quality, Accessibility for readers, International collaboration for the period 2017–2021

On a contrasting note, a study done by researchers about the healthcare centres in **5 North Indian States** showed a **pattern of improving quality and utilization** over time, but the nature of progress is **largely cosmetic, and the pace is slow.**

Status of healthcare in North India:

- The researchers studied the performance of 241 health centres — 26 CHCs, 65 PHCs and 150 sub-centres, spread across Bihar (23), Chhattisgarh (36), Himachal Pradesh (45), Jharkhand (37) and Rajasthan (100).
- **Himachal Pradesh** has been a pioneer, with functional centres serving **83% of its population**, but States like **Chhattisgarh and Rajasthan** have introduced valuable initiatives.
- Health centres today have better facilities, dispense more medicines, serve more patients, and **provide a wider range of services than they did 10 or 20 years ago.**
- **What changed between 2002 and 2022?**
 - The share of health expenditure in the **Union Budget increased drastically**, coupled with the **introduction of the National Rural Health Mission.**
 - India's flagship **Ayushman Bharat programme**, launched with the vision of achieving universal

- health coverage, introduced a health insurance component (**PMJAY**) and a public provision component through health and wellness centres (**HWCs**) in 2018.
- **State-specific schemes** launched by **Rajasthan and Chhattisgarh boosted their performance.**
- The survey noted that **COVID-19** contributed to a **"sustained increase in patient utilization"**, with people placing greater trust in public health facilities.
- There is high staff absenteeism in health centres.
- The health workers also pointed to some of the drawbacks, **such as a lack of staff, irregular funds flow, lack of toilet facilities, no transport or residential facilities, no drugs or functional testing equipment, and the growing burden of both online and on-field work.**
- The study also documented **social discrimination in health centres:** some upper-caste doctors had **"disparaging attitudes towards marginalized communities"**, and **upper-caste families routinely disrespected Dalit ANMs.**
- ANMs and ASHAs worked in grim environments with centres lacking running water and toilets.

Case Studies:

- **Chhattisgarh case study:** A "radical expansion in public healthcare provision was noticed."
 - Local health workers reported running water, functional toilets, better facilities (**for cold storage, vaccines, contraceptives, etc.**), more medicines, a supportive role of **ASHAs and open centres with staff present most of the time.**
- **Bihar and Jharkhand case study:** Both states presented a contrasting narrative, with **Bihar the apparent laggard.** The quality of health centres was **"dismal"**, some local sub-centres were dormant and others were non-existent.
 - Bihar's sub-centres **"are still trapped in the old pattern where Auxiliary Nurse Midwife (ANMs) focus mainly on family planning targets and 'motivating' people—mainly women—for sterilization"**.

Investments in Healthcare:

- Investment in healthcare **increased, but the "improvements are patchy"**, and allocations prioritize material development in tertiary healthcare.
 - According to the composition of the healthcare budget, the allocation in 2022–23 (1.9%) was almost the same as in 2013–14 (1.7%) a decade ago.
 - Economic Survey 2022-23 showed that in the **absence of proper insurance** and affordable

services, almost **half of all health spending** in India is still paid by **patients themselves**, pushing many households into Poverty.

- **The National Health Mission share shrank from 69% to 44%.** The Government spent 10 times as much money on PMJAY and new regional AIIMS hospitals than on public welfare arms like the **Health wellness centres (HWCs).**
 - The HWCs have a relatively attractive look but were only marginally better than sub-centres, with **improvements only "cosmetic" in nature.**

Way Forward:

- Public Health as a formal discipline should **ideally integrate streams of knowledge from diverse disciplines**, bringing together learnings and perspectives from -
 - Life sciences
 - Quantitative sciences
 - Social and Behavioural sciences
 - Political science,
 - Humanities, and
 - Management.
- **Strengthening Primary Health Care:** Focus on enhancing the capacity and infrastructure, especially in states like Bihar & Jharkhand.
- **Improving Quality of Services:** Ensure the availability of **essential medicines, diagnostic equipment, and basic facilities like running water and toilets** at all health centres to enhance the quality of services.
 - **Enhancing Community Participation:** Encourage the involvement of **Accredited Social Health Activists (ASHAs) and community health workers** to bridge the gap between healthcare providers and communities.
 - **Monitoring and Evaluation:** Establish robust monitoring and evaluation mechanisms to track the progress of healthcare initiatives and ensure accountability in the delivery of healthcare services.
 - It is also important to envision health as extending beyond illness care to disease prevention and wellness promotion.

PEPPER IT WITH:
 PMJAY, ANMs,
 Sterilization,
 National Health Mission, ASHA

World Bank's - Women, Business and Law Index

News Excerpt:

In the latest edition of the **Women, Business and Law Index, India** holds the **113th position out of 190 countries.** The index indicates the gap between legal rights (Impact of Laws & Regulations on Economic Opportunity of Women) enjoyed by men and women in the workplace.

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Key Parameters of the Index:

- This index gauges legal gender disparities by assessing **10 crucial parameters**, such as **pay, safety, mobility, entrepreneurship, and assets**.
- India's ranking has been slightly enhanced with the inclusion of safety and childcare indicators.
- **Global Comparison:**
 - While India's score remains constant at 74.4%, several countries like **Denmark, Canada, and Finland score** a perfect 100.
 - The index shows that in India, women enjoy 60% of the legal rights compared to men, which is lower than the global average of 64.2%.
- **Supportive Frameworks Performance:**
 - India's performance particularly lacks supportive frameworks, including national policies, plans, programs, services, budgets, procedures, inspections, and sanctions for non-compliance. However, no economy has yet achieved full legal equality for women.
- **Quality childcare services and care work burden:**
 - Women in India also bear the burden of spending an average of 2.4 more hours daily on unpaid care work, primarily childcare.
- **Female Labor Force Participation:**
 - India is striving to increase the female labour force participation rate, which, at 37% in 2022-23, lags behind some advanced economies like those in the OECD, where the rate surpassed 50% in 2022.

Challenges:

Implementation Gap:

- Significant disparity between policy intentions and actual implementation. Only a fraction of nations have implemented the necessary systems to enforce existing laws protecting women's rights.
- Addressing the childcare gap alone could increase women's labour force participation by 1 percent.

Entrepreneurship Challenges:

- Women also face barriers to entrepreneurship. Only one in five economies enforce gender-sensitive criteria for public procurement processes, depriving women of significant economic opportunities.

Persistent Challenges:

- Women lack adequate legal protections against various forms of violence, including domestic violence, sexual harassment, child marriage, and femicide.

Recommended measures:

- **Legislative reforms:**
 - The report highlights the urgent need for legislative and policy reforms to empower women in entrepreneurship, address wage gaps, and remedy disparities in retirement age.
 - Recommendations include **equal pay legislation, expanding maternity and paternity leave provisions, setting quotas for women on corporate boards**, and addressing disparities in retirement age.
- **Unlocking potential:**
 - **Eliminating discriminatory laws and practices** has the potential to increase global GDP by more than 20 percent, effectively doubling the rate of global economic expansion over the next decade and making the world more inclusive for women.

PEPPER IT WITH:
Female labour force participation rate, World Bank, pay parity, OECD

Nutritional crisis in India

News Excerpt:

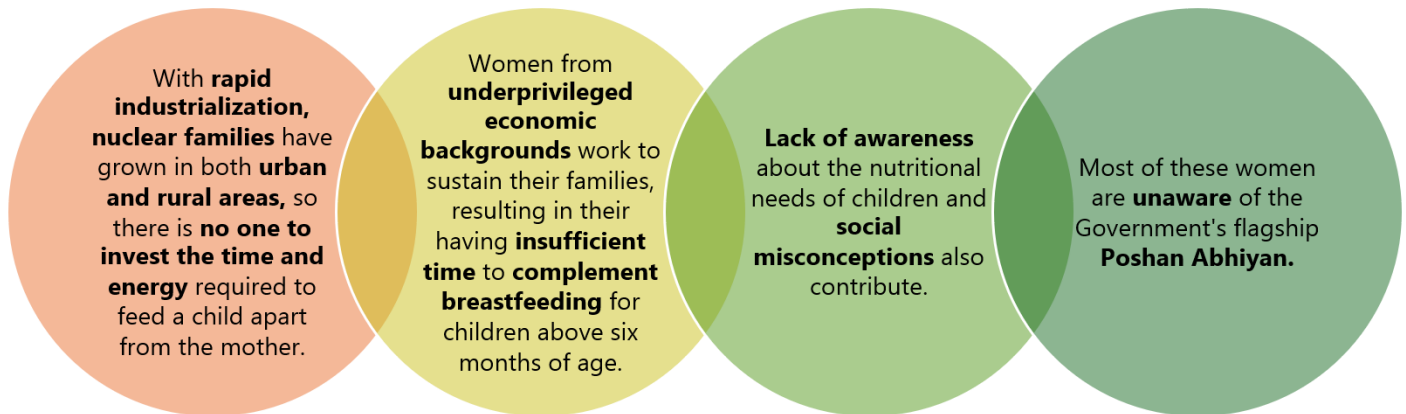
India has ranked **high** in a study calculating the **prevalence of children** aged 6-23 months who have **not eaten anything** over a 24-hour period across 92 low- and middle-income countries (LMIC).

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About the study:

- The research, recently published in the journal **JAMA Network Open**, looked at 276,379 babies aged 6 to 23 months in 92 LMICs.
- Of the total sample size, 51.4% were boys.
- The researchers gathered **data** from Demographic And Health Surveys (**DHS**) and multiple indicator cluster (**MICS**) **surveys** conducted from May 20, 2010, to January 27, 2022. The **National Family Health Survey's** 2019-2021 data was used for India.
- DHS and MICS surveys used standardized questions on feeding practices, covering **common and country-specific** solid or semisolid foods.
- The researchers also **warned** that it used data reported by individuals in household surveys.
- Parents or caregivers might not accurately remember what the child ate 24 hours before the survey, introducing a **recall bias** that could either **underestimate** or **overestimate** the prevalence of zero-food instances.
 - **Zero-food children** are the ones who did **not consume** any animal milk, formula or solid or semisolid food during the **last 24 hours**.

Factors leading to many 'zero food children' in India:



Key findings of the study:

- The data showed that **13.9 million children**, or 10.4% of the sample, had **not eaten anything** in the studied countries.
 - In the total sample, 20% of children **aged 6 to 11 months** had zero food, which decreased to 6.6% for those **aged 12 to 17 months** and further to 4.1% for those **aged 18 to 23 months**.
- **Prevalence rate of zero food children:**
 - The **highest** rates are seen in **South Asia** (15.7%) and **West and Central Africa** (10.5%).
 - **Latin America** and the **Caribbean** had the **lowest** prevalence and number of zero-food children, at 1.9%.
 - **East Asia** and the **Pacific** had the **second-lowest** prevalence, at 2.9%.
 - **India** has the third **highest** prevalence among 92 LMICs.
 - With **19.3%** of 'zero-food' children, India was third highest globally after West African countries **Guinea** (21.8%) and **Mali** (20.5%).
- **Absolute numbers of zero-food children:**
 - **India** had the most '**zero-food**' children at **6.7 million** — **almost half** of all the zero-food children in the surveys.
 - **Nigeria** had the **second-highest number** of zero-food children (962,000), followed by Pakistan (849,000).
 - **Pakistan, Ethiopia** and the **Democratic Republic of the Congo** also showed substantial numbers of zero-food children.
- The states of **Uttar Pradesh** (28.4%), **Bihar** (14.2%), **Maharashtra** (7.1%), **Rajasthan** (6.5%), and **Madhya Pradesh** (6%) account for nearly two-thirds of the zero-food children in India.
- More than **99% of the children** who experienced **zero-food** situations had been **breastfed**.

- This suggests that nearly all these children received some calories even during the 24-hour period when they did not receive other food sources.
- **Short- and Long-term benefits of adequate feeding:**
 - Reduced risk of mortality, malnutrition, stunting, underweight and micronutrient deficiencies.
 - Improved brain development, cognition and school readiness.

Recommendations provided by the study:

- According to the Food and Agricultural Organization (FAO), the **share of other food contributing to calorific requirements** should be **about 50%** for children aged nine to 11 months (~300 out of 700 Kcal/day).
 - In contrast, the **share of breastmilk should be greater than that of other food for children aged six to eight months** (400 out of 600 Kcal/day).
- **Breastfeeding alone cannot provide infants with the necessary nutrition** after they are **six months old**.
 - **Introducing solid or semisolid foods alongside breastfeeding** is pivotal in early childhood growth and development.
- The design and implementation of interventions should be context-specific, accounting for **cultural practices** and **local challenges**.
 - Strategies should include enhancing **access to nutritious foods**, improving maternal and caregiver **knowledge** about appropriate **feeding practices** and **strengthening health systems** to ensure the availability of necessary resources and support.
 - It is crucial to tackle the **socioeconomic** and **environmental factors** that contribute to food insecurity.

PEPPER IT WITH:
FAO, NFHS, POSHAN
ABHIYAAN, SDG2

PRE-SHOTS

Foundational Literacy & Numeracy Assessment Test (FLNAT)

News Excerpt:

According to the **Union Education Ministry**, the Government will conduct the **Foundational Literacy and Numeracy Assessment Test (FLNAT)** as part of **Nav Bharat Saaksharta Karyakram** across **23 States**.

Foundational Literacy & Numeracy Assessment Test (FLNAT):

- The **Department of School Education and Literacy (DoSEL)**, Ministry of Education will conduct FLNAT as part of the **ULLAS (Understanding of Lifelong Learning for All in Society) - Nav Bharat Saaksharta Karyakram** across 23 states.
- This test is developed to evaluate registered non-literate learners' **foundational literacy and numeracy skills**.
- The assessment comprises three subjects - **Reading, Writing, and Numeracy**.
- Previously, two FLNATs were conducted in 2023 - in March and September.
- The test was conducted in the **learners' regional language**, which is in line with **NEP 2020's** focus on **promoting multilingualism** and using the **mother tongue** or local language as the medium of instruction.
 - Conducting this test in regional languages shall help promote and preserve **linguistic diversity**.
- The test is crucial in assessing the impact of **teaching-learning sessions** conducted as part of the **ULLAS - Nav Bharat Saaksharta Karyakram**.
- Qualifying learners received a certificate issued by the **National Institute of Open Schooling (NIOS)**, recognizing their achievement in acquiring foundational literacy and numeracy skills.

Nav Bharat Saaksharata Karyakram:

- **Nav Bharat Saaksharata Karyakram**, or **New India Literacy Programme**, is a **Centrally Sponsored Scheme** approved by the Government of India for implementation during FYs **2022-27**.
- The scheme aligns with the recommendations of **National Education Policy (NEP) 2020**.
- It targets all **non-literates of age 15 years and above** in the country, focusing on **females** and **educationally backward states**.
- It has five components, namely;
 - **Foundational Literacy and Numeracy**
 - **Critical Life Skills**
 - **Basic Education**
 - **Vocational Skills**

- **Continuing Education.**
- The scheme is to be implemented through **volunteer teachers**.
- NYKS volunteers, the community, students of schools, Higher Education Institutions, and Teacher Education Institutions will be involved in teaching-learning activities to ensure its effective implementation in the country.

India sitting on obesity curve: Lancet study

News Excerpt:

The new study reveals that **44 million women and 26 million men aged above 20** in India are obese; this figure was just 2.4 million women and 1.1 million men in 1990.

Key Findings of the study:

- The Lancet found that **12.5 million children** (7.3 million boys and 5.2 million girls) in the country, **aged between 5 and 19**, were **grossly overweight in 2022**, up from 0.4 million in 1990.
- India ranks **182nd** among 197 countries for the prevalence of **Obesity in women** and **180th for men** in 2022. The country ranked **174th** in the world **for both girls and boys**.
- The report showed more than 3% prevalence among children and teens, an increase of over 3% points from 1990.
- Obesity is also a concern among adults, **with female obesity** prevalence increasing sharply; women had a 9.8% prevalence, an increase of 8.6 percentage points from 1990.
 - This number stood at 5.4% for men, an increase of 4.9 percentage points.
- Obesity, as defined by the World Health Organisation (WHO), is an **abnormal or excessive accumulation of fat** that poses health risks.
 - A body mass index (**BMI**) **over 25 is considered overweight**, and **over 30 is obese**.
 - Body mass index (BMI) is a measure of **body fat based on height and weight** that applies to adult men and women.

Major causes of Obesity:

- The primary driver is a **shift in dietary choices away from traditional foods** (pulses, whole grains, fruits, and vegetables) and **physical inactivity**.
- **Eating behaviour:** Snacking, patterns of restrained eating, dieting, binge eating and dining out.
- **Consumption of added sugars** significantly drives Obesity, particularly when **ingested through beverages** like sodas, sweetened coffee, tea and juices.

- **The National Nutrition Monitoring Bureau diet and nutrition surveys** in rural areas carried out at different times have shown that **sedentary activity (Low physical activity lifestyle) significantly increased** from 34 percent in 1975-79 to 74 percent by 2012.

THE OBESITY MAP					
India			World		
	1990	2022		1990	2022
Men	1.1	26	Men	67	374
Women	2.4	44	Women	128	504
Boys	0.2	7.3	Boys and girls (total)	31	160
Girls	0.2	5.2			

Source: Lancet All figures in million

- The Lancet Food Commission, NFHS surveys and national comprehensive nutrition surveys, among others, have shown that **dietary diversification is very poor among children.**

Why is Obesity in women rising faster?

- Experts attribute obesity problems in women to **cultural, socioeconomic and biological** factors.
- Women in more **traditional settings** may face the **following** circumstances:
 - More barriers to accessing **physical activity** like a gym or open ground activities.
 - **Limited access** to healthy food options.
 - Prioritizing the nutritional **needs of other family members** over their own.
- **They have limited access to healthcare and Education** about Obesity, its health implications.
- **Biological factors**, including pregnancy and menopause, uniquely affect women's weight.
- **Educating women** at a community level on the importance of maintaining a healthy weight and practising a healthy lifestyle is necessary.

France makes abortion a constitutional right

News Excerpt:

France has become the first country in the world to **explicitly include the right to abortion** in its **constitution**.

The constitutional amendment:

- The amended **Article 34** of the French constitution states that "the law determines the conditions in which a woman has the **guaranteed freedom** to have recourse to an **abortion**".
 - **France first legalized abortion in 1975**, and it was a **legal right in France**.
- The amendment has been hailed as a victory for feminists and a defeat for anti-choice activists.
- The French amendment is an explicit response to the trend seen in countries like **Hungary**, which, in 2022, placed significant bureaucratic hurdles before women

seeking an abortion, and **Poland**, where a near-total ban was imposed in 2021.

Access to safe abortion as a human right:

- At the **1994 International Conference on Population and Development** in Cairo, 179 governments signed a **program of action** that included a commitment to **prevent unsafe abortion**.
- In **2015**, the **United Nations' 2030 Agenda for Sustainable Development** expanded to call for **universal access to reproductive health care services**.
- The **WHO** first recognized **unsafe abortion as a public health problem in 1967**.
 - In **2003**, it developed **technical and policy guidelines** that included a **recommendation that states pass abortion laws to protect women's health**.
- According to the **UN Population Fund**, addressing the unmet need for family planning would both considerably **reduce maternal mortality** and **reduce abortion** by up to 70% in the developing world.

The legal status of abortion in India:

- **Section 312** of the **IPC** criminalizes voluntarily "**causing miscarriage**" even when the miscarriage is with the pregnant woman's consent, except when the miscarriage is caused to save the woman's life.
 - This means that the woman herself, or anyone else, including a medical practitioner, could be prosecuted for an abortion.
- In **1971**, **The Medical Termination of Pregnancy Act (MTP Act)** was introduced to "liberalize" **access to abortion** since the restrictive criminal provision was leading to women using **unsafe and dangerous methods for termination of pregnancy**.
 - The law was enacted on the recommendation of the **Shantilal Shah Committee**.
- In **2021**, Parliament **amended the MTP Act**.
 - Under the **Medical Termination of Pregnancy (Amendment) Act, 2021**, abortion is permitted after **medical opinion under stipulated circumstances**.
 - The 2021 Act **increased the upper limit** of the gestation period to which a woman can seek a medical abortion to **24 weeks from 20 weeks** permitted in the 1971 Act.
 - **Gestational age**, calculated in weeks, is the medical term for **how far along the pregnancy** is. It is measured from the **first day of the woman's last menstruation or period**.
 - It also **extended MTP services**, under the **clause of failure of contraceptive**, to **unmarried women** to provide access to safe

abortion based on a woman's choice, irrespective of marital status.

- The opinion of **only one registered medical practitioner** will be required for the abortion of a foetus **up to 20 weeks** of gestation and **two for the termination** of pregnancy from **20 to 24 weeks** of gestation, and the opinion of a **state-level medical board** is required for abortions **over 24 weeks**, in case of suspected **foetal abnormalities**.

Unemployment rate declined to the lowest level in 2023

News Excerpt:

According to new data released by the National Sample Survey Office (NSSO), India's unemployment rate dropped to 3.1% in 2023 from 3.6% in 2022.

Findings of the survey:

- The data was part of the employment-unemployment indicators report (**Periodic Labour Force Survey**) released by the **National Sample Survey Office (NSSO)**.
 - NSO collects **employment and unemployment status** data in the country between **July and June**.
- A **significant reason** for the decline in the unemployment rate was the **decline in urban unemployment**.
 - Urban unemployment** declined to **5.2% in 2023** compared with **5.9% in the previous year**.
 - Rural unemployment was down **2.4% from 2.8%** earlier.
- The latest survey also showed that the **labour force participation rate (LFPR)** increased significantly to **59.8% in 2023** from **56.1% in 2022** at the national level.
 - The **rural LFPR** stood at **63.4% in 2023**, significantly **up** from **58.5% in 2022**, whereas its **urban LFPR** rose to **51.4% from 50%** in the corresponding period.

Male-Female Labour Force Participation:

- The **male-female gap** in unemployment increased according to the annual **PLFS**.
 - Female unemployment declined slower than male unemployment**.
 - Despite **female labour force participation rising to 41.3% in 2023** from **33.9%** earlier, **unemployment decreased to 3% from 3.3% earlier**.
 - In contrast, **male unemployment declined to 3.2% from 3.7%** in urban areas.

- In both **rural and urban areas**, the **decline in female unemployment was lower** than the decline in male unemployment.
 - Female labour force participation in urban areas reached 27.2% for the first time.
 - However, their **participation in the economy is declining**.

Periodic Labour Force Survey (PLFS):

- The **National Sample Survey Office (NSSO)** launched the Periodic Labour Force Survey (**PLFS**) in **April 2017**.
- The PLFS gives estimates of Key **employment and unemployment** Indicators like:
 - Labour Force Participation Rate (LFPR)**: The percentage of the population who are in the labour force (working, seeking work, or available for work).
 - Worker Population Ratio (WPR)**: The percentage of employed persons in the population.
 - Unemployment Rate (UR)**: The percentage of persons unemployed among the persons in the labour force.
 - Current Weekly Status (CWS)**: The activity status determined based on a reference period of the last seven days preceding the date of the survey.

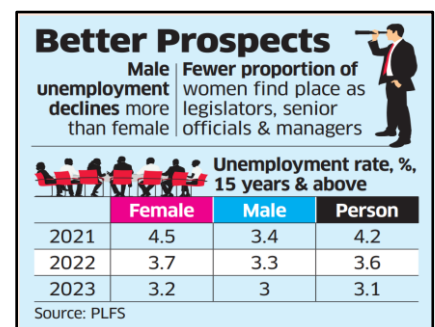
WHO's Global Initiative on Digital Health

News Excerpt:

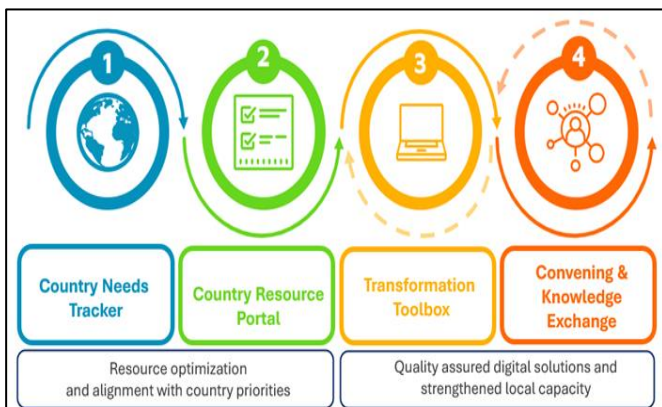
The World Health Organization (WHO) has launched the Global Initiative on Digital Health (GIDH), a **platform for sharing knowledge and digital products among countries**.

About the Global Initiative on Digital Health:

- GIDH is one of the **key initiatives of India's G-20 Presidency** and was **announced in August 2023 in Gandhinagar, Gujarat**.
- The platform was launched virtually in **February 2024**. The **WHO manages the network**.
- It is launched to enhance and align resources to support **digital health transformation led by individual countries**, achieved through improved collaboration and the exchange of knowledge.



- It acts as a vehicle to facilitate the implementation of the **Global Strategy on Digital Health 2020-2025**.
- **Membership:** Membership is open to all institutions engaged in digital health.
- The initiative will be a network of networks with **four main components:**
 - Country Needs Tracker
 - Country Resource Portal (a map of resources available in a country)
 - Transformation Toolbox that will share quality-assured digital tools
 - Convening and Knowledge Exchange



Significance of the initiative:

- The platform will help to **democratize digital health technologies**, especially for countries in the Global South.
- The GIDH will promote equitable access to digital health by addressing challenges such as duplication of efforts and **“products-focused”** digital health transformation.
- **GIDH will support countries in three ways:**
 - By listening to their needs.
 - By aligning resources to avoid fragmentation and overlap.
 - By providing quality-assured products.
- The GIDH will ensure inclusivity, integration, and alignment of our goals by not leaving anyone behind.
 - Digital health is a proven accelerator for advancing health outcomes and achieving Universal Health Coverage (UHC) and health-related Sustainable Development Goals.
- GIDH is an integrative step that fosters equity in healthcare by converging efforts and best practices.
 - It will amplify efforts by incorporating tools such as AI while prioritizing ethics, policy, and governance.

Global Strategy on Digital Health 2020-2025:

- The **WHO published** the Global Strategy on Digital Health 2020-2025 in **2021**.
- It serves as a **guide for member states to enhance health systems**.
- This global strategy aims to strengthen health system by applying digital health technologies to consumers, health professionals, healthcare providers, and industry, empowering patients and achieving the vision of health for all.

Digital health initiatives of the Government of India:

- **Ayushman Bharat Digital Mission (ABDM):**
 - It was launched in 2021.
 - ABDM will connect the digital health solutions of hospitals across the country with each other.
- Teleconsultation platform **E-Sanjeevni** provided 140 million consultations so far.
 - It facilitates quick and easy access to doctors and medical specialists from smartphones.

Ending discrimination: On the Union of India and Others vs Ex. Lt. Selina John case

News Excerpt:

In a case where a woman nursing officer was terminated from the Military Nursing Service on the grounds of marriage, the Supreme Court firmly termed the same to be a **'coarse case of gender discrimination and inequality'**.

Supreme Court's verdict:

- Dismissing the Centre's appeal, the Supreme Court maintained that releasing or discharging an employee based on marriage is arbitrary and constitutes gender discrimination.
- The Court firmly rejected the patriarchal rule that led to her termination, emphasizing that such actions undermine human dignity, the right to non-discrimination, and fair treatment.
- The Court also granted her full and final settlement by ordering the Centre to compensate her with Rs.60 lakh.
- This landmark Supreme Court decision not only addresses the specific case of Selina John but also sends a powerful message against gender discrimination in the workplace, reinforcing the **principles of equality, non-discrimination, and fair treatment**.

World Poverty Clock

News Excerpt:

According to recently published data by the World Poverty Clock, India has managed to bring down **'extreme poverty' below 3 % of its population**.

Key Points:

- As per government data, Extreme Poverty is now eliminated in India.
 - The World Poverty Clock updates show **India's extreme Poverty at less than 3 %**.
- This could mean achieving significant milestones in the direction of the first of **17 Sustainable Development Goals (SDG)**.
- The clock has taken **\$2.15 a day income to present the finding**.
- Accordingly, nearly **3.44 crore people will be living in extreme poverty in 2024, against 4.69 crore in 2022**.
- As a share of the total population, the number of people living in extreme Poverty has come down to **2.4 % from 3.3 % in 2022**.
 - This is the second big indication of the fight against Poverty.

	Total population	Number of people living in extreme poverty	%
	(in crore)		
2016	132.37	7.59	5.7
2018	135.29	6.26	4.6
2020	138.21	6.73	4.9
2022	140.85	4.69	3.3
2024	143.48	3.44	2.4

Source: www.worldpoverty.io

World Poverty Clock

- It provides **real-time Poverty estimates through 2030** for nearly every country globally.
- It **monitors progress against Ending Extreme Poverty**, which is the UN's first SDG.
- The escape rate calculates the current rate of poverty reduction in the world.
- Funded by the **International Fund for Agricultural Development (IFAD)** and the **Federal Ministry for Economic Cooperation and Development of Germany**.
- It shows the **number of people living in extreme Poverty worldwide, disaggregated by age, gender and rural/urban location**.

Asia and the Pacific SDG Progress Report

News Excerpt:

Recently, Data released by the **UNESCAP** as part of **Asia and the Pacific SDG Progress Report: Showcasing Transformative Actions 2024 report** indicated that the country still had several indicators where data availability was an issue.



India and Asia's challenges mentioned:

- The report noted **25 emerging challenges** for the Indian economy, including **rising childhood obesity rates, higher annual inflation, and resources made available to strengthen statistical capabilities**.
- While the report lauded the efforts of certain countries, it pointed out that most were likely to miss the SDG target for 2030, and in fact, **the gap between reaching the target was now 32 years**.
 - So, the region would only be able to fulfil its **SDG agenda by 2062**.
- Efforts towards **mitigating hunger (Goal 2), enhancing health and well-being (Goal 3), ensuring the availability of clean water and sanitation (Goal 6), expanding affordable and clean energy (Goal 7), and building sustainable cities and communities (Goal 11)** have been less pronounced and require heightened attention.
- The report highlighted **women's difficulty accessing education and employment opportunities** across the region despite progress in school enrolment rates.

Improvements mentioned in the report:

- The report showed that India's performance on **85 of Sustainable Development Goal parameters has improved**, with progress stagnating on 27 counts and worsening on 36.
- According to the report, the overall average progress towards achieving all 17 SDGs in Asia and the Pacific has increased slowly **from 4.4 percent in 2017 to 17.0 percent in 2023**.
- The report pointed out that **positive steps** have been taken towards **eliminating Poverty (Goal 1) and bolstering sustainable industry, innovation, and infrastructure (Goal 9)**.

ECONOMY

WTO 13th Ministerial Conference

News Excerpt:

The World Trade Organization's 13th Ministerial Conference (MC13) took place in **Abu Dhabi, United Arab**

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Emirates. Ministers from across the world attended to review the functioning of the multilateral trading system and to take action on the future work of the WTO.

What are the Key Outcomes of WTO's 13th Ministerial Conference?

- **Accessions:** On the first day of MC13, ministers endorsed the accession to the WTO of two least-developed countries—**Comoros** and **Timor-Leste**. This brings the organization's membership to 166, representing 98 percent of world trade.
- **WTO reform:** At MC13, ministers endorsed progress on the WTO reform process, which covers the organization's deliberative, negotiating, and dispute settlement functions.
 - **Dispute settlement reform:** At MC13, ministers reviewed the valuable contributions made towards fulfilling the reform commitment. This includes a 36-page draft setting out reforms to the **WTO's dispute settlement system**.
 - **Reform of the deliberative and negotiating functions:** At MC13, ministers welcomed the work already undertaken to
 - Improve the functioning of WTO Councils, Committees, and Negotiating Groups.
 - Enhance the organization's efficiency and effectiveness.
 - Facilitate Members' participation in WTO work.
- **E-commerce:** At MC13, ministers decided to renew the e-commerce moratorium until MC14 or 31 March 2026, whichever is earlier.
- **TRIPS non-violation and situation complaints:** The ministers also decided to **extend a moratorium** on so-called "non-violation" and "situation" complaints under the **TRIPS Agreement**.
- **Special and differential treatment (S&DT):** Ministers adopted a decision to improve the use of **S&DT** provisions, particularly those in the Agreement on Technical Barriers to Trade and the Agreement on Sanitary and Phytosanitary Measures.
- **Plurilateral agreements and initiatives:** At MC13, Members failed to reach consensus on agriculture and food security and further disciplines fisheries subsidies. **Plurilateral initiatives (covering less than the full Membership)** are, therefore, becoming more prominent.

- **COVID-19-related TRIPS waiver:** At MC12, ministers broadened compulsory licensing for COVID-19 vaccines and mandated negotiations for expanding coverage to diagnostics and therapeutics. At MC13, due to a lack of consensus, these rules won't apply to diagnostics and therapeutics. Ministers urged ongoing work on pandemic lessons and future solutions.
- **Fisheries subsidies:** At MC13, ministers welcomed the progress over the past 20 months towards the **Agreement on Fisheries Subsidies (AFS)**'s entry into force. As of 1 March 2024, 71 Members have ratified the agreement. A further 39 ratifications are needed to reach the threshold of 110 for the agreement's entry into force.
- **Agriculture and food security:** Although updating WTO disciplines on agriculture has been on the agenda of Members since 2000, little progress has been made. Prior to MC13, there appeared to be a more positive dynamic.

What are the issues associated with the 13th Ministerial Conference of WTO?

- **Fisheries Subsidies Agreement:** It has not yet come into force due to insufficient ratifications.
 - Additionally, negotiations on **Part II (the remaining important provisions governing supportive subsidies, such as for fuel)**, particularly concerning supportive subsidies like those for fuel, faced challenges with major members seeking exemptions.
 - Illegal, unregulated, and unreported fishing continues to deplete ocean fish stocks.
- **Agriculture Negotiations:** Despite a 30-year-old pledge to proceed with negotiations, there is still no agreement. Climate change and extreme weather events exacerbate food insecurity, with the lack of WTO rules governing food sharing between countries worsening the situation.
- **Dispute Settlement System (DSS):** Agreement on a single, binding DSS remains elusive. While some clean-up amendments are moving toward consensus, core issues such as binding outcomes, national security exceptions, and the existence of an appellate level remain unresolved.
- **Future Agreements:** The Agreement on **Investment Facilitation for Development** has been concluded by interested parties. It aims to streamline procedures without market access obligations.
 - However, challenges arise as some members, such as **India and South Africa**, question the negotiation's approval process and its recognition as a WTO agreement. The issue of non-participating vetoes

obstructing progress needs to be addressed for effective rulemaking within the WTO.

- **Concerning free and fair trade:** Despite a more contentious atmosphere around the trade laws the WTO aims to uphold, there was growing optimism that the 13th Ministerial Conference would fulfill its mandate.
 - Nevertheless, the World Trade Organization still has difficulty promoting fair and unrestricted trade.
- **Inward-looking tendencies:** In addition, a growing trend of nationalism has sparked isolationist and **tariff-heavy trade policies**, which run counter to the **WTO's main objective of open trade for the benefit of all**.
 - Though not much has been accomplished, the Abu Dhabi proclamation does mention some of the difficulties, such as the requirement to guarantee open, inclusive, and robust supply chains.

Way Forward:

- **Reformative Approach:**
 - Establish a comprehensive, long-term strategy focusing on reform to uphold the efficacy of **global trade governance**.
 - Emphasize adherence to a rule-based order among WTO members to foster stability and predictability in international trade relations.
- **Regular Meetings:**
 - Facilitate frequent gatherings between WTO members and the Appellate Body to foster dialogue and maintain transparency.

- Ensure that regular meetings enable efficient communication channels, allowing for the swift resolution of disputes and grievances.
- **Resolution of Disputes:**
 - Advocate for the restoration of the **WTO's dispute settlement mechanism** to its previous operational effectiveness.
 - Prioritize the needs of developing nations within the dispute resolution process to address asymmetries in legal resources and expertise.
- **Consensus-based Decision-making:**
 - Promote a **consensus-driven approach to decision-making within the WTO** to enhance legitimacy and inclusivity.
 - Guard against unilateral actions that may undermine cooperation and compromise essential for effective global trade governance.
- **Addressing Developing Countries' Needs:**
 - Tailor WTO rules and reforms to accommodate the unique challenges and developmental priorities of developing and least-developed countries.
 - Ensure that trade policies and agreements incorporate provisions that support capacity-building and economic growth in these nations.

PEPPER IT WITH:
WTO, Marrakesh Agreement, TRIPS agreement, Multilateralism

Support for Accessions

- India supported the accession of Comoros and Timor Leste.

Avoid Fragmentation

- India stressed the need to avoid fragmentation of the multilateral trading system.

Stay Focused

- India emphasized on the importance of remaining focused on trade-related issues rather than mixing non-trade topics like gender and MSMEs with the WTO agenda.

Policy Space for Industrialization

- India advocated for appropriate policy space for developing countries to address their concerns, particularly regarding industrialization.

Commitment to Multilateralism

- India reaffirmed its commitment to multilateralism and the rules-based global trading system, underscoring the importance of adhering to WTO rules

Figure: India's Stance

- **Adapting to a Changing World:**
 - Continuously monitor and adapt to **shifts in the global economic landscape**, including advancements in technology and changes in trade patterns.
 - Integrate considerations for environmental sustainability into trade policies to address emerging challenges and promote responsible global commerce.

New patent rules

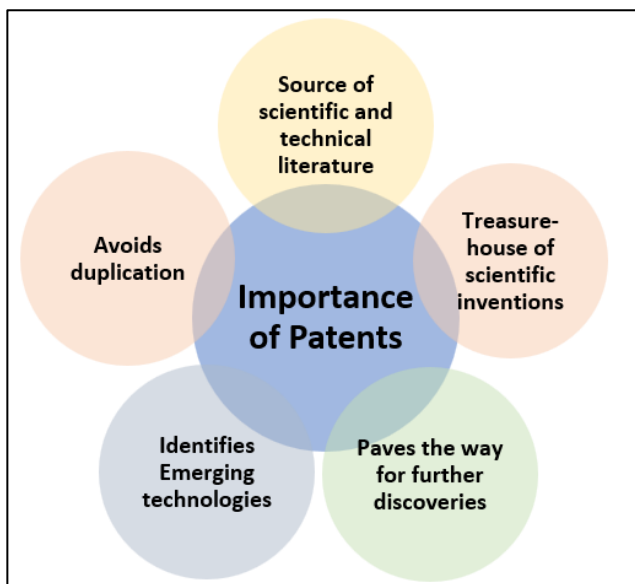
News Excerpt:

The Patent Rules 2024 have been notified, marking a significant milestone in the journey towards fostering innovation and economic development.

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About New Patent rules:

- These rules introduce several provisions aimed at **simplifying the process of obtaining and managing patents**, thereby facilitating a conducive environment for inventors and creators.



What is a patent?

- **It is a statutory right to the inventor** or the applicant by the government for his invention which is either a new process or product.
- **It protects intellectual property for 20 years**, during which time no one else can manufacture the product. Royalties can be paid to use the product.
 - After 20 years, technology enters the public domain.
- It is granted in lieu of sufficient disclosure to the patent offices.
- **It is only a territorial right.**

- A patent is **not an absolute right; this is subject to certain conditions like-**
 - Government Use: Importation or manufacturing by or on behalf of the government.
 - Experimental purpose; Research purpose; Teaching purpose.
 - Drugs or medicine are distributed by the government in dispensaries, hospitals, or other medical institutions, rendering public service or on behalf of the government.
 - Used for Foreign vessels, aircraft, and land vehicles that have temporarily or accidentally come to India.

Patent system in India:

- The patent system in India is governed by the Patents Act, 1970, as amended by the Patents (Amendment) Act 2005 and the Patents Rules 2003.
- The Patent Rules are regularly amended in consonance with the changing environment, the most recent being in 2016.
- An invention is patentable subject matter **if it meets the following criteria -**
 - It should be novel.
 - It should have inventive steps, or it must be non-obvious
 - It should be capable of Industrial application.
 - It should not attract the provisions of sections 3 and 4 of the Patents Act 1970.
- All the patent applications are kept secret upto 18 months from the date of filing or priority date, whichever is earlier, and thereafter, they are published in the Official Journal of the Patent Office, which is published every week and also available on the Indian patent office (IPO) website.
- After its publication, the public can inspect the documents and also may take a photocopy thereof on payment of the fee as prescribed.

Salient features of the new rules:

- A unique provision for a New **'Certificate of Inventorship'** has been introduced to acknowledge the contribution of inventors in the patented invention.
- Provision for **claiming benefits of Grace period** under section 31 has been **streamlined** by incorporating new forms, i.e., Form 31.
- **Time limit to furnish foreign application** filing details in Form 8 has been changed from six months from the date of filing of application to **three months from the date of issuance** of the first examination report.
- Considering the fast pace of technology, the **time limit for filing request** for examination has been reduced from **48 months to 31 months** from the date of priority of application or from the date of filing of application, whichever is earlier.

- The provision to extend the time limit and condone delay in filing has been further simplified and made more explicit to ease in practice. Now, the time for doing any act/proceeding **may be extended any number of times** up to six months **by a request in the prescribed manner**.
- **The renewal fee has been reduced by 10%** if paid in advance through electronic mode for a period of at least 4 years.
- **Frequency to file the statements of working of patents** in Form 27 has been reduced from once in a financial year to **once in every three financial years**.
 - **The provision to condone delay in filing** of such statements for a period of up to **three months** upon a request in a prescribed manner has been incorporated.
- **The procedure to file and dispose of the Pre-grant representation** by way of opposition under section 25(1) has been further **streamlined** and made more explicit by providing ways to dispose of the representation and fixing fees to file such representation in order **to curb benami and fraudulent pre-grant oppositions** and simultaneously encouraging the genuine oppositions.

PEPPER IT WITH:
Types of Intellectual Property, NIPAM, Patent Rules

Way Forward:

The new Patent Rules 2024 **aims to simplify patent processes, support inventors, and enhance economic growth**. With provisions like the **'Certificate of Inventorship'** and **streamlined grace periods**, these rules bolster innovation. Reduced examination request timelines and flexible working statement filings further **align the system with evolving technological needs**, fostering a **robust environment for intellectual property rights**.

Newly proposed Highway toll collection system

News Excerpt:

The Ministry of Road Transport and Highways said that the government **plans to implement a new highway toll collection system** based on the global navigation satellite system **before the model code of conduct for the 2024 election kicks in**.

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About the newly proposed highway tolling system:

- **Global navigation satellite system's (GNSS) implementation** will involve an **On-Board Unit (OBU), or a tracking device, fitted inside a vehicle** whose location can be mapped using GAGAN, the Indian satellite navigation system with an approximate

Improved Accuracy and Efficiency

- This could lead to **reduced traffic congestion** and faster passage through toll points.

Pay-as-You-Use Model

- **This could benefit both commuters and long-distance travellers** who currently pay fixed toll amounts.

Operational Cost Savings

- The system's reliance on digital technology, without the need for physical toll plazas, can lead to lower operational costs.

Figure: Significance of the newly proposed highway toll collection system

accuracy of 10 meters.

- The coordinates of the entire length of the country's national highways will have to be logged with the help of **digital image processing**.
 - **The software will be used to assign the toll rate** on a particular highway, calculate the toll amount for a vehicle as per the distance traveled by it, and then deduct it from a **wallet linked to the OBU**.
 - The system will additionally have gantries, or arches mounted with CCTV cameras, at various points on a highway for enforcement purposes.
 - **These will capture an image of the vehicle's high-security registration plate** and cross-verify if a road user is trying to trick the system by either removing the tracking device or traveling without an OBU onboard.
 - The technology aims to **provide users with the benefit of paying toll only for the actual distance travelled on a highway** or (pay-as-you-use), eventually allowing barrier-free movement.
 - **It will lower the operational cost** as compared to FASTags due to the absence of toll plazas and less number of entities in the toll collection process.
- Challenges involved in the implementation:**
- One of the major challenges posed by this technology is that of **recovering the toll amount if a road user fails to clear his payment** after completing a journey on a highway, for instance, if the **digital wallet linked with the OBU is empty**. There are **no barriers involved that can stop a non-compliant vehicle**.
 - There are other issues, such as: -

- When a vehicle travels on a highway without an OBU device linked or, the OBU device is deliberately switched off to avoid payment, or if a car's OBU is installed on a truck to pay less toll.
- **Gantry-mounted Automatic Number-Plate Recognition (ANPR)-based systems** for capturing violations have to be set up on highways across India, and **no such infrastructure exists in the country today.**
- **The government will also have to amend the National Highways Fee (Determination of Rates and Collection) Rules to:**
 - Provide for the **recovery of unpaid toll**
 - **Define offences**
 - Require the **necessity of an OBU in vehicles.**

About FASTags:

- It is a device that employs Radio Frequency Identification (RFID) technology to make toll payments directly while the vehicle is in motion.
- This RFID Tag is affixed on the windscreen of the vehicle and enables a customer to make toll payments directly from the account which is linked to FASTag.
- It offers the convenience of cashless payment along with benefits like - savings on fuel and time, as the customer does not have to stop at the toll plaza.

Way Forward:

The newly proposed highway toll collection system in India, based on the global navigation satellite system, **represents a significant advancement in tolling technology.** It promises improved accuracy, efficiency, and fairness in toll collection, potentially **leading to reduced congestion, cost savings, and a more seamless and better travel experience for road users in India.**

PEPPER IT WITH:
 FAStags, GNSS, RFID,
 Model Code of Conduct

Mauritius Approves DTAA Amendment

News Excerpt:

The Mauritius Government has decided to amend the Double Taxation Avoidance Agreement (DTAA) with India to go with OECD's proposal on Base Erosion and Profit Shifting (BEPS).

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About the news:

- This move by Mauritius is seen as a significant stride towards harmonizing with global tax norms. The

- amendment focuses on preventing **tax avoidance through exploitative tactics.**
- This modification would now elevate the India-Mauritius tax treaty to the **status of a covered tax agreement** under **BEPS MLI (Multilateral Instrument)**, ushering in a new era of **anti-abuse** and limitation of benefit rules, principal-purpose test and inclusion of arbitration in the mutual agreement procedure.

Base Erosion and Profit Shifting Multilateral Instrument (BEPS MLI)

- Base erosion and profit shifting (BEPS) refers to **tax planning strategies used** by multinational enterprises that exploit gaps and mismatches in tax rules to avoid paying tax.
- **The BEPS MLI** is a convention created by the Organization for Economic Co-operation and Development (**OECD**) and endorsed by the G20 to prevent base erosion and profit-shifting (BEPS) practices.

Double Taxation Avoidance Agreement (DTAA)

- The DTAA is a tax treaty signed between India and another country (or any two/multiple countries) so that taxpayers can **avoid paying double taxes** on their income earned from the source country as well as the residence country.
- The need for DTAA arises out of the **imbalance in tax collection** on individuals' global income.

BEPS Minimum Standards compliance

- The **BEPS MLI** allows governments to implement **agreed minimum standards** to counter treaty abuse and to improve dispute resolution mechanisms while providing flexibility to accommodate specific tax treaty policies.

Treaty shopping

- Treaty shopping typically involves the attempt by a person to **indirectly access the benefits of a tax treaty** between two jurisdictions without being a resident of one of those jurisdictions.
- There are a wide number of arrangements through which a person **who is not a resident of** a jurisdiction that is a party to a tax agreement may attempt to obtain benefits that a tax agreement grants to a resident of that jurisdiction.
- Taxpayers engaged in treaty shopping and other treaty **abuse strategies undermine tax sovereignty** by claiming treaty benefits in situations where these benefits were not intended to be granted.

Foreign investment in India from Mauritius before and after the DTAC amendment in 2016:

- **Initial Preference for Mauritius:** Mauritius was initially the preferred channel for foreign portfolio and foreign direct investors due to the tax advantage that accrued to them due to the DTAA between the two countries.
 - The agreement laid down that capital gains tax had to be paid in the country where the foreign investor was based.
 - Since the rate of capital gains tax in Mauritius was zero, investors from this country paid no capital gains tax.
- **DTAC Amendment in 2016:** The situation changed in 2016 when it was decided that in case shares purchased after April 1, 2017, capital gains arising from an investment in an Indian company will be taxed in India.
- **With the double tax avoidance treaty** with Singapore being linked to the agreement with Mauritius, investments from Singapore have also been brought into the Indian tax net.
- **Cumulative FDI worth \$161 billion** came from Mauritius to India in the two decades from 2000 - 2022 (26 percent of total FDI inflows into India), thanks largely to the DTAA.
- **Since the signing of the DTAC** amendment in 2016, FDI inflows from Mauritius have dropped from **\$15.72 bn in 2016-17 to \$6.13 bn** in 2022-23, with Mauritius becoming India's third largest source of FDI.

PEPPER IT WITH:
BEPS, OECD, Global Tax Rates, Tax Avoidance, Tax Evasion

Way Forward:

Mauritius' decision to align with BEPS standards shows a commitment to global tax norms, fostering transparency and preventing tax avoidance. Multinational corporations with entity structures in India and Mauritius could now possibly see enforcement of more challenging treaty rules on account of the implementation of BEPS MLI.

New space FDI norms

News Excerpt:

The Department for Promotion of Industry and Internal Trade (DPIIT) has notified us of changes in the **foreign direct investment norms (FDI) in the space sector.**

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Amendment in FDI Policy:

- Currently, FDI is permitted only in the establishment and operation of Satellites **through the Government approval route.**
- In line with the vision and strategy under the **Indian Space Policy 2023**, the Union Cabinet has **eased the**

FDI policy on the Space sector by prescribing liberalized FDI thresholds for various sub-sectors/activities.

- The proposed reforms seek to **liberalize the FDI policy provisions** in the space sector by prescribing a **Liberalized Entry Route** and providing clarity for FDI in the following:
 - Satellites, Launch Vehicles, and associated systems or subsystems.
 - Creation of Spaceports for launching and receiving Spacecraft.
 - Manufacturing of space-related components and systems.
- With increased investment, internal stakeholders like IN-SPACe, ISRO, and NSIL would be able to achieve the sophistication of products, global scale of operations, and enhanced share of the global space economy.

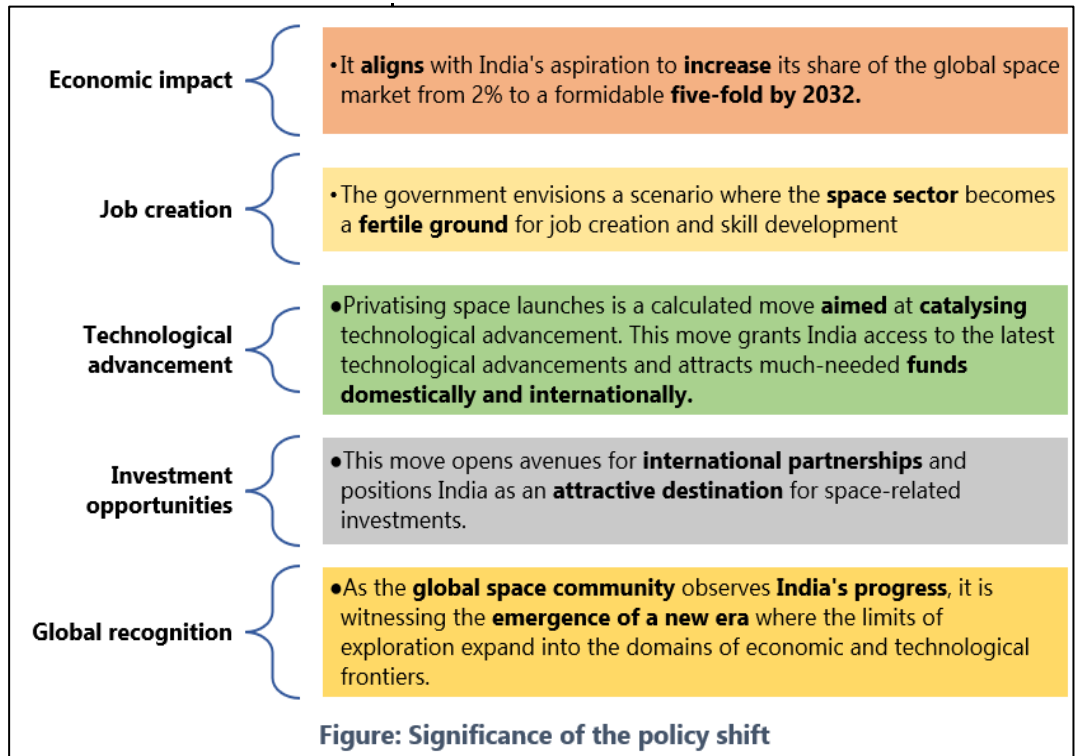
Current status of the Indian Space industry:

- At present, the Indian space economy is valued at around \$8.4 billion, with a 2% share in the global space economy.
- As per IN-SPACe's projection, India's space economy has the potential to reach \$44 billion by 2033 with about 8% of the global share.
- At present, the share of the domestic market is \$8.1 billion. The export market share is \$0.3 billion. The aim is to increase the domestic share to \$33 billion and the export share to \$11 billion.
- Besides, an investment of \$22 billion is envisioned for the next 10 years in the industry.

Benefits under the amended FDI Policy:

- Under the amended FDI policy, **100% FDI is allowed in the space sector.**
- The liberalized entry routes under the amended policy are aimed **at attracting potential investors** to invest in Indian companies in space.
- Now, the satellite sub-sector has been divided into three different activities with defined limits for foreign investment in each such sector:
 - **Upto 74% under Automatic route:** Satellites-Manufacturing & Operation, Satellite Data Products and Ground Segment & User Segment. Beyond 74%, these activities are under the government route.
 - **Upto 49% under Automatic route:** Launch Vehicles and associated systems or subsystems, Creation of Spaceports for launching and receiving Spacecraft. Beyond 49%, these activities are under the government route.
 - **Upto 100% under Automatic route:** Manufacturing of components and systems/ sub-systems for satellites, ground segment and user segment.

- This increased private sector participation would help **generate employment, enable modern technology absorption, and make the sector self-reliant.**
- It is expected to **integrate Indian companies** into global value chains.
- With these amendments, companies will be able to set up their manufacturing facilities within the country, thus **encouraging 'Make In India (MII)' and 'Atmanirbhar Bharat' initiatives of the Government.**



Current status of the Indian Space industry:

- At present, the Indian space economy is valued at around ₹6,700 crore (\$8.4 billion), with a 2% share in the global space economy.
- As per IN-SPACE's projection, India's space economy has the potential to reach ₹35,200 crores (\$44 billion) by 2033 with about 8% of the global share.
- At present, the share of the domestic market is ₹6,400 crore (\$8.1 billion). The export market share is ₹2,400 crore (\$0.3 billion). The aim is to increase the domestic share to ₹26,400 crore (\$33 billion) and the export share to ₹88,000 crore (\$11 billion).
- Besides, an investment of ₹17,600 crore (\$22 billion) is envisioned for the next 10 years in the industry.

Way Forward:

- Building a vibrant space industry also requires comprehensive **fiscal and non-fiscal incentives** from the government, spanning **taxes, capital access, R&D grants, guaranteed orders, export promotion** and more.
- **GST exemptions, lower tax rates** on foreign capital, **lower customs duties** on raw materials/machinery imports, **tax holidays** for manufacturers, etc., are key to improving private project viability. Accelerated depreciation, **higher R&D tax deductions**, and **deemed export status** are other recommendations from the industry.

PEPPER IT WITH:
FDI rules, Automatic Route, Government Route, GST, Privatisation of Space

- On non-tax incentives, suggestions include **early-stage grants for startups** and augmenting **Technology Development Fund Corpus**, viability gap funding to set up test facilities, reservation of satellite transponder capacity over 5 years for private players, preference for Indian companies in **public procurement tenders** and **Buy Indian guidelines.**
- Regulatory updates like the **Space Activities Bill**, which is under finalization, should also incorporate liberal, growth-oriented provisions factoring in private sector requirements.

Consumption Expenditure Survey data

News Excerpt:

For the first time in about 11 years, the government released the broad findings of the **All-India Household Consumption Expenditure Survey (HCES)** carried out between August 2022 and July 2023.

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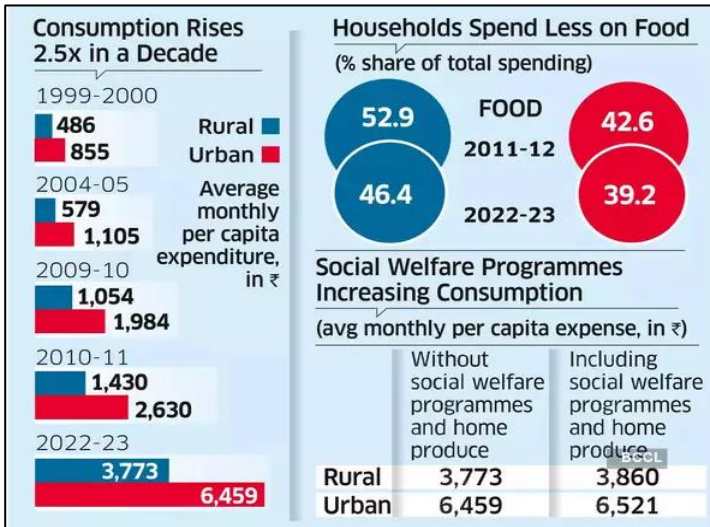
About the news:

- The data will play a key role in **reviewing critical economic indicators**, including the Gross Domestic Product (GDP), poverty levels, and the Consumer Price Inflation (CPI).
- The HCES is usually conducted by the **National Statistical Office (NSO) every five years**, but the findings of the last Survey, conducted in 2017-18 soon after the demonetization of high-value currency notes and the implementation of the Goods and Services Tax

(GST), were never released after the government cited "data quality" issues.

- The estimates of the monthly **per capita consumption expenditure (MPCE)** are based on data collected from **2,61,746 households**, of which 1,55,014 were in rural areas, spread over all States and Union Territories.

Details of the survey:



Overall Consumption Expenditure:

- The difference in average **monthly per capita consumption expenditure (MPCE)** between rural and urban households has narrowed to 71.2 % in 2022-23 compared with 83.9% in 2011-12, 88.2% in 2009-10, and 90.8% in 2004-05.
- The survey report does reveal that rural average monthly consumption spending per person increased to **Rs 3,773 per month** in 2022-23 from **Rs 1,430 per person in 2011-12**, a jump of 164 %.
 - This is higher than the 146 % increase in urban average monthly consumption expenditure per person to Rs 6,459 in 2022-23 compared with Rs 2,630 per person in 2011-12.

Consumption-based on states: Among the States, the MPCE is the highest in **Sikkim** for both rural (₹7,731) and urban areas (₹12,105). It is the **lowest in Chhattisgarh**, where it was ₹2,466 for rural households and ₹4,483 for urban household members.

Expenditure on Food

- The proportion of spending on food has dropped to **46.4%** for rural households from 52.9% in 2011-12, while their urban peers spent just **39.2%** of their overall monthly outgoes on food compared with 42.6% incurred 11 years earlier.
 - This reduction could translate into a lower weightage for food prices in the country's retail inflation calculations.

Food spending

Share of cereals and food in average monthly per capita consumption expenditure decreased in both rural and urban areas



Period	RURAL		URBAN	
	% share of cereals	% share of food	% share of cereals	% share of food
1999-00	22.23	59.4	12.39	48.06
2004-05	17.45	53.11	9.63	40.51
2009-10	13.77	56.98	8.16	44.39
2011-12	10.75	52.9	6.66	42.62
2022-23	4.91	46.38	3.64	39.17

- The MPCE numbers cited above do not take into account the imputed values of items received free of cost by individuals through various social welfare programs such as **the PM Garib Kalyan Ann Yojana (PMGKAY)** or **State-run schemes**, which were calculated separately.
- The average MPCE, at 2011-12 prices, was a tad higher when these items were included while excluding free **education and healthcare** sops — at ₹2,054 for rural households and ₹3,544 for urban homes.

Expenditure on Non-Food Items: Consumption expenditure on non-food items in both rural India (54 %) and urban India (61%) was mainly driven by a rise in the share of spending on conveyance, consumer services, and durable goods in 2022-23 as against 2011-12.

Household Consumption Expenditure Survey (HCES):

- HCES was conducted between **August 2022 and July 2023** and published by the **National Sample Survey Office**.
- The **aim** is to calculate the monthly per capita expenditure (**MPCE**) at current/nominal prices.
- It collected information from **8,723 villages** and **6,115 urban blocks** covering **2,61,745 households** (60% in rural areas and 40% in urban areas).

Observed realities:

- HCES revealed that the **share of food** in consumption had **reduced to 46% in rural areas and 39% in urban areas**.
 - That is probably true because of **rising income/expenditure** and the value of food consumption remaining the same or rising at a slower rate.
- Scheduled castes** and **Scheduled tribes** are the **poorest** social groups. They are below the average. **OBCs** are near the **average**.
 - It is the **'others'** who are above the average.

- The **poorest citizens** are those who live in **Chhattisgarh, Jharkhand, Odisha, Madhya Pradesh, Uttar Pradesh, West Bengal and Meghalaya** — their MPCE is below the all-India average MPCE for rural areas.
- **Gujarat's score** is **slightly above** that of the all-India average MPCE in rural areas (Rs 3,798 vs Rs 3,773) as well as in urban areas (Rs 6,621 vs Rs 6,459).

Significance of Household Consumption Expenditure Survey (HCES):

- **Comparative analysis:** It is a primary source for studies on consumption patterns, poverty, and socio-economic status.
- **Policy implications and socio-economic planning:** It significantly impacts the country's policymaking, social welfare programs, and economic planning.
- **Data-informed decision-making:** The survey provides data that helps inform decisions on subsidies, social welfare schemes, and taxation policies.
- **Role in economic indicator review:** The HCES plays a key role in reviewing critical economic indicators like the Gross Domestic Product (GDP), poverty levels, and Consumer Price Inflation (CPI).
- **Assessment of government policies and programs:** It assesses the effectiveness of government policies and programs.
- **Understanding shifting consumer priorities:** It is also useful for understanding the shifting priorities in terms of baskets of goods and services.
- **Guidance for producers and service providers:** It provides pointers to producers of goods and providers of services.
- **International benchmarking:** It facilitates economic welfare and living standards comparisons with other countries.

Way Forward:

The HCES 2022-23 includes a separate provision for the collection of information on the quantity of consumption for several items, received and consumed by the households free of cost through various social welfare programs. **However, the value of education as well as health services received free of cost by the households has not been imputed. These inclusion and exclusion matters must be looked into and the methodology must be rectified to get better compiled data.**

PEPPER IT WITH:
Components of GDP, CPI, WPI, Poverty line, BPL

PRE-SHOTS

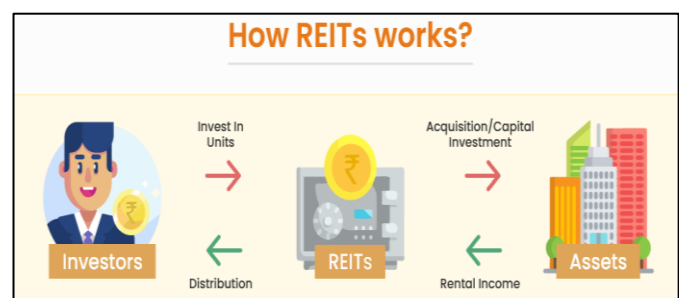
Small and Medium REITs

News Excerpt:

The **Securities and Exchange Board of India (SEBI)** has issued regulations to establish guidelines for the creation of **Small and Medium Real Estate Investment Trusts, or SM REITs.**

Real Estate Investment Trust (REIT):

- A **REIT** is a company that **owns and manages real estate** properties to generate **income**.
- REITs provide an **investment opportunity**, like a **mutual fund**, that makes it possible for investors to benefit from valuable real estate.



- Real Estate Investment Trusts (REITs) have been a game-changer in the global investment landscape, providing investors with a unique proposition to participate in the commercial real estate market.

Small and Medium REITs:

- In a bid to catalyze the growth of the real estate sector in India, the Securities and Exchange Board of India (**SEBI**) has introduced an innovative concept – the **SM REITs**.
- The concept was introduced through new regulations called **SEBI (REIT) (Amendment) Regulations 2024**.
- This move aims to regulate the **fractional ownership industry** and safeguard investor interests, incorporating both commercial and residential properties within the new framework.

Provisions of the new regulations:

- SM REITs can **raise funds ₹50 crores or more** through the issuance of **units** to a **minimum of 200 investors**.
 - SM REIT schemes may raise funds from **Indian and foreign investors** through the issuance of units.
- The funds raised will be utilized **to acquire and manage real estate assets**.
- The primary goal is to **generate income** for the investors through these real estate investments.
- An **investment manager** responsible for setting up an SM REIT is required to have a **net worth** of at least **₹20 crore**, and a separate trustee will be appointed for oversight.

Difference between SM REITs and larger REITs:

- In newly introduced **SM REIT** schemes, **at least 95% of the assets must be fully developed and should generate revenue**, compared to the **80% requirement for larger REITs**.
- An **initial offering** for an SM REIT will have a **minimum subscription amount of ₹10 lakh** per investor, contrasting with the **current norm REITs** that often require an investment of about **₹25 lakh**.

Securities and Exchange Board of India (SEBI):

- **SEBI** was constituted in **1988** through a **resolution of the Government of India**.
- It was made a **statutory body in 1992** under the provisions of the **Securities and Exchange Board of India Act, 1992**.
 - It was constituted to promote transparency in the Indian investment market.
 - SEBI is headquartered in **Mumbai**.

Government of India and ADB sign \$23 million loan agreement

News Excerpt:

The GoI and the **Asian Development Bank (ADB)** signed a \$23 million loan agreement to enhance access to quality fintech education, research, and innovation at the **Gujarat International Finance Tec-City (GIFT-City)**.

About the "GoI and ADB Agreement" Project:

- This project will establish an **International Fintech Institute (IFI)** to strengthen fintech education, boost start-up success rates, and drive fintech research and innovation.
 - The IFI, set to be established in **partnership with globally reputed institutes and universities**, will offer industry-aligned fintech training programmes that meet **international standards**.
 - The IFI will **strengthen innovation and entrepreneurship** by supporting startups, especially women-led, through incubation and acceleration services.
 - The IFI will also **collaborate with industry and venture capital funds** to support the growth of fintech startups.
- **The ADB project's emphasis will be on:**
 - Market-driven fintech skills programmes.
 - Creating an enabling environment for private sector investment and enhancing collaboration between industry,
 - Skills development institutes and development partners will promote holistic growth of the fintech ecosystem in India.

SIDBI secures first green climate fund project

News Excerpt:

The **\$120 million Avaana Sustainability Fund (ASF)**, anchored by SIDBI as an accredited entity, was approved by the world's largest climate fund, the **Green Climate Fund (GCF)**.

About SIDBI:

- The Small Industries Development Bank of India (SIDBI) is the apex regulatory body for the overall **licensing and regulation** of India's micro, small, and medium enterprise finance companies.
- It is under the jurisdiction of the **Ministry of Finance**, Government of India, and is **headquartered in Lucknow**. **Overview:**
- The SIDBI, established on **2nd April 1990 under an Act of the Indian Parliament**, acts as the Principal Financial Institution **for the Promotion, Financing, and Development** of the Micro, Small, and Medium Enterprise (MSME) sector and for coordinating the functions of institutions engaged in similar activities.

About the Avaana Sustainability Fund (ASF):

- The primary aim of the ASF project is **to invest in early-stage companies harnessing technology-led innovation to spur climate solutions and sustainability in India**.
- Anticipated outcomes include **significant contributions to climate change mitigation, adaptation, and the enhancement of resilience** in vulnerable sectors of the Indian economy.
- This is the first project anchored by SIDBI and the first secured for the country in the past few years.
 - This project is supposed to significantly advance the country's nationally determined contributions by effecting substantial global changes through its proficiency in green and climate finance.

SIDBI's role in advancing the green projects:

- With several additional projects in the pipeline, SIDBI is steadfast in its commitment to advancing **India's Nationally Determined Contributions (NDCs)** and effecting substantial global change through its Green and Climate Finance proficiency.
- **SIDBI, designated as an Accredited Entity (AE) and Direct Access Entity (DAE) with GCF**, is accessing climate finance to implement **low-carbon and climate-resilient projects in India**.
- SIDBI takes forward the DAE responsibility **under the guidance of the Ministry of Environment, Forests**

and Climate Change (MoEFCC), which is India's Nationally Designated Authority (NDA) for the GCF.

- SIDBI also liaises with key stakeholders and ministries, including the **Department of Financial Services, MoF, which is its parent ministry.**
- **Previous projects:** In 2022, SIDBI partnered with multiple stakeholders, including **German development agency Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Technology Information, Forecasting and Assessment Council (TIFAC), France's public financial institution Agence française de développement (AFD), etc.,** in the sustainable development ecosystem **to help MSMEs embrace energy efficiency in their operations.**

About GCF:

- **The Green Climate Fund, a pivotal component of the historic Paris Agreement, is the World's largest climate fund.**
- **Mandated to assist developing countries in raising and realizing their NDC ambitions,** the GCF expedites transformative climate action through a partnership-driven approach, the deployment of flexible financing solutions, and climate investment expertise.

Uniform Code for Pharmaceutical Marketing Practices (UCPMP), 2024

News Excerpt:

The Department of Pharmaceuticals issued the **Uniform Code for Pharmaceutical Marketing Practices (UCPMP) 2024.**

Key highlights of the issued code for pharmaceutical firms:

- Engagement of the pharmaceutical industry with healthcare professionals for **Continuing Medical Education (CME)** should **only be allowed through a well-defined, transparent, and verifiable set of guidelines,** and the uniform code prohibits the conduct of such events in foreign locations.
- **Companies or their representatives should not pay cash or monetary grants to any healthcare professional or their family members (both immediate and extended) under any pretext.**
- **Gifting is prohibited by any pharmaceutical company or its agent, that is, distributors, wholesalers, retailers, etc.**
 - Additionally, **no pecuniary advantage or benefit in kind may be offered, supplied or promised to any**

person qualified to prescribe or supply drugs by any pharmaceutical company or its agent.

- The latest UCPMP notes that **paid travel, hotel stays, etc., should not be extended to healthcare professionals or their family members** by pharmaceutical companies or their representatives unless the person is a speaker for a CME, etc.
 - The UCPMP is to be circulated for **strict compliance, and all associations have been requested to constitute an Ethics Committee for Pharmaceutical Marketing Practices** and set up a dedicated UCPMP portal on their website.

Continuing Medical Education (CME):

- It is a mechanism for **medical professionals to stay updated on rapidly evolving practices in medicine.**
- In the COVID era, it has become even more essential for medical practitioners to keep up with the mode of treatment in conjunction with the feedback from the medical community.
- CME India is an initiative dedicated to Continuing Medical Education. It **fosters dynamic medical education 24x7.**
- On drugs, the UCPMP states that the **promotion of a drug must be consistent with the terms of its marketing approval,** and a drug must not be promoted before the receipt of its marketing approval from the competent authority authorising its sale or distribution.
 - **Claims for the usefulness of a drug must be based on an up-to-date evaluation** of all available evidence.
 - The **word 'safe' must not be used without qualification,** and it must not be stated categorically that a medicine has no side effects, toxic hazards, or risk of addiction.
 - The **word 'new' must not be used to describe any drug that has been generally available** or any therapeutic intervention that has been generally promoted in India for more than a year.
- **All Indian pharmaceutical associations are to upload the UCPMP on their website** along with the detailed procedure for lodging complaints, which will be linked to the UCPMP portal of the Department of Pharmaceuticals.

AGRICULTURE

Illegal aquaculture farming

News Excerpt:

The Madras High Court has ordered the closure of all illegal aquaculture farms in the state of Tamil Nadu within six months.

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Aquaculture: It is the **breeding, raising, and harvesting of fish, shellfish, and aquatic plants.**

India's aquaculture sector:

India is the **third largest fish producer in the world.**

- In 2022-23, **16.25 million metric tonnes (MMT)** of fish and seafood were **produced** in the country.
- Out of the total fish produced in India, **fish production from aquaculture (or fish farming) alone was 12.12 MMT in 2021-22.**

Key Points:

- The court ordered the prosecution and punishment of all offenders under the **Coastal Aquaculture Authority Act, 2005**, which prescribes punitive measures for carrying on coastal aquaculture without registration.
- In the absence of adequate regulation of the aquaculture subsector, **its rapid growth endangers not only our environment but also public health.** Several studies have shown a crucial link between how fish in aquaculture are reared and their impacts on human health.
- This order is a step **towards acknowledging the environmental damage** that results from illegal aquaculture.

Risks to human health:

- Frequent disease outbreaks (**Bacterial, fungal, parasitic, and viral**) affecting fish in Indian aquaculture have been reported repeatedly, with **almost no attention given to them.**
 - For instance, in October 2023, **India's first tilapia parvovirus (TiPV) was reported in the Ranipet district of Tamil Nadu, making India the third country to report the occurrence of TiPV after China and Thailand.**
- Antimicrobials are used indiscriminately to deal with frequent disease outbreaks.
 - As a result, there is a **severe risk of Antimicrobial Resistance (AMR)** in fish consumers, a problem

increasingly recognized by many health experts in India.

Inadequacies of the current regulatory framework:

- Even as the **National Surveillance Programme for Aquatic Animal Diseases**, a program for early detection of diseases, entered its second phase in 2023, the more comprehensive **Aquatic Animal Disease and Health Management Bill 2019** has been in limbo for years.
- Since **'fisheries' is a state subject**, the onus of enacting regulation also lies on the respective state fisheries departments. However, most states have not mandated any **quality parameters.**
- Additionally, **existing regulations are woefully inadequate in preventing and dealing with disease outbreaks** as they fail to mandate and enforce global best practices within the Indian aquaculture industry.
 - The stocking densities and water quality parameters of commonly exported fish such as **tilapia, shrimp, sea bass, and pangasius** are better regulated to

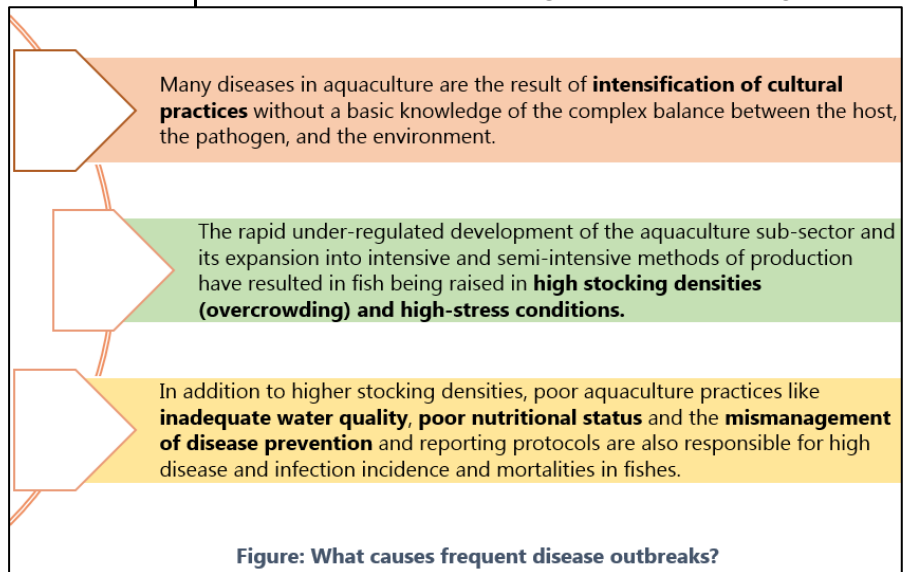


Figure: What causes frequent disease outbreaks?

ensure compliance with the stringent norms of the importing countries.

Way Forward:

- Enacting the **Aquatic Animal Disease and Health Management Bill 2019** into law would be a major step forward.
- Laws and policies regulating aquaculture must incorporate **the spirit of One Health (achieving optimal health for people, animals, and our environment)** and ensure that fish health forms the

PEPPER IT WITH:
Blue Revolution, Indian Coastal Regulations, AMR, Concept of One Health

bedrock of sustainable, humane, and safe aquaculture practices.

- **For the mitigation of health risks from aquaculture, better monitoring of the entire value chain, regular farm inspections and surveillance, and building the capacity of farmers to ensure prompt disease reporting are needed.**
- While keeping the species and production system in mind, **mandating stocking densities for the most domestically produced and consumed fish could be a good** first step in protecting the health of fish and, therefore, the health of consumers by keeping AMR in check.

World's largest grain storage plan

News Excerpt:

The government announced a plan to set up the "world's largest grain storage plan" in the cooperative sector.

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About the news:

- Under the largest grain storage plan, a pilot project has been inaugurated in **11 Primary Agricultural Credit Societies (PACS)** in **11 states**.

Primary Agricultural Credit Societies (PACS)

- Primary Agricultural Credit Societies are the **grassroots-level** arms of the short-term cooperative credit structure.
- PACS deals **directly with rural (agricultural) borrowers**, gives those loans, collects repayments of loans given, and also undertakes distribution and marketing functions.
- It serves as the **final link between the ultimate borrowers on the one hand and the higher financing agencies**, namely the Scheduled Commercial Banks, and the RBI/NABARD on the other hand.
- The government plans to set up a storage infrastructure of **700 lakh metric tons** over the next five years at **Rs 1.25 lakh crore**.
 - This will enable farmers to store their produce and sell it at the right time according to their needs. It will also help them to obtain loans from banks.
- The government also laid the foundation stone for an additional **500 PACS** for the construction of godowns and other Agri infrastructure.
- A project to computerize **18,000 PACS across** the country has been inaugurated, aligning farming with cutting-edge technology and shifting to fully digital payments.

Objectives of the plan:

- **Create 100% storage capacity:** The grain storage scheme aims to create storage capacity for **storing 100%** of India's grain production.
- **Integrate PACS godowns with the food grain supply chain:** It aims to seamlessly integrate **PACS godowns** with the food grain supply chain, with a collaborative effort of NABARD and spearheaded by the National Cooperative Development Corporation (NCDC).
- **Convergence of various existing schemes:** The initiative is being implemented through the convergence of various existing schemes, such as the **Agriculture Infrastructure Fund (AIF), Agriculture Marketing Infrastructure (AMI)**, etc., to enable PACS participating in the project to avail of subsidies and interest subvention benefits for undertaking infrastructure development.

Rejuvenating the cooperative sector:

- **Empowering small and marginal farmers:** The vision of Sahakar se Samriddhi (Prosperity through Cooperatives) is to rejuvenate the cooperative sector and empower small and marginal farmers.
- **Target to increase FPO:** Farmers today export their produce through Farmer Producer Organizations (FPO). 8000 FPOs are already functional. The government's target is to set up 10,000 FPOs.
- **Tax Reforms:** The government reduced the minimum alternate tax on cooperative societies—bringing it at par with the corporate sector—and raised the slab for tax to be deducted at source on income above Rs 3 crore.
- **Establishment of the Ministry:** The creation of a full-fledged Ministry of Cooperation and routing of non-basmati rice and sugar exports on government account through the newly registered National Cooperative Exports Ltd point to the importance the government is placing on cooperatives.
- The government seems to be increasingly emphasizing the role of cooperatives in agricultural marketing and storage, as **opposed to government-owned entities** such as the **Food Corporation of India (FCI)** and **Central Warehousing Corporation**.
- The new storage plan aims to add another **700 lakh tonnes of capacity** over the next five years through cooperatives, in effect doubling the existing capacity.

PEPPER IT WITH:

Warehouse Schemes in India, Farmer's Income, Food Processing Industry, FCI

Way Forward:

The launch of the "world's largest agri storage plan" with a Rs 1.25 lakh crore outlay over five years is a significant step toward empowering farmers, ensuring better storage

infrastructure, promoting cooperative growth in agriculture, fostering self-reliance and prosperity.

PRE-SHOTS

World's first Pigeon Pea speed breeding protocol by ICRISAT

News Excerpt:

ICRISAT announced a new protocol that promises to **substantially cut the time required to develop new pigeon pea lines** (Toor Dal) with desirable traits, effectively bringing food to dryland communities faster.

About the news:

- The new protocol developed by **Hyderabad-based International Crops Research Institute for the Semi-Arid**



Tropics (ICRISAT) shortens the breeding and increases control over factors like **photoperiod, temperature, humidity, and breeding cycle to 2 to 4 years.**

- Traditional pigeon pea breeding takes **up to 13 years.**
- The Pigeon pea's **long growth cycle and sensitivity to day length have hindered breeding efforts**, with only about 250 varieties released globally over six decades.
- This new speed breeding protocol addresses these challenges head-on, enabling researchers to develop **climate-resilient, nutritionally superior, and higher-yielding pigeon pea varieties at an unprecedented pace.**
- The new protocol represents a significant advancement for major pigeon pea-producing regions, paving the way for **self-reliance in pulse production** and meeting the dietary necessities of nations like **India, Myanmar, Kenya, Tanzania, Myanmar, and Mozambique.**

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

- ICRISAT is a **drylands agricultural research institute** dedicated to uplifting smallholder farmers and ensuring **food security in the semi-arid tropics.**
- ICRISAT was established in **1972** in **Hyderabad, Telangana.**
- Its charter was signed by the **FAO** and the **UNDP.**
- ICRISAT has achieved numerous groundbreaking milestones in the field of dryland agriculture.
 - The first-of-its-kind mapping of the genome code for cultivated groundnut.

- Releasing the inaugural commercial pigeon pea hybrid in India.
- Introducing Africa's pioneering biofortified pearl millet.

Indigenous rice varieties of Chotanagpur

News Excerpt:

Chotanagpur, with its rich agricultural heritage, has seen a revival of native rice varieties by the indigenous Adivasi communities.

Rice cultivation in India:

- Rice is being cultivated in the broad region from the foothills of the **Eastern Himalayas in India to China** about 6,500-7,000 years ago.
 - Over the past five decades, rice has undergone **irreversible genetic erosion**, with thousands of native rice seed varieties disappearing from farms in India.
- Half a century ago, more than **1,10,000 distinct varieties** of rice grew in India.
 - This included rice that could survive on **dry land farms** without irrigation, **deep-water farms**, and those that could **withstand saline water** on coastal farms.
 - The advent of the **Green Revolution** meant the government subsidized and heavily promoted a few imported **high-yielding varieties** based on applying **petrochemical inputs**, such as **pesticides and fertilizers.**
 - Within years, the number of native rice landraces that took thousands of years to evolve had dwindled from over **one lakh to around 6,000**, a **loss** of more than **90%** of indigenous rice varieties.

Impact of the Green Revolution on the traditional rice varieties of India:

- A 2023 study by the Indian Council of Agricultural Research (ICAR) found that the Green Revolution's breeding programs – focused on high-yielding varieties – have worsened rice's nutrient profile.
 - Zinc and iron had decreased by 33% and 27% in rice.**
- Thousands of seed varieties were lost due to the **narrow focus on rice yield.**
- The diverse **gene pool** of rice was **depleted** as a result.
- Long-term **soil productivity suffered** due to this narrow focus.
- The disappearance of these indigenous crops is accompanied by the **loss of knowledge and expertise in identifying** and cultivating these native varieties.

Native varieties of rice:

- The native seed varieties, which have survived several environmental conditions in their evolutionary history, do better in unpredictable weather and ensure food security.
 - There are varieties such as **Kolamaliphool** that can survive in excess water from flooding.
 - Rice varieties like **Matla, Getu and Kallurundai** can grow even on saline soil and survive the incursion of rising sea levels.
 - **Kelas, Rangi, Gadaba, and Kaya** may give greater yields than even the modern HYVs (High Yielding Varieties).
- There are rice plants like **Luchai** that develop a red-coloured sheath that has high medicinal properties.
 - According to natives, Luchai rice is good to eat as it helps control blood sugar levels.
- Rice such as **Dudhe Bolta** and **Garib-Sal rice** have abundant micronutrients such as **iron and zinc**.
 - These native rice varieties hold the capacity to provide reliable means of providing food security to smaller farmers.
- They also aid in alleviating the rising costs associated with input-intensive modern hybrid varieties of rice.



The Global Pulses Conference: Pulses 2024

News Excerpt:

The Global Pulses Conference, an annual meeting of pulses producers, processors, and traders, suggested that India augment its pulse production to meet nutritional requirements.

More on the news:

- India is the **largest producer, consumer, and importer of pulses in the world.**
- Pulses are one of the important food crops globally due to their higher protein content. Pulses are 20 to 25 percent protein by weight, which is double the protein content of wheat and three times that of rice.
- Pulse **production** has grown **60% in 10 years**, from 171 lakh tonnes in 2014 to 270 lakh tonnes in 2024.
- Government **procurement** of pulses **increased 18 times in 10 years.**

- **Bharat Dal** now has a 25% market share of gram lentils within 4 months of its launch in October 2023.
 - The government has launched the **sale of chana dal** under the brand name Bharat Dal at highly subsidized rates of Rs.60 per kg.
 - Bharat Dal is being distributed through NAFED, NCCF, Kendriya Bhandar, and Safal retail outlets.
- India had become self-reliant in chickpeas (chana) and many other pulse crops, with only a slight deficiency remaining in pigeon peas (tur) and black gram. **Consistent efforts are being made to attain self-sufficiency in pulses by 2027.**



About the Convention:

- The **Global Pulse Convention 2024, Pulses: 2024**, was organized in New Delhi from February 14th to 17th.
- The **National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) and the Global Pulse Confederation (GPC) jointly organised the four-day conference.**
- Organizers said that more than 40 countries participated in the conference this year.
- The 2023 conference was held in Sydney, Australia.

Related:

Colombo Accord:

- The Colombo Accord was signed during the 2018 Global Pulses Conference.
- The Accord calls for free and fair trade in the global pulse industry.

World Pulses Day: 10 February:

- The **United Nations General Assembly (UNGA) designated 10 February as World Pulses Day (WPD) to further achieve the 2030 Agenda for Sustainable Development.**
 - Pulses stand out as nutritional powerhouses, contributing significantly to **SDG 2 (Zero Hunger)** by providing a rich source of proteins, fiber, and essential nutrients.
 - Beyond their nutritional value, pulses contribute to environmental sustainability, aligning with **SDG 13 (Climate Action)** and **SDG 15 (Life on Land)**.
 - Pulses encourage responsible consumption and production patterns, supporting **SDG 12 (Responsible Consumption and Production)**.

World Pulses Day 2024 theme, 'Pulses: nourishing soils and people'

INTERNATIONAL RELATIONS

Agalega airstrip inaugurated: Mauritius and India.

News Excerpt:

The Prime Minister of India and his Mauritian counterpart inaugurated India-assisted development projects at Agaléga Island.

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Location of the Projects:

- **As an Indian Ocean outpost, Mauritius has great strategic significance for India.**
- India's maritime security and strategic objectives in the Indian Ocean are linked to China's presence and increased regional activities.

Overview of the Developments:

- India signed a **Memorandum of Understanding** for the "improvement in sea and air transportation facilities" at Agaléga island in **2015**.
- It provided for setting up and upgrading infrastructure to improve **sea and air connectivity on the Outer Island of Mauritius**, enhancing the capabilities of the Mauritian Defence Forces in safeguarding their interests there.
- The presence of India on Agalega would lead to more effective monitoring of Mauritius' vast 2.3 million sq km **Exclusive Economic Zone** and equip it to better counter piracy, terrorism, narcotics and human trafficking, and illegal and unregulated fishing.
- The opening of the upgraded 3-km-long **airstrip**, which can handle bigger aircraft, and a **harbour** that can anchor big ships was announced.

- **Six civilian projects** were also inaugurated, including a **medical facility** and a **school**.

Chinese Angle in the Indian Ocean:

- China sees great value in having a powerful presence in the Indian Ocean region.
- **Nine of China's top 10 crude oil suppliers transit the Indian Ocean**, which is also the primary region of transit for China for engagements with Africa, the Middle East, island nations, and littorals across the vast ocean.
- The Indian Ocean is also the main trading route between China and Europe.
- **China is the only nation with an embassy in each of the six islands** in the Indian Ocean: **Sri Lanka, Maldives, Mauritius, Seychelles, Madagascar, and Comoros**.
 - None of the traditional players—the United States, the UK, India, or France—have embassies in all six island countries.
 - China had gone beyond diplomatic and trade partnerships in the region and had begun to **maintain a consistent military presence**.
- In 2017, China opened its **first overseas military facility** in the Indian Ocean in **Djibouti on the Horn of Africa**.

India's stance:

- India understands the importance of working with the governments of all these island nations.
- The domestic politics of these nations often **impact their behaviour and policies abroad**.

Global Power Dynamics:

- The **Indian Ocean region** has emerged as the axis of global power.



- The **US**, the **UK**, with the **Diego Garcia base**, and **France**, with Reunion Island, are already active in the region.
- **China**, too, joined them, investing heavily in the region. It has built many assets in the Western Indian Ocean, such as the **bases in Djibouti** and **Gwadar**, and developed **extensive influence** over Africa.
- For **India**, which depends on the Indian Ocean for **almost 90% of its imports and exports**, growing **Chinese activities** in the region are a considerable **challenge**.
- India has nurtured the ambition of rising as an influential **blue-water power** and the **Global South's** voice.

India- Mauritius Relations:

Defence Cooperation:

- India is Mauritius' **preferred defence partner** for acquiring platforms/equipment, capacity building, joint patrolling, hydrological services, etc. Indian defence officers are deputed to the Mauritian Defence Forces.
- In February 2021, India extended a USD 100 mn Line of Credit (**LoC**) to Mauritius for procuring defence products.

India-assisted Projects

- India has extended **7 Lines of Credit (LOCs)** of USD 1.029 billion and **Grant assistance** of USD 406 million to Mauritius (totalling approx. USD 1.4 billion) for various **Defence, Connectivity and Infrastructure projects**. In May 2016, India provided a grant of USD 353 million to Mauritius as a Special Economic Package for **five priority projects**: (i) Metro Express Project; (ii) Supreme

Court Building; (iii) New ENT Hospital; (iv) Social Housing project; (v) Digital Tablets for school children.

- In **2021**, India approved an LoC of USD 190 mn and a USD 10 mn grant for Phase III of the Metro Project. In **2022**, another LoC worth USD 300 mn and a grant of USD 25 mn were announced for the **Phase IV extension of the Metro** (to be re-tendered by GOM). A MoU on **Community Development Projects** was signed in 2022 to undertake 96 small, people-oriented projects in Mauritius.
- Other completed India-assisted projects include the **Upadhyay Training Centre**, the **Jawaharlal Nehru Hospital**, the **Subramania Bharati Eye Centre**, the **Rajiv Gandhi Science Centre**, the **Swami Vivekananda International Conference Centre** and the **World Hindi Secretariat**.

The strategic significance of the project:

- The initiative is **aimed** at fulfilling the larger **geo-strategic objective** of both India and Mauritius.
 - Besides meeting the **development objectives**, the project will also significantly enhance the **capabilities and capacities of marine surveillance and security**.
- **Agalega** entered the list of ports in the **western Indian Ocean** that provide strategic access to India — dubbed by some analysts as the **"necklace of diamonds"** — as against the "string of pearls" ports that provide access to the Chinese.
 - India already has a **naval air station** in **North Andaman** called INS Kohassa and another near **Port**



Blair called INS Utkrosh, which provide enough depth for the country's military to monitor the **Eastern Indian Ocean** thoroughly.

- With Mauritius's **maritime empowerment** through the Agalega project, India can expect enough cooperation from that country, "a **natural partner**," to **monitor** important ocean lines in the Western Indian Ocean, too, including the crucial **Mozambique Channel**.
- The project will try to resolve the **traditional and non-traditional challenges** in the Indian Ocean region.
 - It will ensure **security, prosperity** and **stability** in the Indian Ocean Region.
 - It will further **complement** all other areas, such as monitoring the **Exclusive Economic Zone, joint patrolling, hydrography, and Humanitarian Assistance and Disaster Relief**.
- Befitting its current stature as a major regional power, **India** wished to convey through the Agalega project that it, too, has arrived, is serious about its critical role as a **net peace provider** in the **Indian Ocean region**, and is willing to brook no interference in managing it as a "**zone of peace**."

Way Forward:

The development projects on Agalega atoll in the Western Indian Ocean are a **significant milestone** in India-Mauritius cooperation. They highlight the **strategic importance** of the **Indian Ocean region** in the evolving geopolitical landscape as well as India's commitment to enhancing maritime infrastructure in the Indian Ocean.

PEPPER IT WITH:

Indian Ocean Region, String of Pearls, Necklace of Diamonds, Soft vs Hard Power

India and Brazil hold first '2+2' Defence and Foreign Ministerial Dialogue.

News Excerpt:

India and Brazil explored ways to expand cooperation in **energy, critical minerals, technology, and counter-terrorism** at their first '2+2' Defence and Foreign ministerial dialogue.

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About 2+2 Dialogue:

- The 2+2 meetings involve the attendance of two prominent ministers or secretaries from the Defence and Foreign Affairs sectors of both nations, intending to enhance dialogue between them.
- This framework enables partners to gain deeper insights into each other's strategic priorities, fostering a stronger and more cohesive strategic partnership.

India-Brazil Relations:

- **Bilateral Relations & Partnership:** India and Brazil both belong to various plurilateral forums, such as **BRICS, BASIC, G-20, G-4, IBSA, and the International Solar Alliance**. They also frequently collaborate within larger multilateral bodies like the UN, WTO, UNESCO, and WIPO.
- **Historical Roots:** Between the 16th and 18th centuries, **Brazil and Goa**, both outposts of the Portuguese imperialist empire, had bilateral exchanges that are reflected in food and dressing as well as local traditions. Another remarkable but relatively unknown facet of India-Brazil bilateral relations is that the bulk of Brazilian cattle are of Indian origin. More recently, the popularity of a Brazilian telenovella called 'Caminho das Indias' (Paths of India) has had a great impact on enhancing awareness of India in the minds of the Brazilian public.
- **Diplomatic Relations:** Diplomatic relations were established in 1948, with both countries opening embassies in the same year. India has a Consulate General in Sao Paulo, while Brazil has one in Mumbai. India opened its embassy in Rio de Janeiro in 1948, later moving it to Brasilia in 1971.

Why Brazil is Important to us?

- **Strategically significant for India:** Due to its **abundant natural resources and expanding markets**, Brazil offers substantial opportunities for collaboration across diverse sectors.
- **Critical supplier of minerals and hydrocarbons:** Brazil, particularly in crude petroleum oil, plays a vital role in supporting India's economic growth trajectory.
- **Largest economy in Latin America:** Brazil is an attractive destination for Indian investors and businesses, fostering bilateral economic engagement.
- **Both influential players in the Global South,** India and Brazil collaborate closely on various global issues within multilateral forums, advocating for the interests of developing nations and promoting multilateralism.

Areas of Cooperation between India and Brazil:

- **Institutional Mechanisms:** As strategic partners, India and Brazil maintain several institutional mechanisms to facilitate coordination across different facets of their bilateral relationship, including strategic dialogue, trade monitoring, defence cooperation, and joint committees on science and technology.
- **Trade and Investment:** The bilateral trade between India and Brazil has witnessed substantial growth, with India emerging as Brazil's fifth-largest trading partner in

India currently holds the 2+2 dialogue with the **USA, UK, Russia, Japan, and Australia.**

2021. Major exports from India include agrochemicals, synthetic yarns, and auto components, while Brazil exports crude oil, gold, and vegetable oil to India. Investments between the two countries span various sectors, such as automobiles, IT, mining, energy, biofuels, and footwear, reflecting the diversification and depth of their economic collaboration.

PEPPER IT WITH:
BRICS, BASIC, G-20, G-4, IBSA, and the International Solar Alliance, South-South Cooperation

- Defence and Security Cooperation:** India and Brazil signed a defence cooperation agreement in 2003, institutionalizing mechanisms like the Joint Defense Committee to enhance collaboration in defence and security. The two nations also engage in strategic dialogue, addressing regional and global challenges of mutual concern, with recent agreements focusing on cybersecurity cooperation.
- Cooperation in Biofuels, Oil & Gas:** With Brazil boasting significant crude oil reserves, the collaboration between India and Brazil extends to the energy sector, particularly in biofuels and oil & gas. Efforts to increase the blending percentage of biofuels with petrol and diesel align with the shared objectives of both countries' national policies, facilitating cooperation in this critical area.
- Science and Technology:** Cooperation between India and Brazil in science and technology spans space exploration, satellite monitoring, and agricultural research, facilitating knowledge exchange and capacity-building initiatives.
- Cultural Relations:** Cultural exchanges between India and Brazil, supported by initiatives like the Cultural Exchange Programme, foster mutual understanding and appreciation for each other's heritage, with yoga and Ayurveda gaining popularity in Brazil.
- Challenges in the Bilateral Relationship between India and Brazil:** Despite the growing partnership, challenges persist, including trade competition in agricultural products, concerns over sugarcane

subsidies, limited people-to-people contacts, and the influence of China in the region.

Way Forward:

The diplomatic relationship between India and Brazil, reaching its 75th year in 2023, has undergone significant evolution. Nevertheless, like any relationship, challenges persist, serving as opportunities for strengthening bonds. To bolster their partnership, India and Brazil must explore new avenues for collaboration, tackle trade obstacles, foster cultural exchanges and interpersonal connections, improve energy cooperation, and increase involvement in multilateral platforms.

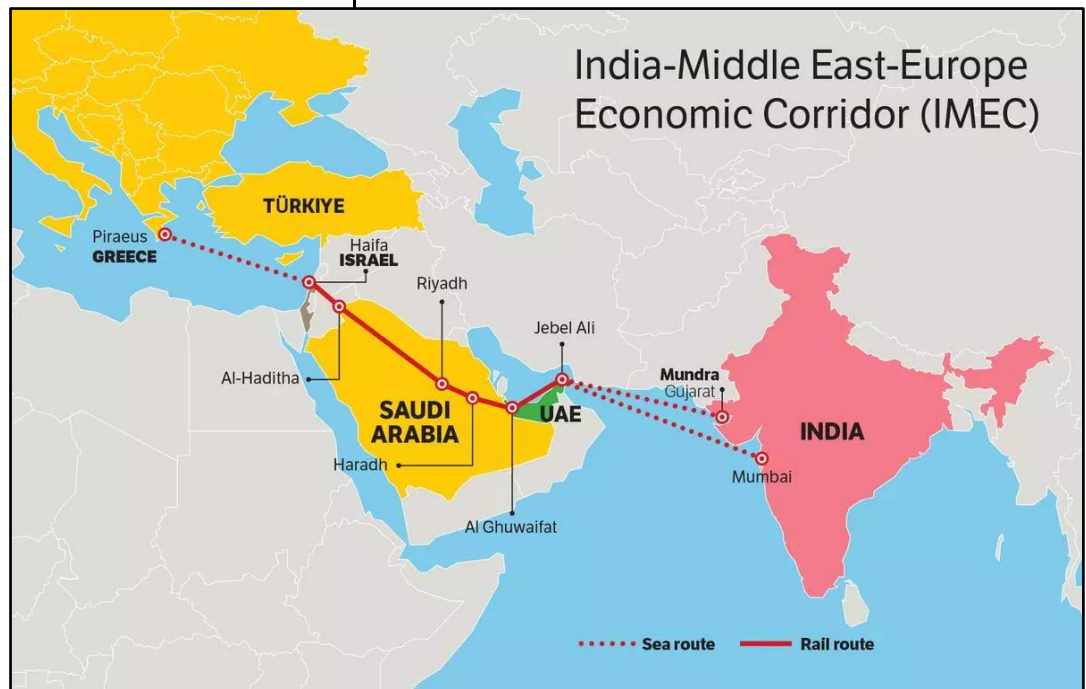
IMEC

News Excerpt:

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Due to the Red Sea crisis, global supply chains are increasingly grappling with inflated freights, delayed vessel schedules, and product shortages.

About the India-Middle East-Europe Economic Corridor (IMEC):



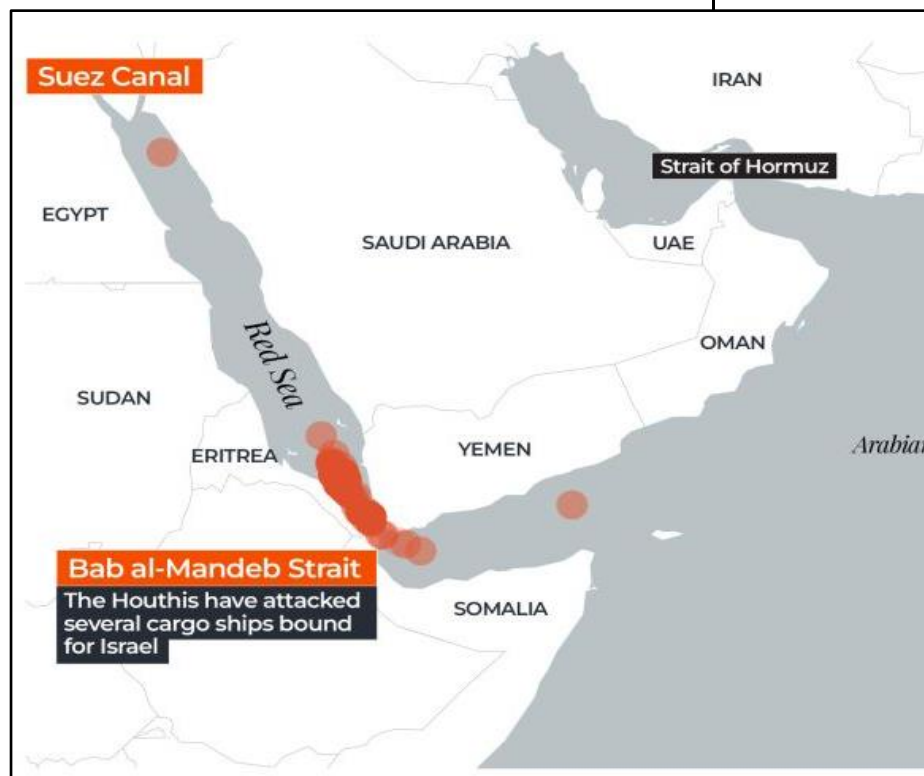
- On the sidelines of the **G20 Leaders' Summit**, Leaders of **India, the European Union, France, Germany, Italy, Saudi Arabia, UAE, and the USA** announced an MOU committing to work together to develop a new India-Middle East-Europe Economic Corridor (IMEC).
- The IMEC will **comprise two separate corridors**:
 - the **east corridor connecting India to the Gulf** and
 - the **northern corridor connecting the Gulf to Europe**.

- The corridor will provide a **reliable and cost-effective cross-border ship-to-rail transit network** to supplement existing maritime routes.
- It intends to **increase efficiency, reduce costs, secure regional supply chains, increase trade accessibility, enhance economic cooperation, generate jobs, and lower greenhouse gas emissions**, resulting in a transformative integration of Asia, Europe, and the Middle East (West Asia).
- The **corridor is estimated to cut the journey time from India to Europe by 40% and slash transit costs by 30%**.

Why is the Red Sea route important?

- The Red Sea is strategically important for global trade with the **Bab el-Mandab Strait** between Yemen and Djibouti.
- It is one of the **world's busiest cargo and oil transit points**, with almost **12% of international merchandise trade** passing through it.
- An immediate consequence of the Red Sea conflict has been that **major container and oil carriers have been forced to re-route shipments** via the **Cape of Good Hope**.
- The **re-routing has led to rising ocean freight, inflated insurance costs, and longer voyage times**, leading to **delays and shortages of products**.

It has also **driven up transportation costs**. The higher shipping costs will be passed onto consumers in the form of increased commodity prices.



Challenges regarding the IMEC:

- **Lack of investment:** A **robust financial framework** needs to be established. Since **none of the corridor signatories have binding financial commitments**, investments will have to be attracted from governments, international organizations, and private sector entities.
- **Security challenges:** The entire trade of the IMEC architecture flows through the Strait of Hormuz, and with **Iran's proximity** and control over the strait, the risk of disruptions remains very high. **Threats from extremist groups and illicit activities** also remain.
- **Geopolitical challenges:** The corridor spans diverse nations with complex geopolitics, and navigating coordination and cooperation among these countries may face regulatory hurdles and bureaucratic delays.
- **Interstate tensions:** Conflicting interests of trade powers may result in power struggles and potential resistance during the project's implementation.
- **Uncertainty:** The Israel-Hamas war has added further complexity to the initiative.

PEPPER IT WITH:
Red Sea, Persian Gulf, International Energy Agency, India's Oil Import Dynamics

Way Forward:

The Red Sea crisis has once again brought to the fore the vulnerabilities of global supply chains, highlighting the need to revisit alternate routes for global trade. The world can find its solution in IMEC, but **proper strategy and cooperation** are needed.

India signs a trade agreement with EFTA.

News Excerpt:

India and the European Free Trade Association, comprising **Norway, Switzerland, Iceland, and Liechtenstein**, signed a free trade agreement in March 2024.

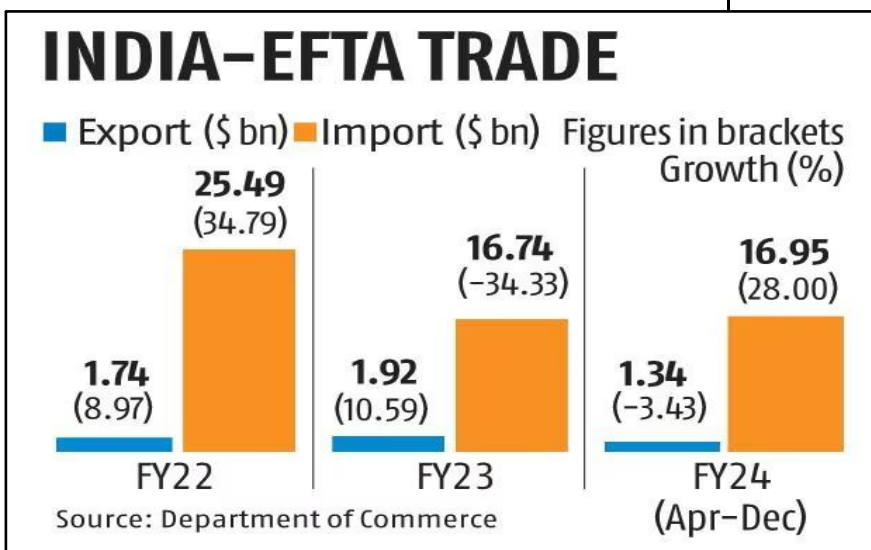
Key Highlights of the Agreement: The agreement, officially called the **Trade and Economic Partnership Agreement (TEPA)**, aims to encourage investments and enhance trade in goods and services between India and the EFTA nations.

- The **agreement consists of 14 chapters** covering various aspects such as trade in goods, rules of origin, trade in services, investment promotion, intellectual property rights (IPRs), and more.

- This is **India's fourth such agreement since 2014**, with previous agreements signed with Mauritius, the UAE, and Australia.
- EFTA countries have committed to **investing \$100 billion in India** over the next 15 years, reflecting the potential for economic growth and job creation.
- Negotiations for the agreement began in 2008, with 13 rounds of talks held until 2013. After a hiatus, negotiations resumed in October 2023 and concluded swiftly.
- The two-way trade between India and EFTA countries was \$18.65 billion in 2022-23, **with Switzerland being India's largest trading partner in the EFTA bloc, followed by Norway.**

India pushed for investment commitment in the EFTA deal due to several reasons:

- **Trade Deficit Concerns:** India runs trade deficits with most of its major trading partners. Past FTAs, especially with ASEAN nations, have widened India's trade gap. India sought investment commitments to balance this trade deficit.
- **Tariff Disparities:** India's average tariffs are higher compared to developed nations, making it easier for FTA partners to access the Indian market. The investment commitment could help offset some of these disparities.
- **Services Sector Potential:** India stands to gain in the services sector, which is a significant contributor to its economy. The deal could further boost this sector.
 - **Beneficiary Sectors:** Sectors in India that could benefit from EFTA investment include pharma, chemicals, food processing, and engineering. Investments from EFTA, particularly Norway's sovereign wealth fund, could help India diversify its imports away from China.



The timing of India signing the trade agreement with the European Free Trade Association (EFTA) is crucial for several reasons:

- **Election Year Concerns:** Over 64 countries, including India, are heading into elections this year. This could lead to a pause in free trade agreements (FTAs) as political priorities shift during election periods.
- **Global Supply Chain Shift:** There's a significant shift in global investment away from China, presenting an opportunity for countries like India to attract investment. The signing of the agreement allows India to capitalize on this shift.
- **Competition from Other Nations:** Vietnam-led Association of Southeast Asian Nations (ASEAN) nations and North American countries like Mexico are also emerging as favourable investment destinations. India needs to act swiftly to compete with these countries for investment.
- **Geo-political Opportunity:** Delaying integration into global supply chains could result in missed opportunities for India to establish itself as a key player in the global economy.

Accessing the EFTA market might pose challenges for India:

- **Tariff Elimination:** Switzerland, India's biggest trade partner in the EFTA, has eliminated import duties on all industrial goods. This could lead to stiffer competition for Indian goods in the Swiss market.
- **Agricultural Trade Barriers:** EFTA has not shown a willingness to eliminate tariffs on basic agricultural produce, making it challenging for India to export agricultural products to EFTA countries. Complex tariffs, quality standards, and approval requirements further complicate agricultural exports to Switzerland.
- **Non-Tariff Barriers:** Besides tariffs, non-tariff barriers such as complex regulations, standards, and certification requirements can hinder trade. India needs to engage in dialogue with EFTA countries to streamline regulations and ensure compliance with international standards.
- **Competitive Market:** EFTA countries have well-developed industries and strong competition. Indian businesses may face challenges in penetrating these markets. To overcome this, India could focus on niche markets where it has a competitive advantage, such as technology services, pharmaceuticals, and specialized manufacturing.
- **Intellectual Property Rights (IPR) Protection:** One of the key issues in IPR was data exclusivity, which could impact the generic medicine sector. Hence, India needs

to strengthen its legal framework and enforcement mechanisms to provide adequate protection to intellectual property rights holders.

Way Forward:

The agreement signals a deeper economic partnership between India and the EFTA nations, fostering dialogue and cooperation. It is expected to open up new opportunities for trade and investment, benefiting both India and the EFTA countries. Continued engagement, capacity building, and strategic planning are essential for realizing the full potential of India-EFTA trade relations.

The European Free Trade Association (EFTA)

- The European Free Trade Association (EFTA) is an intergovernmental organization set up for the promotion of **free trade and economic integration to the benefit of its four Member States – Iceland, Liechtenstein, Norway, and Switzerland** – and the benefit of their trading partners around the globe.
- EFTA was founded by the **Stockholm Convention in 1960**.
- Since the beginning of the 1990s, EFTA has actively pursued trade relations with third countries in and beyond Europe.
- In 2021, EFTA was the **tenth-largest trader in the world in merchandise trade and the eighth-largest in trade in services**. EFTA is also among the most important trading partners in goods and services for the EU. **EFTA's budget is prepared in two currencies: Swiss francs (CHF) and euros (EUR)**.
- In 2022, the combined EFTA-India merchandise trade surpassed USD 6.1 billion. **The primary imports to the EFTA States consisted of organic chemicals (27.5%), while machinery (17.5%) and pharmaceutical products (11.4%), excluding gold, constituted the main exports to India**. Furthermore, services trade and foreign direct investment have also reached substantial levels.

PRE-SHOTS

India's Right of Reply

News Excerpt:

India exercised its **Right of Reply** at the **55th regular session of the UN Human Rights Council (UNHRC)** in Geneva.

About the news:

- India exercised its **Right of Reply to respond to Turkiye and Pakistan** after the two countries made references to Kashmir in their statements.

- India highlighted **three points** in its response to the UN platform:
 - **Jammu and Kashmir and Ladakh are an "integral and inalienable part of India"**, and the

PEPPER IT WITH:

European Free Trade Association, Data exclusivity, Intellectual Property Rights, India-Norway Task Force on Blue Economy for Sustainable Development.

constitutional measures taken by the Indian government to ensure **"socio-economic development and good governance"** in the Union territories are **"matters internal to India"**.

- A country that has institutionalized the systematic persecution of its minorities and has a truly abysmal human rights record, commenting on India is not merely **ironic but perverse**.
- A country that hosts and even celebrates UNSC-sanctioned terrorists, commenting on India, whose **pluralistic ethos** and **democratic credentials** are examples for the world, is a contrast for everyone to see.

About the Right of Reply in UNHRC:

- "The Right of Reply in response to a statement" is made **in writing by a Head of State**.
- The number of interventions of the Right of Reply for any delegation at a given meeting should be limited to **two per item**.
- The first intervention should be limited to **ten minutes**, and the second intervention should be limited to **five minutes**.
- Member states are allowed to exercise the right of reply, in which **they can rebut criticism voiced during the General Debate**.

About the Human Rights Council (UNHRC):

- It is an intergovernmental United Nations body responsible for the promotion and protection of human rights around the world.
- Its mandate was established by General Assembly resolution 60/251 in 2006.
- The council's role is to investigate breaches and violations of human rights and make recommendations on how they should be addressed.
- It has 47 voting members from five regional groups. They are elected for three years for a maximum period of two consecutive terms.

Raisina Dialogue - 2024

News Excerpt:

The **9th edition** of the Raisina Dialogue was inaugurated by the Prime Minister in **New Delhi**. **Greece's Prime Minister Kyriakos Mitsotakis** joined the inaugural session as the chief guest.

Raisina Dialogue:

- Started in 2016, the Raisina Dialogue is India's premier conference on geopolitics and geoeconomics, committed to addressing the most challenging issues facing the world today.
- The conference is hosted by the **Observer Research Foundation** in partnership with the **Ministry of External Affairs**.
- The theme of the 2024 edition is "**Chaturanga: Conflict, Contest, Cooperate, Create.**"
- Dialogue is structured as a multi-stakeholder, cross-sectoral discussion involving heads of state, cabinet ministers, and local government officials, who are joined by leaders from the private sector, media, and academia.



EU launches Operation Aspides

News Excerpt:

The **European Union** launched **Operation Aspides** to protect maritime traffic in the **Red Sea**, which Houthi rebel attacks have disrupted.

About Operation Aspides:

- Operation Aspides is a defensive maritime security operation that restores and safeguards **freedom of navigation in the Red Sea and the Gulf of Aden**.
- It will send **European warships and early warning systems** to the **concerned areas**.
- Its objective is to preserve freedom of navigation in the region plagued with instability since the Houthi rebels began targeting vessels navigating the waterway with drones and rocket attacks.
 - The Houthis are an **Iran-backed rebel group that controls a part of Yemen**.
 - They say their attacks are in **retaliation for Israel's war in Gaza**.
- Aspides has an **exclusively "protective" mandate** and will only act when there is a threat, with minimum force.
- France, Germany, Italy, and Belgium** have confirmed that they plan to contribute ships to the EU mission.

- Greece** will provide a commander for its operational headquarters.
 - Aspides vessels, whose operational command centre will be in the Greek city of Larissa, will have orders to fire on the Houthis only if they attack first and will not be authorized to shoot pre-emptively.

India- Columbia MoU

News Excerpt:

India and Colombia signed a Memorandum of Understanding (MoU) on **Cooperation in the field of Sharing Successful Digital Solutions** to be implemented at **Population Scale for Digital Transformation**.

About the MoU:

- It was **signed** between the Indian **Ministry of Electronics and Information Technology** (MeitY) and **Colombia's Ministry of Information Technologies and Communications**.
- The MoU intends to **promote digital transformation** (viz **INDIA STACK**) through **capacity-building programs**, the **exchange of best practices**, and the **exchange of public officials and experts**.

About India Stack:

- It refers to the Indian government's ambitious project to **create a unified software platform** to bring the **country's population into the digital age**.
- India Stack (a **set of APIs** that allows governments, businesses, start-ups, and developers to utilize a **unique digital Infrastructure to solve India's problems** and to attain a **presence-less, paperless, and cashless service delivery model**).
- Aadhar, UPI, and DigiLocker, eBooks, podcasts, and other tech-driven citizen-centric services are part of the digital public good.
- The vision of India Stack is not limited to one country; it can be applied to any nation, be it a developed one or an emerging one.
- Both sides discussed the **importance of Digital Public Infrastructure**.
 - These infrastructures constitute a set of **shared digital systems** that are **secure and interoperable**.
 - They can be built on open standards to deliver and provide equitable access to public and private services.

India-Belarus Bilateral Relations

News Excerpt:

Belarusian Foreign Minister visited India and voiced support for India's push for a **permanent seat** in the **United Nations Security Council (UNSC)**.

More about the news:

- Both countries also agreed to **start a dialogue** on **simplification of the visa regime** for tourist flow.
- Foreign ministers of both countries also discussed Belarus's membership of the **BRICS**.
 - Belarus has **applied** for full-fledged membership of the **BRICS**.
 - Notably, **India was the first country to ratify** the memorandum on Belarus' accession to the Shanghai Cooperation Organisation (**SCO**).



India-Belarus Bilateral Relations:

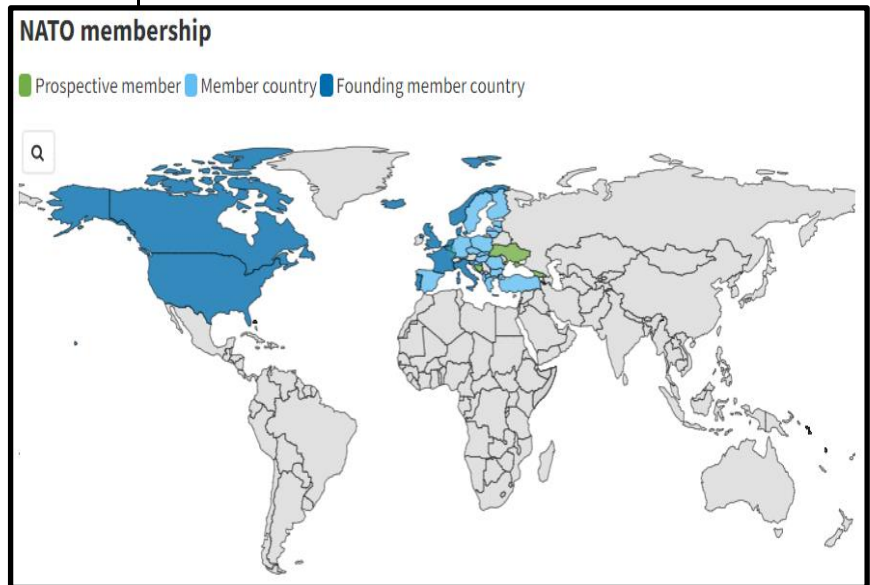
- India was **one of the first countries** to **recognize Belarus** as an **independent** country in **1991**.
- A broad understanding of issues of mutual interest marks bilateral relations between India and Belarus.
 - The two countries enjoy a **comprehensive partnership** and have **established mechanisms** for exchanging views on **bilateral, regional, and multilateral** issues.

Sweden officially joins NATO

News Excerpt:

Sweden formally joined NATO as the **32nd member of the transatlantic military alliance**, ending its decades of post-World War II neutrality.

Sweden's position regarding NATO:



- **Sweden's neutrality** began as a **response to catastrophic wars** - mainly **against Russia** - in the **18th and early 19th centuries**, and **its policies** have always been a **mix of principle and pragmatism**.
- It **supplied Nazi Germany with vital iron ore** during **World War II** and, during the Cold War, **secretly exchanged intelligence with the United States**.
- In recent decades, **Sweden has leaned closer to NATO** - in part because its military was slashed after the collapse of the Soviet Union - and has **contributed to missions in Afghanistan, Kosovo, Libya, and Iraq**.
- **Russia's invasion of Ukraine in February 2022** left it with a pivotal choice: **join NATO or run the risk of standing alone** against an increasingly aggressive neighbour.

About the North Atlantic Treaty Organization (NATO):

- The North Atlantic Treaty Organization was **created in 1949** by the **United States, Canada, and several Western European nations** to provide collective security against the Soviet Union.
- The **alliance members** include the **12 founding countries of Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States**.
- Greece and Turkey joined in 1952; Germany in 1955; Spain in 1982; Czechia, Hungary, and Poland in 1999; Bulgaria, Estonia, Latvia, Lithuania, Romania, Slovakia and Slovenia joined in 2004; Albania and Croatia in 2009; Montenegro in 2017;

North Macedonia in 2020; Finland in 2023 and finally Sweden in 2024.

- **NATO's Article 5** guarantees that **an attack on any member is considered an attack on all.**

China's Panda Diplomacy

News Excerpt:

The **China Wildlife Conservation Authority** has signed **cooperation agreements** to **loan a pair of giant pandas** to San Diego (USA) and Madrid (Spain).

What is panda diplomacy?

Giant pandas are native to **central China**, particularly the **Yangtze River basin**. The Chinese government **gifts or loans** these **endemic pandas** to other countries as a **symbol of friendship** or **soft diplomacy**, hence the phrase "panda diplomacy."

History of Panda Diplomacy:

- Although panda diplomacy picked up in the **mid-to-late 20th century**, some experts believe that a version of it existed as early as during the **Tang Dynasty (7th—10th century)**.
- There are multiple records of China gifting or donating pandas to countries like the U.S., the U.K., France, and Japan, but **1972** is often believed to be the **start of modern panda diplomacy** when, under Mao Zedong's rule, Chinese Premier Zhou Enlai **gifted giant pandas to America** following U.S. President Richard Nixon's state visit.
- China stopped gifting pandas in the early 1980s and instead **started loaning** them at a **fee of around \$1 million per year**.
 - Conditions to lend pandas may also include **other requirements**, like building facilities for their care and agreements to return offspring to China.

India-US Homeland Security Dialogue

News Excerpt:

During the dialogue, both states discussed cooperation in internal security, intelligence sharing, pro-Khalistani elements, online radicalization, cyber-attacks, and digital fraud.

Key issues discussed in the dialogue:

- India and the US reviewed ongoing cooperation in **counter-terrorism** and **security domains**, which has been a key pillar of the India-US strategic partnership.
 - Both countries also discussed steps that can be taken to bolster bilateral efforts to **combat terrorism and violent extremism, drug trafficking, and organized crime** and ensure **transportation security**.

- The two sides also reaffirmed their commitment to strengthening the vibrant **people-to-people ties** "by taking steps to enable **safe and legal migration, counter illegal migration, human trafficking, money laundering, cyber-crimes**, and misuse of the cyber domain for illegal activities including **terror-financing**."
- Both sides also focused on curbing the rampant increase in **narcotics trafficking**, particularly of the drug **Fentanyl**.
 - Earlier, the US launched a **US-China counter-narcotics working group** to **curb the production and trade of Fentanyl**.
 - It is now working with other key partners to cut off access to illegal supplies of opioids for foreign drug cartels.
- Both countries reiterated their keen interest in consolidating the mutually beneficial **collaboration between their respective law enforcement agencies** through **information exchange, capacity building, technical assistance**, and regular meetings of sub-groups.
 - During the dialogue, the **US Federal Law Enforcement Training Centre** and **India's Sardar Vallabhbhai Patel National Police Academy** signed a memorandum of cooperation on law enforcement training.

- This Dialogue was **first held in 2011** and was re-established in 2021.
- The **last** India-US homeland security dialogue was held in **January 2022, and this year, it was held in New Delhi**.

Issues of contention between the two states:

- The meeting was held against the backdrop of a row over the alleged assassination attempt on **Khalistani separatist Gurbatwant Singh Panun** who is a US citizen. The US has been demanding accountability in the matter.
- India is also seeking action against the pro-Khalistan elements involved in the **July 2023 attack on the Indian consulate in San Francisco**. The **National Investigation Agency (NIA)** has identified over 50 **pro-Khalistan activists** who had attacked the consulate.
- India is also pushing for the **extradition** of the 26/11 Mumbai terror attack accused **Tahawwur Hussain Rana**. A US court had earlier dismissed Rana's appeal against extradition.

Henley Passport Index

News Excerpt:

India has improved its ranking and **moved up to the 82nd spot** on the Henley Passport Index.

About the news:

- The Henley Passport Index is the original, authoritative ranking of all the world's passports according to the number of destinations **their holders can access without a prior visa**.
- The index is based on exclusive data from **the International Air Transport Association (IATA)**.
- The index compares the visa-free access of 199 different passports to 227 travel destinations
- The Henley Passport Index is **updated monthly**.
- Six countries (**France, Germany, Italy, Japan, Spain, and Singapore**) still jointly hold the top position in the 2024 Henley Passport Index, offering their citizens visa-free access to a record-breaking number of destinations.
- India has improved three places from **85th in February to 82nd in the March** rankings, having visa-free access to 62 destinations. **Last year, countries like Sri Lanka, Thailand, and Kenya added India to their visa-free lists.**

Indo- Pacific Oceans Initiative (IPOI)

News Excerpt:

Greece has decided to join the Indo-Pacific Oceans Initiative (IPOI).

About IPOI:

- Amid the competitive agendas, a promising discourse that moves **beyond traditional military or political spheres** has emerged in the form of the Indo-Pacific Oceans Initiative (IPOI).
- It is an initiative of the Government of India and **builds upon the "Security and Growth for All in the Region" (SAGAR)** initiative announced by Prime Minister Modi in 2019.
- SAGAR encourages States to cooperate and synergize efforts towards a **safe, secure, and stable maritime domain** and also take meaningful steps for the conservation and sustainable use of the maritime domain.
- The IPOI is premised on the liberal theoretical vistas and endorses an open, inclusive, **non-treaty-based global initiative** for mitigating challenges especially in the maritime domain through practical cooperation.
- The IPOI comprises of **seven thematic areas** that cover a wide spectrum of issues.
- **The seven pillars of the IPOI** are:
 - (a) Maritime Security;
 - (b) Maritime Ecology;
 - (c) Maritime Resources;
 - (d) Capacity Building and

Resource Sharing; (e) Disaster Risk Reduction and Management; (f) Science, Technology and Academic Cooperation; and (g) Trade, Connectivity and Maritime Transport.

Algiers Declaration

News Excerpt:

The 7th **Gas Exporting Countries Forum (GECF) Summit** concluded with the Algiers Declaration.

About:

- The 7th Summit of Heads of State and Government of the Member Countries of the Gas Exporting Countries Forum (GECF) convened in the historic city of **Algiers, the People's Democratic Republic of Algeria**.
- This significant gathering convened heads of state and government from 14 countries, including prominent players such as Russia, Iran, Qatar, and Venezuela.
- The 7th GECF Summit revolved around the **theme "Natural Gas for a Secure and Sustainable Future."** This theme holds particular significance due to the growing importance of natural gas as an affordable, reliable, and sustainable energy resource.
- The accession of **new member countries, including Mozambique, Mauritania, and Senegal**, signifies a significant milestone in the evolution of the GECF as a global platform for energy cooperation and dialogue.
- The Algiers Declaration represents a significant stride towards advancing global energy security and sustainability.

India invites IPEF members to invest in a clean economy.

News Excerpt:

The Union Minister for Commerce & Industry participated in **the ministerial meeting of the Indo-Pacific Economic Framework (IPEF)**.

Key Highlights:

- IPEF partners welcomed the entry **into force of the IPEF Supply Chain Agreement** with effect from 24 February 2024.
- The texts of the proposed **Clean Economy Agreement, Fair Economy Agreement, and Agreement on IPEF** were also made public.
- **India has called for expeditious implementation and invited investors from IPEF partners to invest and benefit from the trillion-dollar-plus opportunity** that India provides in the clean economy domain.
- The IPEF partners also announced plans to provide \$33 million in initial grant funding for the **IPEF Catalytic**

Capital Fund under the Pillar III Clean Economy Agreement.

- These funds will be instrumental in catalyzing up to \$3.3 billion in private investment for climate infrastructure projects in IPEF economies party to the IPEF Clean Economy Agreement.
- The IPEF partners took stock of the **Cooperative Work Programs (CWP) on hydrogen** announced in May 2023.
 - **The CWPs are a mechanism through which the IPEF partners or a group of partners prioritize their focus and resources on a common goal.**
- The IPEF partners also announced **four new CWPs** based on proposals put forward by partners:
 - **On carbon markets**, Interested IPEF partners initially seek to understand existing regional carbon market priorities and improve the enabling conditions for cooperation.
 - Interested IPEF partners are also pursuing **clean electricity enhancements** to facilitate increased decarbonization and access to clean energy in the region, including through public-private cooperation.
 - **To advance the promotion of employment creation and labour rights**, interested IPEF partners endeavour to pursue workforce development efforts to ensure a just transition towards achieving a clean economy.
 - Interested IPEF partners will collaborate on **sustainable aviation fuels (SAF) to enhance the availability and affordability** of SAF and its feedstocks and develop regional SAF value chains.

About IPEF:

- IPEF was launched in Tokyo in May 2022, jointly by the USA and other partner countries of the Indo-Pacific region.
- **IPEF has 14 partner countries**, including Australia, Brunei, Fiji, **India**, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, Vietnam, and the USA.
- This framework will advance **resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness for our economies.**
- This framework will offer **tangible benefits** that fuel economic activity and investment, promote sustainable and inclusive economic growth, and benefit workers and consumers across the region.
- The 14 IPEF partners represent 40 percent of global GDP and 28 percent of global goods and services trade.
- The launch began discussions on its **four pillars**:
 - (1) **Trade;**
 - (2) **Supply Chains;**
 - (3) **Clean Energy, Decarbonization, and Infrastructure; and**
 - (4) **Tax and Anti-Corruption.**
- The IPEF is designed to be flexible, meaning that **IPEF partners are not required to join all four pillars. India has joined Pillars II to IV of IPEF** while it has an **observer status in Pillar I (Trade).**

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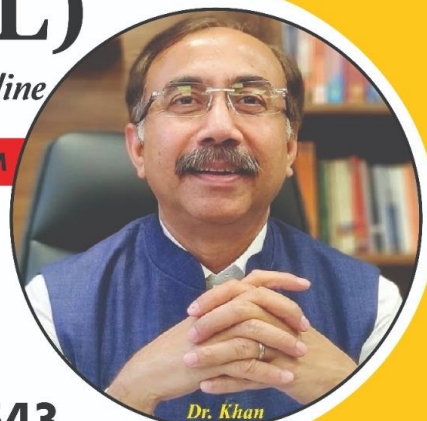
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ENVIRONMENT

Climate change: 3 grand challenges

News Excerpt:

The path to **decarbonization** runs through the **electricity sector**. Today, this sector accounts for a **third** of India's **carbon dioxide emissions**. Growth demands more electricity, and other parts of the economy are steadily **switching** from **fossil fuels to electricity**.

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Current reliance on fossil fuels:

- The **fossil-fuel energy industry** and its users have **trillions of rupees** in assets and many **millions of workers**.
 - All this capital and labour has **normalised a way of life** that induces climate change.
- If viewed from the central planning lens, obtaining the required change appears simply impossible, and policymakers find it **hard to imagine an India without coal, oil, and gas**.
 - However, it is feasible once we harness the energy of millions of firms and individuals and fix up their incentives.

Government goals for decarbonisation:

- The government has articulated or agreed upon various aspirations -
 - We are to get to **net zero in 2070**.
 - We are to **reduce the emission intensity** of gross domestic product by **45%** from 2005 to 2030.
 - **Half the installed capacity** in electricity is supposed to be achieved from non-fossil fuel sources by 2030.

Identifying the correct approach:

- **Central planning may not work:** A **strategy is required** to realise the aspirations or to move the net zero date to an earlier date. Central planning to **select technologies** and **design business models** for energy production or consumption, **for e.g.**, determining how solar panels, electric vehicles, or battery technology will be used, may **not be suitable** for decarbonisation for two reasons.
 - India is vast and complex, and to develop technologies and business models, **millions of decentralised optimisations** must be conducted at the level of one person or firm.
 - **Nobody knows** what the technologies and business models of the **future** will be. **The threat of climate change triggered a vast scale of research**.
 - **For instance** - Researchers worldwide have given us the bounty where solar panels are now cheaper than plastic ones.

- **Focus on institutions and incentives:** Strategic thinking lies in thinking about institutions and incentives through which the vast forces at play are channelled into sensible **decentralised problem-solving** by self-interested actors.
 - Three big challenges stand out –

Challenge 1 —

The Union and the State:

- The electricity sector is a **complex interlocking** arrangement with **prime responsibilities for states** and a subsidiary but an important role for the Union.
- The electricity sector imposes **inefficiency upon the state economy** with a combination of taxation (high prices for some) and subsidies (losses at state public-sector undertakings and on-budget transfers by state governments).
 - In some states, the fiscal problems associated with electricity have become **material for the medium-term fiscal strategy**.
- While over a dozen distribution companies now feature private participation, the **bulk of the distribution** remains owned and operated by **state governments**.

Challenge 2 —

India and the world:

- Climate change issues increasingly interact with international relations. India's success in financing its transition to net zero is essential in the global battle against climate change.
 - People worldwide are excited and hawkish about stopping climate change, which is a problem for India as it has **overtaken the European Union** as the **third-biggest emitter** in the world.

Challenge 3 —

The State and the market:

- At present, the bulk of the resource **allocation decisions** in the electricity sector are made by **officials**, who periodically award sterile contracts (e.g., long-term power-purchase agreements) to private persons to perform well-defined tasks.
 - Such an approach does **not harness the creativity, risk-taking, innovation, and energy** of private individuals. The zone of private individuals imagining and taking risks is limited to short-term transactions, which comprise **only 12%** of the electricity market.

Way Forward:

- **Balancing Union and State Roles:** Many states face difficulties with **stolen, free and subsidised electricity**

and have often succumbed to overcharging commercial users.

- The Central Government should be more proactive in **balancing the burden** by **reducing taxes, increasing subsidies**, and making **on-budget transfers** to the state governments. The distribution process should also be streamlined.
- **Global Leadership:** India can achieve a leadership position by proposing concrete, implementable **solutions** in the field of **climate financing**, including by taking advantage of the frameworks available under the **Paris**

Agreement and through bilateral arrangements.

PEPPER IT WITH:
 EU, Fossil Fuels, Greenhouse gas emissions, Decarbonisation, Discoms

- **Collaboration of State and Market:** The problem of climate change will not be solved by the state designing solutions and giving orders to the people. It will be solved by the **people doing things on their own** while the **State addresses the core market failures** of the field.

- **For example**, there is a negative externality when emitting carbon dioxide.
- The market failures in this field generate the rationale for the **minimal use of the State's coercive power**. And once this is done, there is the incentive compatibility of millions of self-interested people discovering what is best for them.

Living Animal Species (Reporting and Registration) Rules, 2024

News Excerpt:

According to the **Union Environment Ministry's Living Animal Species (Reporting and Registration) Rules, 2024**, owners of **exotic pets** such as macaws, cockatoos, and other soft-shell turtles must register them with the **State Wildlife Department**.

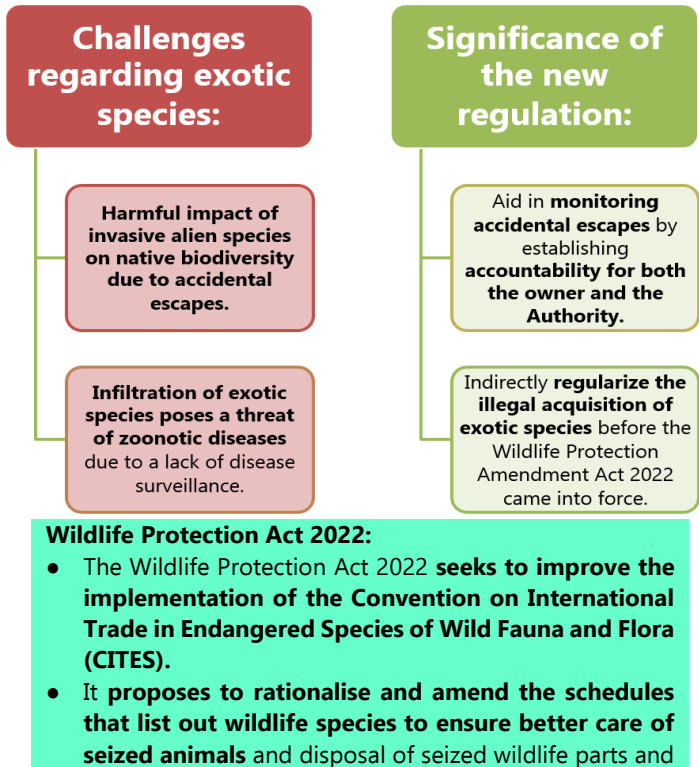
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Key provisions mentioned in the Living Animal Species (Reporting and Registration) Rules, 2024:

- It states that **all persons possessing a living specimen of any of the listed animal species** are required to **apply for registrations of such possession within a period of six months** from the date of commencement of these rules and thereafter within 30 of coming into possession of such animal species **to the concerned State Chief Wildlife Warden**, through the **PARIVESH 2.0 portal (Pro-Active and Responsive Facilitation by**

Interactive and Virtuous Environmental Single-window Hub).

- These species are listed under the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**.
- **'Animal species'** means any living specimens of any animal species listed in **Schedule IV appended to the Act** which covers species under the Convention.
- These rules **do not apply to other wildlife that is already protected** under the **Wildlife Protection Act** and **cannot be kept in captivity**.
 - **Section 49 M of the Wildlife (Protection) Amendment Act 2022** provides for registering **possession, transfer, and reporting of birth and death of living scheduled animal species** listed in the Appendices of CITES and Schedule IV of the Act.
- **India is a party to the CITES**, which requires that appropriate measures are taken to enforce the provisions of the Convention.
- This **registration requirement also applies to any transfer of the animals or birth of offspring from them**, with the Rule prescribing the process for such registration.
- Further, any **transfer of possession and birth of offsprings of such specimen(s) shall also be registered**, and death shall be reported to the concerned Chief Wildlife Warden through the **PARIVESH 2.0 portal**.



products, according to the Ministry of Environment, Forest and Climate Change (MoEFCC).

- **Appendix 1 of Schedule 4 of the Wildlife Protection Act 2022** has species of various bears and pandas, such as the Red Panda, various species of dogs, wolves, cats, apes, chimpanzees, gibbons, lemurs, squirrels, armadillos, various birds including Hornbills, Macaws, Parakeets, Owls, various reptiles among others.
 - It contains endangered exotic animals and plants, and import rules are stricter for them.

PARIVESH 2.0 portal:

- Parivesh is a **web-based workflow application designed for the online submission and monitoring of proposals seeking Environmental (EC), Forest (FC), Wildlife (WL), and Coastal Regulation Zone (CRZ) clearances.**
- The portal **operates on a role-based system, facilitating a streamlined process for proponents.**
- Its primary **objective is to serve as a "single window" solution, employing process automation and leveraging technologies like GIS and Advanced Data Analytics.**
- This approach **ensures expeditious, transparent, and effective decision-making** while maintaining stringent environmental safeguards.
- The government launched **Parivesh 1.0 in August 2018 at the Central level and in August 2019 at the State level.**

About CITES:

- CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an **international agreement** between governments.
- It aims to ensure that **international trade in specimens of wild animals and plants does not threaten the species' survival.**
- CITES was drafted as a result of a resolution **adopted in 1963** at a meeting of members of IUCN (The World Conservation Union).
 - The Convention's text was finally agreed upon at a meeting of representatives of 80 countries in Washington, D.C., United States of America, on **3 March 1973, and on 1 July 1975, CITES entered into force.**
- **Although CITES is legally binding** on the Parties, it **does not take the place of national laws.**
 - Rather, it **provides a framework that is respected by each party**, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level.
- CITES has been among the conservation agreements with the largest membership, with now **184 Parties.**

PEPPER IT WITH:

CITES, GIS, IUCN, CRZ, Chief Wildlife Warden, PM Surya Ghar: Muft Bijli Yojana

Government amends Electricity (Rights of Consumers) Rules

News Excerpt:

The Government of India has approved amendments to the Electricity (Rights of Consumers) Rules, 2020.

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- The Union Minister for Power and New & Renewable Energy stated that these amendments will further **reduce the timeline** for getting new electricity connections and that they simplify the process of setting up rooftop solar installations.

Rooftop Solar Systems

- Rooftop Solar Systems are ideal for harnessing the sun's energy by converting it into electric power.
- This can be done by adding an interface known as an inverter to convert the **DC power generated** by the solar panels on the rooftop to **AC power**, as most appliances and devices run on AC.

Types of solar systems

1. On-grid systems: The rooftop solar system is integrated with the main grid supply. This system allows power to be used from the grid supply only when the rooftop solar system is unable to supply the required power.

- **Significance:** This system can efficiently supply power without using a grid supply, saving expenses otherwise incurred on using power from the grid
 - This system can earn revenues as any excess power generated can be fed to the grid for which DISCOMs pay compensation using 'net metering'.

2. Off-grid systems: The second is an off-grid system in which the rooftop solar system is not linked to the main grid. This system can run independently with its own battery.

- **Significance:** This system is very useful when there is no grid supply or when the supply is very erratic, with frequent breakdowns.

3. Hybrid systems: The third one is the hybrid system, in which both on-grid and off-grid systems work in tandem.

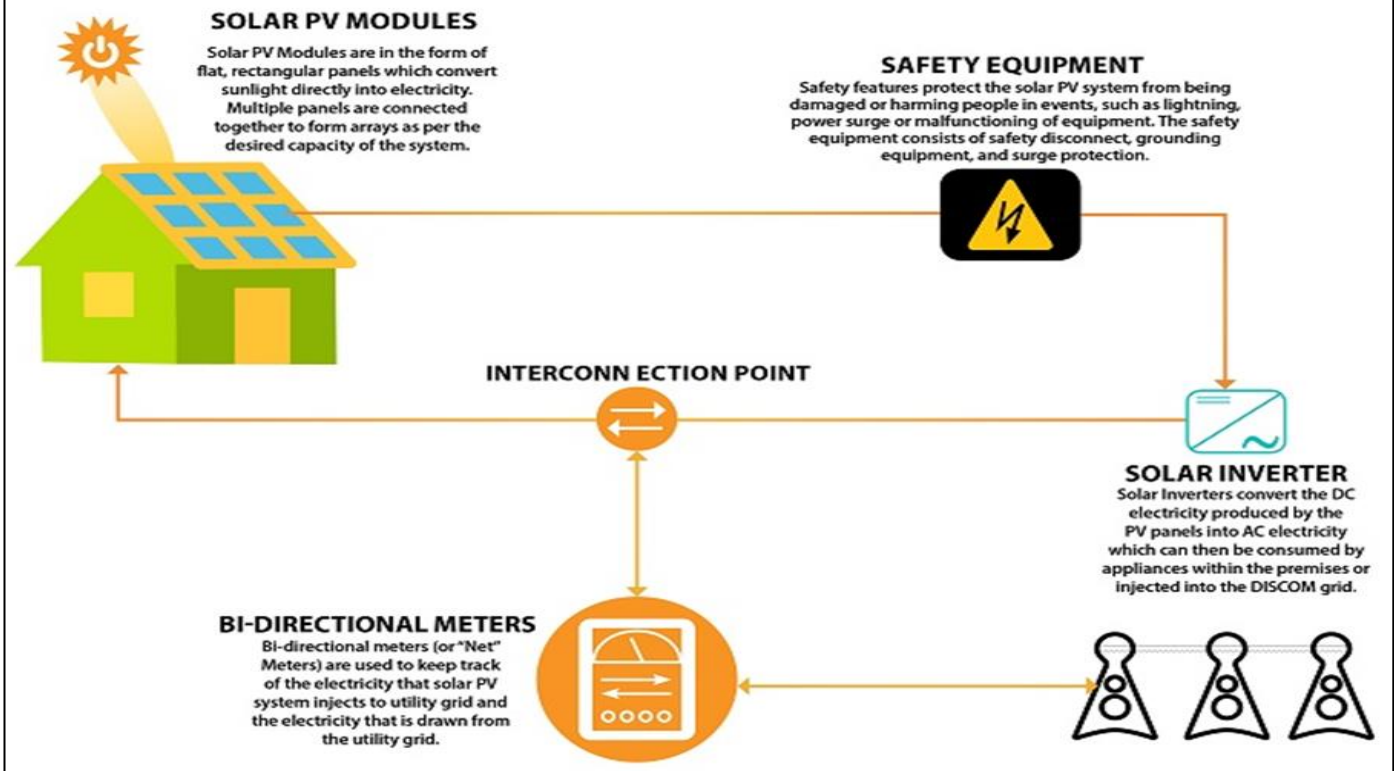
- **Significance:** In this type of system, though a battery is used, the advantage is that after the battery is fully charged, the excess power generated is fed to the grid, **which generates additional revenues for the consumer.**

Details about amendments to the Electricity (Rights of Consumers) Rules, 2020

● Faster Installation of Rooftop Solar Systems:

- Exemption from a feasibility study for systems up to 10 kW capacity.

Solar Rooftop Components



- Reduced timeline for feasibility study for systems above 10 kW.
- Mandated distribution system strengthening for systems up to 5 kW capacity at the distribution company's cost. Reduced commissioning timeline for distribution licensee from 30 to 15 days.
- **Separate Connections for Electric Vehicle Charging Stations:** Consumers can obtain separate connections for EV charging, aligning with carbon emission reduction goals.
- **Faster process for obtaining new connections:** Time period for obtaining new connection under new rule are- 3 days in metropolitan areas, 7 days in other municipal areas, and 15 days in rural areas (except for hilly terrain, where it remains 30 days).
- **Additional Rights for Consumers in Residential Colonies and Flats:**
 - Enhanced consumer choice for distribution connections in group housing societies and multi-storied buildings.
 - There are separate metering and collection processes for individual consumption, **separate billing** for common areas, and **backup generators** in residential societies.
- **Mandatory Additional Meter Installation in Cases of Complaints:** The distribution licensee is required to install an additional meter within 5 days for complaints regarding meter reading discrepancies. The additional

meter is used to verify consumption for at least 3 months, ensuring accuracy in billing and reassuring consumers.

PEPPER IT WITH:
EV Vehicles, FAME Scheme,

- The amendments will **empower consumers living in multistoried flats to choose their connection type and ensure**, thus enhancing transparency.

Why do global sea surface temperatures matter?

News Excerpt:

In February 2024, the **global sea surface temperature (SST)** reached a **historic high of 21.06 degrees Celsius**, as the **Copernicus Climate Change Service (C3S)** reported on March 5, 2024.

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- This marks the **highest recorded SST since data collection began in 1979**, surpassing the previous record of 20.98 degrees Celsius set in August 2023.

More About the News:

- Since March 2023, the **daily average SST has consistently exceeded previous years' temperatures**, as depicted in the graph below. The orange line

represents 2023's temperatures, while the grey lines track temperatures from earlier years.

- **The solid black line illustrates the SST for 2024**, which notably surpasses all previous years, including 2023.

Why Oceans Are Getting Warmer:

- **Human Factors:** The oceans are experiencing warming primarily due to **human activities, particularly since the onset of the Industrial Revolution in the 19th century.**
 - This period has seen significant **emissions of greenhouse gases (GHGs)** such as carbon dioxide, methane, ozone, and nitrous oxide, which trap heat in the atmosphere, leading to global warming.
 - As a result, the **global average temperature has risen by approximately 1.2 degrees Celsius** above pre-industrial levels.
- **GHG Emission:** A substantial portion of the **excess heat generated by GHGs** has been absorbed by the oceans, causing them to warm gradually over time.
 - **Oceans play a critical role in mitigating climate impacts.** They **absorb and redistribute heat**, potentially alleviating the severity of climate change effects.
- **Climatic factors:** **Factors like El Niño**, characterized by **abnormal warming of surface waters** in the equatorial Pacific Ocean, have contributed to rising ocean temperatures and global surface temperatures.
 - However, the **global daily average sea surface temperature began to rise well before the full onset of El Niño** and has remained unusually high even as this weather pattern diminishes.
- **Atmosphere Dynamics:** **Changes in atmospheric dynamics**, such as **weaker-than-average winds** leading to reduced dust blowing off the Sahara Desert, have also influenced ocean temperatures. **This dust forms a protective barrier that shades Atlantic waters, thus lowering ocean temperatures.**
 - Recent conditions have resulted in **less dust cover, allowing more sunlight** to penetrate the ocean surface and contribute to its warming.

Phytoplankton

- It is a single-celled plant that thrives on the ocean surface and is the foundation of several marine food webs.
- Phytoplankton are eaten by zooplankton and by other marine animals, such as crabs, fish, and sea stars.

Why are rising sea surface temperatures a cause of worry:

- **Impact on Marine Ecosystems:**
 - **Increased ocean stratification** means that layers of water with varying temperatures, salinity, and nutrient levels are less likely to mix.

- This **impedes the ocean's ability to absorb carbon dioxide** from the atmosphere and distribute oxygen effectively, endangering marine life.
- **Nutrient Movement:** The reduced mixing also **restricts nutrient movement from deeper waters to the surface**, potentially leading to **declines in phytoplankton populations.**
 - A decrease in the number of phytoplankton **could trigger ecosystem collapse, affecting species throughout the marine environment.**
- **Marine Heatwaves (MHWs):** Warmer oceans contribute to the **occurrence of MHWs**, characterized by **prolonged periods of exceptionally high sea surface temperatures.**
 - These events have **doubled in frequency and intensity** between 1982 and 2016, according to the Intergovernmental Panel on Climate Change (IPCC).
 - MHWs also cause **coral bleaching**, which weakens coral reefs and disrupts aquatic ecosystems.
- **Rise in Storms:** Higher Ocean temperatures are linked to the **intensification of storms** such as hurricanes and cyclones.
 - This is **due to increased evaporation rates and the transfer of heat energy from the ocean to the atmosphere, fueling storm development.**
 - These storms result in stronger winds, heavier rainfall, and heightened flooding upon landfall, posing increased risks to human populations.

Way Forward:

Addressing these concerns requires substantial reductions in greenhouse gas

PEPPER IT WITH:
 Marine Heatwaves, Storms, GHGs, Ocean Stratification, Copernicus Climate Change Service (C3S)

emissions, yet current emission levels continue to rise. In 2023, greenhouse gas concentrations reached record highs, underscoring the urgent need for global action to mitigate climate change and its adverse effects on marine ecosystems and human communities.

Global Resources Outlook-2024 & UNEA-6

News Excerpt:

Launched at the **sixth session of the United Nations Environment Assembly (UNEA)** in Nairobi, Kenya, **Global Resources Outlook 2024**

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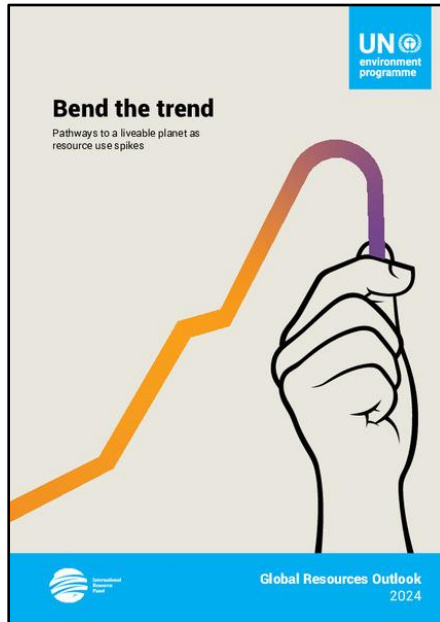
illuminates how resources are essential to the effective implementation of **Agenda 2030** and to tackling the **triple planetary crisis.**

About the report:

- **Global Resources Outlook** is a **flagship report** of the **International Resource Panel of UNEP**.
 - The **first edition** of the Global Resources Outlook was launched in **2019** at the **UNEA- 4**.
- The **theme** of the 2024 report: **'Bend the trend: Pathways to a Liveable Planet as Resource Use Spikes.'**

Key Findings of the Report:

- It highlights how global raw material consumption has increased fourfold since 1970 and is set to rise by a further 60% **from 2020** levels by 2060.
- It sheds light on how resources are essential to implement the **Agenda 2030** effectively.
- **High-income countries** use **six times** more **materials per capita** and are responsible for **ten times more climate impacts per capita** than low-income countries.
- To **turn negative trends around** and put humanity on a **sustainable trajectory**, bold policy action is critical to:
 - Phase out unsustainable activities.
 - Speed up responsible and innovative ways of meeting human needs.
 - Create conditions conducive to social acceptance and equity within the necessary transitions.
- It exposes a **crisis of excess** that is driving the **triple planetary crisis** of **climate change, biodiversity loss and pollution & waste** while offering pathways to maintain **economic growth and reduce inequalities**, as well as negative environmental impacts.
- Global production and consumption of material resources have grown more than three times over the last 50 years.
 - The consumption and use of resources are **largely driven by demand in upper-income countries**.
 - The extraction and processing of material resources — including **fossil fuels, minerals, non-metallic minerals, and biomass** — accounts for



over **55% of greenhouse gas (GHG)** emissions and **40% of particulate matter (PM)** poisoning the environment.

- The extraction and processing of **fossil fuels, metals and non-metallic minerals, including sand, gravel, and clay**, account for **35% of global emissions**.
- The extraction and processing of **agricultural crops and forestry products** accounts for **90% of land-related biodiversity loss** and, **water stress** and a **third of GHG emissions**.

About Climate and Clean Air Conference 2024:

- The **Climate and Clean Air Conference 2024** took place in Nairobi, Kenya with a call for international collaboration to **phase-out short-lived climate pollutants**, or **"super pollutants"**, such as **methane, black carbon and hydrofluorocarbons**.
- The conference was hosted by the **Climate and Clean Air Coalition (CCAC)** and the **UN Environment Programme (UNEP)**.
- CCAC 2024 deliberate on developing a shared agenda in key carbon-emitting sectors, including agriculture, fossil fuels, household energy, heavy-duty vehicles and engines, cooling and waste.
- The event was convened on the margins of the sixth session of the **UN Environment Assembly (UNEA-6)**.

Super Pollutants:

- Super pollutants, also sometimes referred to as **short-lived climate pollutants (SLCPs)**, derive their name from their **relatively short life** in the atmosphere as compared to carbon dioxide.
 - For example, **black carbon** has a lifespan in the atmosphere of just a few days before falling to the earth, and **methane** persists for a little more than a decade.
- Due to their short-lived nature, there are significant benefits to immediately cutting superpollutant emissions.

The benefit of reducing the emission of superpollutants:

- Reducing emissions of superpollutants can also lead to improved air quality and public health:
 - **Methane** is the primary contributor to the **formation of ground-level ozone**, a hazardous **air pollutant** and greenhouse gas.
 - Exposure to **black carbon** is associated with health problems such as **respiratory and cardiovascular disease**.
 - Phasing out superpollutants can reduce air pollution, a global health risk. This will save millions of lives and reduce health impacts on children, including asthma.

- Protecting crops from pollutants like tropospheric ozone will also boost food security.
 - Action on superpollutants is the ultimate three-for-one offer as a solution across the **triple planetary crisis**.
- Global action to reduce black carbon can provide co-benefits of public health protection and climate change mitigation.

The Climate and Clean Air Coalition (CCAC):

- The CCAC is a **voluntary international coalition** of governments, international organizations, the private sector, and NGOs.
- It aims to **reduce emissions from short-lived climate pollutants (SLCP)**, avoid millions of premature deaths, promote food and energy security, and address near-term climate change.
- **India joined the Climate & Clean Air Coalition in 2019.**

The International Resource Panel (IRP):

- The IRP was launched by the **United Nations Environment Programme (UNEP)** in **2007** to build and share the knowledge needed to improve the use of resources worldwide.
- It comprises **eminent scientists** from developed and developing regions, **civil society**, and **industrial and international organisations**.
- It investigates the world's most critical resource issues to develop **practical solutions** for government policymakers, industry and society.

United Nations Environment Programme (UNEP):

- It was founded in **1972** following the landmark **UN Conference on the Human Environment** in **Stockholm** and is the leading environmental authority of the United Nations.
- It is headquartered in **Nairobi, Kenya**.

United Nations Environment Assembly (UNEA):

- UNEA is the world's **top decision-making body** on the **environment**. It **aims** to help restore harmony between humanity and nature, improving the lives of the world's most vulnerable people.
- UNEA enjoys the **universal membership** of all **193 UN Member States**. It gathers ministers of the environment in Nairobi, Kenya, **every 2 years**.

UNEA-6:

- It took place at the United Nations Environment Programme (UNEP) headquarters in Nairobi, Kenya.
- More than 5,600 people – representing 190 countries – participated in the week-long Assembly.
- The 2024 Assembly also held its first **Multilateral**

Environmental Agreements (MEA) Day.

- MEA Day was dedicated to international agreements addressing the most pressing environmental issues of global or regional concern, which are critical instruments of international environmental governance and international environmental law.
- UNEA-6 also elected a new President for **UNEA-7 - Abdullah Bin Ali Amri**, Chairman of the Environment Authority of **Oman**.

Way Forward:

- The current extraction and consumption of resources is not only wasteful but also unjust. The **global economy is consuming ever more natural resources**, while the world is not on track to meet the Sustainable Development Goals.
- Overall, the study recommends measures including **creating circular, resource-efficient and low-impact solutions** and business models to include refuse, reduce, eco-design, reuse, repair and recycle, as well as supportive regulation and evaluation of existing systems to stem consumption.
- **Bold policy action** is critical to **phase out unsustainable activities**, speed up responsible and innovative ways of meeting human needs and create conditions conducive to social acceptance and equity within the necessary transitions.
- This would include urgent action to 'embed' resources in the delivery of multilateral environmental agreements, **define sustainable resource use paths and roll out appropriate financial, trade and economic incentives.**

PEPPER IT WITH:
 MEA, black carbon, Agenda 2030, Triple Planetary Crisis, ground-level ozone

State Energy Efficiency Index 2023: BEE

News Excerpt:

The fifth edition of the **State Energy Efficiency Index (SEEI)** was launched by the **Bureau of Energy Efficiency (BEE)**.

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About SEEI:

- The **Bureau of Energy Efficiency (BEE)** launched the **index**, in association with the **Alliance for an Energy-Efficient Economy (AEEE)**, to evaluate the annual progress of energy efficiency implementation in the states.
- In SEEI 2023, states and union territories are categorized into four groups based on their total scores: **'Front**

runner' (≥ 60), 'Achiever' (50-59.75), 'Contender' (30-49.75), and 'Aspirant' (< 30).

		Sectors							
Categories									
Policy									
Finance									
Institutional Capacity									
Adoption of EE Measures									
Energy Savings									
		Programme-specific Indicators							
		Common Indicators							
Sector weights		15	22	17	11	16	8	11	100
Indicator Weights	Common	15	9	6	2	7	3	6	48
	Programme		13	11	9	9	5	5	52

- Additionally, they are classified into four groups based on their **total final energy consumption (TFEC)**: **Group 1** (>15 million tonnes of oil equivalent (MTOE)), **Group 2** (5-15 MTOE), **Group 3** (1-5 MTOE), and **Group 4** (<1 MTOE).

Key Outcomes of SEEI:

- **Top Performer:** The top-performing states in each group are **Karnataka (Group 1)**, **Andhra Pradesh (Group 2)**, **Assam (Group 3)**, and **Chandigarh (Group 4)**.
- **Front Runners:** In SEEI 2023, seven states—**Andhra Pradesh, Haryana, Karnataka, Kerala, Maharashtra, Punjab, and Telangana**—are in the 'Front runner' category, compared to five states in SEEI 2021-22.
- **Achiever:** Two states, **Assam and Uttar Pradesh**, are in the 'Achiever' category,
- **Contender:** Three states—**Goa, Jharkhand, and Tamil Nadu**—are in the 'Contender' category.
- **Overall:** With an overall score of 86.5 out of 100, **Karnataka emerges as the top-performing state in SEEI 2023.**
 - The second-highest performer, **Andhra Pradesh**, with a score of **83.25 out of 100.**
- **Key Improvements:** Fifteen states have improved their scores compared to SEEI 2021-22, with **Goa, Uttar Pradesh, Maharashtra, and Haryana demonstrating significant progress**, improving by over 10 points relative to the previous assessment.
 - **Maharashtra and Haryana** have witnessed the most substantial improvements, with score increases of 18.5 and 17 points, respectively.

- Conversely, **Rajasthan** has experienced the most significant decline in scores in SEEI 2023, which can be attributed primarily to a lack of reported data.

India's Energy Landscape and Growth:

- The foundation of India's energy efficiency framework lies in the **Energy Conservation (EC) Act of 2001**, with the BEE at the central level and SDAs at the state level to enforce and implement the EC Act.
 - **The EC Act 2022** amendment empowers state governments to actively participate in India's energy transition, allowing them to **amend building codes, manage funds, and set consumption standards.**
- India's robust economic growth, fueled by a burgeoning middle class and rapid urbanization, has propelled it to become the **third-largest global energy consumer.**
 - Between 2000 and 2020, the nation's primary energy demand more than doubled, reaching 937 Mtoe.
 - With an anticipated **3.5-fold increase to 1,788 Mtoe by 2047** across sectors, there is a pressing need for sustainable energy consumption in line with India's low-carbon goals.
 - **Updated NDCs to the UNFCCC target a net-zero economy by 2070 and a 45% reduction in GDP emission intensity by 2030.**

- Acknowledged at the G20 summit and COP 28, energy efficiency is recognized as the most cost-effective and rapid means to complement renewable energy, aligning with India's commitment to translate national objectives into actionable energy-saving measures at the state level.

Key recommendations to states for better energy efficiency include:

- **Advancing Comprehensive Energy Data Management:** States should **prioritize data collection, measurement, and monitoring at both the state and local levels.**
- **Effective Implementation of State Energy Efficiency Action Plans (SEEAPs):** This requires **strategic policies, impact-oriented programs, SMART goals, investment analysis, comprehensive metrics, and a robust monitoring and evaluation framework.**
- **Synergize Efforts for State Energy Transition:** Coordination among state departments, **State Designated Agencies (SDAs), and State Nodal Agencies (SNAs) for renewable energy** is essential to leverage knowledge, data, and resources.
- **Leveraging State Energy Conservation Fund (SECF) in Revolving Investment Fund (RIF) Mode:** By allocating a portion of SECF funds to a revolving pool, states can create a sustainable engine for energy efficiency project implementation.

- This approach ensures **fund sustainability by reinvesting repayments from financed projects into new energy efficiency initiatives, boosting commercial lending for energy efficiency.**
- **Enabling Adoption of Energy Efficiency through Energy Service Companies (ESCOs):** States should create a supportive environment by protecting ESCO interests, standardizing contracts, and fostering a favourable financial landscape, thus boosting energy efficiency and supporting job creation.

About BEE:

- BEE is a statutory body under the **Ministry of Power (Nodal Ministry), Government of India.**
- It was established by the Government of India on **March 1, 2002**, under the Energy Conservation Act of 2001.
- Its primary objective is to reduce energy intensity, focusing on self-regulation and market principles.
- Its functions and duties include **coordinating with designated consumers, agencies, and organizations and recognizing, identifying, and utilizing existing resources and infrastructure to fulfil its responsibilities under the Energy Conservation Act.**
- The BEE is implementing several other innovative energy efficiency schemes and national programs, such as the Perform, Achieve and Transfer (PAT) Scheme, Standards and Labelling for Energy Efficient Appliances, Energy Conservation Building Codes (ECBC) and Demand Side Management.

About AEEE (Alliance for Energy Efficient Economy):

- It is one of the leading organizations in India that works to create **awareness about energy efficiency as a resource.**
- It supports policy implementation and enables the energy efficiency market with a **not-for-profit motive.**

Way Forward:

- To combat the illegal trade in shark body parts, a multi-faceted approach is needed. This should include:
 - **Strengthening enforcement efforts** through increased monitoring and collaboration among agencies and countries.
 - **To deter future activity, stricter penalties** for those involved in the illegal shark trade should be implemented.
 - **Enhancing public awareness** about the importance of sharks in marine ecosystems and the consequences of their overexploitation.

- **Supporting sustainable fishing practices** and alternative livelihoods for communities dependent on shark fishing.
 - **Improving international cooperation and information sharing** to effectively track and prosecute illegal shark trade networks.
- By addressing the above of these aspects comprehensively, it is possible to reduce the illegal trade in shark body parts and protect these vital marine species.

PEPPER IT WITH:
Energy Conservation Act, SEEAP, SDA, SNA, Energy Efficiency Services Limited

Global Methane Tracker 2024

News Excerpt:

According to the **International Energy Agency's (IEA) Global Methane Tracker 2024**, methane emissions from fuel use in 2023 were close to being the highest ever at 120 million tonnes (Mt).

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More about the news:

- **Two-thirds** of the methane that escaped into the atmosphere came from the **top 10 emitter countries.**
 - The **United States topped** the list of **largest emitters of methane** from oil and gas operations, followed by **Russia.**
- Although studies indicate that emissions are decreasing in certain areas, the overall emissions still exceed the world's climate goals by a significant margin.
- More than **5 million tons** of methane emissions were traced back to major **fossil fuel leaks** around the world.
 - A major oil **well blowout** in **Kazakhstan** began in June 2023 and continued for more than 200 days.
- Earlier, a new satellite, MethaneSAT, backed by **Google**, was launched to track and measure methane emissions on a global scale.

Global Methane Tracker 2024:

- The **Global Methane Tracker** is an **annual report** published by the **International Energy Agency (IEA).**
- The report offers the most **up-to-date estimates** of **emissions** across various sectors.
 - It incorporates the **latest data** and **observations** from **satellites** as well as **ground-based measurements.**
 - It also **tracks current pledges** and **policies** to drive down methane emissions and progress towards these goals.

- For the **first time**, the **Tracker includes** the **investments needed to deliver emissions reductions** and the **potential revenue** from these measures.

Methane:

- Methane is an **invisible but strong greenhouse gas**.
- A critical driver of climate change:** When it comes to trapping heat inside Earth's atmosphere, **methane is over 28 times more powerful than carbon dioxide**.
- According to the **UNEP**, methane has **80 times the warming power of carbon dioxide** during the first 20 years after it is released into the atmosphere.
- It is the second largest contributor to global warming after carbon dioxide.
- Methane is responsible for **30% of global heating since the Industrial Revolution**.

Mitigating Methane Leaks:

- Stemming methane leaks** is the fastest single way to curb the escalation of average global temperatures.
- Methane emissions from fossil fuels could go down by around **50%** by **2030** if companies and countries implement all methane policies and pledges in time.
- Reducing oil and gas methane emissions by **45%** till **2025** would deliver the same **20-year benefit** to the climate as immediately **closing 1,300 coal-fired power plants**.
- The world needs to slash methane emissions from fossil fuels by **75%** by **2030** to achieve the **Paris Agreement goal** of limiting warming to **1.5°C**.
 - The IEA estimated that this goal would require about **\$170 billion** in spending.
 - This is less than **5% of the income** the fossil fuel industry generated in **2023**.

PEPPER IT WITH:

Oil & gas Decarbonization Charter, Global Stocktake, OGCI

International Energy Agency:

- The IEA was founded in **1974** to ensure the **security of oil supplies**.
 - It was created in response to the **1973-1974 oil crisis** when an **oil embargo** by major producers pushed prices to historic levels and exposed the vulnerability of industrialized countries to dependency on oil imports.

- The agency is hosted at the **Organization for Economic Cooperation and Development (OECD)** in **Paris**.
- IEA currently has **31 member** countries and **13 association** countries, representing **75% of global energy demand**.
 - India** is an **association country** of the IEA.

PRESHOTS

Biodiversity Beyond National Jurisdiction (BBNJ)

News Excerpt:

The Blue Leaders High-Level Event on **BBNJ** was held in Belgium to urge nations to ratify a new treaty to protect the high seas from pollution, climate change, and overfishing.

About:

- The treaty entails several key components aimed at addressing critical issues affecting **marine biodiversity beyond national jurisdiction**.
- These include establishing marine protected areas, **ensuring fair sharing of benefits from marine genetic resources**, enhancing scientific cooperation and information sharing, and building capacity in marine technology and environmental impact assessment.

Key Points:

- Call to Action:** This treaty, formally known as the **Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Treaty)**, was adopted in March 2023 and has garnered signatures from 88 countries.
 - However, **only Chile and Palau have ratified it thus far**, with ratification by at least 60 countries needed for the treaty to come into effect.
- Need for Global Participation:** The BBNJ Treaty aims to enhance the protection of the high seas, which currently lacks adequate safeguards despite covering a vast portion of the global ocean.
 - The treaty seeks to **increase the percentage of protected areas in these waters and ensure equitable sharing of profits from marine genetic resources (MGRs)**.
 - It establishes **guidelines for Environmental Impact Assessments (EIAs)**, particularly for activities like ocean-based carbon sequestration and deep-sea mining.
- India's Support & Global Concerns:** While India is yet to sign the treaty, it has expressed support for its implementation during the G20 New Delhi Leaders' Declaration in September 2023.

Key Challenges & Concerns:

- **Navigating Post-Ratification Challenges:** These challenges include establishing operational procedures for treaty bodies, determining budgets, and selecting a suitable location for the Secretariat.
- **Enhancing Marine Life Protection:** Countries must also work towards **large-scale protection of marine life** to combat the escalating climate and biodiversity crises.
- **Time Constraints and Urgency:** With the Treaty potentially entering into force in 2025, there is a pressing **need to accelerate efforts** towards high seas protection. This urgency emphasizes the critical importance of meeting the 2030 target amidst the looming environmental challenges.
- **Challenges in Environmental Impact Assessment (EIA):** There are concerns regarding the effectiveness of the EIA process outlined in the BBNJ Treaty, thus a need for **direct investment in scientific research**.

Belgium recognizes ecocide as a crime

News Excerpt:

The Belgian Federal Parliament has voted in favour of a revised penal code that makes ecocide punishable at both national and international levels.

Ecocide:

- **"Ecocide"** means **unlawful or wanton acts** committed with the knowledge that there is a substantial likelihood of **severe and either widespread or long-term damage** to the **environment** being caused by those acts.
 - **'Ecocide'** was defined by the **Independent Expert Panel for the Legal Definition of Ecocide**.
 - The Definition was given in **2021** by the Panel, which was formed by the **Stop Ecocide Foundation**.
- Ecocide is the massive damage and destruction of ecosystems and harm to nature that is widespread, severe or systematic.
- **Examples of Ecocide:**
 - **Industrial fishing**
 - **Deep-sea bottom-trawling** destroys entire ecosystems by dredging the ocean floor, and overfishing is associated with multiple species loss.
 - **Oil spills**
 - There are many examples, the worst of which was **Deepwater Horizon 2010**, which formed a slick extending over more than 149,000 square km, polluting an estimated 1,100 miles (1,770 km) of shoreline.
 - The **Niger Delta** has suffered from continuous oil spills over many decades of extraction and is still one of the most polluted regions on Earth.

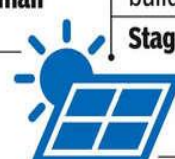
- **Textile chemicals**
 - The textile industry has a huge polluting impact via **wastewater from dyeing and tanning**.

Nagpur launches 'Zero Carbon Buildings Action Plan'

News Excerpt:

India's first city-specific **Zero Carbon Buildings Action Plan (ZCBAP)** has been launched in Nagpur.

NO CARBON FOOTPRINT A GIANT STEP

WHAT IS NET ZERO PLAN	WHAT'S CITY DOING
<p>➤ Net zero emissions is a state of balance between emissions and removals of CO2 from the atmosphere due to human activities</p> <p>➤ India is committed to achieve the net zero emissions target by 2070 by transitioning towards clean energy, energy use efficiency and a policy push for hydrogen including production-linked incentives</p>	<p>➤ Clear short-term goals for all new buildings to be net-zero by 2030 and 2050 for all buildings in the city</p> <p>Stages of action plan  Pre-construction, during construction, occupancy, and end-of-life</p> <p>➤ Capacity building and financially enabling measures to ensure stakeholders implement and sustain green building practices</p>

More about the news:

- The **ZCBAP** road map covers various types of buildings, including **public buildings, affordable housing, commercial buildings, and private homes**.
- Under the action plan, buildings in the **city** will be transformed to meet **net-zero emission goals by 2050**.
- The plan seeks to contribute towards **India's net-zero emission goal by 2070**.
- It also includes strategies for **reducing greenhouse gas emissions** through the choice of building materials and improved design, construction, management, and deconstruction practices.
 - Residential, commercial, and institutional buildings were responsible for **58% of Nagpur's total energy consumption** and **56% of the city's GHG emissions in 2017-18**.

Quick glossary:

Decarbonization is the reduction of carbon emissions into the atmosphere by switching to sources, technologies, and processes with a lower carbon footprint.

Net Zero is a state in which greenhouse gas (GHG) emissions are balanced by removing equal amounts of GHG from the atmosphere.

India's 1st Green Hydrogen Plant in Stainless Steel Sector

News Excerpt:

Union Minister of Steel inaugurates India's 1st **Green Hydrogen Plant in Stainless Steel Sector**.

About the Project:

- This state-of-the-art green hydrogen facility is located at Jindal Stainless Limited, **Hisar district of Haryana**.
 - It will be the **world's first off-grid** Green Hydrogen plant for the stainless steel industry and the **world's first** Green Hydrogen plant with **rooftop & floating solar**.
- It **aims to reduce carbon emissions** considerably by around 2,700 Metric Tonnes per annum and 54,000 tons of CO₂ emissions over the next two decades.

Green hydrogen:

- It is made by using **clean electricity** from **surplus renewable energy** sources, such as solar or wind power, to electrolyze water.
- Electrolyzers use an **electrochemical reaction** to **split water** into its components of hydrogen and oxygen, emitting **zero-carbon dioxide** in the process.

Other green initiatives of India:

- **Panchamrit (five-fold strategy to fight climate change):**
 - I. India will reach its non-fossil energy capacity of 500 GW by 2030.
 - II. India will meet 50% of its energy requirements from renewable energy by 2030.
 - III. India will reduce the total projected carbon emissions by one billion tonnes from now onwards till 2030.
 - IV. By 2030, India will reduce the carbon intensity of its economy by less than 45%.
 - V. By the year 2070, India will achieve the target of Net Zero.
- **Mission LiFE (Lifestyle for Environment):**
 - LiFE puts the individual and collective **duty on everyone** to live a life that is in tune with Earth and does not harm it.
 - Those who practice such a lifestyle are recognized as **Pro Planet People** under LiFE.
 - It is an India-led global mass movement towards "**mindful and deliberate utilization, instead of mindless and destructive consumption**" to protect and preserve the environment.
- **National Green Hydrogen Mission:**
 - Launched last year with an outlay of around ₹20,000 crore to make India a Global Hub for the

production, usage and export of Green Hydrogen and its derivatives.

- The Mission also supports pilot projects in the steel sector with a budget of around ₹500 crore until FY 2029-30.

Global Great Backyard Bird Count (GBBC) 2024

News Excerpt:

Over **1,000+ submissions** have been made to the global citizen science initiative on documenting birds' diversity, ranking second in the world. For the Global Great Backyard Bird Count (GBBC) 2024, 1036 species of birds have been documented from the entire nation.

Why it's unique this year?

- The latest Great Backyard Bird Count (GBBC) saw **participation from birdwatchers across all states and Union territories for the first time**.
- **Kerala led with the highest number of checklists (14,023)**, followed by Tamil Nadu (13,661) and Maharashtra (5,725). **West Bengal reported that the most species** were observed (538), followed by Uttarakhand (426) and Assam (420).
- **India has the second-highest number of submitters** on the number of checklists and the third-highest species (Colombia first, Ecuador second) among all participating countries (First- USA, Third- Canada).
- Over the four days, Indian birdwatchers contributed over **61,000 checklists** and documented **1,036 bird species** on an **online platform, eBird** (a collaborative project managed by Bird Count India).

About GBBC:

- **The Global Great Backyard Bird Count (GBBC)** is a **collaborative citizen science initiative organized by the Cornell Lab of Ornithology, the National Audubon Society, and Birds Canada**.
- It was launched in **1998** and was the **first online participatory science project** (also called community science or citizen science) to collect data on wild birds and display results in near real-time.

Low-carbon action plan

News Excerpt:

Bihar has initiated a well-designed work plan to strengthen its waste management profile by formulating a **Low-Carbon Action Plan (LCAP)** for the waste and domestic wastewater sector.

About the LCAP:

- LCAP comes after the Chief Minister of Bihar unveiled a comprehensive draft of the **Climate Resilient and Low Carbon Development Pathway** for the State. It is part

of Bihar's commitment to transform itself into a **Net Zero state by 2070**.

- It is a first of its kind in the country, marking a significant stride towards mitigating greenhouse gas (GHG) emissions and **fostering a sustainable and resilient environmental future**.
- The visionary **objective of LCAP** for the waste sector, prepared by **ICLEI (International Council for Local Environmental Initiatives)** South Asia, is to ensure:
 - **Holistic, solid waste management** and a sustainable sanitation pathway integrating the concept of low-carbon solutions.
 - **Enabling mitigation of GHG emissions** from the waste sector and contributing to the state-level goal of pursuing climate resilience and a low-carbon development pathway for eventually achieving carbon neutrality.

ICLEI – Local Governments for Sustainability:

- It is a global network working with more than 2500 local and regional governments committed to sustainable urban development.
- ICLEI engages at the local and global levels, shaping policy and sparking action to transform urban environments worldwide.

Lamphelpat waterbody project

News Excerpt:

In a developmental effort, **Lamphelpat, once a majestic lake in Manipur** but relegated to the annals of history, is now undergoing a remarkable revival.

About the Lamphelpat Waterbody project:

- Lamphelpat Waterbody Project was initiated by **the Water Resource Department, Manipur, in collaboration with the Ministry of Jal Shakti**.
- The primary objective of this ambitious project is **to develop Integrated Flood Risk Management and ensure water security in the Imphal Valley**.
- Moreover, this rejuvenation endeavour is not merely about bolstering water resources; it also entails **preserving the ecological integrity of the Nambul River, enhancing aesthetic values, and promoting eco-tourism potential in Imphal City**.
 - There have been promising signs of ecological revival, **with increased sightings of migratory and resident birds flocking to the waterbody**.

Lamphelpat Area:

- The Lamphelpat area, in the west part of Imphal, the capital of Manipur, experiences urban floods during

the rainy season due to a reduction in the detention capacity of the Lamphelpat waterbody.

- Lamphelpat, which is in the **foothills of the Langol hill range, was a natural water reservoir**.
- The Lamphelpat was famous for **Kombirei flowers**.
- According to the **State Wetland Technical Committee**, the Lamphelpat is one of many wetlands that the committee recommended to the State Wetland Authority for conservation.

Grow plants on government land to earn Green Credit

News Excerpt:

A new government notification has allowed companies and individuals to utilize government land for tree plantation in order to generate **green credits** that can be used for reporting under **Environmental, Social, And Governance (ESG) indicators** or **Corporate Social Responsibility (CSR)**.

Key provisions of the scheme:

- The **Forest Department of each State and Union territory** will identify **degraded land parcels, including open forest and scrubland, wasteland, and catchment areas** under their administrative control.
- Individuals or entities will design these parcels for tree plantation.
 - While such an activity will help in **increasing green cover** across the country, it can also be used to **generate Green Credit**.
- Identified land parcels must be **free from any encumbrances**.
- Such land should also be **5 hectares or more**.
- Individuals or entities seeking to undertake tree plantation for Green Credit generation can apply to the Administrator.
- Applicants are required to **pay charges for plantation and administrative fees**.
- After all these formalities are over, the Administrator will direct the **Forest Department to carry out tree plantation**.
- The entire process needs to be completed within a period of **two years** from the **date of payment**.
- The Green Credit shall be calculated at the rate of **one Green Credit per tree grown** through the tree plantation on such land parcel, subject to a **minimum density of 1100 trees per hectare**, based on the local climatic and soil conditions, on the certification of completion of tree plantation provided by the Forest Department concerned.

About Green Credit Program:

- The Green Credit Program (GCP) was introduced by the Ministry of Environment, Forest and Climate Change (MOEFCC) in October 2023 to incentivize positive environmental actions in India.
- It is an innovative **market-based mechanism** designed to incentivize **voluntary environmental actions** across diverse sectors, by various stakeholders like **individuals, communities, private sector industries, and companies**.
- The GCP's governance framework is supported by an **inter-ministerial Steering Committee** and **The Indian Council of Forestry Research and Education (ICFRE)** serves as the **GCP Administrator**, responsible for program implementation, management, monitoring, and operation.
- In its initial phase, the GCP focuses on two key activities: **water conservation and afforestation**.
- To obtain Green Credits, individuals and entities must register their activities through the central government's dedicated app/website.
- The **Green Credit certificate** that is granted under this program will be **tradable** on the **Green Credit platform**.
- **Tree plantation is one of eight activities** that are notified to generate Green Credit.
 - Other activities include **water management, sustainable agriculture, waste management, air pollution reduction and mangrove conservation and restoration** among others.

Cabinet approves establishment of International Big Cat Alliance (IBCA)

News Excerpt:

The Union Cabinet chaired by India's Prime Minister approved the establishment of the **International Big Cat Alliance (IBCA)** with **headquarters in India** with a one-time **budgetary support of Rs.150 crore** for a period of **five years from 2023-24 to 2027-28**.

Background:

- Acknowledging India's leading role in conserving tigers, other big cats and many of its endangered species, the Prime Minister of India, on the occasion of **Global Tiger Day 2019**, called for an **Alliance of Global Leaders to curb poaching in Asia**.
- The Prime minister reiterated this Commemorating **50 years of India's Project Tiger in 2023** and formally announced the launch of an **International Big Cat Alliance** aiming at **securing the future of big cats and the landscapes they thrive**.
- **Seven big cats** include **Tiger, Lion, Leopard, Snow Leopard, Puma, Jaguar and the Cheetah** out of these

five big cats viz. Tigers, lions, leopards, Snow Leopards and Cheetahs are **found in India**.

INTERNATIONAL BIG CAT ALLIANCE

- ◊ Cabinet approves establishment of International Big Cat Alliance (IBCA) with headquarters in India
- ◊ One-time budgetary support of Rs.150 crore for a period of five years till 2027-28
- ◊ IBCA to be a multi-country, multi-agency coalition of 96 big cat range countries, non-range countries interested in big cat conservation, conservation partners and scientific organizations
- ◊ IBCA aims for mutual cooperation among countries benefit in furthering the conservation agenda
- ◊ Have a multipronged approach in broad basing and establishing linkages manifold in several areas and help in knowledge sharing, capacity building, networking, advocacy, finance etc

About International Big Cat Alliance (IBCA):

- It recognizes the **importance of integrating biodiversity policies with sustainable development goals (SDGs)** to achieve **holistic and inclusive conservation outcomes and biodiversity conservation efforts with local needs**.

Regulatory framework of IBCA:

- The IBCA proposes to have an **assembly of members, a standing committee** as well as a **secretariat** based in India.
- The **Environment Ministry** will **appoint an interim director general to head the IBCA secretariat** until members of the Alliance can meet and appoint a permanent office-bearer to oversee day-to-day operations.

Kazhuveli watershed region in Tamil Nadu

News Excerpt:

Conservationists propose the **Kazhuveli watershed region in Tamil Nadu** for the **World Monuments Fund Watch 2025** nomination.

About news:

- The **Eri (tank) network** in the **Kazhuveli watershed region** in **Villupuram district** that comprises an incredible **network of tanks** created **thousands of years ago** is proposed for nomination to the **World Monuments Fund Watch 2025 programme**.
- The area spans 740 sq. km., featuring an ancient '**eri (tank) network**.
- This network has sustained **agriculture for thousands of years** but is currently **facing a decline**.
- The initiative aims to **protect and preserve** the region's **historical and agricultural significance**.
- If the nomination comes through, pilot projects will be run in **Munnur village** to develop a **heritage toolkit** that could be replicated through the watershed and beyond.
 - The **1500-year-old Adavalleswarar temple**, which is dedicated to **Lord Shiva**, is located in Munnur in the Kazhuveli watershed region.
 - The temple has **inscriptions** on the **Eri system** and how it was managed by the local communities.
 - Though the tank is still intact, the heritage components have been destroyed, and the utilization of the tanks has decreased.
 - This is a classic example of how endangered the tank system is at present.

About World Monuments Watch:

- The World Monuments Watch is a **nomination-based program** that connects **local heritage preservation to**

global awareness and action.

- Every **two years**, the Watch rallies support for places in need and the people who care for them, spotlighting new challenges and the communities worldwide harnessing heritage to confront the crucial issues of our time.
- The **2025 Watch** will include **25 places**, each telling an urgent local story with global relevance.
- Through this initiative, **World Monuments Fund (WMF)** partners with the people who know these places best, amplifying their efforts through advocacy, capacity building, and close collaboration with WMF's expert team and professionals across the globe.

Kazhuveli Lake:

- Kazhuveli Lake is the **second-largest brackish water wetland** in **Tamil Nadu**.
 - Kazhuveli, or Kaliveli, meaning '**Passage to Backwaters**', is a brackish water wetland that feeds into the **Bay of Bengal** through the narrow 8-km-long **Uppukalli Creek** and the **Yedayanthittu estuary**.
- The wetland is home to over 200 species of birds and is recognized as an important stopover and breeding ground for about **40,000 migratory birds**.
- The birds found in the Kazhuveli bird sanctuary include **spot-billed pelicans, darters, cormorants, herons, egrets, storks, black ibis, spoonbill, flamingo, spot-billed duck, garganey, common pochard, sandpiper, coots, shanks, and terns**.
- In addition to the rapid growth of **illegal shrimp farming** in the area, the lake faces an internal threat as there are plans to **convert it into a freshwater lake**.

Threat to biodiversity

Conservationists say the check dam at Kazhuveli wetland prevents tidal inflow into the lake and will have a permanent impact on the wetland's ecology



Oran's sacred groves of Rajasthan

News Excerpt:

Rajasthan government's recent announcement to notify **Orans** as **deemed forest** has sparked fear among community residents in the State regarding the potential loss of access to forest resources and their means of livelihood.

- Earlier, the Supreme Court directed that **Orans, Devvans, and Rundhs** be given the **status of deemed forest**.

What are Orans?

- '**Oran**' is an informal term used to describe **community lands** and **sacred groves** of **traditional pastoral communities in Rajasthan**.

- They include **woodlots, pastures, orchards, sacred groves**, and **habitats** usually centred around **springs** and **bodies of water**.
- Orans provide **landscape connectivity** and **nourish human communities, livestock** and **biodiversity**.
- Being associated with **local deities** and **customs**, orans also play a **cultural** and **spiritual role** in these communities.
- The Rajasthan orans are home to the endangered **great Indian bustard (GIB), chinkara**, and the **Indian desert fox**.

Concerns of the communities dependent on the Orans:

- Communities believe that once the orans are declared as deemed forest, they will be **deprived of forest produce** and **access for herds and sheep** in the forest area.
 - The villagers use the forest area for **cattle herding, pastures** and **sustenance**.
 - There are at least 5,000 camels and 50,000 sheep dependent on the Degray orans only.
 - The villagers also use **gum, timber, forest produce** and **wild vegetables** from orans for their livelihood and daily use.
- People are in fear that they will have to **vacate the land** if the state forest department takes over.
 - These concerns are legitimate as even the **places of worship, last rites** and **religious events** take place inside the oran and are related

to the **trees, water bodies** and other entities of the sacred groves.

Deemed forests:

- The concept of deemed forests is **not defined** in any **law or the rules**, including the **Forest Conservation Act (FCA) of 1980**.
- The Forest Act of 1980 only provided protection to forests that were notified so in government and revenue records on or after 1980.
 - In 1996, the Supreme Court in **Godavarman's** verdict expanded the remit of the Act to areas that weren't notified as forests but conformed to the "dictionary" definition of forests.

Sacred Grove:

- A sacred forest or grove comprises **patches of natural vegetation, from a few trees to several acres**, dedicated to **local deities or tree spirits**.
- These spaces are **protected by local communities** because of their **religious beliefs and traditional rituals** that run through several generations.
- People believe that any kind of disturbance will offend the local deity, causing diseases, natural calamities or failure of crops.
 - For example, the **Garo** and the **Khasi tribes of north-eastern India prohibit any human interference** in the sacred groves.
 - In other places, **deadwood or dried leaves may be picked up**, but the live tree or its branches are never cut.
 - The **Gonds of central India** prohibit the cutting of a tree but allow fallen parts to be used.

Ecological Significance of Sacred Groves	Threats to the Sacred Forests
<ul style="list-style-type: none"> • Conservation of Biodiversity – They are important repositories of floral and faunal diversity sustainably conserved by local communities. <ul style="list-style-type: none"> ▪ They are often the last refuge of endemic species in a geographic region. • Recharge of aquifers – The groves are often associated with ponds, streams or springs, which support the water requirements of the local people. <ul style="list-style-type: none"> ▪ The vegetative cover helps recharge aquifers. • Soil conservation - The vegetation cover of the sacred groves improves the soil stability of the area and prevents soil erosion. 	<ul style="list-style-type: none"> • Disappearance of the traditional belief systems, which were fundamental to the concept of sacred forests. These systems are now considered mere superstition. • Sacred forests in many parts of our country have been destroyed due to rapid urbanization and developmental interventions such as roads, railways tracks, dams, and commercial forestry. • Many forests are suffering due to 'Sanskritisation' or the transformation of the primitive forms of nature worship into formal temple worship. • Invasion by exotic weeds such as Eupatorium odoratum, Lantana camara and Prosopis juliflora is a serious threat to some groves. • Pressures are due to the increasing livestock and fuelwood collection.

SCIENCE AND TECHNOLOGY

A new machine to power the future of semiconductor innovation

News Excerpt:

Netherland-based **Advanced Semiconductor Lithography (ASML)** has unveiled its new '**High NA EUV**' machine to manufacture the most advanced semiconductor chips.

Advanced Materials

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Microchips

Called by different names like **integrated circuits, semiconductor chips, computer chips** or, simply, chips.

These tiny pieces of **silicon** are the foundation of the digital world and are used in **smartphones, cars, medical equipment, and** many other now-common devices.

The tinier they get, the more advanced technology we get in the everyday world with tremendous impact.

Science of Semiconductor Chip Manufacturing-Lithography:

- We have powerful computers almost everywhere around us thanks to a technology called **semiconductor lithography**.
 - Lithography** is the process of **using light to print tiny patterns on silicon**.
 - It is a fundamental step in mass-producing microchips.
 - Some machines automate this process.

Principles of lithography:

- A lithography system is essentially a **projection system**.
- Light is projected** through a blueprint of the pattern that will be printed (known as a 'mask' or 'reticle').
- With the pattern encoded in the light, the system's optics shrink and focus the pattern onto a **photosensitive silicon wafer**.

EUV lithography:

- EUV stands for **extreme ultraviolet**, an **incredibly short wavelength** of light that ASML generates in large quantities to print small, complex designs on microchips.
- EUV lithography does big things on a tiny scale.
- ASML** is the **only maker of extreme ultraviolet (EUV) lithography machines**, needed to manufacture the most advanced chips.
 - High NA EUV** is the **next generation** of that technology.

High NA EUV:

- In the late **2010s**, the **ASML** became the **first and only company** to market a lithography tool using EUV, or **13.5 nanometre wavelength light**.
- Existing EUV machines**, though they have supported the last decade of semiconductor process development, **can't hit the resolution needed for sub-2 Nano-Metre nodes** to be patterned into chips in a way that would be conducive to mass production.
- In February, 2024, ASML unveiled its new '**High NA EUV**' machine.
 - It costs \$350 million (Rs 2,900 crore) apiece and is as big as a double-decker bus.
 - This machine uses **extreme ultraviolet (EUV) photolithography**, a next-generation technology, to make semiconductors. The mould of the circuits of a transistor are transferred to a silicon wafer coated with a light-sensitive material called a **photoresist**.
 - Both the original and High NA machines create EUV light by **vaporizing droplets of tin with twin laser pulses 50,000 times a second**.
- This new method is functionally the same physical process as EUV lithography, but the **optics are larger and support higher-resolution patterns** to be printed on the wafer.
- The **High NA tool** will let chipmakers **shrink the size** of the smallest features on their chips by **up to 40%**, allowing the **density of transistors to nearly triple**.
- The High NA machine's biggest change is a **larger optical system** consisting of **irregularly shaped mirrors**, made by **Carl Zeiss**, polished so smooth they must be kept in a vacuum.
 - They collect and focus lighter than their predecessors - High NA stands for **high numerical aperture** - which leads to better resolution.

PEPPER IT WITH
Semiconductor, EUV,
ASML, Lithography,
Microchips

India receives 'Measles and Rubella Champion' Award

News Excerpt:

Recently, India has been bestowed with the prestigious Measles and Rubella Champion Award by the Measles and Rubella Partnership at the American Red Cross Headquarters in Washington D.C., USA.

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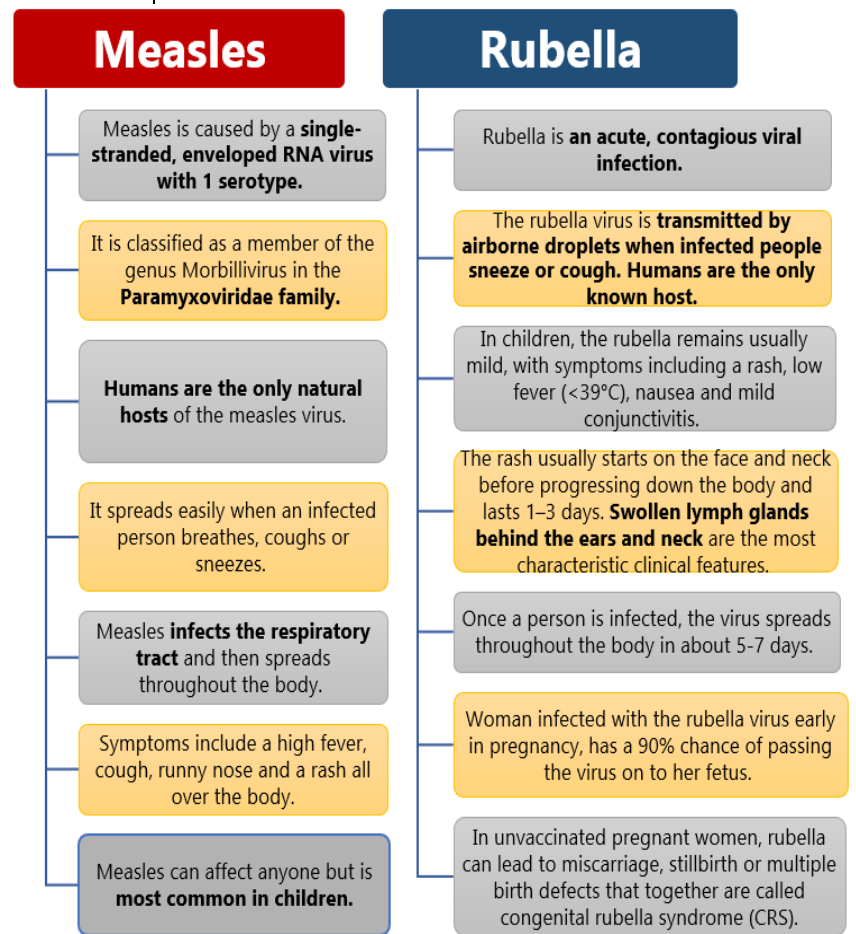
About the Measles and Rubella Partnership:

- The Measles & Rubella Partnership is a **global initiative** to lead and coordinate efforts to achieve a world without measles and rubella.
- The American Red Cross, the Bill & Melinda Gates Foundation, Gavi the Vaccine Alliance, the United Nations Foundation, the U.S. Centers for Disease Control and Prevention, UNICEF and the World Health Organization** lead the Measles & Rubella Partnership (M&RP).
- The **M&RP** aims to achieve a world without measles and rubella by:
 - Supporting countries to raise coverage of vaccines;
 - Fund, plan, implement and monitor **quality supplementary campaigns**;
 - Investigate outbreaks and provide **technical and financial support** to strengthen immunization delivery;
 - Support a **global laboratory network** for measles and rubella.
- Since 2001, the Partnership has helped to raise measles vaccination coverage to 83% globally and **reduced measles deaths by 82%**.
- In 2022, the M&RP supported vaccination **campaigns in 44 countries** that reached more than 115 million children with bundled vaccines, operational costs or technical assistance.
 - The **M&RP supports the implementation of the Measles & Rubella Strategic Framework 2021-2030 (MSRF 2021-2030)**.
 - It aims to provide a **high-level framework** that will guide the development of regional and national strategies and operational plans.
 - The MSRF 2021-2030 **envisions "A world free from measles and rubella"**.

Significance of the Award:

- It recognizes India for providing **regional leadership to the measles & rubella elimination programme** by using 'measles as a tracer' to strengthen routine immunization under the country's **Universal Immunization Programme (UIP)**.
- The award recognises that India has **demonstrated remarkable progress in reducing measles and rubella cases** and preventing outbreaks through a series of comprehensive interventions.

Steps taken to prevent the Measles and Rubella (MR) in India:



- Measles and Rubella are vaccine-preventable diseases (VPDs) and the MR Vaccine has been **part of India's UIP since 2017**.
- The government of India's proactive **MR vaccination campaign** in high-risk areas and innovative strategies to reach underserved populations, robust surveillance systems, and **effective public awareness initiatives** have played a key role in safeguarding the health and well-being of its population.
- Measures that have strengthened India's MR elimination strategy:
 - The development and implementation of the **National Strategic Plan for MR elimination**;
 - Introduction of rubella-containing vaccine** into the routine immunization programme;
 - Launching a **nationwide MR supplementary immunization catch-up campaign**;
 - Transitioning from outbreak-based surveillance to **case-based acute fever and rash surveillance**;
 - Expansion of the MR Laboratory network** to 27 labs across the country and implementation of the roadmap plan for MR Elimination across the country.

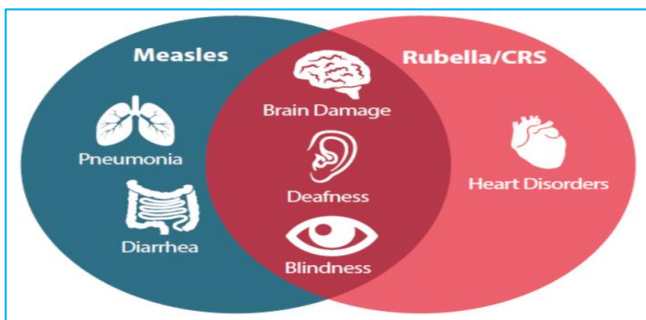
The Measles-Rubella (MR) 2020 program:

- It had the goal to eliminate measles by 2020, but due to the COVID-19 outbreak, it was revised to **2023**.
- The MR campaign targets around **41 crore children** in the age group of 9 months to 15 years (covering 1/3 of the total population of the country) followed by 2 doses in **routine immunization at 9-12 months and 16-24 months**.

Current Status of Measles and Rubella in India:

- **Measles cases dropped by 62% between 2017 and 2021**, from 10.4 to 4 cases per million population, while rubella cases decreased by 48%, from 2.3 to 1.2 cases per million population.
- India is conducting three rounds of Intensified **Mission Indradhanush 5.0 (IMI 5.0)** under the theme **“A big leap towards measles and Rubella Elimination”**, to **identify and vaccinate all unvaccinated** and under-vaccinated children till five years of age, from August 2023.

The overlap of Measles and Rubella:



Way Forward:

- **India should continue its proactive vaccination campaigns, surveillance efforts, and public awareness initiatives to eliminate measles and rubella.**
- **Strengthening routine immunization under the Universal Immunization Programme (UIP), expanding the MR Laboratory network, and implementing the roadmap plan for MR Elimination are crucial.**
- **Collaboration with international partners and continued support for the Measles & Rubella Partnership will be key to achieving the goal of a world free from measles and rubella.**

PEPPER IT WITH
 Universal Immunization Programme, Mission Indradhanush, Measles & Rubella Partnership

First human clinical trial of gene therapy for haemophilia A (FVIII deficiency)

News Excerpt:

Union Minister of Science & Technology revealed on **National Science Day (28 Feb)** that India has conducted the **first human clinical trial of gene therapy for haemophilia A** (FVIII deficiency) at Christian Medical College (CMC) Vellore.

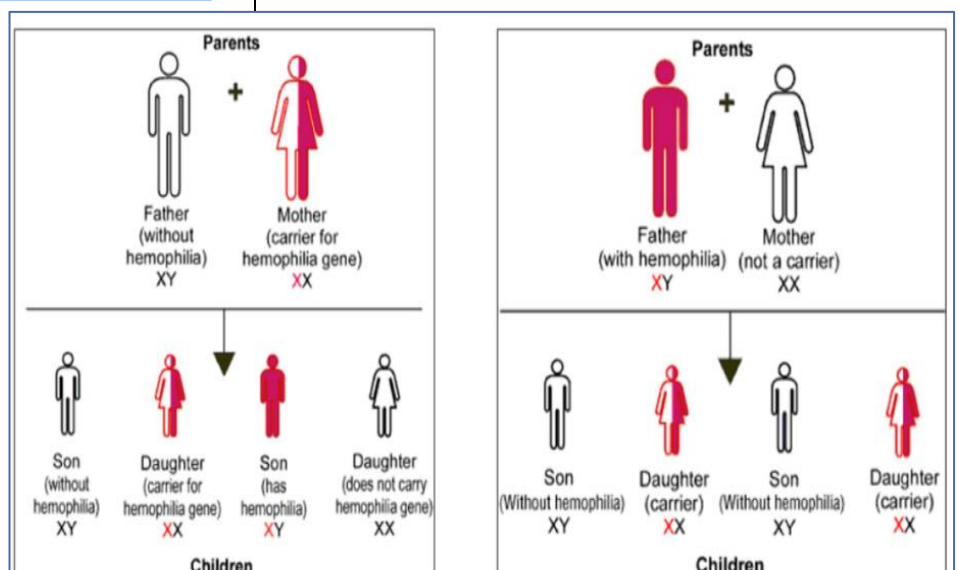
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About the Haemophilia Gene Therapy trial:

- The programme is supported by the **Department of Biotechnology**, the Centre for Stem Cell Research - a unit of InStem Bengaluru, in collaboration with Emory University, USA at **Christian Medical College, Vellore**.
- The trials involved deploying a novel technology of **using a lentiviral vector to express an FVIII transgene in the patient’s own haematopoietic stem cell** which will then express FVIII from specific differentiated blood cells.

About Haemophilia:

- Haemophilia A, also called factor VIII (8) deficiency or classic haemophilia, is a **genetic disorder** caused by missing or defective factor VIII (FVIII), a clotting protein.
 - Although it is passed down from parents to children, about 1/3 of cases found have no previous family history.
- Haemophilia is passed down from parents to children.
- Haemophilia is a **sex-linked disorder**. The X and Y sex chromosomes help determine haemophilia inheritance patterns.
- **The gene for haemophilia is carried on the X chromosome.** Haemophilia is inherited in an X-linked chromosome in the following recessive manner.
 - Females inherit two X chromosomes, one from their mother and one from their father (XX).



- Males inherit an X chromosome from their mother and a Y chromosome from their father (XY).
- That means if a son inherits an X chromosome carrying haemophilia from his mother, he will have haemophilia.
- It also means that **fathers cannot pass haemophilia on to their sons.**

Symptoms of Haemophilia:

- People with haemophilia A **bleed longer than other people.** Bleeds can occur internally, in joints and muscles, or externally, from minor cuts, dental procedures, or injuries.
- How often a person bleeds and the severity of those bleeds depends on how much FVIII a person produces naturally.
- **Normal levels of FVIII range from 50% to 150%.** Levels below 50% – or half of what is needed to form a clot, determine a person's symptoms.

Treatment for Haemophilia:

- The main medication to treat haemophilia A is a concentrated FVIII product, called clotting factor or simply factor.
- There are **two types of clotting factor:**
 - Plasma-derived and recombinant.
 - Plasma-derived factors are made from human plasma.
 - Recombinant factor products are developed in a lab using DNA technology.
 - While plasma-derived FVIII products are still available, approximately **75% of the haemophilia community takes a recombinant FVIII product.**
- Many new treatments for haemophilia A are being developed, **from gene therapy to new non-factor replacement therapies.**

PEPPER IT WITH
Haemophilia, National Science Day, Raman Effect, Genetic Disorder

About National Science Day:

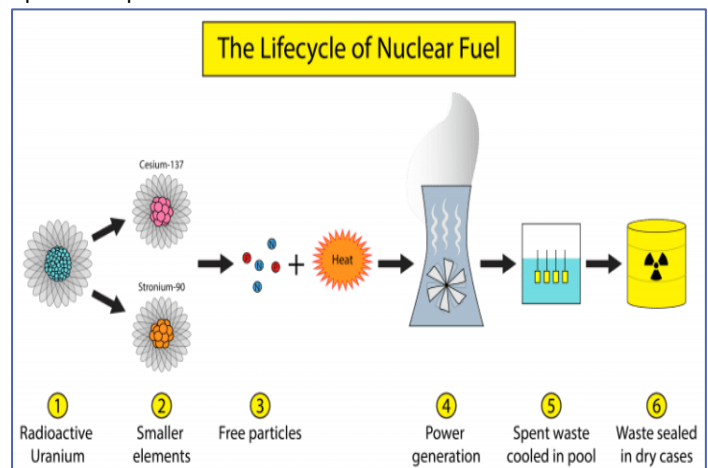
- In 1986, the Government of India designated February 28 as National Science Day to commemorate the announcement of the discovery of the "Raman Effect".
 - The Raman effect is a change in the wavelength of light that occurs when a light beam is deflected by molecules.
- This was the discovery that won physicist Sir CV Raman his Nobel Prize in 1930.

Nuclear waste and its treatment

News Excerpt:

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India recently advanced its nuclear program by loading the core of the **Kalpakkam PFBR**, nearing **stage II** of its nuclear programme. With **stage III** aimed at utilizing thorium reserves for energy, India faces the challenge of effective nuclear waste management amidst its nuclear power expansion.



What is nuclear waste?

- Nuclear waste refers to the **radioactive materials** produced during **nuclear reactions** in **nuclear power plants, research reactors, nuclear weapons production, and other nuclear processes.**
 - In a fission reactor, neutrons bombard the nuclei of atoms of certain elements. When one such nucleus absorbs a neutron, it destabilises and breaks up. This process produces energy and creates nuclei of different elements.
 - For example, when the **uranium-235 (U-235)** nucleus absorbs a neutron, it can fission to **barium-144, krypton-89**, and three neutrons. If the 'debris' (**barium-144 and krypton-89**) constitute elements **that can't undergo fission, they become nuclear waste.**
 - Nuclear waste is highly radioactive and needs to be stored in facilities reinforced to prevent leakage into and contamination of the local environment.
 - Apart from the byproducts from nuclear fission reaction nuclear waste can come in various forms, including **spent nuclear fuel rods, contaminated equipment and materials.**
- ### How do we handle nuclear waste?
- Handling nuclear waste, particularly spent fuel, poses significant challenges due to its **heat and radioactivity.**
 - **Spent fuel** is initially stored underwater for several decades before being transferred to **dry casks** for **longer-term storage.**

- Countries with nuclear power programs have accumulated substantial inventories of spent fuel, such as the **U.S. (69,682 tonnes in 2015)**, **Canada (54,000 tonnes in 2016)**, and **Russia (21,362 tonnes in 2014)**.
- Storage periods for nuclear waste can extend up to millennia, requiring isolation from human contact for longer than modern humans have existed.
- Nuclear power plants also have **liquid waste treatment facilities** to manage **aqueous wastes** containing **short-lived radionuclides**.
 - Depending on their hazard levels, liquid wastes may be discharged after treatment or processed through methods like **evaporation, chemical precipitation, absorption on solid matrices, or incineration**.
- **Liquid high-level waste**, containing **most fission products** produced in the fuel, is **vitrified into a stable glass form for storage**.
- In certain cases, such as in **India's pressurized heavy-water reactors**, where **spent fuel is reprocessed, fission products that cannot be used as fuel must be stored as liquid waste**, posing **potential accident hazards**.

How is nuclear waste dealt with?

- After spending at least, a year in the spent-fuel pool for cooling, the spent fuel can be transferred to dry-cask storage.
 - It is enclosed within **substantial steel cylinders** and surrounded by **inert gas**.
 - These cylinders are **securely sealed** and then placed within larger chambers made of steel or concrete.
- Some experts have also rooted for **geological disposal**:
 - The waste is sealed in "**special containers**" and **buried underground** in granite or clay.
 - The upside here is **long-term storage away from human activity**.
 - However, studies have highlighted the **risk of radioactive material exposure** if containers are disturbed, potentially through nearby **excavation activities**.
- **Reprocessing**, which involves **separating fissile from non-fissile material** in spent fuel, is another method for handling nuclear waste.
 - First the material is **chemically treated to separate fissile material** left behind from the **non-fissile material**.
 - Reprocessing facilities **require specialized protections and personnel** due to the **hazardous nature of spent fuel**.
 - These facilities offer the **advantage of higher fuel efficiency** but come with **significant expenses**.
 - **Reprocessing** also yields **weapons-usable plutonium**.

What are the issues associated with nuclear waste?

- The issues associated with nuclear waste include its **long-term storage, potential for environmental contamination, health hazards** from radiation exposure, the need for **safe disposal methods**, and societal concerns regarding **transportation and storage security**.
- Additionally, the management of nuclear waste involves **significant costs** and **regulatory challenges**, while the long-lasting radioactive nature of some materials poses challenges for future generations.

How does India handle nuclear waste?

- According to a 2015 report from the **International Panel on Fissile Materials (IPFM)**, India has **reprocessing plants in Trombay, Tarapur, and Kalpakkam**.
- According to the **PMO**, the wastes generated at the nuclear power stations during the operation are of low and intermediate activity levels and are **managed at the site itself**.
 - Nuclear waste is **treated and stored in on-site facilities**.
 - Such facilities are located at all nuclear power stations", and that the surrounding area "**is monitored for radioactivity**" for safety.

PEPPER IT WITH

Nuclear waste, PFBR, IPFM, Nuclear Power Plants, Research Reactors

India's first indigenous Fast Breeder Reactor at Kalpakkam

News Excerpt:

The Prime Minister witnessed the commencement of "**core loading**" at India's first indigenous **Prototype Fast Breeder Reactor (PFBR)** (500 MWe) at **Kalpakkam, Tamil Nadu**.

More about the news:

- The **PFBR** has been fully designed and constructed indigenously by Bharatiya Nabhikiya Vidyut Nigam Limited (**BHAVINI**) with significant contributions from more than 200 Indian industries, including MSMEs.
- PFBR is an advanced **third-generation reactor** with inherent passive safety features ensuring prompt and safe plant shutdown in an emergency.

What is the Prototype Fast Breeder Reactor (PFBR)?

- The PFBR is a nuclear reactor that **produces more nuclear fuel than it consumes**.

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- PFBR uses **fast neutrons** to generate more nuclear fuels than they consume while generating power, dramatically enhancing the **efficiency of the use of resources**.
- The Fast Breeder Reactor (FBR) will initially use the **Uranium-Plutonium Mixed Oxide (MOX) fuel**.
- PFBR also uses **liquid sodium**, a highly reactive substance, **as a coolant**.
 - Sodium absorbs fewer neutrons than light water, and more neutrons remain within the reactor.
 - An increased number of neutrons causes a higher proportion of **Uranium 238** to convert into **Plutonium 239**, yielding **more plutonium than the original nuclear fuel**.

India's three-stage nuclear power programme:

- The **Department of Atomic Energy (DAE)** has planned the use of large deposits of **Thorium** available in the country as a long-term option.
- A three-stage nuclear power programme has been chalked out to use Thorium as a viable and sustainable option right at the inception of India's nuclear power programme.

- In the **first stage**, India used **pressurised heavy water reactors (PHWRs)** and **natural uranium-238 (U-238)**, which contain minuscule amounts of **U-235**, as the **fissile material**.
 - The first stage produces **plutonium-239 (Pu-239)** and **energy**.

- In **stage II**, India will use **Pu-239** and **U-238** in the **PFBR** to produce **energy, U-233**, and more **Pu-239**.

- In **stage III**, **Pu-239** will be combined with **thorium-232 (Th-232)** in reactors to produce **energy and U-233**.

- The three-stage nuclear power programme aims to **multiply the domestically available fissile resource** through the use of natural Uranium in Pressurised Heavy Water Reactors, followed by the use of Plutonium obtained from the spent fuel of Pressurised Heavy Water Reactors in Fast Breeder Reactors.

Significance of stage II:

- On a significant scale, **commercial utilisation of Thorium** can begin only when **abundant** supplies of **Uranium-233** or **Plutonium** resources are available.

- Large-scale introduction and utilization of Thorium in the programme has been contemplated after an **adequate inventory of Plutonium** becomes available from our Fast Breeder Reactors (**FBRs**), comprising the second stage of the Indian nuclear power programme.

- This will be after a few decades of large-scale deployment of FBRs.

- In preparation for the utilisation of Thorium in the Third Stage of India's Nuclear Power Programme, efforts towards **technology development** and **demonstration** are made now so that a mature technology for Thorium utilisation is available in time.

PEPPER IT WITH
 BHAVINI, FBR, Department of Atomic Energy, Third-Generation Reactor

Bharatiya Nabhikiya Vidyut Nigam Limited (BHAVINI)

- BHAVINI is a government company under the administrative control of the Department of Atomic Energy (DAE).
- It was incorporated in **2003** with the objective of constructing and commissioning the first 500 MWe Fast Breeder Reactor (**FBR**) at Kalpakkam in Tamil Nadu.
- Objective:** To pursue the **construction, commissioning, operation and maintenance of subsequent Fast Breeder Reactors** for the generation of electricity in pursuance of the schemes and programmes of the Government of India under the provisions of the **Atomic Energy Act, 1962**.
- BHAVINI has constructed a 500 MWe Prototype Fast Breeder Reactor (**PFBR**) at Kalpakkam.
- The PFBR is the forerunner of the future Fast Breeder Reactors and is expected to provide **energy security** to the country.
- The PFBR is built with the design and technology developed at the **Indira Gandhi Center for Atomic Research (IGCAR)** located at Kalpakkam.

- FBRs are designed to **produce more plutonium than the uranium and plutonium they consume**.
- Since it uses the spent fuel from the first stage, FBR also offers a great advantage in significantly **reducing** the amount of **nuclear waste generated**, thereby avoiding the need for large geological disposal facilities.
- The **core-loading event of the PFBR** is being hailed as a "milestone" because the operationalisation of the PFBR will mark the start of **stage II** of India's **three-stage nuclear power programme**.

10,000 genomes of Indian population sequenced as part of Genome India Project

News Excerpt:

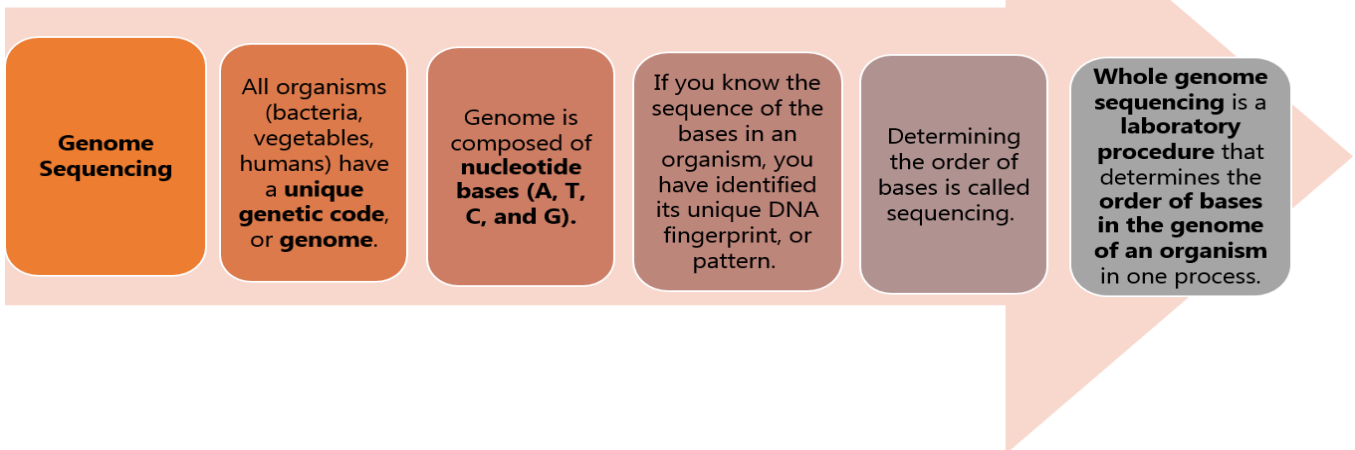
The Government's ambitious **Genome India initiative** achieved a significant milestone as researchers completed sequencing 10,000 healthy genomes from different regions of the country, representing 99 distinct populations.

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Genome India Project:

- The **Department of Biotechnology (DBT)** initiated the "**Genome India Project**" (GIP) in 2020.
- The GIP's aim was to collect **10,000 genetic samples** from citizens across India, to build a **reference genome**.

- The project would bring valuable addition to existing genome research, which has so far been limited to the Western context.
- It allows India to draw upon **its tremendous genetic diversity**, given the series of large migrations historically, and thus, add greatly to the current information about the human species.
- The project would ultimately support the development of **predictive diagnostic** markers.
 - It is also a key step to being able to learn about **genetic variants** that are unique to India's population groups and use that to **customise drugs and therapies**.
 - Genome sequencing can also help in identifying resistance-indicating variants.



- The project is led by the **Centre for Brain Research** at the **Indian Institute of Science (IISc)**, which acts as the central coordinator between a collaboration of 20 leading institutions.
- The Department of Biotechnology (**DBT**) has officially announced the completion of the '**10,000 genome**' sequencing.

Significance of Genome Sequencing:

- India first sequenced a complete human genome in **2006**.
- The **United Kingdom, China, and the United States** are among the countries that have programmes to **sequence at least 1,00,000 of their genomes**.

Application of Genome Research in India:

- The long-term impact of population-scale genomics extends beyond individual health, shaping our comprehension of **human evolution, migration patterns, and adaptation to diverse environments**.
 - It will also contribute significantly to our **knowledge of human biology**.

- For example, genes that might make certain medicines or anaesthetics ineffective in certain populations.
- It can also help identify targets for diagnostics and therapeutics.
 - We need an **India-specific database** because mutations found here might not be present globally.
- For example, a **mutation MYBPC3** that leads to **cardiac arrest** at a young age is found in 4.5% of the Indian population but is rare globally.
- Another mutation called **LAMB3** that causes a **lethal skin condition** is found in nearly 4% of the population near Madurai but it is not seen in global databases.



Drug development using the learnings from genome sequencing:

- The genomic approach to mapping and sequencing the genome project has accelerated the rate of gene discovery.
- As of 1996, 62 human genes linked to human diseases had been isolated by genomic technologies and, of these, 51 (82%) were available in the public domain as clones or as DNA sequences.

What does it mean for treatment?

As a result of research into the genomic changes associated with cancer, drugs have been developed to fight the disease in several ways:

- Inhibiting enzymes that trigger the abnormal growth and survival of cancer cells.
- Blocking aberrant genes
- Halting signals from cancer cells



How does this help in breast cancer for example?

Breast cancer is classified based on molecular characteristics into distinct subgroups – Luminal A, Luminal B, Triple-negative/basal-like, and HER2 type – that vary in their aggressiveness and respond differently to therapies. A doctor treating someone with breast cancer of the HER2 subtype can, for instance, cross-reference data related to therapy that has worked for patients of the similar genetic makeup, thus helping the doctor make informed, faster and precise therapy choices.

Info courtesy: National Cancer Institute, NIH, US

- With the help of Genome Sequencing a new, but complementary, approach to drug development is now emerging which promises dramatic improvements in the **efficiency and speed of drug development**.
 - This new approach may result in smaller and quicker clinical studies.
 - Patients could be screened to identify the most suitable treatment, enhancing the accuracy and effectiveness of drugs.
 - Close monitoring of patient responses to treatments could be facilitated.
 - This approach could significantly impact the **planning and execution of clinical trials**, as well as the medical management of diseases.
- Individual genetic testing, with knowledge of disease genes, will help early diagnosis and early treatment.
 - Recent advances in the genetics of complex traits (for example, diabetes, **coronary heart disease and Alzheimer's disease**) have to some extent reshaped disease phenotypic descriptions.
 - The techniques developed for automated sequencing and analysis of DNA may eventually allow inexpensive screening of multiple loci for polymorphisms.

About Genomic Data:

- Genomic data is a powerful tool for medical researchers and doctors. It helps them understand **how variations in DNA affect our health**.
- Through genomic sequencing, they **decipher our genetic makeup** and **spot alterations in our genes**.
- These changes are key to understanding **how diseases such as cancer develop**.

About Genomic Testing:

- It **identifies inherited DNA changes** that **increase a person's cancer risk**.
- It can **identify changes in a tumour** that **guide the selection of appropriate targeted therapies**.
- Using the genetic changes in a patient's tumour to determine their treatment is known as precision medicine.

Way Forward:

- This initiative reflects India's progress in gene therapies and precision medicine, and its movement towards emerging next-generation medicine which yields the possibilities for greater customization, safety, and earlier detection.
- This initiative would help lay the foundation of personalized healthcare for a very large group of people in our country.

PEPPER IT WITH
Genome India Project, LAMB3,
Centre for Brain Research, IISC

AIIMS AI tool for cancer therapy

News Excerpt:

A supercomputer and AI (iOncology AI), developed by researchers from the All-India Institute of Medical Sciences (AIIMS) Delhi promises to identify the best cancer therapy for their patients.

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- With iOncology AI, which employs a supercomputer in Pune and a high-capacity server called **Charak I at the National Cancer Institute campus in Jhajjar**, doctors are attempting to determine the most common type of genetic mutation in their patients, helping them narrow in on the best treatment option.

Objective of iOncology AI:

- iOncology AI aims to **sequence the genomes of 3,000 cancer patients** who are currently seeking treatment at AIIMS.
- It also aims to **address a fundamental question: Does a patient's genetic makeup correlate with the efficacy of diverse cancer therapies?**

How does the AI tool work?

- The platform, developed with Pune's Centre for Development of Advanced Computing, **allows doctors to store cancer patients' blood test and lab reports, scans and ultrasound reports and their history.**
- Along with collecting and collating data, the AI-enabled platform can also **read the different types of datasets and help doctors make decisions.**
- After studying the clinical data and genomic makeup of a couple of thousand cancer patients, the tool will **help the doctors select the appropriate treatment for the next patient.**
- This tool can also **help in targeted treatments in resource-constrained settings where genomic studies might not be possible.**
- When a scan or histopathology report is uploaded on the platform, the **trained AI can automatically flag the ones with certain abnormalities.**
 - For example**, an extremely small tumour that a radiologist might miss at first. The AI will flag it. This can help in early detection of cancers in some cases.
- This data can **help oncologists create their own prevention strategies and standard protocols.**

Can the tool address all types of cancer?

- The research will **focus on five types of cancers** that are the most common, deadliest, or have immunotherapies available — **breast, ovarian, head, and neck, colorectal, and two types of blood cancers.**
- At present, the platform is **trained only for breast and ovarian cancer.**

- It already has **various models for CT scan prediction, ultrasound image, histopath prediction, mammogram image prediction and detection and classification of the tumour.**

PEPPER IT WITH
iOncology AI, AIIMS, Charak I, Immunotherapies

AI and cancer care: The big shift

- Globally, there is an **increasing interest in the use of AI for cancer treatment** as it can help doctors – from developing new therapies to diagnosing patients at early stages of the disease and selecting appropriate treatments.
- Studies have shown that **certain AI-based models were able to identify individuals at high risk of developing pancreatic cancers up to three years earlier.**
 - This is game-changing considering that most get diagnosed only when the cancer has advanced or metastasised.
- Similar results have been observed for breast and lung cancers as well.
 - For example, the **AI tool being developed by the Harvard Medical School**, which is similar to AIIMS but is **specific for colon cancers.**
- The model is being **trained to predict survival accurately and provide insights for treatment response based on tumour pathology, radiology images, and genomic data.**

Antihydrogen experiment

News Excerpt:

Recently, an international team of physicists from the **Anti-hydrogen Experiment:**

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Gravity, Interferometry, Spectroscopy (AEgIS) collaboration has achieved a breakthrough by demonstrating the **laser cooling of Positronium.**

What is Positron:

- Positronium is a fundamental atom that comprises an electron (e^-) and a positron (e^+). Electrons and positrons are leptons. They interact through **electromagnetic and weak forces.**
- Due to its very short life, it annihilates with a **half-life of 142 nano-seconds.**

Leptons:

- Leptons are said to be **elementary particles**; that is, they do not appear to be made up of smaller units of matter.
- Leptons can either carry one unit of electric charge or be neutral.
 - The charged leptons are the **electrons, muons, and taus.**

- Each of these types has a **negative charge and a distinct mass.**
- Leptons respond only to the electromagnetic force, weak force, and gravitational force and are **not affected by the strong force.**

- In addition, this scientific feat could open prospects to produce a gamma-ray laser that would eventually allow researchers to look inside the atomic nucleus and have applications beyond physics.

Significance of the experiment:

- This experiment is expected to pave the way for performing spectroscopic comparisons required for **Quantum Electrodynamics (QED).**

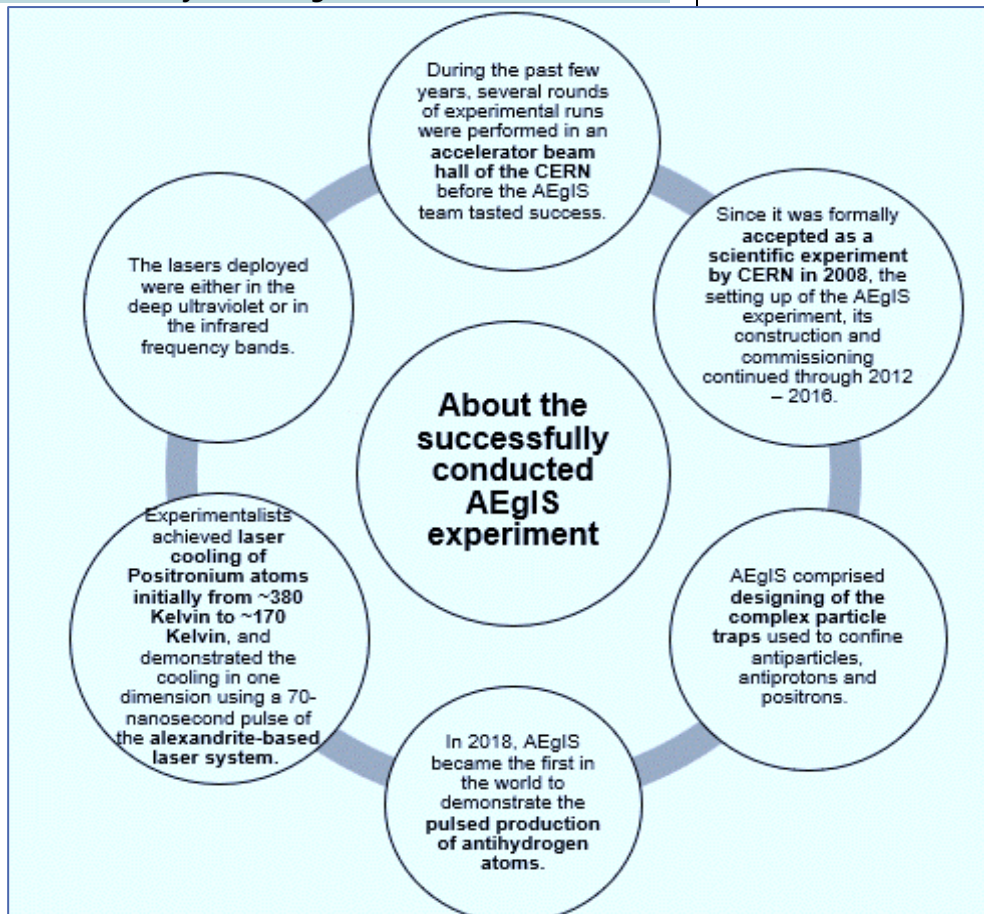
○ **Quantum Electrodynamics (QED):** It is a study of the light and its interaction with charged matter, and a possible degenerate gas of Positronium down the road.

- According to CERN, the new scientific development will allow **high-precision measurements** of the properties and gravitational behaviour of this exotic but simple matter-antimatter system, which could **reveal newer physics.**

- It also allows the production of a positronium **Bose-Einstein condensate**, in which **all constituents occupy the same quantum state.**

○ A Bose-Einstein condensate of antimatter would be **an incredible tool** for both fundamental and applied research, especially **if it allowed the production of coherent gamma-ray light** with which researchers could peer into the atomic nucleus.

- Such a condensate has been proposed as a **candidate to produce coherent gamma-ray light** via the matter-antimatter annihilation of its constituents; it would be a **laser-like light** made up of **monochromatic waves** that have a **constant phase difference between them.**



- Its mass is twice the electron mass and enjoys the unique distinction of being a **pure leptonic atom.**
- This hydrogen-like system, with **halved frequencies for excitation**, makes it a **great contender for attempting laser cooling** and thereby performing tests of fundamental theories in physics.
- A usual atom is made up of a mixture of baryons and leptons. Since Positronium is only made up of electrons and positrons, and no usual nuclear matter, it has the unique distinction of being a purely leptonic atom.

About the Experiment:

- The experiment was conducted by **19 European and one Indian research group** comprising the **Antihydrogen Experiment: Gravity, Interferometry, Spectroscopy (AEgIS)** collaboration.
- The experiment was performed at the **European Organization for Nuclear Research, more popularly known as CERN, in Geneva.**
- This is an important precursor experiment to the formation of anti-hydrogen and the measurement of Earth's gravitational acceleration on antihydrogen in the AEgIS experiment.

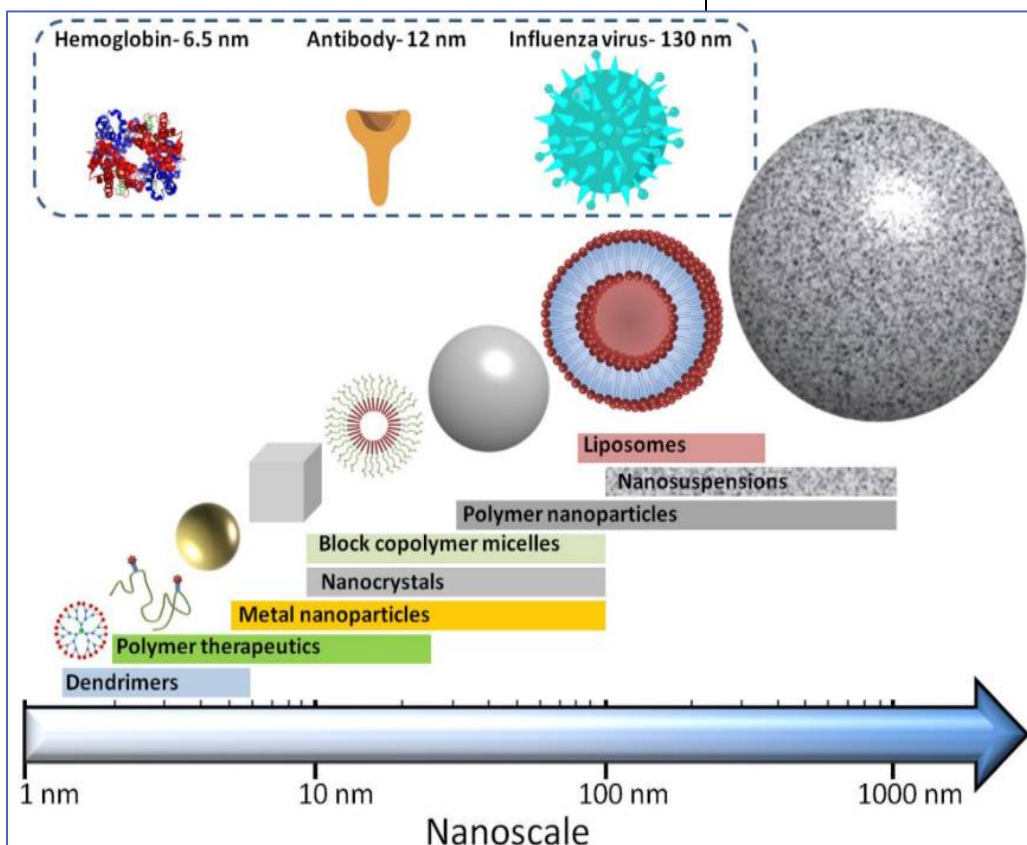
Indian Spices used in Nanomedicines to treat cancer

News Excerpt:

Recently, researchers at the Indian Institute of Technology (IIT), Madras, have **patented** the use of **Indian spices** to develop **Nanomedicines** to treat cancer.

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About the Nanomedicines:



- The application of nanotechnology for medical purposes has been termed nanomedicine and is defined as the use of nanomaterials for diagnosis, monitoring, control, prevention and treatment of diseases.
 - It uses the properties developed by a material at its nanometric scale of 10^{-9} m.
- The patented Indian spice-based nano-formulations have proven effective in common types of cancers through in-vitro studies.
 - The nanomedicines have shown anti-cancer activity against lung, breast, colon, cervical, oral and thyroid cell lines.
 - They were found to be safe in normal cells.
- Animal studies have been carried out on the patented anti-cancer nano-formulations.
 - Animal validation to adjust the dosage (GLP phase) and efficacy studies (non-GLP phase) have been carried out successfully.
 - The drug dosage adjustment and efficacy are under investigation through animal models.
 - Clinical trials will follow this.

Significance of the newly patented Nanomedicine:

- India is the world's largest spice producer. Hence, large-scale production could be achieved at a low cost.

- The medical benefits of Indian spice oils have been known through the ages, but their bioavailability has limited their application and use.

○ Formulation as a nano-emulsion effectively overcomes this limitation.

▪ The stability of the nano-emulsion was a key consideration in the process of making medicine effective.

○ The spices chosen are edible. Hence,

biocompatibility is good, reducing toxic side effects.

• This cancer nanomedicine is being developed to reduce the cost and pain of cancer treatment.

• The formulations are developed for an oral route of administration to ease the treatment process.

• Cancer nanomedicine is considered superior to

conventional treatment strategies owing to its reduced toxicity, improved drug accumulation, suitable size spectrum in the nanometre range and increased circulation time.

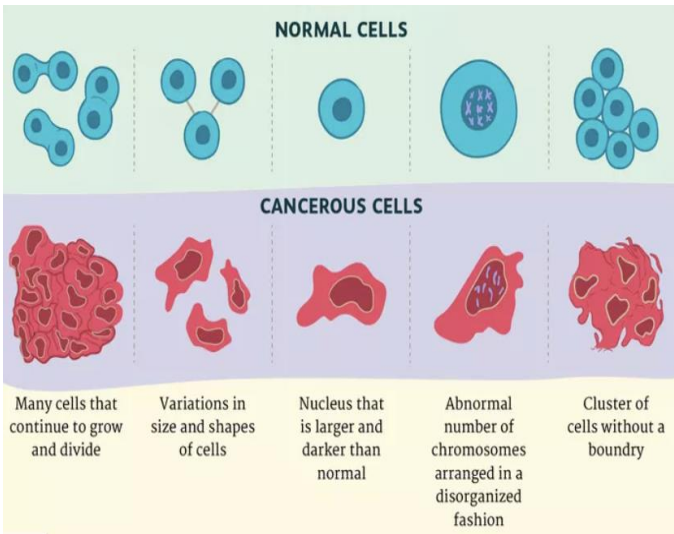
How does cancer develop?

- Cancer is a genetic disease in which some of the body's cells grow uncontrollably and spread to other body parts.
- Genetic changes that cause cancer can happen because:
 - Of errors that occur as cells divide.
 - Of damage to DNA caused by harmful substances in the environment, such as the chemicals in tobacco smoke and ultraviolet rays from the sun.
 - Of inheriting offspring from their parents.
- The body normally eliminates cells with damaged DNA before they turn cancerous. However, the body's ability to do so decreases as one ages.
 - This is part of the reason why there is a higher risk of cancer later in life.
- Each person's cancer has a unique combination of genetic changes. As the cancer continues to grow, additional changes will occur.
 - Even within the same tumour, different cells may have different genetic changes.

Reason Behind the nanotechnology-based cancer drug development:

- The global surge in cancer cases as well as cancer deaths in all age groups. Of these, breast, lung and colorectal cancers are considered the most common worldwide.
 - A major concern is that according to the World Health Organisation in 2020 around 4,00,000 children develop cancer annually.
- Chemotherapy has been in use as a treatment strategy since 1930 with other common treatment options being radiotherapy and surgery. However, conventional treatment options are often associated with pain, toxic side effects, lack of targeting efficiency and high cost.
- As the complete eradication of cancer remains elusive through the existing therapies, the role of nanomedicine is assuming greater importance.

PEPPER IT WITH
 CART-CELL, DNA & RNA,
 CRISPR



PRE-SHOTS SPACE

Astronaut Wings for Gaganyaan's IAF Pilots

News Excerpt:

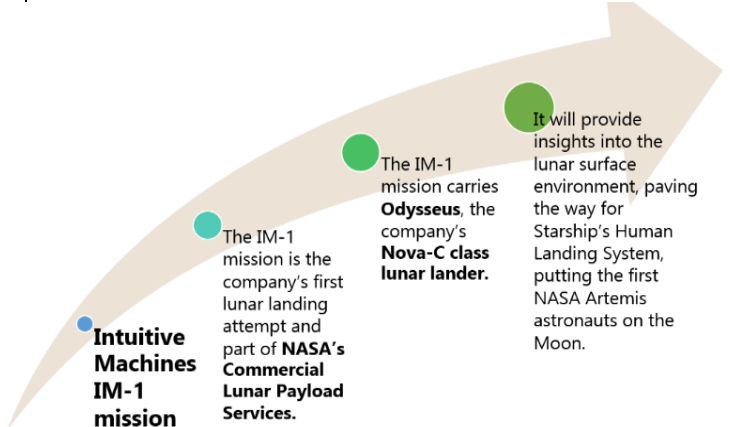
India announced the names of the **four astronaut designates for the Gaganyaan human spaceflight mission**, which is planned for launch in 2025.

More about the news:

- The names of the **Indian Air Force (IAF) pilots** — **Group Captain Prasanth Balakrishnan Nair, Group**

Captain Ajit Krishnan, Group Captain Angad Pratap and Wing Commander Shubhanshu Shukla — were revealed for the first time in the presence of India's Prime Minister during his visit to the **Vikram Sarabhai Space Centre (VSSC) in Thiruvananthapuram.**

Crew training for Gaganyaan:



- Astronaut Training Facility established in Bengaluru caters to **Classroom training, Physical Fitness training, Simulator training and Flight suit training.**
- Training modules cover **academic courses, Gaganyaan Flight Systems, Micro-gravity familiarization through Parabolic Flights, Aero-medical training, Recovery & Survival training**, mastering of Flight Procedures and training on Crew Training Simulators.
- Aero medical training, Periodic flying practice, and yoga are also included in the training.

Private Odysseus moon lander beams home 1st photos from space

News Excerpt:

Shortly after launching on a **SpaceX Falcon 9 rocket**, **Intuitive Machines'** robotic Odysseus spacecraft **took a few selfies with Earth** in the background.

About moon lander Odysseus:

- This **private "Odysseus" moon lander built by Houston-based Intuitive Machines** was launched by SpaceX Falcon 9 rocket.
- The lander's **propulsion system** is powered by a **mixture of liquid methane and liquid oxygen.**
- Odysseus, also known as the Nova-C lander, is carrying **six NASA experiments and technology demonstrations**, along with **six private payloads**, on its current IM-1 mission.
- If Odysseus completes its journey and soft lands on the Moon, it will make it the first privately-led mission to do so.
 - Israel's Beresheet** attempted in 2019, **Japan's Hakuto** in 2023 and the **American Peregrine** in 2024. All of them failed to land on the Moon.

- The lander and its payloads are expected to function on the Moon for about seven days till the lunar night sets in.
 - Once it becomes night near the south pole of the Moon, where the spacecraft is planned to land, Odysseus will not be able to power itself and its scientific payloads.

About Commercial Lunar Payload Services program:

- CLPS** is the program that puts NASA's science instruments on private robotic moon landers like Odysseus.
- These instruments are **designed to collect data that will aid NASA's Artemis program**, which aims to establish a crewed base near the lunar south pole by the end of the 2020s.

Water detected on the surface of an asteroid for the 1st time ever

News Excerpt:

Scientists detected water molecules on the surface of two asteroids—named **Iris and Massalia** for the first time ever.

About new discovery:

- The team made the discovery using data from **NASA's now-retired SOFIA airborne observatory**.
- Observations showed that **two of the asteroids — named Iris and Massalia — exhibit a specific wavelength of light that indicated the presence of water molecules at their surface**.
- This proves that liquid water can survive on asteroids in the inner solar system for eons. And it is crucial for study on asteroids.
- While water molecules have previously been detected in asteroid samples returned to Earth, this is the first time that water molecules have been found on the surface of an asteroid in space.**
- In a previous study, **SOFIA found similar traces of water on the surface of the moon**, in one of the largest craters in its southern hemisphere.

About Stratospheric Observatory for Infrared Astronomy (SOFIA):

- SOFIA was a **Boeing aircraft** modified to carry a 2.7-meter reflecting telescope (with an effective diameter of 2.5 metres or 100 inches).
- Flying into the stratosphere** at 38,000–45,000 feet put SOFIA above 99 percent of Earth's infrared-blocking atmosphere.

- It allowed the astronomers to **study the solar system** and beyond in ways that are not possible with ground-based telescopes.
- SOFIA could observe the universe in the widest range of infrared light.
- It was a joint project between NASA and the German Space Agency DLR.

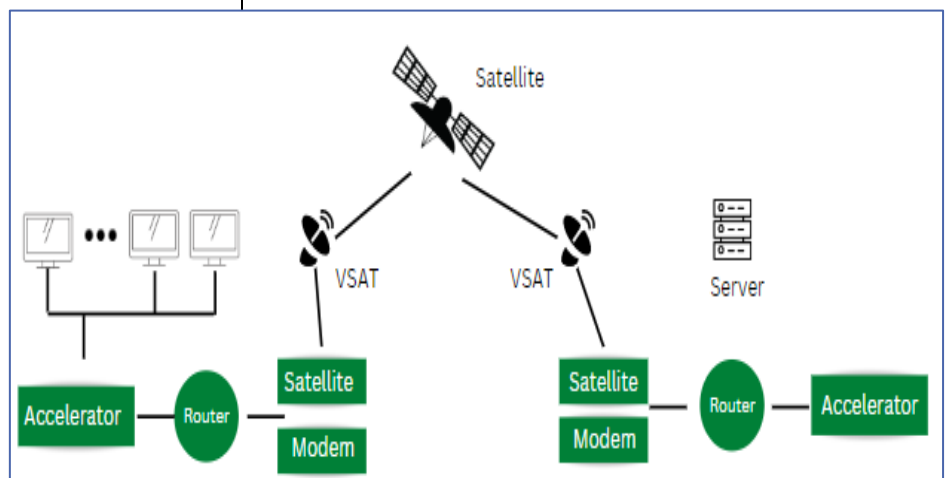
ISRO to provide Internet in 80 remote tribal villages using V-SAT

News Excerpt:

The **Ministry of Tribal Affairs** plans to collaborate with the **Indian Space Research Organisation (ISRO)** to deploy **V-SAT stations** on a pilot basis for around 80 tribal villages to bring Internet services.

More about the news:

- A gap analysis conducted by the Ministry of Tribal Affairs identified approximately **18,000 tribal majority villages with challenging accessibility** due to remote locations and terrain.
- Inadequate **mobile and internet connectivity** hinders access to basic services in these areas.



- On a pilot basis, V-SAT stations will be installed in around 80 tribal villages in **Jharkhand, Madhya Pradesh, Odisha, and Maharashtra**.
- These are some of the geographically remote villages in the region and have difficult terrain.
- ISRO's satellite-based (V-SAT) solutions can significantly address these connectivity challenges. V-SAT stations can be **static or mounted on vehicles**.
- These stations will offer a **Wi-Fi capacity of 100 Mbps**, expandable to another 100 Mbps with boosters, enhancing connectivity and access to essential services for tribal communities.

VSAT (Very Small Aperture Terminal):

- A **Very Small Aperture Terminal (VSAT)** is a small-sized **earth station** used in the **transmission/reception**

of **data, voice, and video signals** over a satellite communication network

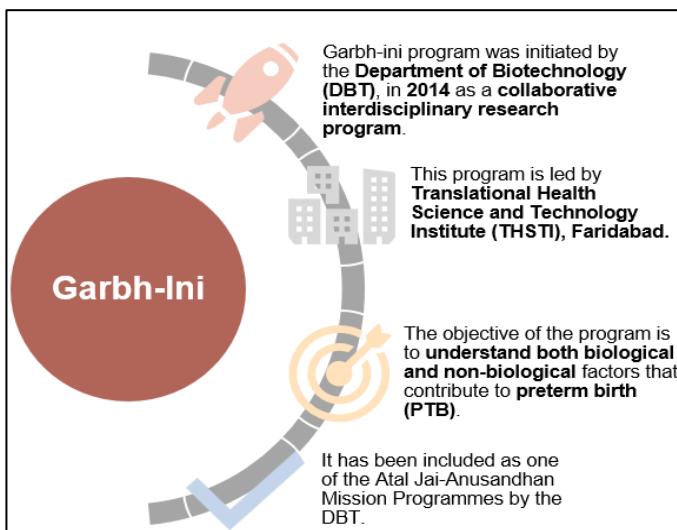
- A **VSAT consists of two parts**: a **transceiver** placed outdoors in direct line of sight to the satellite, and a **device that is placed indoors to interface the transceiver** with the end user's communications device, such as a PC.
- The term **'Very Small'** in VSAT (Very Small Aperture Terminal) **refers to the very small antenna size**.
- VSAT is of importance, especially in remote areas such as the hilly mountain regions, where Internet connectivity cannot be directly provided.

HEALTH

Garbhini-GA2: India-specific AI model to determine age of foetus

News Excerpt:

Researchers at the **IIT Madras and Translational Health Science and Technology Institute, Faridabad** have developed the first India-specific artificial intelligence (AI) model to precisely determine the age of a foetus in the second and third trimesters of pregnancy.



More about Garbhini-GA2:

- The **Garbhini-GA2 is the first late-trimester gestational age estimation model to be developed and validated using Indian population data**.
 - Currently, the age of a foetus (gestational age, GA) is determined using a formula developed for Western populations and are likely to be erroneous when applied in the later part of pregnancy due to variations in the growth of the foetus in the Indian population.
- Garbhini-GA2 accurately **estimates the foetus' age**, reducing error by almost three times.
- The research is a part of an **interdisciplinary group for advanced research on birth outcomes** — the DBT India initiative (**GARBH-Ini**) programme.

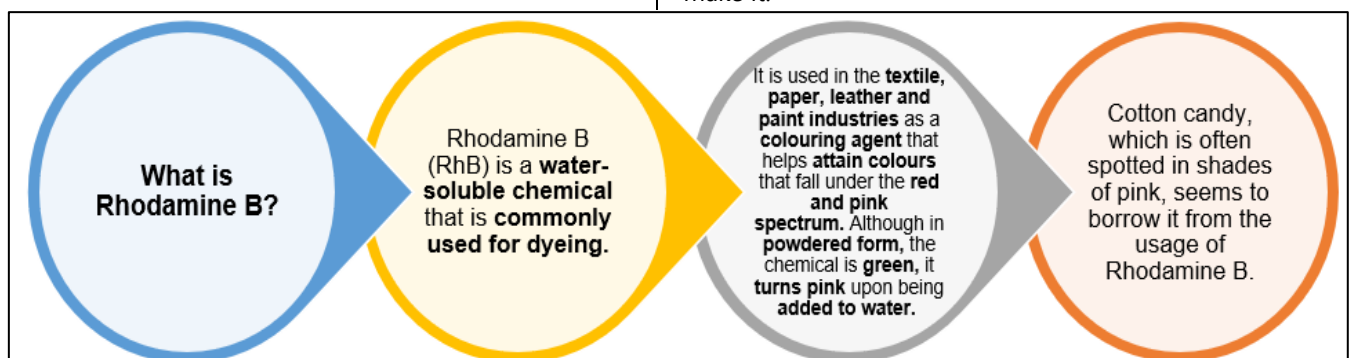
Application and Importance of the model:

- **Ultrasound dating** is the standard practice in early pregnancy to **determine gestational age (GA)**.
 - However, a significant portion of women in India undergo their first ultrasound during the second or third trimester.
 - Utilizing Indian population-specific GA formulas in these cases can potentially enhance pregnancy care by providing more accurate estimates.
- Improved accuracy in dating pregnancies can lead to **better outcomes for both mothers and infants**.
- Additionally, precise dating will enhance the accuracy of epidemiological estimates for pregnancy outcomes in the country.
- This deployment of Garbhini-GA2 will enhance the quality of care provided by **obstetricians and neonatologists**, ultimately contributing to the **reduction of maternal and infant mortality rates in India**.

Rhodamine B, the cancer-causing chemical

News Excerpt:

The **Tamil Nadu government banned the sale and production of cotton candy** in the state after it was found that the **toxic chemical Rhodamine-B** was being used to make it.



About the news:

- Earlier, **Puducherry banned the sale** of cotton candy after it was declared **'unsafe'** for consumption because it contained Rhodamine-B.
- Rhodamine-B (RhB) is **highly toxic** for humans and is **banned** under the **Food Safety and Standards Act 2006**.

Why is it harmful?

- If food containing this chemical is consumed regularly, it can cause **damage to the cerebellum tissue** in the brain and **to the brainstem** that connects the brain to the spinal cord.
- Even if consumed in **low quantities**, the chemical is **highly toxic** and **carcinogenic**.
- **RhB**, as a **colouring agent** in food products, is **prohibited** as per the **Food Safety and Standards Act 2006**.

Operation AMRITH

News Excerpt:

The Kerala government launches Operation AMRITH (**Antimicrobial Resistance Intervention for Total Health**) to curb antimicrobial resistance.

About Operation AMRITH:

- With Operation AMRITH, the health department of Kerala is on a drive to **completely stop** the **over-the-counter sale** of **antibiotics** without prescriptions by the end of **2024**.

No prescription,
no antibiotics

Kerala's Operation AMRITH prohibits over-the-counter (OTC) sales of antibiotics without a prescription

- Kerala has implemented the 2011 H1 rule that prohibits OTC sales of all classes of antibiotics
- Kerala's high doctor-patient ratio even in villages may help in enforcing the H1 rule
- Over 50-70% of antibiotic prescriptions by doctors are deemed unnecessary and irrational
- Reducing the incidence of hospital-acquired infections will sharply and quickly reduce the demand for antibiotics
- All hospitals should be made to report rates of hospital-acquired infections to the State government
- Rationalising antibiotic use in hospitals, and banning growth-promotional use of antibiotics in poultry and fish farms, and agriculture will have a big impact
- Curbing antimicrobial resistance requires a multipronged approach. Enforcing the OTC regulation alone will not be sufficient

- It **aims** to conduct **surprise raids** in retail and medical shops to detect OTC sales of antibiotics.
- The **public** can also participate in this initiative by **reporting** any pharmacies selling antibiotics without a prescription to the **Drug Control Department**.
- The Kerala government was the **first state** in India to come up with a **state action plan** on Antimicrobial Resistance, named **Kerala Anti-Microbial Resistance Strategic Action Plan (KARSAP)**, in 201

HbA1C test for diabetes

News Excerpt:

According to 2018 ICMR guidelines, everyone older than 30 years should be screened for diabetes.

Current status of diabetes in India:

- India is estimated to have **10.13 crore people with diabetes**, and another **13.6 pre-diabetic crore people**, according to a nationwide study published in 2023.
- This apart, over **35% of Indians suffer from hypertension** and **nearly 40% from abdominal obesity**, both of which are risk factors for diabetes.
- **India accounts for 17% of all diabetes patients in the world.**

What Is Diabetes?

- Diabetes is a disease that occurs when your blood glucose, also called **blood sugar**, is **too high**.
 - Glucose is the body's main source of energy. The body itself makes glucose and it also comes from the food you eat.
- **Insulin** is a hormone **made by the pancreas that helps glucose get into your cells to be used for energy**.
 - If one has diabetes, the body doesn't make enough or any insulin, or doesn't use insulin properly. **Glucose then stays in your blood and doesn't reach your cells.**

About the HbA1C test for Diabetes:

- One of the most commonly-used tests to diagnose pre-diabetes and diabetes (both type 1 and type 2) and to help manage diabetes, is the **haemoglobin A1C (HbA1C) test**.
 - It is also known as the **glycated haemoglobin or glycosylated haemoglobin test**.
- The HbA1C test measures the percentage of red blood cells that have **sugar-coated, or glycated, haemoglobin**.
 - Everybody has some sugar attached to their haemoglobin. Those with pre-diabetes and diabetes, however, have more.
- The importance of precise HbA1c measurements became apparent through studies that revealed **better**

patient outcomes and mortality associated with lower average HbA1C.

- Following programmes to regulate HbA1C measurements and calibrate them to reference standards, standardisation and accuracy greatly improved from **1993 to 2012**.
- The American Diabetes Association approved HbA1C as a diagnostic tool in 2009.
- In 2011, after an expert consultation with the World Health Organisation (WHO), it said HbA1C could be used as a **diagnostic test for diabetes “provided stringent quality assurance tests are in place”**.
- While the traditional blood sugar tests may fluctuate depending on items in the person’s latest meal and when they last consumed it, **the HbA1C test is independent of these variables, making it more reliable**.

What are the test’s limitations?

- The HbA1C test does **not replace other tests** and **may be carried out alongside the traditional blood sugar tests** to test for diabetes and pre-diabetes.
- It is **not uniformly accepted as a diagnostic test by all global medical bodies** because of its relatively low sensitivity arising from **difficulties in assay standardisation**.
 - A doctor may recommend a glucose test alongside an HbA1C test to obtain a clearer picture when diagnosing a person.
- In some clinical situations, **accurate measurements are harder to make by this test** like:
 - Thalassaemia,
 - Structural haemoglobin variants in the population,
 - Iron deficiency anaemia (relatively high in India), and
 - The use of certain drugs.
- In the case of India, where frequent occurrences of some of these above conditions in some parts of India, it is important that they are looked for when **evaluating an inappropriately high or low HbA1C level**. Alternative indices may have to be used **for assessing glycemic control** in these cases.

Indigenous drug for sickle cell disease

News Excerpt:

Recently, the Delhi-based Akmus Drugs and Pharmaceutical Limited announced the development of a new drug for sickle cell disease.

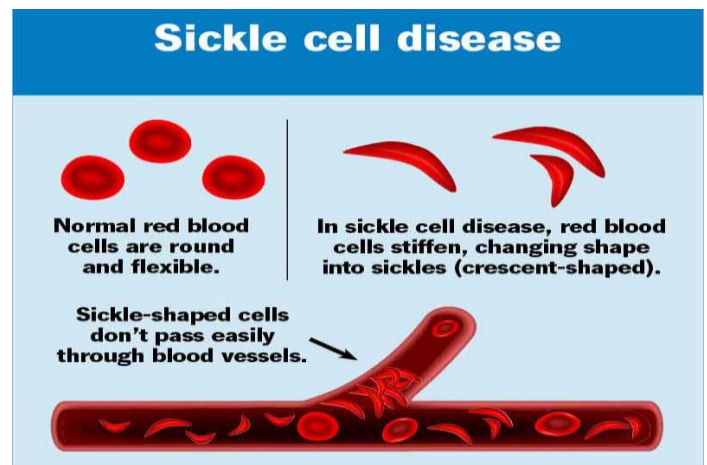
About the newly developed drug:

- The development of the room temperature stable, oral suspension of Hydroxyurea is tailored **specifically for**

patients battling sickle cell disease, spanning across all age groups.

- **Oral syringes** would be provided for **precise dosage administration**.
- The drug would be the **country’s first indigenous, room-temperature stable drug** for sickle cell disease to be **available at only 1% of the global price**.
 - The pharma company is expected to provide the government the medicine for less than ₹600.

About the Sickle cell anaemia disease:



- Sickle cell disease is a **group of inherited red blood cell disorders** that affect haemoglobin, the protein that carries oxygen through the body.
- Normally, red blood cells are disc-shaped and flexible enough to move easily through the blood vessels.
- In sickle cell disease, **red blood cells become crescent-or “sickle”-shaped** due to a **genetic mutation**.
 - These sickled red blood cells do not bend or move easily and can **block blood flow to the rest of the body**.
- The blocked blood flow through the body can lead to serious problems, including stroke, eye problems, infections, and episodes of pain called pain crises.
- Sickle cell disease is a lifelong illness. **A bone marrow transplant is currently the only cure for sickle cell disease**.

Sickle cell anaemia in India:

- According to the Indian Journal of Medical Research, India is home to over **20 million patients with sickle cell disease**.
- **It is more common in the tribal population of India**, but occurs in non-tribals too.
- As per Census 2011, India has an 8.6% tribal population which is 67.8 million across the Indian states.
- The MoHFW tribal health expert committee report has listed sickle cell disease as one of the 10 special problems in tribal health that affect the tribal people disproportionately.

About National Sickle Cell Anaemia Elimination Mission:

- The National Sickle Cell Anaemia Elimination Program, introduced in the Union Budget 2023, focuses on addressing the significant health challenges posed by sickle cell disease, particularly among tribal populations of the country.
- Implemented in 17 high-focus states across the country, this program aims to improve the care and prospects of all sickle cell disease patients while reducing the prevalence of the disease.
 - The 17 states are- Gujarat, Maharashtra, Rajasthan, Madhya Pradesh, Jharkhand, Chhattisgarh, West Bengal, Odisha, Tamil Nadu, Telangana, Andhra Pradesh, Karnataka, Assam, Uttar Pradesh, Kerala, Bihar, and Uttarakhand.
- The program is executed in a mission mode **as part of the National Health Mission (NHM)**.
- **It aims to eliminate sickle cell genetic transmission by the year 2047**, showing a long-term commitment to eradicating the disease.
- Over a period of three years, spanning from the fiscal year 2023-24 to 2025-26, the program targets screening approximately 7.0 crore people.

Significance of this drug:

- The **development of an indigenous, room-temperature stable drug** for sickle cell disease marks a **significant advancement in healthcare**.
- This new drug offers a more accessible and affordable treatment option in India.
- With its potential to improve the quality of life for those with sickle cell disease, **this development holds promise for better management of the condition and reduced healthcare burden**.

Antibacterial compound that can kill Mycobacterium Abscessus

News Excerpt:

Scientists have isolated an antibacterial compound that can kill **Mycobacterium abscessus**, a relative of the bacteria that cause **tuberculosis**, without generating any signs of bacterial drug resistance in infected mice.

Key highlights of the study:

- The safety profile and efficacy suggest that it can be used for **treating people infected with M. abscessus**, which is very hardy and frequently shrugs off standard antibiotic protocols.
- M. abscessus is growing more common worldwide and can **cause severe lung infections**.

About Mycobacterium abscessus:

- Mycobacterium abscessus (also called M. abscessus) is a **bacterium distantly related to the ones that cause tuberculosis and Hansen's Disease (Leprosy)**.
- It is part of a group of environmental mycobacteria and is **found in water, soil, and dust**.
- It has been **known to contaminate medications and products**, including medical devices.
- Healthcare-associated infections due to this bacterium usually **occur in the skin and the soft tissues under the skin**.
 - Skin infected with M. abscessus is usually red, warm, tender to the touch, swollen, and/or painful.
- It is also a cause of **serious lung infections in persons with various chronic lung diseases**, such as **cystic fibrosis**.

Real-time human emotion recognition technology

News Excerpt:

Scientists have made a **skin-integrated face interface technology (PSiFI)** to **recognize human emotions in real-time**.

About the PSiFI system:

- This technology **utilizes machine learning algorithms** to identify human emotions precisely in real-time.
 - Machine learning empowers the technology to **recognize emotions, even when individuals wear masks**.
- The system includes a **data processing circuit for wireless data transport**, which enables real-time emotion identification.
 - The sensor can simultaneously capture verbal and non-verbal cues.
- This is **wearable mask-like technology**.
 - Scientists **created a customized mask by photographing from many angles**.
 - This process includes taking photos from multiple angles, **resulting in a mask that combines flexibility, elasticity, and transparency** to provide a tailored and comfortable fit.
- The study team successfully **integrated face muscle deformation and voice cord vibration detection into the system**.
- Scientists **used a "semi-curing technique"** to create a transparent conductor for the electrodes that charged friction.

- This procedure includes partly curing or setting the material, resulting in a conductor that enables efficient friction charging.

TECHNOLOGY

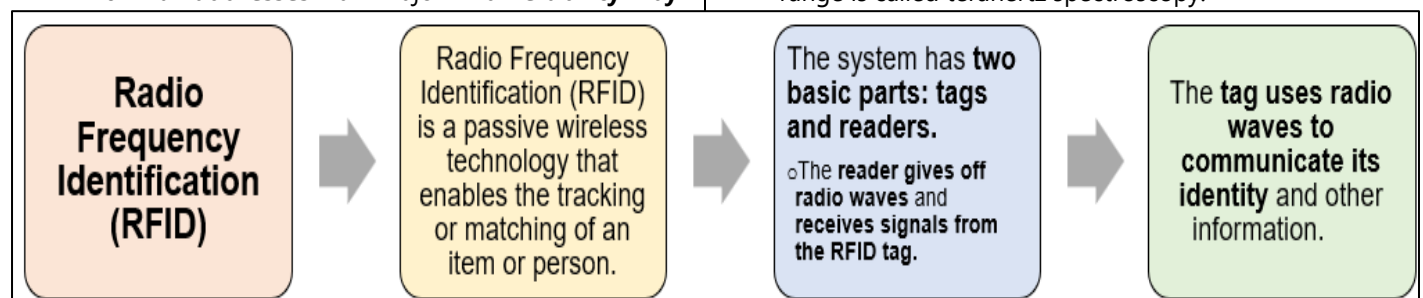
MIT researchers unveil terahertz anti-tampering tags

News Excerpt:

MIT researchers have developed a new iteration of their **anti-tampering ID tag using terahertz waves**.

About the terahertz anti-tampering ID tag:

- This tiny tag is said to be significantly **smaller and cheaper than RFIDs**.
 - It **addresses** a major **vulnerability by**



incorporating microscopic metal particles into the glue that adheres the tag to an object.

- The **terahertz waves** are then **used to detect the unique pattern formed by these particles on the item's surface**, creating a fingerprint-like authentication system.
- Unlike previous terahertz tags, the **new anti-tampering tag prevents counterfeiting by destroying the authentication pattern** when the tag is peeled off and reattached to a fake item.
- The **metal particles act as mirrors for terahertz waves**, producing a distinct reflected pattern that is impossible to duplicate once the glue interface is compromised.
- The **tag's affordability and small size make it suitable for application** to items too small for traditional RFIDs, such as certain **medical devices**.
- To **enhance the authentication process**, the researchers also developed a machine-learning model with over 99% accuracy, capable of detecting tampering by comparing glue pattern fingerprints.
- Despite limitations, such as a short optimal distance between the tag and sensor, the researchers plan to address these challenges in future work, showcasing the versatility of terahertz waves beyond broadband wireless applications.

Significance of the terahertz anti-tampering ID tag:

- This groundbreaking technology could **revolutionize authentication and security measures throughout supply chains**, providing a reliable and cost-effective solution to combat counterfeiting.
- It represents a significant step forward in **utilizing terahertz waves for ID and security purposes**.

About Terahertz waves:

- Terahertz waves, also known as T-waves, are **electromagnetic waves** with a **frequency of the order of 10^{12} Hertz** located between **microwaves and infrared rays in the electromagnetic spectrum**.
- The use of the electromagnetic spectrum in the terahertz range is called terahertz spectroscopy.

India's first fully indigenous hydrogen fuel cell Catamaran ferry vessel

News Excerpt:

Recently, India's Prime Minister virtually launched the **country's first indigenous green hydrogen fuel cell inland waterway vessel** under the **Harit Nauka initiative** - a pilot project aimed at showcasing the technology for the maritime sector.

About the hydrogen fuel cell catamaran ferry vessel:

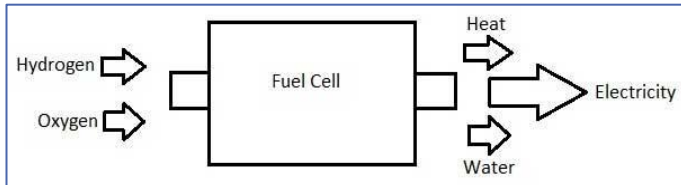
- The vessel has been **constructed** by **Cochin Shipyard Ltd.**
- Fuel cell-powered vessels **cause zero emission, zero noise and are energy efficient, which mitigate the effects of global warming**.
- Cochin Shipyard has embarked on the ambitious mission **to design, develop, and build** the country's first fully indigenous hydrogen fuel cell catamaran ferry vessel as a pilot project to demonstrate the technology in the maritime sector.

Significance:

- The inauguration of this project will **provide the impetus for using hydrogen in marine applications** as envisaged under the **National Green Hydrogen Mission**.

- The early adoption of hydrogen fuel cell technology in the marine sector will **provide a global competitive advantage, meeting our nation's sustainable green energy aspiration for net zero emission.**
- Embracing green hydrogen as a maritime fuel takes centre stage in India's dedication to a sustainable future, **targeting net zero emissions by the year 2070.**

About Hydrogen Fuel Cell:



- Hydrogen fuel cells are a **clean, reliable, quiet, and efficient source of high-quality electric power.**
- They use **hydrogen as a fuel to drive an electrochemical process that produces electricity, with water and heat as the only by-products.**
- **Applications** are **stationary power sources** and **hydrogen fuel cell vehicles (FCVs).**
- **Hydrogen** is an **abundant constituent element in water, biomass, and fossil hydrocarbons.**
- The **greenhouse gas intensity** (and other environmental impacts) of **hydrogen production depends on the sources** and processes through which the hydrogen is derived.
- It can be **extracted from water using electrolysis, renewable solar or wind power, nuclear energy, or fossil energy.**
- It can be **extracted from renewable biomass or coal using high-temperature gasification.**
- Using chemical catalysts, it can also be derived from renewable biogas, renewable ethanol or methanol, or fossil natural gas.
- Today, **most hydrogen is derived from fossil natural gas, emitting fossil carbon dioxide as a by-product.**

About Harit Nauka initiative:

- The Government envisions a **complete transition to Green Vessels by 2047** with the objectives of -
- Developing and **operationalizing new-age vessels** with standardized designs/ infrastructure that are green and safe
- Creating an enabling ecosystem for the operation of such Green Vessels
- Promoting safe, convenient and green inland waterway-based passenger transport
- Developing indigenous capacity and promoting **"Make in India"** policy in shipbuilding
- Enabling financial assistance for the development of Green Vessels and related ecosystem

First ever "Made in India ASTDS tug"

News Excerpt:

The Union Minister of the Ministry of Ports, Shipping & Waterways (MoPSW) **inaugurated** the 60T bollard pull tug named **'Ocean Grace'** and the Medical Mobile Unit (**MMU**).

About the Newly Made in India ASTDS Tug:

- Tugs are special boats that assist other vessels into and out of port.
 - The **primary purpose** of these boats is to help **move larger ships** by towing, pushing, and guiding.
 - Many even have fire suppression and other systems to help the larger ships.
- The first Approved Standard Tug Design and Specifications (ASTDS) tug is powered by **NIGATA main engines** and a Power Z-Peller ZP Propulsion engine.
- This tug is meticulously designed for optimal efficiency and reliability, guaranteeing seamless navigation and proficient vessel assistance, especially for large vessels like Very Large Crude Carriers (**VLCCs**) and Ultra-Large Crude Carriers (**ULCC**).
 - Very large crude carriers (VLCC), first developed in the 1960s, have a capacity of over 200,000 DWT and can carry two million barrels of oil.
 - Ultra-large crude carriers (ULCC) can carry more than 320,000 DWT, roughly three million barrels of oil.

About the Medical Mobile Unit (MMU):

- It is part of the **port's** corporate social responsibility (**CSR**) commitment.
- Staffed with **skilled medical professionals**, including doctors, nurses, technicians, and pharmacists, the MMU offers various services, such as maternal and paediatric care, disease management, and health awareness programs.
- Its mobility **ensures healthcare** reaches those in need across Paradip and its surrounding areas.

About the Green Tug Transition Program (GTTP):

- The **MoPSW** launched the 'Green Tug Transition Programme' (GTTP), which will **convert all tugboats** working in the country into **'Green Hybrid Tugs'**, running on **non-fossil fuels** like **Methanol, Ammonia, and Hydrogen.**
 - GTTP will first convert tugs into green hybrid tugs powered by hybrid propulsion systems and subsequently adopt non-fossil fuel solutions.
 - The plan is to make India the **'Global hub for building Green Ships'** by 2030.
- The ministry has set a target for the initial green tugs to start working in all major ports by 2025.
- Under the GTTP, India's first Centre of Excellence in Green Port & Shipping (**NCoEGPS**) resulted from a

collaboration between the **MoPSW, GoI**, and the Energy and Resources Institute (**TERI**), the NCoEGPS will act as the **Nodal entity** for the industry.

IceCube: neutrino-spotter

News Excerpt:

Scientists reported they had found instances in **IceCube's data from 2011 to 2020** that **matched** the signature of **tau neutrinos**, with more than 99.999999% confidence.

About the IceCube Neutrino Observatory:

- It is the **world's biggest 'neutrino telescope'**, designed to observe the cosmos from deep within the Antarctic **South Pole** ice.
- It is buried beneath a **cubic kilometre of surface**, extending to a **depth of about 2,500 meters**.
 - A surface array, **IceTop**, and a denser inner sub-detector, **DeepCore**, significantly enhance the capabilities of the observatory, making it a **multipurpose facility**.
- It was built and is maintained by the **IceCube Collaboration**.
 - Approximately **300 physicists** from **59 institutions** in **14 countries** make up the IceCube Collaboration.
- The National Science Foundation (**NSF-USA**) provided the **primary funding** and the **University of Wisconsin-Madison** is the **lead institution**, responsible for the maintenance and operations of the detector.


Working of IceCube:

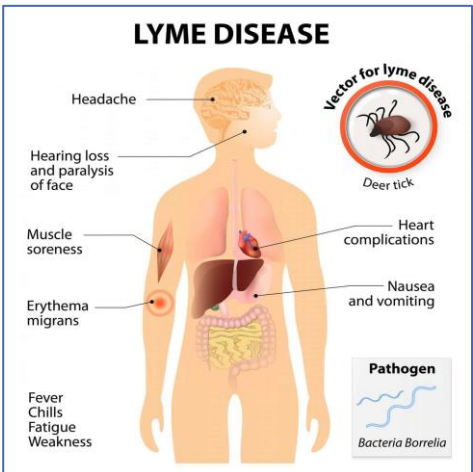
- When a **neutrino interacts with the ice** surrounding the sensors, it may **produce some charged particles** and some **radiation**.
- The **sensors detect the radiation** to infer the detection of a neutrino and use the radiation's properties to understand more about the particle.
- Neutrinos come in different types. IceCube can **identify some of them** in real-time.
 - For others, IceCube **collects data for many years** and scientists then comb through them to find neutrino interaction events.
- IceCube also **observes cosmic rays** that interact with the Earth's atmosphere, which have revealed fascinating structures that are not presently understood.

About Neutrinos:

- Neutrinos are light particles that very rarely interact with matter. This is why they're called "**ghost particles**".
 - These high-energy astronomical messengers **provide information** to probe the most **violent astrophysical sources**: events like exploding stars, gamma-ray bursts, and cataclysmic phenomena involving black holes and neutron stars.
- Scientists named the **three types of neutrinos** they have discovered so far for the other matter particle they interact with: the **electron neutrino, muon neutrino, and tau neutrino**.

DISEASES

NAME OF DISEASE	DETAILS
<p>Zombie deer disease News Excerpt: Zombie deer disease, a chronic wasting disease caused by prions, is spreading across North America, Scandinavia, and South Korea.</p> 	<p>About:</p> <ul style="list-style-type: none"> • It is a chronic wasting disease that affects deer, elk, reindeer, sika deer, and moose. • It can affect animals of all ages and may take over a year before an infected animal develops symptoms, including drastic weight loss (wasting), stumbling, listlessness and other neurologic symptoms. • There are no treatments or vaccines for the disease. • It spreads between animals through body fluids like faeces, saliva, blood, or urine, either through direct contact or indirectly through environmental contamination of soil, food or water. • It can spread quickly between deer populations. <ul style="list-style-type: none"> ◦ It can also infect humans and pose a risk to wild populations. <p>Why is it called zombie deer disease?</p> <ul style="list-style-type: none"> • It is a fatal neurological illness affecting deer, elk, moose, and related species. • It's caused by abnormal proteins called prions, which damage the brain and nerve tissues. • Symptoms include emaciation, disorientation, lethargy, and abnormal behaviour, earning it the nickname "zombie" due to affected animals exhibiting staggering gaits and vacant expressions.

<p>Bowel Disease News Excerpt: Recently, a Swedish study found that children who had a high intake of fish and vegetables at one year of age were at lower risk of developing Inflammatory Bowel Disease (IBD).</p>	<p>About the diet and its effects on IBD:</p> <ul style="list-style-type: none"> • According to the study done on 80,000 children through adolescence in Norway and Sweden, the diet of infants as young as a year old could affect their chances of developing IBD in future. <ul style="list-style-type: none"> ○ Children who consumed plenty of vegetables and fish in the first year of life, were associated with a lower future risk of developing IBD. ○ Consuming sugar-sweetened beverages at this time was associated with a higher risk of IBD. ○ At three years of age, no dietary factor other than fish intake was associated with IBD risk. ○ Infants may benefit from a “preventive” diet that includes adequate dietary fibre, particularly from fruit and vegetables. ○ A minimal number of sugar-sweetened beverages, and a preference of fresh over processed and ultra-processed foods and snacks.
<p>Guinea worm disease News Excerpt: South Sudan and Mali, where Guinea worm disease was once more common, have made commendable progress, although the fight continues in Chad and the Central African Republic.</p> <p>Status of Guinea worm:</p> <ul style="list-style-type: none"> • There were more than 3.5 million cases of this disease in the 1980s, But according to the World Health Organization’s (WHO) weekly epidemiological report, they dwindled to 14 cases in 2021, 13 in 2022, and just 6 in 2023. 	<p>About the Guinea worm disease:</p> <ul style="list-style-type: none"> • Guinea worm disease, also called dracunculiasis, is caused by Guinea worm (Dracunculus medinensis). <ul style="list-style-type: none"> ○ It has been mentioned in biblical times when it was called the “fiery serpent” and researchers have confirmed its presence in Egyptian mummies also. • Guinea worm disease, a neglected tropical disease (NTD), the disease affects poor communities in remote parts of Africa that do not have safe water to drink. • There is neither a drug treatment for Guinea worm disease nor a vaccine to prevent it. <p>Status of Guinea worm in India:</p> <ul style="list-style-type: none"> • India eliminated Guinea worm disease in the late 1990s, through a rigorous campaign of surveillance, water safety interventions, and community education. • The government of India received Guinea worm disease-free certification status from the WHO in 2000.
<p>Lyme disease News Excerpt: A suspected case of Lyme disease caused by the bite of a tick (Black Legged Tick) carrying borrelia (Borrelia Burgdorferi) bacteria has been reported from Koovapady in Ernakulam district.</p> 	<p>Lyme Disease:</p> <ul style="list-style-type: none"> • Lyme disease is a vector borne infection caused by the bacterium Borrelia burgdorferi and in rare cases, Borrelia mayonii. <ul style="list-style-type: none"> ○ Transmission of disease occurs through the bite of infected blacklegged ticks also known as deer ticks. • Lyme disease was first recognized in the town of Old Lyme, USA, in 1975. <ul style="list-style-type: none"> ○ It is the most common vector-borne disease in the United States. <p>Symptoms:</p> <ul style="list-style-type: none"> • Lyme disease can affect various body parts, including the skin, joints, heart, and nervous system. • Early symptoms of Lyme disease typically begin 3 to 30 days after infection <ul style="list-style-type: none"> ○ Early symptoms typically consist of fever, headache, fatigue, and the distinctive bull’s-eye rash known as erythema migrans. • If untreated, the infection can spread, leading to more severe symptoms such as joint swelling, neurological issues like facial muscle numbness or paralysis, and heart palpitations. <p>Treatment:</p> <ul style="list-style-type: none"> • Diagnosis involves symptom assessment, physical examination, and possibly laboratory testing. • Treatment usually consists of a few weeks of antibiotics. • Prevention methods include insect repellent use, prompt tick removal and pesticide application. • Covering your legs properly, wearing boots while going to marshy lands.

DEFENCE & SECURITY

Grey Zone Warfare

News Excerpt:

Grey zone warfare has become the latest in informal warfare.

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About Grey Zone Warfare

- It generally means a **middle, unclear space between direct conflict and peace** in international relations.
 - The grey zone describes** a set of activities that occur between peace (or cooperation) and war (or armed conflict).
 - Many activities fall into this murky middle ground—from nefarious economic activities, influence operations, and cyberattacks to mercenary operations, assassinations, and disinformation campaigns.
- Generally, grey-zone activities are considered **gradualist campaigns by state and non-state actors that combine non-military and quasi-military tools and fall below the threshold of armed conflict.**
 - They aim** to thwart, destabilize, weaken, or attack an adversary and are often tailored to the vulnerabilities of the target state.
- While grey-zone activities are nothing new, the onset of new technologies has provided states with more tools to operate and avoid clear categorization, attribution, and detection—all of which complicate the nation-states' ability to respond.
 - Activities in the grey zone **have always been a feature of great-power competition.**

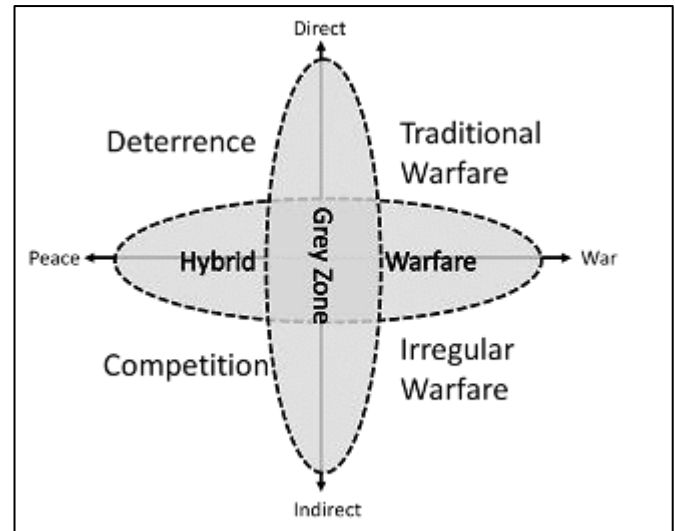
Grey Zone Tactics against India:

Grey Zone warfare involves the **use of various unconventional tactics and strategies** that fall below the threshold of traditional warfare but still **aim to advance a nation's interests and influence.** Countries such as China use these measures to achieve their sovereignty goals while minimizing the risk of escalation.

Here are some ways Grey Zone warfare is waged:

- Cyber Operations** - This includes system intrusions to deny the availability of information systems, hacking and stealing data, corrupting data, spreading disinformation, and conducting cyber espionage to disrupt or influence a target country's critical infrastructure, political systems, or economy without causing direct physical harm.
- Information Warfare:** Propaganda, rumours, fake news, social media manipulation, and psychological operations are used to shape public opinion, create divisions, and undermine trust in institutions within the target nation.

- Support to Proxy Forces** - Providing support to non-state actors, insurgents, or militias in a way that enables them to advance the supporting nation's agenda without officially engaging in direct conflict. During the 80s and 90s, Chinese support for various insurgent movements in India's northeast was widely known, and it continues to this day.



- Economic Coercion** - Imposing sanctions, trade restrictions, or manipulating financial markets to undermine the target nation's economy or coerce policy changes without military action. Australia's support of the pro-democracy movement in Hong Kong led China to levy a 212 per cent tariff on Australian wines in 2020.
- Political Subversion** - Using covert means to influence elections, manipulate political processes, or support political groups or movements that align with the aggressor's interests.
- Irregular Warfare** - Deploying unconventional military tactics such as **guerrilla warfare, sabotage, or asymmetric attacks** by leveraging smaller, specialized units or non-traditional military forces forms part of Irregular Warfare.
- Legal and Diplomatic Maneuvering**—China is careful when exploiting legal or diplomatic loopholes, leveraging international institutions, or manipulating alliances to weaken the target country's position on the global stage while offering a justification for its own actions based on precepts and conventions of law.
- Military Intimidation** - This involves using military assets to convey the threat of a potential military attack or a risk of military escalation.
 - The massing of PLA troops at the contested borders with India opposite Galwan in Ladakh was part of this military intimidation that went awry, and China suffered many casualties – allegedly much more than those suffered by the Indian side.

Way Forward:

Grey Zone Warfare is an important tactic in international relations that helps make good relations with countries on some fronts with issues on other fronts. Thus, a nation must be prepared on all fronts, be it in conventional war or unconventional of this sort.

PEPPER IT WITH:
Types of Warfare, Cyber Warfare, Deterrence

Defence Ministry denotifies civil areas of 10 cantonments

News Excerpt:

The Centre has issued a gazette notification to denotify the country's civil areas of 10 cantonments. These areas will now be merged with the state municipalities (local bodies) concerned.

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About the news:

Cantonment areas which are to be denotified:

- Dehradun and Clement Town Cantonments in **Uttarakhand**;
- Fatehgarh, Babina, Shahjahanpur and Mathura Cantonments in **UP**;
- Deolali Cantonment in **Maharashtra**;
- Ramgarh Cantonment in **Jharkhand**;
- Ajmer and Nasirabad Cantonments in **Rajasthan**.

Significance of the Denotification:

- The decision to abolish cantonments is in keeping with the needs of the times.
- Given the presence of adverse countries around India, the military needs to completely devote itself to the major task of defending the borders. It should not be weighed down by functions unrelated to soldiers and war.
- Once all 62 cantonments are disbanded, the defence budget can redirect the funds to core military requirements and social infrastructure wherever needed.

Cantonment Areas and their administration:

- 61 Cantonments in the country have been notified under the **Cantonments Act of 1924 (succeeded by the Cantonments Act, 2006)**.
 - Regarding Entry 3 of the Union List (Schedule VII)** of the Constitution of India, Urban Self Governance of the Cantonments and the Housing Accommodation therein is the subject matter of the Union of India.
- The Station Commander of the Cantonment is the ex-officio President** of the Board, and an officer of the IDES or Defence Estates Organization is the Chief

Executive Officer who is also the Member-Secretary of the Board.

- The Cantonment Boards, democratic bodies, function as the overall municipal administration of the notified Cantonments.
 - The Board has **equal representation of the elected and nominated/ex-officio members** to balance the official representation with the democratic composition.
- The Cantonment Boards have a **unique structure** because they are and were **primarily meant to accommodate the military population and their installations**.
 - Cantonments are **different from Military Stations** in that Military Stations are purely meant for the use and accommodation of the **armed forces** and are **established under an executive order**.
 - The Cantonments are areas that comprise both military and civil populations**.
- There are **four categories of cantonments**, each depending on the size of the population residing inside it.
- Directorate General of Defence Estates (DGDE)** is an Inter-Services Organization of the **Ministry of Defence**, which **directly controls the Cantonment Administration**.

About the Cantonments:

Origin and Purpose:

- Cantonments in India originated during the British East India Company's (EIC) rule, particularly **after the Battle of Plassey in 1757**.
- The EIC obtained significant territorial rights following this victory and established **permanent military stations along trade routes**, such as the Ganga River.
- These cantonments were strategically located away from urban areas to **minimize interaction between the military and local populations**. They aimed to maintain discipline and prevent emotional ties that could undermine British authority.

Establishment:

- The first three cantonments: - **Barrackpore, Danapur, and St Thomas Mount**, were established **before 1800**.
- Over time, a total of **56 cantonments** were established under **British rule**, strategically positioned to monitor local populations **for signs of dissent or rebellion**.
- After India gained independence, six more cantonments** were established, with the **last one in Ajmer in 1962**.
- Presently, **there are 62 cantonments** distributed across various military commands.

Layout and Function:

- During British rule, the **military was granted ownership of lands strictly for barracks construction**, with certain lands freely transferable between military officers.
- Civilians were employed to provide amenities and services within cantonments, although **land ownership rights remained with the military**.
- Cantonments were initially strictly military areas for quartering troops, but civilian populations also resided within, providing various amenities and services. Later, urbanization blurred these distinctions.

Regulatory Framework:

- The regulatory framework for cantonments was established through various Acts, such as the Cantonments Act of 1889, the Cantonment Code of 1899, and the Cantonments Act of 1924.
- **The 1924 Act** introduced cantonment boards with **civilian representation** to manage civic affairs within cantonments.
- **In 2006, the Cantonments Act replaced the 1924 Act**, introducing reforms to ensure **greater democratization** within cantonment boards. The Act provided for elected civilian members and reserved seats for women.
- These boards **provide civic amenities** such as health services, water supply, education, and street lighting within cantonments.
- **Administrative control remains with military authorities**, with the station commander serving as the Board's ex-officio President.

Way Forward:

Disbanding cantonments will mean that the civilian areas will become part of the democratic decentralization process prevalent across other urban areas in the country. The 74th Constitutional Amendment Act and individual state statutes will become the operational regulation for the erstwhile cantonment civilian areas, replacing the Indian Cantonments Act of 2006. The decision to abolish cantonments is in keeping with the needs of the times and, as such, is well-considered.

PEPPER IT WITH:

Cantonments Act, Rationalisation of security command, Military Reforms

PRE-SHOTS

Criminal Case Management System (CCMS) and Sankalan app

News Excerpt:

In a significant boost to India's **fight against terrorism and organized crime**, the Union **Home Minister** virtually

inaugurated a unique digital **Criminal Case Management System (CCMS)** and a **mobile app** called **Sankalan**.

About the Criminal Case Management System (CCMS):

- The newly developed Criminal Case Management System is designed by the **National Investigation Agency (NIA)**.
- It will enable the **NIA** personnel to **better coordinate in terrorism and organized crime cases**, thereby improving justice delivery.
- The two new office complexes in Jammu and Kochi and the residential complex in Raipur will **strengthen the agency's reach and presence**.
 - These complexes also **provide a safe and secure environment for NIA officers** and personnel to operate in the States, tackling the menace of terrorism and left-wing extremism.

Sankalan app:

- The newly launched **Sankalan app** is a **compendium of New Criminal Laws** by the **National Crime Records Bureau (NCRB)**.
- It has been designed to **help users navigate new criminal laws, acting as a bridge between old and new laws**.
- The app will work **offline** as well, and its availability has been ensured in far-flung areas so that all stakeholders have access to desired information around the clock.

MIRV technology used in Agni-5 missile

News Excerpt:

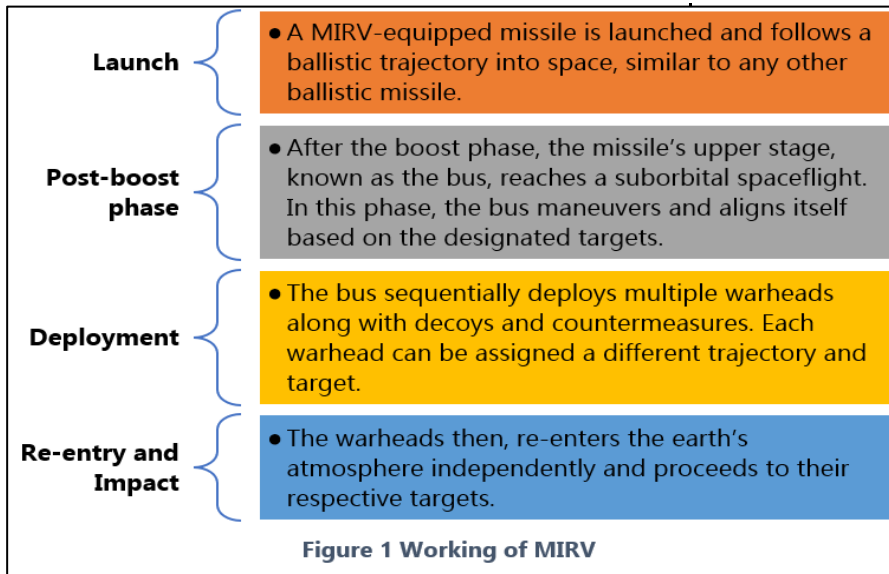
The Defence Research and Development Organization (DRDO) has conducted the first successful flight test of an indigenously developed Agni-5 missile with **Multiple Independently Targetable Re-entry Vehicle (MIRV)** technology under the name **Mission Divyastra**.

Agni-5 missiles:

- Agni is a long-range missile developed indigenously by the DRDO.
- The family of Agni missiles has been in the arsenal of the Indian armed forces since the early 1990s.
- This latest variant of the missile is equipped with MIRV (Multiple Independently Targetable Re-entry Vehicle) technology.

About Multiple Independently Targetable Re-entry Vehicle (MIRV) technology:

- MIRVs were originally developed in the early 1960s to allow a **single missile to carry multiple nuclear warheads**, each capable of striking **different targets independently**.
- The inception of MIRV technology was done by the **United States** by deploying a MIRVed **Intercontinental**



Ballistic Missile (ICBM) in 1970 and a MIRVed **Submarine-Launched Ballistic Missile (SLBM)** in 1971.

- MIRV technology requires the combination of **large missiles, small warheads, accurate guidance**, and a complex mechanism for releasing warheads sequentially during flight.
- MIRVs permit a missile to **deploy multiple nuclear warheads to different targets** in contrast to a traditional missile that carries one warhead. This strengthens the country's strategic deterrence capability.
- The warheads on these missiles can be released at different speeds and directions.
 - Some MIRVed missiles can hit targets as far as 1,500 kilometres apart.
- Currently, the **United States, the United Kingdom, France, Russia, China, and India** are among the nations that possess the MIRV technology.

Navy demonstrates twin-carrier operations.

News Excerpt:

The Indian Navy displayed its formidable maritime capabilities through an exhibition of twin-carrier operations during the **Commander's Conference 2024**.



Twin-Carrier Operations:

- A **twin carrier operation** refers to a naval operation in which **two aircraft carriers** are **deployed together** to maximize their combined effectiveness.

- As part of the operation, **MiG-29K** jets took off simultaneously from **INS Vikramaditya** and **INS Vikrant** and then **landed on opposite decks**.

- The exercise was part of the **first edition** of the **Naval Commanders' Conference of 2024**.

- The **twin-carrier operations** also demonstrated that the **first indigenous aircraft carrier, INS Vikrant**, which was commissioned in 2022, has been fully operationalized and fully integrated into the Indian Navy.

Naval Commanders' Conference of 2024:

- The **commanders' conference** is an **institutional forum** that enables

deliberations on **important maritime security issues** at the **military-strategic level**.

- The inaugural session of the Conference was held onboard the aircraft carrier **INS Vikramaditya**, and follow-up proceedings were conducted in **New Delhi**.
- On the sidelines of the conference, Naval Commanders also interacted with various **'Think Tanks'** during a **'Sagar Manthan'** event.
 - The forum provided an opportunity to **engage** with **MSMEs, innovators** and **Academia** to deliberate ways, means and novel avenues to further **Atmanirbharta** initiatives and enhance **self-reliance** in **defence production**.
- The conference occurred against a backdrop of heightened activity of the Indian Navy over the past six months, marked by events in the **Red Sea** and renewed piracy efforts in the **Gulf of Aden**.

INS Vikrant	<ul style="list-style-type: none"> • INS Vikrant is the first indigenously built aircraft carrier of the Indian Navy. • It is named after INS Vikrant, India's first aircraft carrier, which served the Indian Navy from 1961 to 1997. • The ship was built by Cochin Shipyard Limited and internally designed by the Warship Design Bureau of the Indian Navy.
INS Vikramaditya	<ul style="list-style-type: none"> • INS Vikramaditya is one of the two aircraft carriers of the Indian Navy. • It was originally commissioned as the Admiral Gorshkov in the Soviet Navy in 1987. • It underwent extensive modernization before being inducted into the Indian Navy in 2013. • It is capable of carrying a mix of fixed-wing aircraft and helicopters, such as MiG-29K fighters and Kamov helicopters.

Significance of the Twin-Carrier Operations:

- The exercise will **enhance maritime security** and expand India's influence in the **Indian Ocean region** and **beyond**.
- The exercise involved the seamless integration of two Aircraft Carriers, **INS Vikramaditya** and the **indigenously built INS Vikrant**.
- **The exercise's centerpieces, INS Vikramaditya and INS Vikrant, served as "floating sovereign airfields,"** providing a launch platform for a wide range of aircraft, including **MiG-29K** fighter jets, **MH60R, Kamov, Sea King, Chetak, and ALH helicopters**.

INDUS-X Summit

News Excerpt:

The India-U.S. Defence Acceleration Ecosystem Summit, **INDUS-X**, was hosted in **New Delhi**.

About the summit:

- The summit aims to enhance strategic technology partnerships and defence cooperation between India and the USA.
- It is **organized** by India's **Innovations for Defence Excellence (iDEX)** and the **U.S. Department of Defence** in **collaboration** with the US-India Business Council and Society of Indian Defence Manufacturers (SIDM).
- Participants include representatives from **governments, academia, research organizations, investors, defence startups, technology incubators, and industry associations**.

INDUS-X initiative:

- **iDEX**, in partnership with the **US Department of Defence**, launched the India-US Defence Acceleration Ecosystem (INDUS-X) in 2023. It has been launched as part of the vision to build a '**defence innovation bridge**'.

India's Innovations for Defence Excellence (iDEX)

- The iDEX initiative was **launched in 2018**. It is funded and managed by the **Defence Innovation Organization (DIO)**.
- The **objective of the scheme** is to provide **financial support to nearly 300 Startups/MSMEs/individual innovators** and about 20 Partner Incubators through the **Defence Innovation Organization (DIO)**.
- **INDUS-X aims to:**
 - Pave the way towards the goals established in the US-India roadmap for **defence industrial cooperation**.
 - Capitalize on the tech-releasability outcomes that the industry anticipates from the US-India Initiative on Critical and Emerging Technologies (**iCET**).

- Explore joint **opportunities** in high-tech defence innovation, research and development.
- Strengthen bilateral **trade relationships** and defence establishment linkages.
- According to the **US Chamber of Commerce**, INDUS-X has the **potential to help India** achieve its target of **USD 5 billion** in **defence exports** by **2025** and **diversify its defence supply chain**.

Related: Vajra Sentinel System

- It has been developed by **Big Bang Boom Solutions (BBBS)** and has been awarded a contract with both the Indian Army and Air Force under **iDEX programme**.
- It is a state-of-the-art solution **designed to detect, track and neutralize drones at extraordinary ranges**.
- It utilizes **passive Radio Frequency (RF) sensor technology** to **eliminate false alarms**.

Juice Jacking

News Excerpt:

The Reserve Bank of India (RBI) has issued a cautionary message to all mobile phone users advising them **against charging their devices using public ports**.

How does juice jacking work?

- To perform the attack, hackers **infect USB ports** or charging cables in public areas before the users connect to them.

The term "juice jacking" was **first coined in 2011** by **investigative journalist Brian Krebs**.

It is a form of cyberattack where a **public USB charging port is tampered** with and infected using hardware and software changes **to steal data or install malware on devices connected to it**.

The attack is used by hackers to **steal users' passwords, credit card information, addresses, and other sensitive data** stored on the targeted device.

Juice jacking attacks **can take place in any public place** with portable wall chargers, or public USB charging stations found in shopping malls, cafes, and hotels.

Figure 2 Juice Jacking

- Most attacks **target both Android and iOS mobile devices**, with older devices being particularly vulnerable due to their outdated software.
- USB ports have multiple pins, but **only one pin is used for charging**, while the other pins are used for data transfers.
- When users connect their devices to compromised USB ports, hackers use the connection to access mobile devices, steal personal data, or deliver malware.
- Juice jacking attacks **also target laptop USB ports, which are similarly capable of transferring data.**

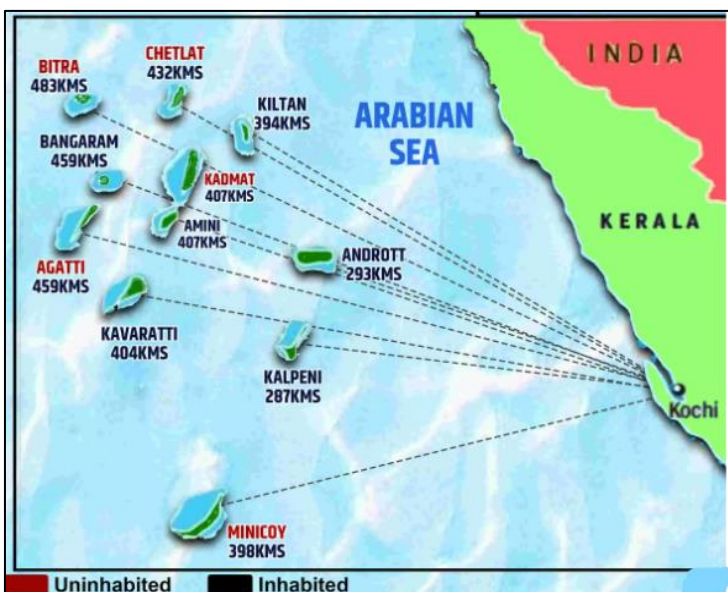
Indian Navy's newest base on Minicoy Island

News Excerpt:

The Indian government has commissioned a **new naval base, "INS Jatayu,"** in the Lakshadweep islands to **upgrade its military capacity significantly.**

About INS Jatayu:

- It will function under the operational control of the Naval Officer-in-Charge (Lakshadweep), Southern Naval Command.
- **Radars, jetties, an airport, and BrahMos supersonic cruise missiles** will be among the features of the Indian Navy's newest station, **INS Jatayu**, which is being built on Minicoy Island in Lakshadweep.
- The base on Minicoy, **the southernmost island of Lakshadweep** that straddles vital sea lines of communication (SLOCs), is named after Jatayu, the **mythical creature in the Ramayana who tried to stop Sita's abduction.**
- INS Jatayu is **the second naval base in Lakshadweep after INS Dweepakshak in Kavaratti.**
- The new base will be **just about 130 km** from Thuraakunu, the **northernmost island of Maldives.**



GoI's ongoing efforts for infrastructure development in Lakshadweep:

- **NITI Aayog** has joined hands with the **Ministry of Civil Aviation and the Airports Authority of India to expand Agatti Airfield** amid increased tourist demand.
- **Larsen & Toubro** has been given a ₹4,500-crore contract to **expand the runway to 2,800 metres.**
- For Minicoy, there is a plan to develop a greenfield dual-use airfield with a longer runway, making it capable of handling the **Navy's P-8I long-range maritime patrol aircraft** and medium- and long-endurance Unmanned Aerial Vehicles.

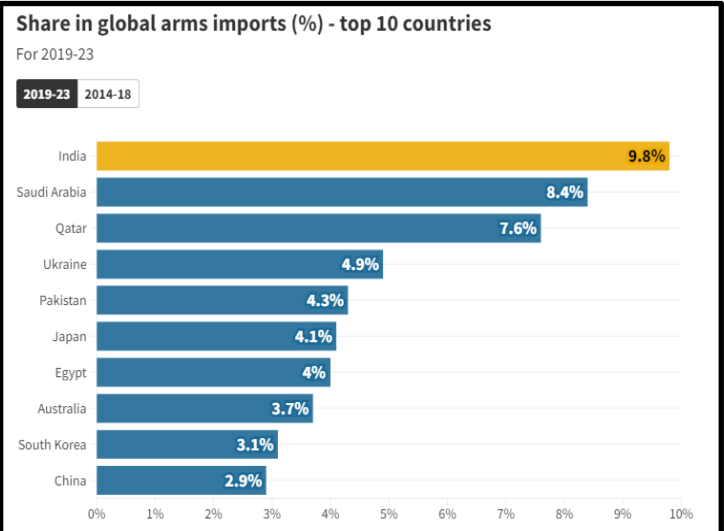
About Lakshadweep:

- Lakshadweep, **India's smallest Union Territory**, is an archipelago consisting of **36 islands with an area of 32 sq km.**
- It comprises 12 atolls, three reefs, five submerged banks and 10 inhabited islands.
- All Islands of Lakshadweep are 220-440 km away from **Kochi in Kerala.**

India remains the world's largest arms importer.

News Excerpt:

Despite ongoing efforts to strengthen its defence-industrial base, a study from the **Stockholm International Peace Research Institute** found that **India retains its position as the world's largest arms importer.**



Key Findings of the report:

- Swedish think tank **Stockholm International Peace Research Institute (SIPRI)** has released **Trends in International Arms Transfers, 2023.**

Stockholm International Peace Research Institute (SIPRI):

- SIPRI was founded in 1966 and is a Stockholm-based think tank.
- It is an international institute focused on **conflict, armaments, arms control, and disarmament research.**
- **Nine of the 10 biggest arms importers** in 2019–23, including the top three, India, Saudi Arabia, and Qatar, were in **Asia and Oceania or the Middle East.**
- Despite **Russia remaining India’s primary arms supplier**, constituting **36%** of its arms imports, this marks the **first five-year period since 1960–64**, where deliveries from Russia/USSR **fell below half of India’s arms imports.**
- Arms imports by **European countries increased by 94%** between **2014–18** and **2019–23.**
 - **Ukraine** became the **fourth biggest arms importer** globally after receiving major arms transfers from over 30 states in 2022-23.
- The **five biggest arms exporters** worldwide were the **United States, France, Russia, China and Germany.**
 - Russia’s exports fell by 53%, French sales surged 47%. **The largest single recipient of French arms exports was India.**
 - In 2019, 31 countries were still receiving weapons from Russia; by 2023, that had dropped to 12, with India and China being by far the most significant customers.

EXERCISES

Tri-service military exercise 'Bharat Shakti'

News Excerpt:

The Army’s **Pokhran range** in **Rajasthan** bore witness to the live **tri-services fire and manoeuvre** exercise ‘**Bharat Shakti**’

Participants:

- **LCA Tejas, ALH Mk-IV, LCH Prachand, mobile anti-drone system, BMP-II** and its variants, **NAMICA** (Nag Missile Carrier), **T90 tanks, Dhanush, K9 Vajra,** and

Pinaka rockets were among the platforms demonstrated during the exercise.

- The exercise included various types of **Radars**, UAV-launched precision-guided munitions, **Quick Reaction Fighting Vehicles**, drones of various types, including logistic drones and swarms of drones, and **3D-printed bunkers.**
- During the exercise, the **integration** of individual **communication systems** of the tri-services, the '**e-Tarang**' **software** tool, **GIS-related** systems, topographical maps, hydrographic charts, and air navigation charts with analysis and operational planning capabilities was showcased.

Milan Navy Exercise

News Excerpt:

The Indian Navy’s largest-ever **multilateral naval exercise** - Milan 2024 - kicked off in **Visakhapatnam** with several warships from the Indian Navy and foreign navies participating in the **Harbour Phase of the event.**

Objective:

- The naval exercise **aims to enhance regional security, foster cooperation among over 50 countries,** and share ideas for a secure maritime future.
- **Theme:** "Forging Naval Alliances for a Secure Maritime Future."

About the Exercise:

- **Visakhapatnam is hosting MILAN 2024,** an international maritime event.
- Delegations from 50 countries, foreign navies, and the Indian Navy's naval ships, aircraft carriers, and aircraft are participating.
- Indian Navy's ships, **Vikrant** (indigenous design) and **Vikramaditya** (extensive refurbishment) will participate.
- Participating navies will hold **advanced air defence, anti-submarine, and anti-surface warfare drills during the Sea Phase.**
- In total, around **20 Indian warships from different classes** will be participating in the show, which includes **INS Chennai, the Kolkata-class stealth-guided missile destroyer.**

Bilateral Exercises in News

Name of the Exercise	Partnering Country	About
Dosti-16	Maldives and Sri Lanka	<ul style="list-style-type: none"> • It is a trilateral coast guard exercise held between India, Sri Lanka, and the Maldives every two years. <ul style="list-style-type: none"> ◦ Bangladesh participated in the exercise as an observer in its 16th edition. ◦ Exercise Dosti-15 was held in 2021.

		<ul style="list-style-type: none"> The 'Dosti' series of naval exercises began in 1992 with only Maldives and India. Sri Lanka joined the exercise for the first time in 2012. Indian Coast Guard ship Samarth, Abhinav, and Sri Lanka Naval Ship Samudura participated in the Dosti-16 exercise.
Samudra Laksamana	Malaysia	<ul style="list-style-type: none"> Indian Naval Ship Kiltan and Royal Malaysian Ship KD Lekir participated in the 3rd edition of this exercise. It had a harbour phase at Visakhapatnam followed by the operational phase at sea. At the harbor phase, the crews of both ships engaged in various professional interactions, Including Subject-Matter Expert Exchange on topics of mutual interest, sports fixtures, and other interactions. <ul style="list-style-type: none"> These interactions aim to enhance the knowledge base, share best practices and further cooperation on maritime aspects. During the sea phase, units of both navies conducted various operations at sea. The exercise aims to strengthen bonds and enhance interoperability between the Indian and Royal Malaysian Navy.
Dharma Guardian	Japan	<ul style="list-style-type: none"> The 5th edition of the exercise between the Indian Army and the Japan Ground Self Defence Force was conducted at Mahajan Field Firing Ranges in Rajasthan. Both sides' contingents comprised 40 personnel each. The Indian Army contingent was represented by a Battalion from the Rajputana Rifles. Exercise 'DHARMA GUARDIAN' will enable the two sides to share their best practices in Tactics, Techniques and Procedures for conducting tactical operations. It will help promote military cooperation and to conduct joint operations in semi-urban environments.
Sea Defenders	United States of America	<ul style="list-style-type: none"> It was held at Port Blair by the Indian Coast Guard (ICG) and the United States Coast Guard (USCG). <ul style="list-style-type: none"> The Exercise included a variety of scenarios, including a Pollution Response Demonstration, Counter-drug interdiction exercises and simulated medical evacuation to enhance readiness in emergencies. It also simulated Visit Board Search and Seizure (VBSS) Operations for inspecting vessels suspected of illegal activity. During the exercise, the Indian Coast Guard helicopter and Dornier aircraft conducted Search & Rescue and Pollution Response demonstrations, showcasing ICG's ability to undertake aerial surveillance and rescue missions.
Lamitiye 2024	Seychelles	<ul style="list-style-type: none"> Lamitiye, which in Creole means friendship, is a biennial training event being conducted in Seychelles since 2001, between the Indian Army and Seychelles Defence Forces (SDF). The aim is to build and promote bilateral military relations in addition to exchanging skills, experiences and good practices between both armies. It is significant in terms of security challenges faced by both the nations in the backdrop of the current global situation and growing security concerns in the Indian Ocean Region.
Tiger Triumph-24	USA	<ul style="list-style-type: none"> This is the third time U.S. and Indian forces have come together for Tiger TRIUMPH, which stands for Tri-Services India U.S. Amphibious Exercise. This year's exercise will focus on advancing large-scale joint and combined interoperability for humanitarian assistance and disaster relief (HADR) operations.

GEOGRAPHY

Water famine in Bengaluru

News Excerpt:

Bengaluru is experiencing a **water crisis**, evident in **drying borewells** and **shortages** in the supply of Bangalore Water Supply and Sewerage Board (**BWSSB**) water.

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Issue of water scarcity:

- According to a **2018 Niti Aayog report**, **40%** of the population would have **no access to drinking water** by **2030**.
 - It has warned that **21 cities**, including Bengaluru, Chennai, Delhi, and Hyderabad, will run out of groundwater.

Causes of water scarcity:

- Water wastage:**
 - Much water is wasted in daily use, especially in **washing** and **bathing**. Even **drinking water** is wasted, more so water supplied in bottles in star hotels and events, where people consume a little, and the rest goes down the drain.
 - Although **water harvesting** is mandatory, implementation **could be better**.
 - The **agricultural sector**, where farmers with pump sets enjoy **free water**, also contributes to significant water wastage.
- Overexploitation of groundwater:**
 - It is a major reason for water shortages. The government encourages **digging more borewells** during the summer, as it is happening now.
 - Though there is a **law** regulating groundwater use, it is **hardly enforced**.
 - Furthermore, the **'tanker mafias'** also adds to the **deteriorating** condition and charges **exorbitant prices**.
- Lack of treatment and recycling:**
 - About 60% of the water is wasted, with **only half being recycled**.
 - Bengaluru has several sewage or wastewater treatment plants, and treated water is supplied for non-potable purposes such as washing, gardening (as in Cubbon Park and Lalbagh), etc.
 - BWSSB**, however, is **not able to market** it adequately due to low demand from industries.
- Agricultural sector's water usage:**
 - While people in Bengaluru are primarily concerned about drinking water and other subsidiary uses, **80% of fresh water** in the state is **used for agriculture**.

- The problem is aggravated by the excessive water used to cultivate **water-intensive crops** like **paddy** and **sugarcane** in irrigated areas, which adversely impacts the availability and supply of water for other purposes.

- Water cost-price-value gap:**

- BWSSB procures water from the **Cauvery River** about **90 km** from the city, and it supplies water far below its production cost.
 - There is a **disconnect** between **cost**, **price**, and the **intrinsic value of water**, leading to a tendency to waste.
- Water is a **political issue**, so **rate revisions are rare**. Water boards across the country run at huge losses.

- Political compulsions and reform challenges:**

- Unlike in the power sector, where electricity regulatory commissions have been set up in all states in addition to the one at the Centre, there is **no regulatory mechanism** for water use.
- Due to political compulsions, state governments cannot bring **drastic reforms** in the water sector.

- Haphazard construction:**

- Unending construction in Bengaluru adds to water consumption.
- There is no **particular policy** to restrict construction, particularly illegal construction. The **damage** to the city caused by this haphazard construction is **irreparable**, affecting the quality of life of citizens.

Way Forward:

Seven sutras that call for urgent action:

- Water conservation:**

- According to experts, the **rainwater** received in Bengaluru (an annual average of 800 mm) should **suffice** to serve the **city's water needs** if properly conserved through **rainwater harvesting** and **recharging**.
- There is a **need** for the proper implementation of **water harvesting policies**.

- Regulating groundwater extraction:**

- There are **examples** of **water rejuvenation** in and around **Devanahalli** that **can be adopted** in other areas of Bengaluru and the state in general.

- Reuse of wastewater:**

- It may be time to consider using **recycled water for drinking purposes**, as is done in **Singapore**, where recycled and bottled water is sold as **NEWater**.

PEPPER IT WITH:

Composite Water Management Index (CWMI), Atal Bhujal Yojana (ABHY), Jal Jeevan Mission (JJM), National Mission for Clean Ganga (NMCG)

- This would require **tertiary treatment** up to a level when it becomes fit for drinking and adopting the **right technology**.
- However, with its own traditional concepts of purity, **India** may **not** be **psychologically attuned** to accept the idea, but **awareness** regarding this can be raised.
- **Water for agriculture:**
 - The solution is to **switch** from water-intensive crops to **light-irrigated crops** like pulses, millets, and horticultural crops.
 - Efforts should be made to **persuade farmers** to change their **cropping patterns**.
 - **Crop diversification** should be practiced to efficiently use water and achieve agricultural prosperity.
- **Revision of rates:**
 - It is important to ensure that water's **cost, price,** and **intrinsic value** are **aligned** to discourage wastage.
 - Therefore, it is essential to **revise rates** so that water boards across the country can generate **positive revenue**.
- Set up a **Water Regulatory Authority:**
 - It is imperative that a water **regulatory authority** be established in the state to ensure certain **standards** for optimum water use and the fixing of water rates.
- **Urban Planning:**
 - Finally, water must be viewed from a **holistic perspective** and treated as **part of urban planning**.
 - A **policy** should be created to limit haphazard construction, particularly illegal construction. This would go a long way toward **alleviating** the city's water crisis.

Pancheshwar Project

News Excerpt:

Negotiations over the landmark Pancheshwar Multipurpose Project (PMP) have been stalled between India and Nepal.

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About the Pancheshwar Multipurpose Project (PMP):

- It is a binational hydropower project to be developed in **the Mahakali River, which borders Nepal and India**.
 - It is by far the biggest bilateral power project conceived between the two sides.
- The development of the project is covered **under the integrated Mahakali Treaty** signed between Nepal and India in 1996.
 - Under this treaty, 3,240 MV underground powerhouses of **equal size will be**

constructed on each side of the Mahakali River in India and Nepal.

- Apart from generating electricity, the project will provide **irrigation to 130,000 hectares of land in Nepal and 240,000 hectares in India** in addition to other incidental benefits, **including flood protection**.

Why was there a delay in the detailed project report (DPR)?

- The main contentious point of bilateral negotiation has been which country benefits most from the multipurpose project, which aims to produce electricity, irrigate vast swathes of India and some areas of Nepal, and control floods.
 - **Kathmandu feels water is 'white gold' and India should pay Nepal for it.**
 - India cannot accept this claim as **it challenges India's understanding of other water-based treaties**, including the Indus Waters Treaty with Pakistan.
- **Still**, the two sides are not on the same page on several issues of the joint DPR, consequently delaying the final report.

Probable Beneficial Impacts of PMP:

- Successful implementation of the Pancheshwar Multipurpose Project will **minimize energy shortages, control flood disasters, promote irrigation facilities, increase agricultural productivity, and help develop tourism** and other commercial activities in Nepal and India.
- The Detailed Feasibility Study Report shows that this project is one of the cheapest hydropower projects in the world in terms of cost against units of energy produced.
 - India will generate more revenue from this project than Nepal.

Way Forward:

- The discussion to kickstart the Pancheshwar project will **require political courage and bureaucratic foresight** on both sides.
 - Both countries should **focus on equitable sharing of benefits**, respecting each other's interests and **international water-sharing norms**.
 - A joint technical committee should be formed to **review the DPR, ensuring transparency and mutual benefit**.
- Resolving these issues will unlock the project's immense socio-economic benefits for both nations.

PEPPER IT WITH:

India-Nepal Relations, Mahakali Treaty, Sharda River

Atmospheric Research Testbed in Central India (ART-CI) and Coastal Research Laboratory (CRL)

News Excerpt:

The Minister of Earth Sciences (MoES) launched the **Atmospheric Research Testbed in Central India (ART-CI)** in the Sehore district in Madhya Pradesh to track monsoons; he also inaugurated the **Coastal Research Laboratory (CRL)** in Visakhapatnam to monitor seawater quality.

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Atmospheric Research Testbed in Central India (ART-CI):

- Pune-based **Indian Institute of Tropical Meteorology (IITM)** is spearheading the research activities at this first-of-its-kind testbed facility in Silkheda (Sehore), Madhya Pradesh.

Indian Institute of Tropical Meteorology (IITM):

- The **Institute of Tropical Meteorology was established in 1962** at Pune as a distinct unit of the India Meteorological Department (IMD).
- Later, the Institute was transformed into an **autonomous organization in 1971** under the name Indian Institute of Tropical Meteorology (IITM)
- Since 2006, IITM has been under the **administrative control** of the specially formed **Ministry of Earth Sciences (MoES)**.
- The institute functions as a **national centre for basic and applied research in monsoon meteorology**.
- The testbed is equipped with high-end instruments to record several vital parameters that will be fed into improving the weather models besides facilitating advanced studies on the Indian monsoons.
 - **Silkheda in Sehore** lies **directly** in the path of **rain-bearing systems** originating in the **Bay of Bengal**.
 - This makes **Silkheda** an **ideal area** for **studying the characteristics** of these **systems** and the properties of the clouds embedded within them.
- It is a unique observational facility and will help better understand the **cloud systems, land-atmospheric systems, and tracking of the low-pressure systems and depressions**.
- With climate change, rainfall associated with these systems during the monsoon season has been becoming erratic.
- Data obtained from the testbed facility will be assimilated and used to improve the forecasts.

Coastal Research Laboratory (CRL):

- Coastal Research Laboratory (CRL) was inaugurated in **Visakhapatnam's Dolphin's Nose area**.

- Chennai-based **National Centre for Coastal Research (NCCR)** will host and coordinate activities at CRL.
- The lab is equipped with facilities to carry out multidisciplinary research encompassing **coastal water quality monitoring, marine ecology, ecotoxicology, molecular biology, and climate change studies**.
- It will also serve as a unique resource hub for stakeholders, enhancing **coastal literacy** among citizens, besides **training the next generation** of researchers in coastal and atmospheric sciences.

National Centre for Coastal Research (NCCR)

- It is an **attached office of MoES**.
- It is envisaged to develop and improve the country's capabilities in addressing the challenging problems prevailing in the **coastal zone**, which have societal, economic, and environmental implications.

Features:

- **Location and Facilities:** Situated in Silkheda, away from urban disturbances and industrial activity, ART-CI provides an **ideal setting for studying monsoon phenomena**.
- **Instrumentation:** ART-CI is equipped with a comprehensive suite of remote-sensing and in-situ instruments to continuously monitor various meteorological parameters.

Why it's crucial and how it can benefit meteorological research:

- **Studying Monsoon Systems:** The ART focuses on **conducting ground-based and in-situ observations of transient synoptic systems**, such as low-pressure areas and depressions originating in the Bay of Bengal during the southwest monsoon season.
 - This data will help improve the accuracy of rainfall predictions, which is vital for various sectors, including agriculture.
- **Enhancing Agricultural Planning:** With a significant portion of India's workforce engaged in agriculture and a substantial portion of agricultural activities being rain-fed, accurate rainfall predictions are crucial for planning agricultural activities.
- **Addressing Limited Understanding:** Despite the importance of the monsoon core zone (MCZ) in central India, there is still limited understanding of the role played by synoptic systems, cloud physics, and other atmospheric parameters in enhancing monsoon rainfall.
- **Mitigating Climate Change Impacts:** Climate change has led to erratic rainfall patterns and strengthened low-pressure systems.
 - By collecting long-term observations on various atmospheric parameters, the ART can contribute to better understanding and mitigating the impacts of climate change on the Indian monsoon.

Way Forward:

As the blue economy and climate change are emerging as significant topics of discussion, Indian scientists are pioneering advancements in these fields, marking crucial progress. Given India's vast size and diverse needs, the establishment of such testbeds and research centers is critical.

Flood Management and Border Areas Programme (FMBAP)

News Excerpt:

The Union Cabinet chaired by the Prime Minister has approved the continuation of the "Flood Management and Border Areas Programme (FMBAP).

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About the FMBAP scheme:

- It will require a total outlay of **Rs. 4,100 crore** for five years, from **2021-22 to 2025-26**.
- It is a **centrally sponsored scheme** with the following **two components**:
 - **Flood Management Programme (FMP):** Under this component of FMBAP, with an outlay of Rs. 2940

Flood Plain Zoning

- Floodplain zoning is a central concept in floodplain management. It aims to **demarcate zones** or areas **likely to be affected by floods** of different magnitudes, frequencies, and probability levels.
- It specifies the types of permissible developments in these zones so that whenever floods actually occur, the damage can be minimized if not avoided.
- It recognizes the basic fact that a river's **floodplain is essentially its domain**, and any intrusion into or developmental activity therein must recognize the **river's 'right of way'**.

crore, **central assistance** will be provided to State Governments for taking up **critical works** related to **flood control, anti-erosion, drainage development** and **anti-sea erosion**, etc. The pattern of funding to be followed:

- **90% (Centre): 10% (State)** for **Special Category States** (8 North-Eastern States and Hilly States of Himachal Pradesh, Uttarakhand and UT of Jammu & Kashmir)
- **60% (Centre): 40% (State)** for **General Category States**.
- **River Management and Border Areas (RMBA):** Under this component of FMBAP with an outlay of Rs. 1160 crore, **flood control and anti-erosion work on common border rivers with neighbouring countries**, including **hydrological observations and flood forecasting**, and

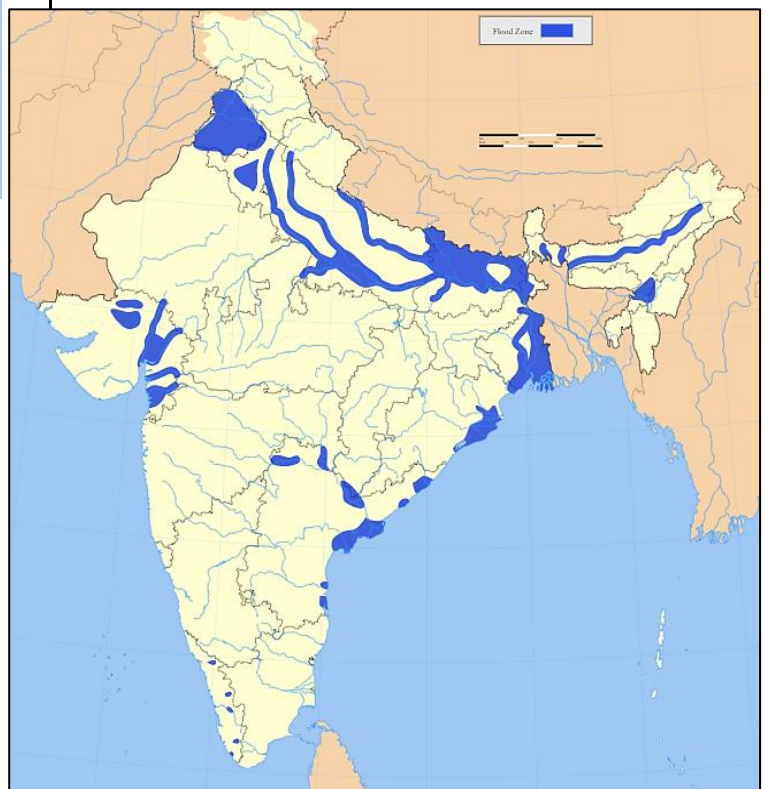
investigation & pre-construction activities of joint water resources projects (with neighbouring countries) on common border rivers will be taken up with **100% central assistance**.

PEPPER IT WITH:
Monsoon Core Zone (MCZ),
Monsoon Trough, ART-CI

- The works implemented **under the RMBA** component also protect important **installations of security agencies, border outposts**, etc., along the border rivers from flood and erosion.
- The FMBAP Scheme has the provision of **incentivizing the states** that implement **flood plain zoning**, which is recognized as an **effective non-structural measure** for flood management.

Flood management practices prevalent in the country:

- Although the primary responsibility of flood management rests with the State Governments, the Union Government **supplements the efforts of the State Governments** in flood management, encouraging the promotion & adoption of modern technology and innovative materials/approaches.
- Central assistance becomes relevant as the **increased incidence of extreme events** has been witnessed during the last few years, given the likely **impact of climate change**. The situation may further aggravate in the future, exacerbating the problem of floods in terms of extent, intensity, and frequency.



Flood Prone Areas in India:

- **National Flood Commission (RBA), 1980** assessed the total flood-prone area in the country as 40 mha, which included the unprotected flood area of 33.516 mha and the balance as a protected area.
 - Subsequently, the Working Groups on Flood Management for X and XI Plans assessed the flood-prone area in the country as 45.64 m ha.

Existing Flood Management Mechanisms in India:

- In India, a **two-tier system** of flood management exists.
- **State Level Mechanism** - The State Level Mechanism includes the Water Resources Departments, State Technical Advisory Committee and Flood Control Board. In some States, the Irrigation Departments and Public Works Departments look after flood matters.
- **Central Government Mechanism** - The Union Government has set up the following organizations and various expert committees to enable the State Governments to address flood problems in a comprehensive manner:
 - **Central Water Commission**
 - **Brahmaputra Board; Ganga Flood Control Commission; Farakka Barrage Project Authority**
 - **National Disaster Management Authority.**

General flood management measures practiced in India:

- **Engineering / Structural Measures:**
 - An artificially created **reservoir** behind a dam across a river.
 - A **natural depression** suitably improved and regulated, if necessary.
 - By **diversion** of a part of the peak flow to another river or basin, where such diversion would not cause appreciable damage.
 - By constructing a **parallel channel** by passing a particular town/reach of the river prone to flooding.
 - **Embankments** that artificially raise the effective river bank and thereby prevent spilling.
 - **Channel and drainage improvement** works, which artificially reduce the flood water level so as to keep the same, confined within the river banks and thus prevent spilling.
- **Administrative / Non-Structural Measures:**
 - Facilitating **timely evacuation** of the people and **shifting** of their movable property to safer grounds by having advance warning of incoming flood, i.e. **flood forecasting and flood warning** in case of threatened inundation.
 - **Discouraging** the **creation** of valuable assets/**settlement** of the people in the areas subject

to frequent flooding, i.e. enforcing flood plain zoning regulation.

Way Forward:

- The approval of the Flood Management and Border Areas Programme (FMBAP) reflects the government's commitment to **enhancing flood management** efforts across states.
- The scheme focuses on modern **technology**, innovative **approaches**, and non-structural measures like **floodplain zoning** to **mitigate** the impact of floods, especially in the face of climate change.

PEPPER IT WITH:
Hazard Mapping,
NDRF, NDMA

PRE-SHOTS

Kerala declares man-wild conflicts a 'disaster'

News Excerpt:

The Kerala cabinet decided to declare human-wildlife conflict as a '**state-specific disaster**' in the wake of a recent spurt in human fatalities in wild animal attacks.

What is a Disaster?

- A **serious disruption** of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability, and capacity, leading to one or more of the following: **human, material, economic, and environmental losses and impacts.**
- The effect of the disaster can be **immediate and localized**, but it is often widespread and can last for a long period.

Steps taken by the Kerala govt to resolve the issue:

- The cabinet has decided to involve the **State Disaster Management Authority (SDMA)** in coordination with other government departments in finding solutions.
- Committees will be formed at the state, district, and grassroots levels and responsibilities and modes of operations will be finalized.
- The **state-level committee will have the chief minister as the president**, the chief secretary as the convenor.
- Another **control committee will be set up at the state level, with a chief secretary as the president.**
- The government has decided to appoint the **Chief Wildlife Warden as the nodal officer for the human-wildlife conflict.**
- **Other important measures announced are as follows:**
 - Appointing more **temporary watchers** in areas inhabited by people with frequent wild animal attacks.

- **Clearing dense vegetation** in private estates and plantations close to actual forests.
- Strengthening **rapid response teams** with more personnel, equipment, and vehicles.
- Formation of **special alert committees** at forest stations and ensuring adequate water supply within forests for wild animals.
- The Kerala government will also convene meetings with officials of **Karnataka and Tamil Nadu** to build coordination in mitigating the conflict.

Why has the State Disaster Management Authority (SDMA) been involved?

- Managing man-animal conflict is the responsibility of the **forest department, which acts as per the Wild Life Protection Act**.
- Once the issue is declared a **state-specific disaster, the onus to deal with it shifts to the state disaster management authority**, which, powered by the **Disaster Management Act, 2005** can take quicker and more decisive action.
- Once the issue is under the disaster management authority, **it can take action to override other norms**, including those under the Wildlife Protection Act.
 - **As per section 71** of the Disaster Management Act, **no court (except the Supreme Court or a High Court) shall have jurisdiction** to entertain any suit or proceeding in respect of anything done by relevant authorities in pursuance of any power conferred by this Act.
 - **Section 72 of the Disaster Management Act** says that the provisions of this Act will have an **overriding effect** on any other law during the specific period that **a disaster has been declared**.
 - According to the **present disaster-management norms**, Cyclones, Droughts, Earthquakes, Fires, Floods, Tsunamis, Hailstorms, Landslides, Avalanches, Cloudbursts, Pest attacks, Frost, and Cold waves have already been declared disasters covered under the SDRF (State Disaster Response Fund).
 - **Coastal erosion, lightning, strong wind, sunstroke, and soil piping are also considered State-specific disasters.**

Other state-specific disasters:

- In 2015, **Odisha** had declared snakebite a state-specific disaster.
- In 2020, **Kerala** declared Covid as a state-specific disaster.
- Besides, heat waves, sunburn, and sunstrokes were declared so in 2019, as well as the phenomenon of soil piping in 2017 and lightning and coastal erosion in 2015.

Meghalaya's Byrnihat most polluted 'city' in India

News Excerpt:

According to data released by the Centre for Research on Energy and Clean Air (CREA), Meghalaya's Byrnihat, an industrial town on the border with Assam, was the most polluted 'city' in India during February.

Key findings of the report:

- According to the CREA report, Byrnihat recorded a monthly average PM2.5 concentration of 183 µg/m³, which was around 60 µg/m³ higher than in Bihar's Araria, the second-most polluted city in the country.
- Hapur in Uttar Pradesh and Rajasthan's Hanumangarh were the third and the fourth most polluted cities.
- The PM2.5 levels in Byrnihat were also almost 1.8 times the concentration recorded for Delhi for the same period. Delhi was the 14th most polluted city in India in February 2024.
- The other urban centres in the northeast (NE) that made it to the list of 30 most polluted cities in India in February were **Nalbari (5th), Agartala (12th), Guwahati (19th), and Nagaon (28th)**, highlighting the worsening pollution levels across the region.
- Out of 11 cities with continuous ambient air quality monitoring stations in the northeastern States, six recorded PM2.5 levels beyond the **prescribed daily National Ambient Air Quality Standard (NAAQS)** by the Central Pollution Control Board (CPCB).
- Air quality significantly improved in February, with 36 cities falling into the **'good'** category.
 - This was 14 more than the 22 'good' urban centres in January.
- The **"satisfactory"** category also saw a substantial increase to 124 cities from 77 in January.
 - The count of cities in the 'moderate' category decreased to 66 from 84 in January.
- The **drop in pollutant concentrations is attributed to improving wind speed and rising temperatures**, along with other meteorological factors and some reduction in emissions across different cities.
- A total of 59 cities were featured in the daily most polluted cities list in February and 23 of those featured at least five times during the 29-day period.
- **Sivasagar, Silchar, Aizawl, and Imphal** recorded monthly average PM2.5 concentrations below the NAAQS and were the **cleanest cities in the NE region**.
 - Sivasagar was the second cleanest city in India, followed by Silchar from the area at the 23rd spot.
- **The cleanest was Satna in Madhya Pradesh**, and the third cleanest was Vijayapura in Karnataka.

- According to CREA, none of the cities complied with the WHO-safe guideline concentrations for PM2.5.

Significance of the report:

- The data emphasize the **pressing need for significantly bolstering air quality monitoring** in the north-eastern States.
- It reveals concerns about **pollution levels in urban centres**.

About the Centre for Research on Energy and Clean Air (CREA):

- CREA is an independent research organisation **registered as a nonprofit in Finland**, with staff across Asia and Europe.
- It is focused on revealing the trends, causes, and health impacts, as well as the solutions to air pollution.
- This recent study, based on the **monthly average of (particulate matter) PM2.5**, has put the spotlight on hazardous air pollution levels in urban centres across the States in the northeast.

Singhbhum Craton

News Excerpt:

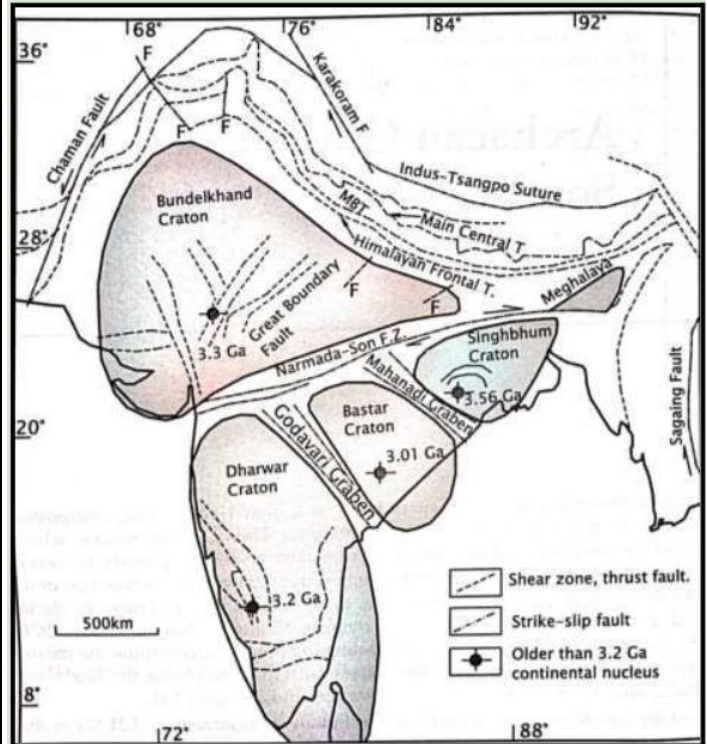
Singhbhum Craton's unique geological features, including its greenstone belts, provide invaluable **information about Earth's surface and atmospheric processes**. This is crucial for hypothesising early habitable conditions and the emergence of life on Earth.

Key highlights of the study:

- While scientists know what types of rocks originated roughly 3.5 billion years ago, they still don't fully comprehend the geological processes that generated these formations.
- **Evidence is preserved in ancient volcanic and sedimentary rocks** dating back to the Archaean age, between 4 billion and 2.5 billion years ago.
- These rocks are found in the oldest parts of the present continents, called **cratons**.
 - Cratons are **pieces of ancient continents formed billions of years ago**.
 - Studying them explains how processes within and on the surface of Earth operated in the past.
- One example is the **Singhbhum Craton**, in the Daitari Greenstone Belt in the state of Odisha in eastern India.
 - The **craton's oldest rock assemblages** are largely **volcanic and sedimentary rocks**, also known as **greenstone successions**.
 - **Greenstones** are **rock assemblages made up mostly of submarine volcanic rocks with minor sedimentary rocks**.

Key findings from the study of rocks from the Singhbhum Craton:

- The geology of Singhbhum Craton shares stark similarities with the greenstone belts documented in **South Africa's Barberton and Nondweni areas** and the **Pilbara Craton in Western Australia**.
 - All these areas experienced widespread **submarine mafic – meaning high in magnesium oxide –**



volcanic eruptions between 3.5 and 3.3 billion years ago, preserved as **pillowed lava and komatiites**.

- This differs from **silicic (elevated concentration of silicon dioxide) volcanism**, which research has shown was **prevalent around 3.5 billion years ago**.

About Singhbhum Craton (SC):

- Singhbhum Craton **lies between Satpura Mobile Belt in the east, north, and north-west and Eastern Ghat Mobile Belt in the south**.
- It is **separated from Bastar Craton by Mahanadi Graben**.
- It is **located in the northern parts of Odisha and Jharkhand**.
- The Singhbhum region of southern Bihar and its contiguous regions of Mayurbhanj, Keonjhar, and Bonai of Sundergarh districts of Odisha are well known for their rich **deposits of iron and copper**.
- The Singhbhum Shear Zone traverses the region.
 - It separates a northern terrain of more highly metamorphosed rocks and a southern terrain of relatively less metamorphosed rocks.
- It provides a well-preserved and extensive **Archean geological record**.

- The SC of Eastern India comprises large economic grade reserves of Fe, Mn, Cr, PGE (platinum group elements), Ti, Au, U, Cu, P, REE (rare earth elements) and W (Tungsten) ores along the peripheral part of the central granitic pluton.

The flow of Ravi's water to Pakistan fully stopped

News Excerpt:

The flow of water from the Ravi River to Pakistan has been completely halted with the completion of the **Shahpur Kandi** barrage.

Benefits of a halt on the flow of water from the Ravi River to Pakistan:

- Allocation for Jammu and Kashmir:** The halt means that the Jammu and Kashmir region will now benefit from the **1,150 cusecs** of water that was previously allocated to Pakistan.
- Irrigation Benefits:** The water will be benefiting over 32,000 hectares of land in the **Kathua and Samba districts**.
- Maximum Utilization of Ravi River:** The completion of the barrage allows India to make **maximum use of the Ravi River**, ensuring that the water previously flowing towards Pakistan from the old Lakhanpur dam will now be utilized in Jammu and Kashmir and Punjab.

- Contribution to Agricultural and Economic Growth:** With the completion of the barrage, India can now harness the water resources from the Ravi River for its own benefit, contributing to agricultural and economic growth in Jammu and Kashmir and Punjab.

River distribution between India and Pakistan under the Indus Water Treaty:

- Under the provisions of the **Indus Waters Treaty**, signed between India and Pakistan in **1960**, all the water of the **eastern rivers - Sutlej, Beas, and Ravi** amounting to around 33 million acre-feet (MAF) annually — is allocated to India for unrestricted use.
- The waters of **western rivers— Indus, Jhelum, and Chenab** — amounting to around 135 MAF annually have been assigned largely to Pakistan.
- According to the Treaty, India has been given the right to **generate hydroelectricity** through **run-of-the-river projects** on the western rivers subject to specific criteria for design and operation.
- The Treaty also gives Pakistan the right to **raise objections** to the design of Indian hydroelectric projects on western rivers.
- Pakistan roughly got **80% of the water** in the Indus drainage system.
- India got about 3.3 crore of 16.8 crore acre-feet of water in the Indus system. At current usage, India utilises a little over 90% of its quota of Indus waters.

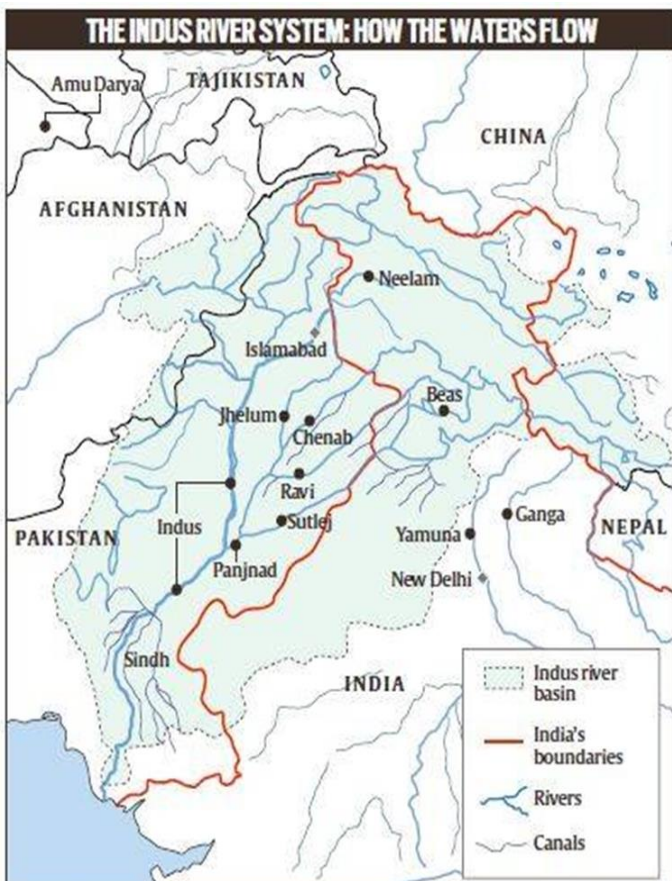
Doomsday Glacier

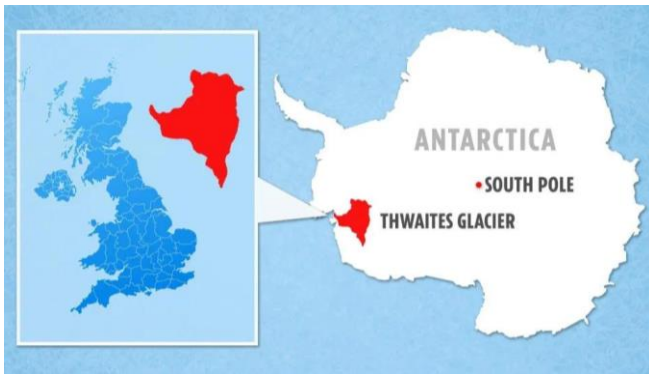
News Excerpt:

A study has found that Antarctica's **Doomsday Glacier (Thwaites Glacier)** has been melting since 1940 due to El Nino.

More about the findings:

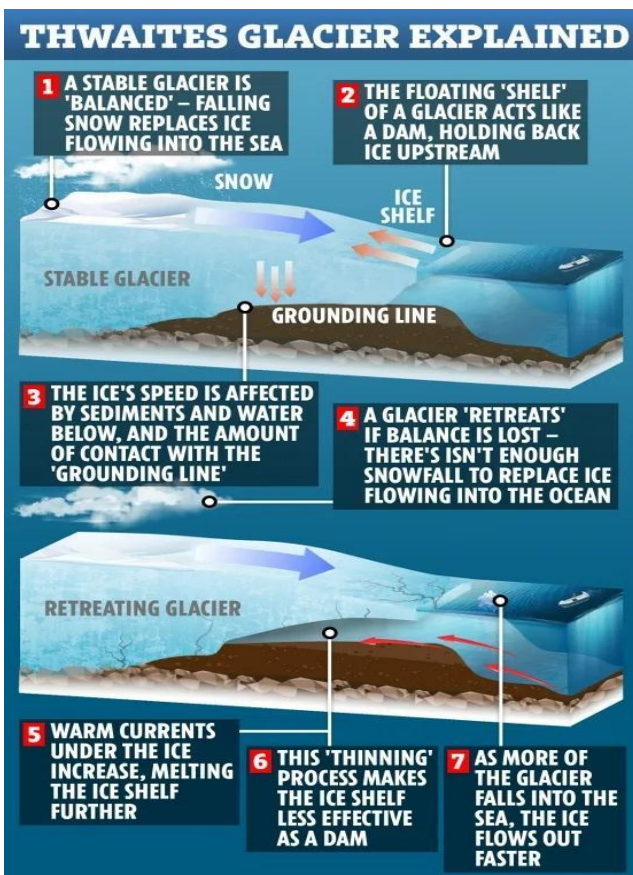
- According to research conducted by the **National Academy of Sciences (USA)**, researchers utilized marine sediment cores to unearth evidence suggesting a **significant increase in melting** starting from 1940.
- The **Thwaites Glacier's** retreat mirrors similar patterns observed in neighbouring Pine Island Glacier ice formations.
- The primary concern revolves around the Thwaites Glacier, which acts as a **natural barrier to vast reservoirs of ice behind it**. Should it collapse, these ice reservoirs would cascade down the **gentle slopes of continental Antarctica**, resulting in an additional 3-meter surge in sea levels.
 - Such a rise would affect low-lying regions and coastal cities worldwide, with countries like **Bangladesh, the Maldives, the Netherlands, and parts of the United States, such as Florida and Louisiana**, particularly vulnerable.





Importance of Thwaites:

- West Antarctica is the **stormiest part of the world's stormiest continent**. Thwaites is remote even by Antarctic standards, more than 1,000 miles (1,600 km) from the nearest research station.
- Understanding what is happening here is essential for scientists to **accurately predict rising sea levels**.
- The ice in **Antarctica holds 90% of the world's freshwater**, and 80% of that ice is in the eastern part of the continent.



Star Dunes

News Excerpt:

Scientists unveiled the first in-depth study focused on a star dune in **eastern Morocco** called **Lala Lallia**, situated within the **Sahara Desert**.

Key findings of the study:

- **Lala Lallia dune** is about **900 years old**, and it has been accumulating roughly 6,400 metric tons of sand annually as wind relentlessly blows sand through the desert.
- Lala Lallia is moving westerly at a **speed** of about **1.6 feet** (0.5 meters) annually.
- The researchers used **ground-penetrating radar** to peer inside the dune and employed **luminescence dating** to determine how long Lala Lallia has taken to form, a **method based on the amount of energy trapped inside the grains of sand**.

Star Dunes:

- They are vaguely **pyramid-shaped sand formations up to about 1,000 feet (300 meters) tall**, with arms stretching out from a central peak, giving them a star-like appearance when viewed from above.
- Star dunes are formed in areas with **complex wind regimes**, which means winds blow from different directions and accumulate sand at one point. Thus, big piles of sand form giant dunes.
- Star dunes make up just under **10% of the dunes** in **Earth's deserts** and are the tallest ones, surpassing other types such as crescent-shaped barchan dunes and straight and lengthy linear dunes.
 - They have also been spotted on **Mars** and Saturn's largest moon **Titan**.
- One of the largest star dunes is found in the **Badain Jaran desert in western China**. They are also found in places such as the **Namib Sand Sea in Namibia**, large sand seas like the **Grand Erg Oriental and Grand Erg Occidental in Algeria**, and **Rub al Khali in Saudi Arabia**.

In North America, Great Sand Dunes National Park in Colorado contains a series of them.

About Lala Lallia star dune:

- This star dune is situated in eastern Morocco; the term **Lala Lallia** means "**highest sacred point**" in the local Berber language.
- It is situated within the **Sahara Desert** in a small sand sea called **Erg Chebbi**, near **Merzouga town**, close to the **Algerian border**.
- Lala Lallia rises about 330 feet (**100 meters**) above the **surrounding dunes** and is approximately 2,300 feet (**700 meters**) wide.
- It contains about **5.5 million metric tons of sand**.

ART CULTURE

Pandavula Gutta & Geo-heritage Site

News Excerpt:

Pandavula Gutta has been **officially recognized** as the **sole Geo-heritage site** in **Telangana**.

About Pandavula Gutta:

- The **Pandavula Konda** (Pandavula Gutta) site was first **discovered** in **1990**.



Pandavula Gutta rock art paintings (File photo)

- It is **located** in the **Bhupalpally district** of **Telangana**, home to many prehistoric habitation sites.
 - Pandavula Gutta is rich in terms of the number of **paintings, rock shelters, and habitation**, right from the **Mesolithic to Medieval times**.
- **Palaeolithic cave paintings** have been found at Pandavula Gutta (Regonda Mandal).
 - These cave paintings offer a rare glimpse into **prehistoric man's rock art** identified on walls and ceilings of caves, rock shelters, and isolated boulders.
 - The rock art paintings **depict wildlife** like Bison, Antelope, Tiger, Leopard, etc.
 - These paintings also include other **shapes**, such as the **Swastika symbol**, circles and squares, and weapons, such as bows, arrows, swords, and lancers in green, red, yellow, and white pigment **colours**.

Geo-heritage site:

"**Geoheritage**" is a **generic** but descriptive term applied to sites or areas of geologic features with significant **scientific, educational, cultural, or aesthetic value**.

- **Scientifically and educationally significant geoheritage sites** include those with textbook geologic features and landscapes, distinctive rock or mineral types, unique or unusual fossils, or other geologic characteristics that are significant to education and research.
- **Culturally significant geoheritage sites** are places where geologic features or landscapes play a role in cultural or historical events.

- **Aesthetically significant geoheritage sites** include visually appealing landscapes because of their geologic features or processes.

Geological Survey of India (GSI):

- It was established in **1851**.
- The **main functions** of GSI relate to creating and updating **national geoscientific information** and **mineral resource assessment**.
- GSI is **headquartered in Kolkata**, with **six regional offices** in Lucknow, Jaipur, Nagpur, Hyderabad, Shillong, and Kolkata, as well as **state unit offices** in almost all states of the country.
- Presently, the Geological Survey of India is an **attached office** to the **Ministry of Mines**.

Kochrab Ashram

News Excerpt:

The Prime Minister inaugurated the renovated **Kochrab Ashram** in **Ahmedabad**, commemorating the 94th anniversary of the **Dandi March**.

About Kocharab Ashram:

- Kocharab Ashram was the **first Ashram** founded by Mahatma Gandhi in **1915** after coming to **India from South Africa**.
 
- This campus was called **Satyagraha Ashram** and was based on Gandhi's ideas of achieving India's independence from British rule through peaceful methods.
- Gandhi's friend and fellow barrister **Jivanlal Desai** gifted him the land at Kocharab to build the **Satyagraha Ashram**.
 - Mahatma Gandhi based himself here for about **one-and-a-half** years before moving to the **Sabarmati Ashram**.
 - In June **1917**, when the **plague** hit the city, Gandhi shifted the Ashram to Sabarmati.
 - In Sabarmati, he founded the **Harijan Ashram**, also known as the **Gandhi Ashram**.
- Mahatma Gandhi also started an '**Antyaj Ratri Shala**' (a **night study class**) for **Dalits** at the Ashram.
- Kocharab Ashram is a **European-style bungalow** with a **white-washed facade**.

- It is located in Kochrab village on the outskirts of **Ahmedabad** on the banks of the **Sabarmati River**.
- Mahatma Gandhi started planning his '**war against the British**' in Kochrab Ashram.

Sangeet Natak Akademi Fellowships and Awards

News Excerpt:

The **President** of India presented Sangeet Natak Akademi **Fellowships and Awards** for the **years 2022 and 2023** in New Delhi.

About the Awards & Fellowships:

- More than 90 artists from the fields of **Indian classical music, dance, drama, folk & tribal arts, puppetry, and allied theatre** art forms were felicitated.
- The honour of **Akademi Fellow** carries a purse money of **Rs. 3,00,000/-** (Rupees three lakhs) while the **Akademi Award** carries a purse money of **Rs. 1,00,000/-** (Rupees one lakh), besides a **Tamrapatra** and **Angavastram**.
- Sangeet Natak Akademi Fellowship (**Akademi Ratna**) is the **highest honour** given to an eminent artist in the field of **performing arts** for his/her exceptional contribution to his/her performing art form.
 - It is **restricted to 40** at any given time.

About Sangeet Natak Akademi:

- It was established by the **Indian education ministry in 1952** and became functional the following year, when Dr. P. V. Rajamannar, its **first chairman**, was appointed.
- **Dr Rajendra Prasad**, the first President of India, **inaugurated** it on January 28, 1953, in a special function held in the Parliament House.
- It is the **apex body** in the field of **performing arts** in the country and was set up for the preservation and promotion of the vast intangible heritage of India's diverse culture expressed in forms of music, dance, and drama.
- The **Chairman** of the Akademi is **appointed by the President** of India for a term of **five years**.
- It is an **autonomous body** of the **Ministry of Culture**, Government of India.

UNESCO tag for 'Paruveta Utsavam'

News Excerpt:

The Indian National Trust for Art and Cultural Heritage (INTACH) is making efforts to get UNESCO to declare the annual '**Paruveta Utsavam**' as an '**intangible cultural heritage**'.

About the Festival:

- The **annual mock hunting festival is conducted** at the Sri Narasimha Swamy temple in Ahobilam, Andhra Pradesh.
- The festival stands as a **symbol of communal harmony** where the deity from the sanctum sanctorum of the temple is taken to the 32 **Chenchu tribal hamlets** around Ahobilam for 40 days.
- It is celebrated by all sections of people irrespective of their caste.
- According to folklore, Lord Vishnu, upon his incarnation as a man-lion (Narasimha) in Ahobilam, married Maha Lakshmi, who was born as a tribal girl, Chenchulakshmi.
- **The Kurnool District Gazetteers**, published by Government Press in 1881, records several beliefs of the Chenchu tribes, including their **reverence to Ahobila Narasimha** as their brother-in-law and inviting Him home for **Makara Sankranti**.
- During the festival, the temple staff stay in these hamlets for the entire period, indicating the **presence of a casteless society** in the past, with no hint of untouchability.
- The festival starts with the tribals aiming their bow and shooting two arrows at the palanquin, not only as a mark of reverence but also to show that the deity is under their protective cover.

How Tribal are linked to the festival:

- By 'Guru Parampara', the temple is governed by the 600-year-old **Ahobila Mutt**, which encouraged this tribal festival **to spread Srivaishnavism among the folk tribes**.

The tribal link to Lord Vishnu is confirmed in **Vasanthika Parinayam**, a Sanskrit drama written by the Mutt's 7th Jeeyar (pontiff) several centuries ago.

Chenchu Tribe:

- The Chenchu are a very small nomadic forest tribe of Odisha.
- It is said that 'Chenchu' is a person who lives under a 'Chettu' (tree).
- They mainly inhabit the Nallamalai Hill ranges in the southeastern part of India, comprising parts of undivided Andhra Pradesh.
- They speak a language of their own called Chenchu, which belongs to the **Dravidian language family**.
- **They are a semi-nomadic, forest-dwelling, and forest-dependent tribe of hunters and food gatherers**. In the past, they lived in caverns or under shady trees. Now, they live in small huts.
- Most of the temporary Chenchu settlements are situated at the edge or interiors of forests to facilitate food gathering.
- The tribe is divided into several **exogamous kinship**

groups called **kulam** or intiperu. They practice early marriage and prefer cross-cousin marriage.

- They either bury or cremate the dead and observe mourning and pollution for ten days.

About INTACH:

- The Indian National Trust for Art and Cultural Heritage (INTACH) was **founded in 1984 in New Delhi** with the vision to spearhead heritage awareness and conservation in India.
- **Headquartered in New Delhi**, it operates through various divisions such as Architectural Heritage, Natural Heritage, Material Heritage, Intangible Cultural Heritage, etc.

India sends 4 Buddha relics to Thailand.

News Excerpt:

Four bone fragments of Lord Buddha, also known as **Kapilvastu Relics**, presently kept in the National Museum, were taken to Thailand.

More details on the news:

- Apart from the **Kapilvastu relics**, the relics of two of Buddha's disciples, **Arahata Sariputra** and **Arahata Maudgalayana**, which are currently in Sanchi, were also taken to Thailand.
- The Buddha relics under the care of the National Museum were excavated from **Piprahwa** in the **Siddharthnagar District of Uttar Pradesh**, an erstwhile part of the **ancient city of Kapilavastu**.
- Portions of this collection of sacred relics have been earlier taken to Sri Lanka in 1976 and 2012, Mongolia in 1993 and 2022, Singapore in 1994 and 2007, South Korea in 1995 and Thailand also in 1995.

Categorization of Artifacts:

- Categorization of the objects/artefacts belonging to the National Museum is done by the National Museum itself and not by the Archaeological Survey of India (ASI).
- **Buddha relics have been declared the "AA" category** by an Expert Committee constituted by the National Museum.
- The objects/artefacts of the **"AA" category are usually not sent abroad**. However, in **exceptional cases these relics can be sent abroad** with the approval of the Competent Authority.

Piprahwa Stupa



- Piprahwa is a village in Siddharthnagar district in the state of Uttar Pradesh.
- Some scholars have **suggested** that modern-day **Piprahwa-Ganwaria was the site of the ancient city of Kapilavastu**, the capital of the **Shakya kingdom**, where Siddhartha Gautama spent the first 29 years of his life.
- It may also have been the burial place of the portion of the Buddha's ashes that were given to his own Sakya clan.
- The Kapilvastu Relics were excavated from Piprahwa in **1898**.

Morodharo: A newly found Harappan site near Dholavira

News Excerpt:

Researchers from Oxford University recently discovered a **new Harappan site** near Dholavira, '**Morodharo**'.

About Morodharo:

- The site, formally identified in January, has been named **Morodharo** (a Gujarati word for **less salty and potable water**).
- The newly discovered site at **Lodrani** (51 Km from Dholavira) **resembles the Dholavira site**.
- The site is estimated to be mature (**2600-1900 BCE**) to late (**1900-1300 BCE**) Harappan, around 4500 years old.
- It is a **fortified settlement** dating back to the Harappan era.
- **Burial cairns**, which are mounds of stones used to demarcate a boundary, are found.
- Harappan Pottery with **perforated jar sherds**, **reserved slipware**, and **terracotta cakes** are also unearthed.



About Dholavira:

- The ancient city of Dholavira, the **southern centre** of the **Harappan Civilization**, is situated on the **arid island** of **Khadir** in **Gujarat**, India.
- It was occupied between **3000-1500 BCE** and is one of the best-preserved urban settlements from the period in Southeast Asia, comprising a **fortified city** and a **cemetery**.
- In **2021**, **UNESCO** declared the old city of **Dholavira** as **India's 40th World Heritage Site**.

Sammakka-Sarakka Medaram Jathara

News Excerpt:

Sammakka Saralamma Jathara, or Medaram Jathara, is a tribal festival honouring the tribal goddesses celebrated in the state of Telangana.

About Sammakka-Sarakka Medaram Jathara:

- The festival is said to be **Asia's biggest tribal congregation**.
- It is also the **second-largest fair in India**, after the Kumbh Mela.
- It is celebrated by the **Koya tribe of Telangana** for four days.
- It takes place **once every two years**.
- The festival commemorates the fight of a mother and daughter, Sammakka and Saralamma, with the reigning Kakatiya rulers against an unjust levying of taxes on tribals.

Related: Jampanna Vagu

- Jampanna Vagu is a **tributary to River Godavari**. According to history, Jampanna is the tribal warrior and the son of Tribal Goddess Sammakka.
 - The Jampanna Vagu is still **red in colour**, marked with the blood of Jampanna (Scientifically, the red colour of the water is attributed to the soil composition).
- Tribals believe that taking a holy dip in the red water of Jampanna Vagu during Jathara reminds them of the sacrifice of their gods.

Khajuraho Dance Festival

News Excerpt:

Madhya Pradesh CM inaugurated the golden jubilee (50th edition) event of the Khajuraho dance festival.



About the Festival:

- The festival **started in 1975**, is organized every year in Khajuraho (in Chhatarpur district) by the Culture Department through **Ustad Alauddin's Music and Art Academy**, Bhopal, in collaboration with Madhya Pradesh Patan Department and Archaeological Survey of India.
- **Dedicated to Lord Natraj Mahadev**, often revered as the '**God of Dance**', this festival embodies the **sacredness of dance** as a medium of direct connection with the divine.
- **The Kathak Kumbh performance**, held at the Khajuraho (world heritage site), was the major attraction of the festival, as 1484 artists participated in it, setting a Guinness World Record.
- The event underscores the **spiritual significance of dance**, celebrating its **profound cultural heritage**.

The History of the Khajuraho Group of Temples:

- They are famous for their **Nagara-style architecture** and graceful sculptures of **nayikas (Hindu Mythological female protagonists) and deities**.
- The splendor **of the intricate statues** is one of the reasons that makes it a popular site to visit among tourists.
- Built between 950-1050 AD by the Chandela Dynasty, these temples represent various **forms of meditation, spiritual teachings, and relationships through stimulating art**.
- The temples are famous for their craftsmanship, which consists of splendid demonstrations of fine sculptures and **exceptional architectural skill**, making them **one of the most stunning UNESCO World Heritage Sites (1986) in India**.

Badami Chalukya temples, writing found in Nalgonda

News Excerpt:

Two Badami Chalukya temples at least 1,300-1500 years old and a 1200-year-old **label inscription** were recently discovered in Mudimanikyam village **along the banks of Krishna in Nalgonda district in Telangana.**



About the Temples:

- Temples are located at the end of the village; they date back to between 543 AD and 750 AD, corresponding to **the rule of the Badami Chalukyas.**
- These temples are constructed in **Kadamba Nagar Style in the Rekha Nagar format.**
- These temples are the only example of such architecture in **Telangana.**

About the Label inscription:

- The Label inscription, dating back to the 8th or 9th century AD, also from the Badami Chalukya period, **reads as "Gandaloranru"** and is inscribed on a pillar of a group of five temples in the village.
- The precise meaning was not clear but **"Ganda" in Kannada also means 'Hero'.**

Tawi Festival

News Excerpt:

In Jammu and Kashmir, the four-day-long 'Tawi Festival' was organized to showcase the region's art, culture, and heritage.

About the Festival:

- This four-day festival will showcase the vibrant traditions **that make Jammu unique**, focusing on the promotion of **Jammu's rich, diverse art forms and cultural heritage.**
- This festival is an organized series of concerts, plays, and cultural events (seminars, workshops, folk music performances etc.) which is being **celebrated in Amar Mahal Museum and Library (Amar Mahal Palace Jammu) Complex Jammu.**
- The festival was **named after the Tawi River**, which flows through Jammu Town.



About Amar Mahal Palace:

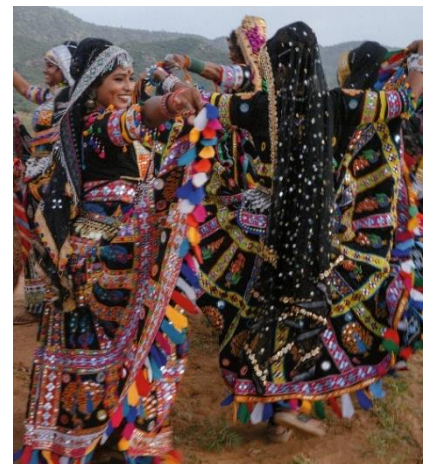
- Amar Mahal Palace, built in **1862 in a unique, French-chateau style** of architecture. **Located atop a hill overlooking the Tawi River**, 4 rooms of the palace have been converted into art galleries and historic museums, depicting the royal history of Jammu.
- The star of this museum is the **golden throne of Jammu, weighing 120 kg**, all pure gold. The art collection here is also quite impressive, with paintings of M F Hussain and Laxman Pai on display, among other famous Indian contemporary painters.
- Another interesting aspect is the **Pahari paintings** displayed here, which depict tales from the Mahabharata and other folklore, especially those of **Nal Damyanti.**

Kalbelia Dance

News Excerpt: Artists from Rajasthan performed the 'Kalbelia' dance during the **National Culture Festival** under the auspices of the **Union Ministry of Culture.**

About the Kalbelia dance:

- **Kalbelia dance** is a folk dance of the state of Rajasthan.
- It is also known by other names, such as **'Sapera Dance'** or **'Snake Charmer Dance'**.
- The dance is particularly performed by a Rajasthani tribe called **'Kalbelia'.**
- Kalbelia was inscribed in **2010** on **UNESCO's Representative List of the Intangible Cultural Heritage of Humanity.**



- In Kalbelia dance, **males play various traditional instruments**, and **females dance**.
- Kalbelia dance is one of the most sensuous dances among all Rajasthani dances.
 - Women in flowing **black skirts** dance and swirl, replicating the **movements of a serpent**.
 - Men accompany the women on the **Khanjari percussion instrument** and the **Pungi**, a







woodwind instrument traditionally played to **capture snakes**.

- The dancers wear traditional **tattoo designs**, **jewellery**, and **garments** richly embroidered with **small mirrors** and **silver threads**.

GI Tags table

News Excerpt:

The Geographical Indications Registry in Chennai has granted a Geographical Tag to several products.

PRODUCT	ABOUT	
Rupa Tarakasi (Odisha)	<ul style="list-style-type: none"> • The famous Cuttack Rupa Tarakasi (Silver Filigree) from Odisha has been given the Geographical Indication (GI) tag. • Filigree has been traditionally associated with fine craftsmanship and luxurious design in classical jewellery. • In Odia, "tara" means wire and "kasi" means to design. Thus, as part of Rupa Tarakasi, silver bricks are transformed into thin fine wires or foils and used to create jewellery or showpieces. • The filigree work is quite distinct in character from the indigenous silver jewellery of the country. 	
Banglar Muslin (West Bengal)	<ul style="list-style-type: none"> • The Banglar Muslin is one of the popular traditional handloom crafts of Bengal. • Muslin cloth is made of cotton, which is spun to create threads that maintain tensile strength at thread counts higher than any other cotton product. 	
Narasapur Crochet Lace Products (Andhra Pradesh)	<ul style="list-style-type: none"> • Narsapur in the West Godavari region of Andhra Pradesh has received a GI tag for Crochet Crafts. • Narsapur has received global acclaim for its intricate craftsmanship, unique designs and good-quality Crochet. • Crochet craft was brought by missionaries to Narsapur, and now it is a strong centre for intricate handmade crocheted lace work. 	
Ratlam Riyawan Lahsun (Madhya Pradesh)	<ul style="list-style-type: none"> • Ratlam Riyawan Lahsun (Garlic) is a variety of garlic named after Riyawan village in Ratlam district of Madhya Pradesh. • Riyawan Lahsun is popular for its robust flavour and high oil content as compared to the other varieties. • Each bulb of Riyawan consists of five to six cloves. 	
Ambaji White Marble (Gujarat)	<ul style="list-style-type: none"> • Ambaji White Marble is formed when limestone is re-crystallized under the earth's crust due to intense pressure and heat. • The Marble is found in the state of Gujarat. 	
Majuli Mask of Assam	<ul style="list-style-type: none"> • Majuli masks of Assam are made in different varieties and sizes and are mainly divided into different categories. <ul style="list-style-type: none"> ○ 'Mukha bhaona' face mask covers the face. ○ 'Lotokoi' hanging mask, which is bigger in size, extends to the chest. ○ 'Cho Mukha' is a head and body mask. 	

Majuli Manuscript Paintings of Assam	<ul style="list-style-type: none"> Assam Majuli's Manuscript Paintings illustrated numerous stories and chapters taken from the great Hindu epics Ramayana and Mahabharata and, above all, subjects from the Bhagavata Purana. The Majuli Manuscripts have also been granted GI Tag. 	
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Other important GI Tags granted in March 2024:

PRODUCT	TYPE	ORIGIN
Sitia Lasithiou Kritis	Food Stuff	Greece
Kutch Rogan Craft	Textiles	Gujrat
Tripura Risa Textile	Textiles	Tripura
Hyderabad Lac Bangles	Handicraft	Telangana

Geographical Indication Tag:

- A geographical indication (GI) is a sign used on products that have a **specific geographical origin** and possess qualities or a reputation that are due to that origin.
 - A sign must identify a product as **originating in a given place for it to function as a GI**.
 - Geographical indications are typically used for **agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products**.
- Geographical Indications are part of the **intellectual property rights (IPR)** covered by the **Paris Convention for the Protection of Industrial Property**.
- In India, Geographical Indications registration is administered by the **Geographical Indications of Goods (Registration and Protection) Act of 1999**.

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GOVT SCHEMES & INITIATIVES

New Electric Vehicle (EV) Policy

News Excerpt:

The Union Government has approved a scheme to promote the manufacturing of electric vehicles in India and position the country as an EV manufacturing hub.

Objectives of the EV policy:

- The new EV policy is designed to attract reputed **global EV companies** to set up **manufacturing facilities** in India using the latest technology.
- Its objectives include helping boost the **Make in India** initiative and strengthening the country's **EV ecosystem**.

Salient features of the new EV Policy:

- Automakers are permitted to import a **maximum of 8,000 electric vehicles (EVs)** annually, priced at **\$35,000 or more**, with a reduced **import duty of 15%**.
 - **Presently**, India imposes **70% to 100% customs duty** on imported vehicles, depending on their value.
 - To qualify for this benefit, automakers must pledge to **invest a minimum of ₹4,150 crore (\$500 million)** in **India** within the **next three years**.
- They are required to achieve a **50% Domestic Value Addition (DVA)** in vehicles manufactured in India **within five years**.
 - A localization level of **25% by the 3rd year** and **50% by the 5th year** will have to be achieved.
- The scheme will be administered by the **Ministry of Heavy Industries (MHI)**.
- The investment commitment made by the company will have to be backed up by a bank guarantee in place of the custom duty forgone.
 - This bank guarantee will be invoked in case of non-achievement of DVA and minimum investment criteria defined under the scheme guidelines.

National Action Plan for Prevention and Control of Snakebite Envenoming (NAP-SE)

News Excerpt:

The Union Health Ministry has launched a National Action Plan for Prevention and Control of Snakebite Envenoming (NAP-SE) in India.

Vision & Mission of NAPSE:

- **Vision:** To prevent and control snakebite envenoming in order to halve the number of deaths and cases of disability that it causes by 2030.
- **Mission:** To progressively reduce morbidity, mortality, and associated complications in humans due to snake bites.

About the National Action Plan for Snakebite Envenoming (NAPSE):

- **The NAP-SE is a guidance document for the states / UTs** and stakeholders to develop their action plans.
- **The NAP-SE has identified key strategic actions to be undertaken for the operationalization of human, wildlife and animal components.**
 - **Human Health:** Ensure provision of anti-snake venom at all health facilities, strengthening surveillance of snake bite cases and deaths in humans, and strengthening of emergency care services at District Hospitals and Health Centres.
 - **Wildlife Health:** Education awareness, antivenom distribution, strengthening of the key stakeholders, systematic research and monitoring and snake venom collection and snake relocation.
 - **Animal & Agriculture Health:** Prevention of snake bites in livestock, community engagement, etc.

Other plans launched:

1. EC materials:

- A **booklet** on 'Snakebite - Let's put an end to snakebite deaths': this booklet will be used to create awareness in the general community.
- **Posters and videos on Do's and Don'ts** for the general community.

2. Snakebite Helpline:

- It was informed that a **Snakebite Helpline no (15400)**, a vital resource that provides immediate assistance, guidance, and support to individuals and communities affected by snakebite incidents, will be piloted in five States (Puducherry, Madhya Pradesh, Assam, Andhra Pradesh and Delhi).

3. National Rabies Control Programme Website:

- It is a comprehensive online platform dedicated to providing resources, updates, and insights on rabies, as well as information, treatment, and vaccinations.

4. National One Health Programme for Prevention and Control of Zoonoses:

- The National One Health Programme for Prevention and Control of Zoonoses was also onboarded on the Integrated Health Initiative Platform.

Pilot Project for Road Crash Victims

News Excerpt:

The government announced a pilot project to provide cashless treatment of up to ₹1.5 lakh to all victims of road accidents.

About the Pilot Project:

- The pilot programme was announced by the **Union Ministry of Road Transport and Highways**.
- The pilot will be undertaken in Chandigarh to establish an "ecosystem for providing timely medical care to the victims of road accidents, including during the golden hour."
 - The golden hour is the one hour **following a traumatic injury**, during which there is the **highest likelihood of preventing death** by providing prompt medical care.
- Victims will be entitled to cashless treatment of up to ₹1.5 lakhs per person for a maximum period of seven days from the date of the accident.
- The pilot scheme will apply to all victims of road accidents, which involve a motor vehicle that occurred on any category of road.
- The packages for trauma and polytrauma offered under **Pradhan Mantri Jan Arogya Yojana will also be co-opted under the scheme**.
- Claims raised by hospitals for providing treatment will be reimbursed from the **Motor Vehicle Accident Fund**.
- The **National Health Authority will be the implementing agency** for the pilot programme and will coordinate with police, hospitals and State Health Agency.
- The implementation will rely on **an IT platform that will use data from the Road Ministry's Integrated Road Accident Database (iRAD)**, where police personnel enter data on road accidents along with photos and videos.

Related: Defence India Startup Challenge (DISC):

- The **11th DISC** with 22 problem statements has been launched by the **Defence Ministry** in partnership with the **Atal Innovation Mission**.
- The challenge is aimed at **supporting Startups/MSMEs/Innovators** to create prototypes and/or commercialize products and solutions in the area of National Defence and Security.

About iRAD:

- The Integrated Road Accident Database (iRAD) Project is an **initiative of the Ministry of Road Transport and Highways (MoRTH)**, Government of India and is **funded by the World Bank**, to improve road safety in the country.
- To achieve this, the **establishment of an accurate and uniform road accident data collection mechanism** from all over India is required.
- This is **followed by training & handholding support to stakeholder** departmental users through state/district roll-out managers & master trainers.

- A road accident database will be developed through the collection of road accident data from all over the country.

ADITI scheme

News Excerpt:

The **Union Ministry of Defence** has launched the **Acting Development of Innovative Technologies with iDEX (ADITI)** Scheme to promote innovations in critical and strategic defence technologies.

ADITI scheme:

- The scheme was launched during **DefConnect 2024** in New Delhi.
- It falls under the **iDEX (Innovations for Defence Excellence)** framework of the **Department of Defence Production (DDP)**, Ministry of Defence.
- The ADITI scheme allocated **Rs 750 crore** for the period **2023-24 to 2025-26**.
- Under the scheme, **start-ups** are eligible to receive a **grant-in-aid of up to Rs 25 crore** for their research, development, and innovation endeavours in defence technology.
- It targets the development of approximately **30 deep-tech critical and strategic technologies**, with a focus on bridging the gap between the expectations of modern Armed Forces and the capabilities of the defence innovation ecosystem.
- It is part of the government's efforts to **promote domestic manufacturing** and boost the economy, including earmarking **75% of the defence capital procurement budget for Indian companies**.

Uttar Poorva Transformative Industrialization Scheme, 2024

News Excerpt:

The Union Cabinet has approved the proposal of the Ministry of Commerce and Industry, Department for Promotion of Industry and Internal Trade (DPIIT) for the **Uttar Poorva Transformative Industrialization Scheme, 2024 (UNNATI – 2024)**.

Background of the UNNATI scheme:

- The Government of India has formulated the **New Industrial Development Scheme, UNNATI** (Uttar Poorva Transformative Industrialization Scheme), 2024 as a **Central Sector Scheme** for the **development of Industries and generation of employment in the states of North East Region**.
- The scheme will be implemented by DPIIT in cooperation with the states.
- The scheme's main objective is to generate gainful employment, which will lead to the area's **overall socio-economic development in the Northeast region**.

- To maintain a proper **balance between industrial growth and the pristine environment of the NER**, the following two lists exist:
 - **Positive list** for environment-friendly sectors, such as Renewable energy, EV charging stations, etc.
 - **Negative list** for certain sectors that may hamper the environment, such as cement, plastic, etc.

Salient features of the scheme:

- **Scheme period:** The scheme will be effective from the date of Notification and up to 31.03.2034, along with 8 years of committed liabilities.
- **Application period for registration:** Industrial unit will be allowed to apply for registration from the date of notification up to 31.03.2026
- **Grant of registration:** All applications for registration shall have to be disposed of by 31.03.2027
- **Commencement of Production or operation:** All eligible Industrial Units are to commence their production or operation within 4 years from the grant of registration.
- **Districts are categorized into two zones:** Zone A (Industrially Advanced Districts) & Zone B (Industrially Backward Districts)
- **Earmarking of funds:** 60% of the outlay of Part A has been earmarked to 8 NE states and 40% on a First-In-First-Out (FIFO) basis.
- For Micro industries (defined as per MSME industry norms), the P&M calculation will include the building construction and P&M costs for Capital Investment Incentive.
- All new industrial units and expanding units will be eligible for the respective incentives.

'NITI for States' digital platform

News Excerpt:

The **Ministry of Electronics and Information Technology** unveiled the **NITI for States (NFS) digital platform** to strengthen cooperation between the Centre and states in achieving growth objectives.

About NFS:

- It is **developed by the NITI Aayog**.
- NFS serves as an integrated platform featuring 7,500 best practices from state governments and over a thousand case studies.
 - This wealth of information, combined with the Aayog's support, can be utilized to devise tailored solutions for specific states.
- **Aim: To integrate data across states**, centralizing findings to inform future decisions by state governments based on data-driven insights.
- The primary goal is to enable better policymaking as a **'one-stop shop'** for officials down to local levels to

access robust, contextually relevant and actionable knowledge and insights for quality decision-making.

- The platform is integrated with Niti Aayog's National Data Analytics Platform as the main data source.

Features of Platform

- NFS includes **curated training modules for government officials**, focusing on enhancing behavioural, functional, and domain knowledge.
 - Helpdesks staffed by domain experts from the Aayog will address queries from state officials.
 - These skill development modules align with the **Integrated Government Online Training (iGOT) Karmayogi platform**.
- The platform incorporates real-time data updation and monitoring, spanning 10 sectors and two cross-cutting themes.
 - Sectors include **agriculture, education, energy, health, livelihoods and skilling, manufacturing, micro, small and medium enterprises, tourism, urban, water resources, and WASH (water, sanitation, and hygiene)**.
 - Cross-cutting themes encompass **gender and climate change**.

NITI Aayog's role:

- NITI Aayog can play in guiding states towards fulfilling their developmental objectives in consonance with the central government's growth.

Significance of the platform:

- The platform can play an important role in facilitating holistic growth.
- Niti for States will have a multi-sectoral live repository of 7,500 best practices, 5,000 policy documents, over 900 datasets, 1,400 data profiles of states, districts, blocks, etc., broken down by demography and socioeconomic indicators, and 350 NITI publications.
- The platform is an intuitive and user-friendly interface that allows users to easily navigate, and it is accessible through multiple devices, including mobile phones.
- It will support cutting-edge level functionaries like district collectors and block-level functionaries by giving them access to innovative best practices across various States and UTs.
- Apart from the online portal, Niti Aayog will also launch a voice-enabled **Viksit Bharat Strategy Room** on its premises, which will, in the future, have multilingual capabilities in 22 languages.

Viksit Bharat Strategy Room

- The operation of a Viksit Bharat Strategy Room is an interactive space for data visualization and analysis of best practices and policy trends.
- It also allows users to interact through voice-enabled AI and connect to multiple stakeholders through video conferencing.

- It is designed to become a plug-and-play model to enable replication at state, district, and block levels.
- **National E-Governance Division (NeGD)** has extended support to develop the first-of-its-kind Viksit Bharat Strategy Room while multi-lingual support has been provided by the Bhashini.
- Currently, **five states** have established immersive Viksit Bharat strategy rooms.

Initiatives for School and Teacher Education

News Excerpt:

The Ministry of Education launched several **initiatives in school and teacher education** developed by its Department of School Education & Literacy (DoSEL).

About Initiatives:

- Initiatives launched will lead to effective implementation of NEP 2020, empower teachers & learners and make quality education more inclusive, innovative and equitable.
- Launch of **DIETs of Excellence, National Professional Standard for Teachers, National Mission for Mentoring, 52 Primers of NCERT, National Vidya Samiksha Kendra and 200 TV Channels.**
- **National Mission for Mentoring (NMM)**
 - The NEP 2020 has laid the framework for transforming the education system, and the **National Mission for Mentoring (NMM)** aims to provide valuable support and guidance to our dedicated teachers, ensuring their professional growth and empowering them to create a strong educational foundation for our students.
 - The mission will **run through a dedicated digital platform**. Teachers will have **access to quality mentoring sessions** from experienced professionals as Mentors, catering to the diverse needs of learners with varying abilities.
 - The **Bluebook on NMM** was finalized after incorporating the feedback/suggestions received as a result of **in-house consultations, 15 Open House Discussions, inputs received from the pilot**, other stakeholders' discussions and outreach programmes.
 - The Bluebook on NMM will be **translated into the 22 scheduled languages, Braille and Audiobooks**, for wider circulation across the country.
- **National Professional Standards for Teachers (NPST)**
 - The National Professional Standards for Teachers (NPST), as envisioned in NEP 2020, **focuses on improving the teachers' personal and professional development** by providing them with an understanding of what is expected in terms of their performance and what needs to be done to enhance the same. **NPST Guiding Document** ensures that all students at different levels/stages of school education are taught by passionate, motivated, highly qualified, professionally trained, and well-equipped teachers.
- **52 Primers in Indian languages**
 - The 52 Primers in Indian languages is going to be a transformational step for young learners, especially for **Early Childhood Care and Education (ECCE)**, providing them **access to education in their mother tongue/local language**.
 - It will initiate an inspirational journey for young minds, paving the way for deeper understanding, lifelong learning, more familiarity and rootedness in indigenous culture and greater success in academics and beyond.
- **PM e-Vidya**
 - Launch of **200 DTH TV Channels** under **PM e-Vidya DTH TV Channels** for School Education is an integral component of the PMeVidya Initiative which is **aimed at unifying all efforts related to digital/online/on-air education to enable multi-mode access to education**.
 - To enable multi-mode resilient as well as coherent access to education, the PMeVidya DTH TV Channels are also made available on various platforms in addition to TV and radio facilitating design, development and dissemination of quality eContents for free.
- **National Vidya Samiksha Kendra**
 - NCERT has made **National Vidya Samiksha Kendra** functional for **facilitating research and development and capacity building programs**. Now, the National Vidya Samiksha Kendra has been integrated with their state counterparts.
 - It has currently enabled visibility, insights, and actionability across 11 programs. National Initiative for School Heads' and Teachers' Holistic Advancement (**NISHTHA**), **DIKSHA**, Energized Textbooks (**ETBs**), **NIPUN Bharat** initiative for Foundational Literacy and Numeracy, **NCERT Quiz**, National Achievement Survey, Performance Grading Index (**PGI**), Unified District Information System for Education Plus, **PM Poshan**, National Curriculum Framework (**NCF**), Micro-Improvements program (recognition of best pedagogy practices) & **PRASHAST** (A Disability Screening Checklist for Schools) and **PM SHRI**.
- **DIETs of Excellence**
 - **Financial assistance**, totalling **Rs 9000 crores**, will be provided to States/UTs for the **physical upgradation of all 613 District Institutes of Education and Training (DIETs)** to develop them as DIET of Excellence in the country in a phased manner in the next five years.

- Upto Rs. **15 Crore per DIET** will be provided under the Centrally Sponsored Scheme of Samagra Shiksha for improving various infrastructural facilities.

Mahtari Vandana Yojana

News Excerpt:

The Indian Prime Minister launched the **Mahatari Vandana Yojana** and disbursed the first instalment to boost **women empowerment** in **Chhattisgarh**.

About the Scheme:

- The scheme has been **launched in Chhattisgarh** to provide monthly financial assistance of Rs 1000 per month.
- The scheme will provide benefits to **all eligible married women of Chhattisgarh** who are **above 21 years** of age as of January 1, 2024.
- It has been envisioned **to ensure economic empowerment of women**, provide them financial security, promote gender equality and **strengthen the decisive role of women in the family**.
- Widows, divorced, and deserted women** will also be eligible for this scheme.
- Around **70 lakh women in the state** will benefit from the scheme.

PM-SURAJ

News Excerpt:

The Prime Minister inaugurated the '**Pradhan Mantri Samajik Utthan and Rozgar Adharit Jankalyan**' (**PM-SURAJ**) national portal during an event organized **by the Ministry of Social Justice and Empowerment**.

About PM-SURAJ:

- Objective:**
 - It is **aimed at uplifting the most marginalized sections of society**.
 - The objective is to **directly** provide financial assistance to **beneficiaries**, eliminating middlemen and commissions.
- Implementation body:**
 - Ministry of Social Justice and Empowerment and its departments**.
- The portal is being launched to establish a **one-stop point** where people from disadvantaged sections of society can **apply** for and **monitor** the progress of all **loan and credit schemes** already available to them.
- Credit assistance to **one lakh entrepreneurs** hailing from disadvantaged communities will be provided under it.
- Credit support will be provided to eligible persons across the country and facilitated through **banks, NBFC-MFIs**, and other organizations.

Significance:

- The PM-SURAJ national Portal for credit support to disadvantaged sections **prioritizes the underprivileged** and is dedicated to placing them at the forefront of **development initiatives**.

PB-SHABD

News Excerpt:

PB-SHABD (Prasar Bharati-Shared Audio Visuals for Broadcast and Dissemination) was launched by the **Union Ministry Of Information And Broadcasting**.

About PB-SHABD:

- PB-SHABD** is a news-sharing service portal and app launched by the public broadcaster **Prasar Bharati**.
- It is a news-wire-like service to offer free content across mediums, which will be **free of copyright or credit obligations**.
- PB SHABD platform has been **designed to provide daily news feeds in video, audio, text, photo and other formats** to subscribers from the media landscape.
- It will be offered as a **free service for one year to all news organizations registered with the ministry**.
 - This may include newspapers, periodicals, TV channels and even social media news channels registered with the I&B Ministry.
 - The content provided will include news feeds, videos, audio, text, and images, which are available on the websites of DD News and Akashvani News, as well as the updated news on the Air mobile app.
- The PB-SHABD service will provide news stories in all major Indian languages across **fifty categories**.
- The content won't be available to end users.
- The news organizations will be provided with clean feed and will not have to carry Doordarshan's logo**.
- The app will have many new features like Personalized news feeds, push notifications for breaking news, multimedia content integration, offline reading capability, live streaming for real-time coverage, easy social media sharing, location-based news delivery, bookmarking for saving articles and powerful search functionality.

Expected Benefits of PB-SHABD:

- This is expected **to revolutionize the news industry** and will massively **support the smaller news organizations** that do not have the benefit of an extensive network for content gathering.
- The portal will create a lot of synergy and will be beneficial in the **dissemination of meaningful news content across the country**.
- The shared feeds can be used for **customized storytelling across different platforms**.

Support to Poor Prisoners Scheme

News Excerpt:

The Union government has allocated an annual fund of ₹20 crore to bail out poor prisoners languishing in prisons across the country due to financial constraints.

About the Scheme:

- The initiative is a part of the Centre's priority in "reaching the last mile: no one to be left behind" under which the "Support to Poor Prisoners Scheme" was launched in May last year.
- The Ministry of Home Affairs (MHA) has urged Heads of Prisons of all States and Union Territories **to utilize the funds to provide relief to poor prisoners**, who are either unable to pay the fine imposed on them or are unable to secure bail due to financial constraints.
- As per the guidelines under the scheme, the maximum assistance would be **40000/- for undertrial prisoners and 25000/- for convicted prisoners**, though higher assistance may be approved by the state-level oversight committee.
- MHA has asked the states/UTs to constitute an "Empowered Committee" at the district level and an "Oversight Committee" at the headquarters level to identify prisoners who could be given the benefit of the scheme.
 - **The National Crime Records Bureau (NCRB) was appointed as the Central Nodal Agency (CNA)** to implement the scheme.
 - The NCRB opened an account in a nationalized bank for the "Support to Poor Prisoners Scheme," and all states and UTs were advised to open a subsidiary account for further transactions in coordination with the CNA.
 - The funds drawn will be released for paying the fine/bail surety of the prisoner **directly to the concerned court.**
- This scheme is **100% centrally funded** and aimed at helping prisoners belonging to socially disadvantaged and low-income groups who do not have the financial means to pay their bail surety or fine amount to secure their release.

Rashtriya Udyamita Vikas Pariyojana

News Excerpt:

The **Union Ministry of Skill Development and Entrepreneurship** inaugurated "Rashtriya Udyamita Vikas Pariyojana" under the **Skill India Mission**, empowering **PM Svanidhi Beneficiaries**.

The objective of Rashtriya Udyamita Vikas Pariyojana:

- It **aims to equip individuals with comprehensive entrepreneurship training**, aligning with the vision of India's Prime Minister of **creating job providers rather than job seekers.**
- This initiative **focuses on reskilling and upskilling employees to enhance their competitiveness and adaptability** in an era of disruptive technology.

About PM SVANidhi scheme:

- It comes under the **Ministry of Housing and Urban Affairs.**
- PM SVANidhi was **launched in 2020 to help street vendors** resume their livelihoods **impacted by the COVID-19 lockdown** by offering them affordable working capital loans.
- **Feature of the scheme:**
 - A beneficiary can **avail of a Working Capital (WC) loan of up to Rs. 10,000** and, upon its repayment, Rs. 20,000. After repaying the second loan, a beneficiary can apply for a third loan of Rs. 50,000.
 - The **lending institutions will take no collateral.**
 - **No prepayment penalty will be charged** from the vendors for repayment before the scheduled date.

Skill India Digital (SID) Platform:

- It was **launched** by the **Ministry for Education and Skill Development and Entrepreneurship in 2023.**
- This aims to synergize and transform **India's skills, education, employment, and entrepreneurship landscape.**

Key features of the scheme:

- It will **offer comprehensive entrepreneurship training over a period of 22 weeks**, combining theoretical knowledge with practical exposure through **experiential learning.**
- The **training** will be conducted **offline, online, and in hybrid modes**, with **certificates awarded upon completion**, enhancing the course's credibility and value.
 - It will **help the street vendors and small shopkeepers** become more skilled and empower them.
 - The **government of India has partnered with Flipkart** to skill street vendors and small shopkeepers.
- In the **pilot phase**, the project will be **implemented through 20 Centres of the National Institute of Entrepreneurship and Small Business Development (NIESBUD), Noida and 10 Centres of the Indian Institute of Entrepreneurship (IIE), Guwahati.**

- NIESBUD and IIE will create a pool of trainers and mentors and invite representatives from the government, PSUs, industries, banks, and successful entrepreneurs to interact with trainees.
- Under the pilot program, **street vendors in 10 big cities** of the country will be given a **stipend and training to expand their businesses**.
- The **Udyamita Kendra** will **leverage the expertise of the existing pool of resource persons from renowned institutions such as NIESBUD, IIE,** and other training institutions, enhancing the wealth of knowledge and practical insights into the entrepreneurship training programs.
- It would reaffirm the government's commitment to harnessing the nation's skill potential and realizing the vision of a "**Kushal Bharat Viksit Bharat.**"
- The project will be piloted initially in selected districts, with a **focus on ensuring 40% participation by women.**
- Launching this project underscores the government's multi-faceted approach to skill development, including the **modernization of Industrial Training Institutes (ITIs)** and the **establishment of the Skill India Digital (SID) Platform**, providing flexible skilling opportunities accessible nationwide.

Anaemia Project for adolescent girls

News Excerpt:

The Ministry of Ayush and the Ministry of Women and Child Development have signed a **MoU for the nutritional improvement in adolescent girls through Ayurveda Interventions.**

About the Project:

- It is a **Joint Public Health Initiative** for "**Anaemia Control among adolescent girls using Ayurveda interventions in the five districts under Mission Utkarsh**".
 - Assam – Dhubri
 - Chhattisgarh - Bastar
 - Jharkhand – Paschimi Singhbhum
 - Maharashtra – Gadchiroli
 - Rajasthan – Dhaulpur.
- Both the Ministries have jointly decided that in the **first phase**, the focus may be given to improving the **anaemic status of adolescent girls (14-18 years) in five aspirational districts** of five states where the average prevalence of anaemia is approximately **69.5 %**.
- This project will cover approximately **10,000 Anganwadi Centres in the five districts.**

Steps Taken by Government to Eradicate Anaemia:

- GoI is working closely with the WHO on various health issues, including anemia.
 - As per recently released **National Family Health Survey-5** data, 52.2 per cent of pregnant women in the age group 15-49 years are estimated to be anaemic in the country.
- **In 2018, the Government of India launched the Anaemia Mukh Bharat (AMB) strategy** with the target of reducing anaemia in women, children and adolescents **in the life cycle approach.**

About Anaemia:

- Anaemia is a condition in which the number of **red blood cells or the haemoglobin** concentration within them is **lower than normal**. It mainly affects women and children.
- Anaemia occurs when there isn't enough haemoglobin in the body **to carry oxygen** to the organs and tissues.
- Anaemia can be caused by **poor nutrition, infections, chronic diseases, heavy menstruation, pregnancy issues and family history.**
 - It is often caused by a lack of iron in the blood.
- Anaemia is **preventable and treatable.**
- In many low- and lower-middle-income settings, the most commonly- recognized causes of anaemia are **iron deficiency and malaria.**

Project ODISERV

News Excerpt:

The Union Ministry of Skill Development and Entrepreneurship launched **Project ODISERV** in **Sambalpur** to prepare **young graduates of Odisha** for **employment opportunities in the financial services sector.**

About the Project:

- The project is an initiative of the **National Skill Development Corporation (NSDC) under the aegis of the Ministry of Skill Development & Entrepreneurship (MSDE) and Bajaj Finserv Ltd.**
- The project will impart knowledge and skills to graduates, especially **first-generation graduates**, through **Bajaj Finserv's Certificate Programme for Banking Finance & Insurance (CPBFI) programme.**
- It launches the CPBFI programme in 60 colleges in Odisha across **11 cities and 10 districts.**
- The CPBFI programme (the partnership with NSDC & Bajaj Finserv) will be introduced in 22 states across India, covering over 400 colleges.
- The partnership aims to initially build the capabilities of 20,000 candidates through the CPBFI programme.

About the CPFBI (100 Hour Programme):

- It is a **100-hour comprehensive training programme** that prepares youth from tier-II and tier-III cities for employment in the financial services sector.
- The programme's **curriculum adapts to the ever-evolving landscape of finance, banking, and insurance** and incorporates the latest industry trends, technological advancements, and best practices.
- The partnership with NSDC will be elevated on **Skill India Digital Hub (SIDH)** to ensure students are not just academically equipped but also excel in the financial sector.
 - SIDH is a **comprehensive information gateway** for all government-led skilling and entrepreneurship initiatives.
- The programme will collaborate with banks and other financial stakeholders, financial institutions, and insurance companies to foster new growth opportunities for students and provide access to internships, on-the-job training, and a first-hand glimpse into best industry practices.

About National Skill Development Corporation (NSDC):

- NSDC is the principal architect of the country's skill ecosystem.
- It is a unique Public Private Partnership (PPP) enterprise working under the Ministry of Skill Development & Entrepreneurship (MSDE), Government of India.
- NSDC was established to **catalyze the skilling ecosystem for private sector participation and be the strategic implementation and knowledge partner of the Skill India Mission** to build efficient vocational training initiatives that empower India's youth.

MISCELLANEOUS

14th Annual Aegis Graham Bell Awards

News Excerpt:

The Centre for Development of Telematics (C-DOT), the premier Telecom R&D centre of the Government of India, has bagged three awards for its indigenously designed & developed innovative Telecom solutions at the **14th Annual Aegis Graham Bell Awards**.

About the Aegis Graham Bell Awards (AGBA):

- They were initiated in **2010 by the Aegis School of Data Science**.
- AGBA celebrates the brilliance and innovation of young minds who are poised to become technology leaders, startup founders, innovators and entrepreneurs.
- The 14th AGBA is **supported by the Ministry of Electronics and Information Technology**.

More about the news:

- **C-DOT** was declared Winner in the categories of **Innovation on Telecom, Innovation in the Social Good, and Innovation in AI**.
- The 1st award was jointly shared with Google India in the category **"Innovation in AI" for its pioneering ASTR Project**.
 - **ASTR (AI & Facial Recognition-powered Solution for Telecom SIM Subscriber Verification)** is a game-changer in the fight against cybercrimes.
 - Designed to **analyze, identify, and eliminate fake/forged mobile connections**, it's a crucial step towards ensuring a secure telecom environment.
- 2nd award belongs to the category **"Innovation in Social Good"** for its groundbreaking **CEIR (Central Equipment Identity Register)** solution.
 - CEIR helps revolutionize mobile security by **detecting clone IMEIs**, restricting the import of counterfeit mobile devices, and enabling the **blocking and tracing of lost or stolen phones**.
- The 3rd award bagged is for the **"Innovation in Telecom"** category for its **Quantum Key Distribution (QKD)** product.
 - This revolutionary solution ensures **unbreakable security for communications** between two networks and parties.

The Centre for Development of Telematics (C-DOT)

- The Centre for Development of Telematics (C-DOT) is the **Telecom Technology development centre** of the Government of India.
- It was established in **August 1984** as an autonomous body under the **Department of Telecom (DOT)**.

It is vested with full authority and total flexibility to develop state-of-the-art telecommunication technology to meet the needs of the Indian telecommunication network.

Sudarshan Setu: India's longest cable-stayed bridge

News Excerpt:

The Prime Minister has inaugurated India's longest cable-stayed bridge, connecting **Okha** and **Beyt** in **Dwarka, Gujarat**, with immense significance for residents and pilgrims.

About the Sudarshan Bridge:

- The Signature Bridge boasts a unique design, featuring a footpath adorned with verses from the Bhagavad Gita and images of Lord Krishna on both sides.

- The bridge, previously known as the '**Signature Bridge**', has been renamed '**Sudarshan Setu**' or **Sudarshan Bridge**.
- It also holds the distinction of being **India's longest cable-stayed bridge, with solar panels installed** on the upper portions of the footpath, generating one megawatt of electricity.
- **The 2.5 km bridge** is being built at a cost of ₹978 crore and holds immense significance for both residents and pilgrims visiting the **revered Dwarkadhish Temple**.



- **Beyt Dwarka** is an island near **Okha port**, which is approximately 30 km from Dwarka town, where the famous Dwarkadhish temple of Lord Krishna is situated.

Significance of the bridge:

- The bridge will **boost tourism, save time, and also boost access to quality healthcare** with the development of public infrastructure.
- Tourists who once sailed 5 hours on boats to Beyt Dwarka can now take the bridge straightaway, **thus cutting down their travel time by 3 hours**.

Pi Day

News Excerpt:

March 14th, also known as **3/14** in the **American Convention**, is celebrated worldwide as **Pi Day**.

What is Pi Day?

- It is a day to celebrate the **number π** or "**Pi**" (3.1459...).

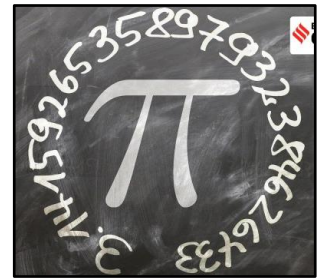
- On the day, mathematicians try to **raise awareness** of their subject among laypersons through lectures, museum exhibitions, and pie-eating competitions.

History of Pi Day:

- The tradition was started by physicist **Larry Shaw** of the **Exploratorium Museum** in San Francisco in **1988**.
- In **2019**, **UNESCO's 40th General Conference** designated **Pi Day** as the **International Day of Mathematics**.

What is Pi?

- Pi is often represented by the **Greek letter π** , and it is the most famous of all mathematical constants.
- It represents the **ratio of a circle's circumference to its diameter**.
 - Regardless of the circle's size, this **ratio always remains constant**.
- Pi is an **irrational number**.
 - It is a **decimal with no end and no repeating pattern** — which is most often approximated to the **3.14**, or the **fraction 22/7**.

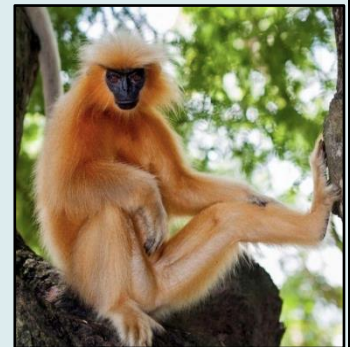


Importance of Pi:

- The importance of Pi has been recognized for at least **4,000 years**.
 - Both the **ancient Babylonians** and **Egyptians** were familiar with the concept of pie.
- Pi is applied extensively in **mathematical and scientific calculations**, including **geometry, trigonometry, calculus**, and various other disciplines, aiding in a wide array of computations.
- **Circles and 3D shapes** like **cylinders, spheres, and cones use Pi**.
- It's crucial in **architecture, design, and engineering** for **construction and equipment**, making Pi indispensable.

SPECIES IN NEWS

Species	River	Details
<p>Gangetic dolphin</p> <p>News Excerpt: Recently, India's first centre for research on conserving the endangered Gangetic River dolphin, the National Dolphin Research Centre (NDRC), located close to the Ganga River in Patna, was inaugurated.</p> <ul style="list-style-type: none"> • Wildlife (Protection) Act, 1972: Schedule I • IUCN Status: Endangered 		<p>About Gangetic River Dolphin:</p> <ul style="list-style-type: none"> • The Gangetic River dolphin is India's national aquatic animal. • They live in a zone where there is little or no current, helping them save energy. • The Gangetic River dolphin is one of four freshwater dolphin species in the world. <ul style="list-style-type: none"> ◦ The other three are found in the Yangtze River in China (now extinct), the Indus River in Pakistan and the Amazon River in South America. • Dolphins are marine mammals. They must surface to breathe air and give birth to live young. • It is blind and finds its way and prey in river waters through echolocation. <p>About the National Dolphin Research Centre (NDRC):</p> <ul style="list-style-type: none"> • The NDRC, spanning 4,400 square meters on the premises of Patna University near the Ganga, offers a strategic location for researchers to closely observe dolphins in their natural habitat. <ul style="list-style-type: none"> ◦ Bihar is home to around half of the estimated 3,000 Gangetic dolphins in India. • The NDRC aims to assist scientists and researchers in studying Gangetic dolphins comprehensively and strengthen ongoing dolphin conservation. • The centre will train fishermen to avoid inadvertently harming dolphins during fishing activities.
<p>Golden Langur</p> <p>News Excerpt:</p> <ul style="list-style-type: none"> • According to a recently conducted survey, there are an estimated 7,396 golden langurs in India. • (IUCN) status: Endangered. 		<p>About Golden Langurs:</p> <ul style="list-style-type: none"> • Golden langurs get their name from the striking golden orange colour of their fur. • It is endemic to north-western Assam, India and southern Bhutan. • They are confined to this geographic region by the Manas and Sankosh rivers to the east and west, the Brahmaputra river in the south, and the Black Mountains to the north. <ul style="list-style-type: none"> ◦ Golden langurs may live anywhere between sea level and 9,800 feet (3,000 m) above sea level. • They are relatively small primates, weighing between 9 to 12 kg. • They help disperse the seeds from the fruit they eat, which is critical to healthy forest development and sustainability. <p>Findings of the survey:</p> <ul style="list-style-type: none"> • The population of golden langurs is divided into two major sub-populations. • The northern extended population, which encompasses the western part of the Manas Biosphere Reserve, extending from the Sankosh River to the Manas River up to the India-Bhutan border. • The Ripu Reserve Forest was home to the most (2,847) northern population of golden langurs. • The southern fragmented population occurs along the southern side of NH27 up to the Brahmaputra River in the south. • Kokrajhar district's Chakrashila Wildlife Sanctuary was home to the most (838) southern population of golden langurs.

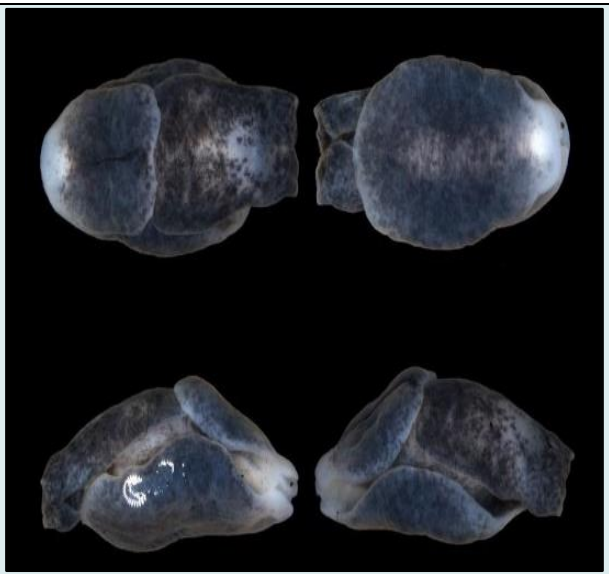


Newly discovered sea slug: Melanochlamys Droupadi

News Excerpt: The Zoological Survey of India (ZSI) has named a new marine species of **head-shield sea slug** after President of India Droupadi Murmu.

About the news:

- The new species belonging to the **Melanochlamys genus** was discovered off the coasts of **Digha in West Bengal and Udaipur in Odisha**.
- Named **Melanochlamys Droupadi**, this previously unknown **head-shield sea slug** is **distinctive to these regions** and has not been found elsewhere in the world.
- Members of the **Melanochlamys genus** are characterized by their **short, blunt cylindrical bodies and smooth dorsal surfaces**, typically adorned with two dorsal shields, the **anterior cephalic and posterior shield**.



Characteristics:

- Melanochlamys Droupadi is a **diminutive invertebrate**, reaching a **maximum length of 7 mm**.
- It exhibits a **brownish-black colouration** with a **distinct ruby-red spot** at its hind end.
- Internally, it possesses a **shell within its body and is hermaphroditic in nature**.
- These **sea slugs** are commonly observed crawling on **intertidal zones**, leaving distinctive crawl marks on sandy beaches.
- Reproduction** is thought to take place between **November and January**.
- According to the ZSI, species within the Melanochlamys genus are **typically found in temperate regions of the Indo-Pacific Ocean**.

HAWKSBILL SEA TURTLES



News Excerpt: **Submerged banks and mesophotic depths** are important foraging grounds for **critically endangered** marine animals such as **Hawksbill Sea Turtles** and may support a rich array of marine life.

IUCN Status: **Critically endangered**

About:

- Hawksbill sea turtles are found in the tropical and subtropical waters of all of the world's major oceans.
- They are the only species of sea turtle that can **survive on a diet consisting mainly of sponges**. They also **feed on a variety of algae, corallimorphs (coral-like anemones), tunicates** and more.
- Role in the function of marine ecosystems:
 - Maintain the health of coral reefs by **feeding on sponges**, which can prevent overgrowth and damage to the coral.
 - Without hawksbills, sponges can overgrow and suffocate slow-growing corals** causing them to die.
- In many parts of the world, **hawksbills face the unique threat of being hunted for their beautiful shell**, also known as "**tortoise shell**", which is used by craftspeople to create many types of **jewellery and trinkets**.



<p>Indian leopard or common leopard</p> <p>News Excerpt: The PM expresses happiness over the increased population of Leopards (Also known as Prince of the cats) in India. According to a report titled Status of Leopards in India (Fifth Cycle 2022), India's estimated leopard population rose from 12,852 in 2018 to 13,874 in 2022.</p> <ul style="list-style-type: none"> • Indian Wildlife (Protection) Act, 1972: Schedule I • CITES: Appendix I • IUCN Status: Vulnerable 	<p>About:</p> <ul style="list-style-type: none"> • Scientific Name - Panthera Pardus • The Indian Leopard has larger rosettes than the other subspecies, with a paler coat in desert habitats, greyer in colder climes and more ochre in rainforest habitats. • They are sexually dimorphic, with males larger and heavier than females. • Indian Leopards are solitary predators who remain well-camouflaged at night but come down from trees to hunt during the day. • Chital, Sambar and langur species constitute most of the diet of the Indian Leopard, but they are also known to prey on Spotted Deer, Nilai, Wild Pig, cattle, hares, dogs and porcupine. • They are good climbers and rely on trees for cover, so are found in various forested habitats, including tropical rainforests, dry deciduous forests, scrublands, and grasslands. They are also found in human-dominated landscapes, such as agricultural areas and even urban environments. 
<p>Brazilian Flea toad</p> <p>News Excerpt: Scientists have bestowed the frog — which is native to Brazil but is neither a flea nor a toad — with two titles: The world's smallest known amphibian and smallest known vertebrate.</p> <p>IUCN Status: Near Threatened</p>	<p>About:</p> <ul style="list-style-type: none"> • The Brazilian Flea Toad (<i>Brachycephalus didactylus</i>) is a tiny species of toad found in the Atlantic Rainforest of Brazil. • These toads are incredibly small, with adults typically growing to only about 9 to 12 millimeters in length. • They are known for their bright, vibrant colors, which can range from yellow and orange to red and purple. This coloration serves as a warning to predators of their toxicity. • The Brazilian Flea Toad is endemic to the Atlantic Rainforest, where it inhabits moist leaf litter on the forest floor. They are typically found in areas with high humidity levels. • Despite their small size, these toads are known for their remarkable jumping ability, which is how they earned the name "Flea Toad." They are also primarily active at night. • Like many other species of the genus <i>Brachycephalus</i>, the Brazilian Flea Toad is toxic. They secrete toxins through their skin, which can be harmful or even deadly to predators. • These toads lay their eggs in moist leaf litter on the forest floor. The eggs hatch into tadpoles, which then develop into tiny toadlets without going through a free-swimming tadpole stage. 

CONTEMPORARY ETHICS CASE STUDY

Q. There has been a shooting incident in the passenger train named 'Sampark Kranti Express' where railway protection cop Bunty Singh was accused of shooting dead his senior and three passengers in the train.

Before the incident, Singh had expressed his desire to go home and had asked for leave from his duties because he was unwell. He also expressed his desire to go to his hometown. He applied for leave; however, leave was denied to him, and he was instructed to complete his duty.

Due to the rejection of his leave application, he got agitated and was visibly shaken, as seen by his colleague. It seemed he had lost his mental control due to Anger and frustration. He also indulged in an altercation with his colleagues, during which he allegedly tried to choke one of them. The incident escalated, and Singh opened fire, resulting in the tragic death of a senior official. He didn't stop there, and later on, due to indiscriminate firing, three innocent passengers lost their lives travelling on the train.

Constable Dinesh Yadav, a fellow railway cop who was present during the incident, narrated the events to the police. He confirmed that Singh was agitated and not willing to listen. Efforts were made to calm him down, but Singh became enraged and took a rifle from one of his colleagues, leading to deadly consequences. Yadav alerted superiors about the situation, but it was too late by then. After the shooting, Singh was seen walking on the tracks with the rifle.

- Examine the ethical dilemmas and challenges faced by law enforcement personnel in this case.**
- Analyze the conflicting priorities of duty obligations and personal well-being and the potential consequences of not addressing mental health concerns in law enforcement.**
- Suggest ethical measures and policies that law enforcement agencies can implement to prevent similar incidents and promote the wellbeing of their personnel. (Answer in 250 words) 20 MARKS**



SCAN THIS QR FOR
MODEL ANSWER

PHILOSOPHY OF THE MONTH

Democracy is on the ballot

News Excerpt:

The global struggle for freedom faces a crucial test in 2024, during which about half of the world's population will head to the polls amidst raging conflicts. All nations face a set of moral and ethical challenges, that need attention to maintain **trust and integrity** in the democratic process.

Democratic Erosion

- Democracy, human rights, and the rule of law** are interdependent and reinforce each other, mutually. **Weakening one endangers the others.**

Democratic erosion has a visible negative effect on human rights in many countries. The **rise of authoritarian forces and "illiberal democracies"** has brought **pluralism under attack**. The **Global State of Democracy Initiative**, analysing the state and quality of Democracy in 173 countries worldwide, found that **in 2022 Democracy continued to contract across every region for a sixth consecutive year.**

- Shifts in democratic satisfaction often depend upon "objective circumstances and events" such as economic shocks or corruption scandals.**

For eg, Following the onset of the Global Financial Crisis in October 2008, global dissatisfaction with the functioning of Democracy jumped by around 6.5 percentage points.

On a **more hopeful note**, democracies working together to resolve policy crises have a positive effect. **For eg,** After the European Council agreed to a European Stability Mechanism to stem the sovereign debt crisis, dissatisfaction with democracy fell by 10 percentage points in Western Europe.

Elections for Effective Democracy

Elections are a **litmus test** of effective governance. States and societies cannot afford to fail this test.

But elections can also **exacerbate existing tensions in societies**, particularly at times of complex transformations and crises, including climate change, rising inequalities, and armed conflict, leading to a **higher risk of human rights violations**. **If democracies do not respond to these challenges, more of the world's people will be denied fundamental freedoms in 2025.**

For e.g., In 2024, "**deepfakes**" can act as an important concern hampering the electoral process.

There are many **character-based arguments** as to why Democracy is better than other forms of authoritative governments:

- It tends to get people to **think carefully and rationally** more than other forms of rule.
- It tends to enhance the **moral qualities of citizens**.
- When they participate in making decisions, they have to **listen to others**, are called upon to **justify**

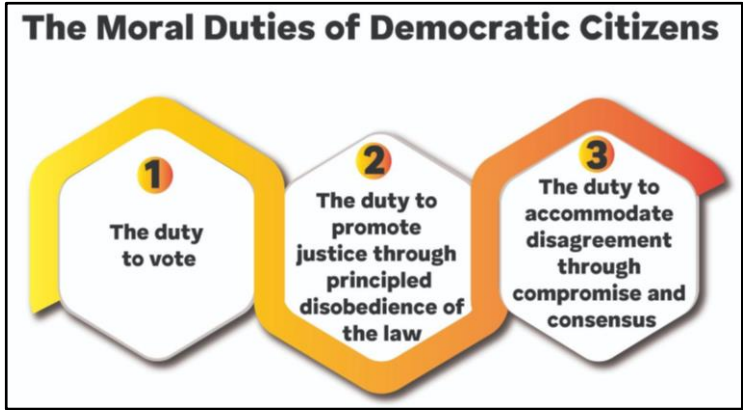
themselves to others, and are forced to think in part in terms of the interests of others.

- They are expected genuinely to **think in terms of the common good and justice.**

In all, there is still a path toward stronger democracies and greater freedom for all.

By drawing strength from diversity, protecting dissent, and building international coalitions to support their norms and values, democratic forces can still reverse the long decline in global freedom.

As the voting dates approach in your area, remember **“Voting is your right and your duty. Use your rights and fulfill your duty”.**



MAP CONNECT

World

POKHARA
Nepal has officially declared this town as the tourism capital of the Himalayan nation.

TIAN SHAN MOUNTAINS
In these mountains of Kyrgyzstan, villagers have made an artificial glacier to provide water for their drought-hit farms.

DRICHU RIVER, TIBET
Over 1,000 people, including monks, were arrested for opposing the Dege hydropower dam project on this river.

BADWATER BASIN
The Driest place in North America, this basin in Death Valley, has been home to a lake for 6 months.

NICARAGUA
It has become the first Spanish-speaking nation to recognize Indian Pharmacopoeia.

KINMEN ISLANDS
Taiwan urged China not to change the status quo around waters near these islands.

Darien Gap
Illegal migrants trying to claim asylum in the US pass through this stretch of jungle across northern Colombia and southern Panama.

TATAI WILDLIFE SANCTUARY
Cambodia plans to import four tigers from India this year to revive big cats.

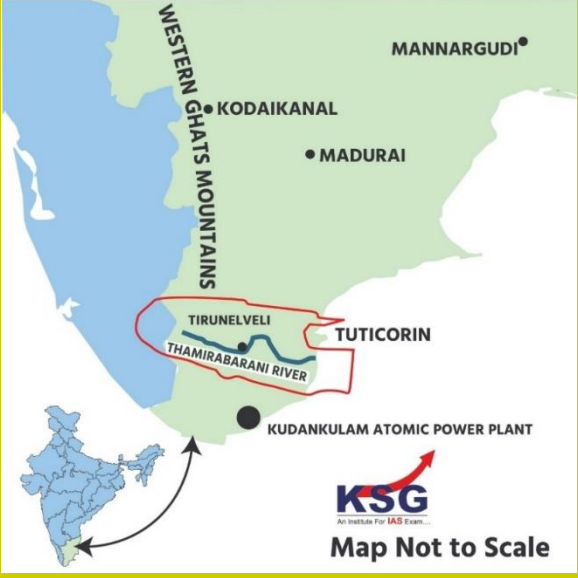

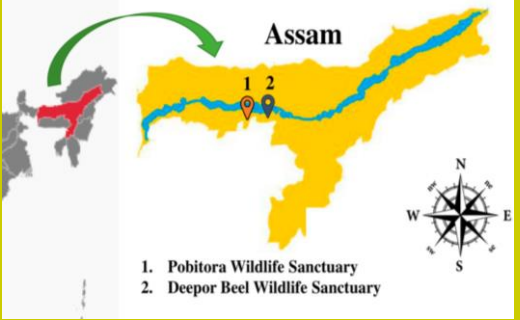
GULF OF TONKIN
Vietnam urges respect for international law as China draws a disproportionate baseline in the Gulf of Tonkin. Under UNCLOS 1982, baselines determine territorial waters and Exclusive Economic Zones.


SELOUS GAME RESERVE
Tanzania has switched on the first turbine of a new hydroelectric plant in this World Heritage Site.

MAP NOT TO SCALE

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PROTECTED AREAS IN NEWS

Protected areas	Details
<p>Thamirabharani River</p> <p>News Excerpt: The Thamirabharani Waterbird Count 2024 which was organised recently in the Thamirabharani river basin of Tamil Nadu has recorded over 24,000 birds.</p>	<ul style="list-style-type: none"> Thamirabharani is a perennial river that originates from the Agastyarkoodam peak of Pothigai hills of the Western Ghats. It flows through Tirunelveli and Thoothukudi districts of Tamil Nadu into the Gulf of Mannar. The river is about 128 kilometres long and is the only perennial river in Tamil Nadu. TamiraSES is a project of ATREE to restore the Thamirabharani River. Along with its tributaries (Chithar, Pachchaiyar, Gadana, and Ramanathi) and irrigation tanks in Tirunelveli, Tenkasi, and Thoothukudi district, Thamirabharani River not only sustains agriculture but also transforms these regions into a rice bowl and banana basket of southern Tamil Nadu. These tanks are havens for a multitude of waterfowls and migratory birds during winter, boasting over 100 waterbird species in the Tamirabharani landscape. 
<p>Kshipra River</p> <p>News Excerpt: Performance audit by CAG stated that Kshipra River continues to remain polluted despite the interventions of government agencies.</p>	<ul style="list-style-type: none"> The Kshipra River flows through the Malwa region of Madhya Pradesh. Kshipra (Shipra) River originates in the Vindhya Range (Kokri Bardi hill) and flows in a northerly direction. It is a tributary of the Chambal River, which in turn is a tributary of the Yamuna River. It flows across the Malwa Plateau to join the Chambal River. The Kshipra River is considered sacred by Hindus and is the site of the Simhastha Kumbh Mela, a Hindu pilgrimage held every 12 years in the city of Ujjain, which is located on the banks of the river. Main tributaries: Kahn and Gambhir. 
<p>Pobitora Wildlife Sanctuary</p> <p>News Excerpt: The Supreme Court stayed the decision of the Assam Government for "withdrawal" of the notification of the Pobitora as a Wildlife Sanctuary in the Morigaon district of Assam.</p>	<ul style="list-style-type: none"> Pobitora Wildlife Sanctuary was notified by the Assam Forest Department in March 1998. The Sanctuary is known for holding the highest density of One Horned Rhinoceros in the world. Located in the suburbs of Guwahati, it is considered a success story in terms of the conservation and protection of the Rhinos. The Sanctuary consists of the Rajamayong Reserve Forest and Pobitora Reserve Forest. <ul style="list-style-type: none"> The Rajamayong hills harbor several species including Leopard, Capped Langur, Porcupine, Pangolin, etc. 

	<ul style="list-style-type: none"> • It is often referred to as 'Mini Kaziranga' owing to the similarity of landscape, floral, and faunal distribution.
<p>Atapaka Bird Sanctuary</p> <p>News Excerpt: Over 1.50 lakh migratory birds visited sanctuaries, and wetlands in Andhra Pradesh this winter, especially the Atapaka Bird Sanctuary.</p>	<ul style="list-style-type: none"> • The Atapaka Bird Sanctuary is located in the Andhra Pradesh state of India, specifically on the Kolleru Lake. • It is situated on the western part of the Kolleru Lake, which is one of the largest freshwater lakes in India. • The sanctuary is known for its rich avian biodiversity, especially during the winter months when it serves as a crucial habitat for a variety of migratory birds. It is estimated that over 150,000 birds from various species visited the sanctuary during this period. • Some of the bird species that can be spotted at the Atapaka Bird Sanctuary include pelicans, painted storks, open-billed storks, herons, egrets, and many others. These birds are attracted to the sanctuary due to the availability of food and suitable nesting sites.  <p>KSG An Institute For IAS Exam... Map Not to Scale</p>

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THEMATIC ESSAYS

1. **Words are secondary. Thoughts live; they travel far."**
2. **"Too many women in too many countries speak the same language of silence..."**
3. **The biggest room in the world is the room for improvement.**



SCAN THIS QR FOR
MODEL CONTENT

MAINS PRACTICE QUESTION

1. What do you understand about grey zone warfare? In what ways is grey zone warfare waged, and how are these tactics used against India? Discuss
2. What do you understand by floodplain zoning? How will the Flood Management and Border Areas Programme help enhance flood management and mitigate the impact of floods, especially in the face of climate change?
3. Highlight the major provisions of the Citizenship (Amendment) Act 2019 and discuss the significance and challenges associated with its implementation.
4. AI can make human life easier, but it also has negative aspects. In light of the above statement, Analyze the potential impacts of AI with appropriate examples in the upcoming general election in India.
5. The electoral bond scheme's intention was good, but its misuse and implementation had major loopholes. In light of the recent Supreme Court step that unanimously struck down the Electoral Bond Scheme (EBS), discuss the changes that must be included to improve this scheme.
6. The Ineffectiveness of India's bail system led to overcrowding of prisons in India. Discuss some of the major issues and areas for improvement in bail laws by highlighting how bail laws can be reformed.
7. Recently, India has been bestowed with the prestigious Measles and Rubella Champion Award. What is the significance of such an award? By describing the Current Status of Measles and Rubella in India, highlight the Steps taken to prevent Measles and Rubella (MR) in India.
8. India and Brazil held the first '2+2' Dialogue. By describing the 2+2 dialogue, highlight the areas of cooperation and disputes between the two countries and discuss how such initiatives will help improve diplomatic relations.
9. Global supply chains increasingly grapple with inflated freights, delayed vessel schedules, and product shortages due to the Red Sea crisis. In light of the above issue, analyze how the India-Middle East-Europe Economic Corridor (IMEC) will play a major role in trade with the West.
10. India recently signed a trade agreement with EFTA. By discussing the significance of the agreement in India's trade balance, highlight the challenges which can arise in implementation of the agreement.
11. What are the causes of water scarcity in India and the world? What type of urgent action is needed to resolve this issue? Explain briefly.
12. The path to decarbonization runs through the electricity sector. Today, this sector accounts for a third of India's carbon dioxide emissions. By highlighting the correct approach, discuss the challenges in decarbonization and futuristic approaches that can play an important role in a sustainable future.
13. In February 2024, the global sea surface temperature (SST) reached a historic high of 21.06 degrees Celsius. In light of the above statement, highlight the reason for ocean warming and its impact on nature.
14. What are the Major Reasons behind the increased invasion of alien species. Highlight the Impacts of Invasive alien species on ecosystem and suggest some effective mitigation strategies for managing such species.
15. What is the e-commerce Moratorium? What are its grey areas? By highlighting the issue's complexity, discuss India's approach to it.

PT ORIENTED QUESTION

1. With reference to the Red Sea, consider the following statements:

1. It is strategically important for global trade with the Bab el-Mandab Strait between Yemen and Djibouti.
2. It is one of the world's busiest cargo and oil transit points.
3. Currently, 42% of international merchandise trade passes through it.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

2. Consider the following statements:

Statement-I

The Blue Leaders High-Level Event on Biodiversity Beyond National Jurisdiction was held in Belgium.

Statement-II

It urges nations to ratify a new treaty to protect the high seas from pollution, climate change, and overfishing.

Which one of the following is correct with respect to the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-II is correct but Statement-I is incorrect

3. With reference to the European Free Trade Association (EFTA), consider the following statements:

1. It was founded by the Stockholm Convention in 1960.
2. In 2021, EFTA was the tenth-largest trader in the world in merchandise trade.
3. In 2022, the combined EFTA-India merchandise trade surpassed USD 6.1 billion.

How many of the above statements are not correct?

- (a) Only one (b) Only two
(c) All three (d) None

4. With reference to Operation Aspidos, consider the following statements:

1. It is a defensive maritime security operation that restores and safeguards freedom of navigation in the Arabian Sea and the Persian Gulf.
2. It will send European warships and early warning systems to the concerned areas.
3. Aspidos has an exclusively protective mandate and will only act when there is a threat, with minimum force.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

5. With reference to the Flood Management and Border Areas Programme (FMBAP), consider the following statements.

1. It is a central sector scheme.
2. It provides assistance to the State Governments in taking up critical works related to flood control.
3. The scheme has the provision of incentivizing the states that implement floodplain zoning.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

6. Consider the following statements:

Statement-I

Floodplain zoning is a central concept in floodplain management.

Statement-II

It aims to demarcate zones or areas likely to be affected by floods of different magnitudes, frequencies, and probability levels.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but Statement-II is correct

7. With reference to Criminal Case Management System (CCMS), consider the following statements:

1. It is designed by the National Investigation Agency (NIA).
2. It will enable better coordination in terrorism and organized crime cases.
3. It strengthens the agency's reach and presence all over the world.

How many of the above statements are correct?

- (a) Only one (b) Only two
(c) All three (d) None

8. Consider the following statements:

Statement-I

INS Vikrant is the first indigenously built aircraft carrier of the Indian Navy.

Statement-II

The ship was built by Garden Reach Shipbuilders & Engineers Ltd (GRSE) and internally designed by the Warship Design Bureau of the Indian Navy.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-II is correct but Statement-I is incorrect

9. Consider the following statements:

Statement-I

Central Adoption Resource Authority (CARA) is a statutory body.

Statement-II

CARA is designated as the Central Authority to deal with inter-country adoptions in accordance with the provisions of the Hague Convention on Intercountry Adoption, 1993. Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-II is correct but Statement-I is incorrect

10. With reference to the Public Accounts Committee (PAC), consider the following statements:

1. It was first set up in 1921 in the wake of the Montague-Chelmsford Reforms.
2. At present, it consists of 22 members.
3. The term of office of the members is five years.
4. The Speaker appoints the Chairperson of the Committee.

How many of the above is/are correct?

- (a) Only one (b) Only two
- (c) Only three (d) All four

11. With reference to the Citizenship (Amendment) Act (CAA) 2019, consider the following statements:

1. It amended the Citizenship Amendment Act 1955.
2. It provides scrutiny of applications by the Empowered Committee.
3. The act reduces the period to qualify for citizenship by naturalization from the existing 11 years to 5 years.

How many of the above statements are correct?

- (a) Only one (b) Only two
- (c) All three (d) None

12. With reference to the Model Code of Conduct (MCC), consider the following statements:

1. It is a set of guidelines issued by the President of India.

2. It maintains the integrity of the electoral process and promotes free and fair elections.
 3. Compliance with the MCC is mandatory for all parties.
- How many of the above statements are correct?

- (a) Only one (b) Only two
- (c) All three (d) None

13. Consider the following statements:

Statement-I

Measles is caused by a single-stranded, enveloped RNA virus with 1 serotype.

Statement-II

Humans are the only natural hosts of the measles virus. Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-II is correct but Statement-I is incorrect

14. With reference to the Genome India Project, consider the following statements:

1. The GIP's aim is to collect 10,000 genetic samples from citizens across India to build a reference genome.
2. The project is led by the Centre for Brain Research at the Indian Institute of Science (IISc).
3. The project supports the development of predictive diagnostic markers.

How many of the above statements are correct?

- (a) Only one (b) Only two
- (c) All three (d) None

15. Consider the following statements:

Statement-I

Genomic Testing identifies inherited DNA changes that increase a person's cancer risk.

Statement-II

It can identify changes in a tumour that guide the selection of appropriate targeted therapies.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-II is correct but Statement-I is incorrect

16. Consider the following statements:

Statement-I

Rhodamine B is a water-soluble chemical that is commonly used for dyeing.

Statement-II

It is used in the textile, paper, leather and paint industries. Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement-II is incorrect
- Statement-II is correct but Statement-I is incorrect

17. With reference to the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), consider the following States:

- It is a drylands agricultural research institute dedicated to uplifting smallholder farmers and ensuring food security in the semi-arid tropics.
- It was established in 1972 in New Delhi.
- Its charter was signed by the FAO and the UNDP.

How many of the above statements are correct?

- Only one
- Only two
- All three
- None

18. Consider the following statements:

Statement-I

The Colombo Accord was signed during the 2024 Global Pulses Conference.

Statement-II

The Accord calls for free and fair trade in the global pulse industry.

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement-II is incorrect
- Statement-II is correct but Statement-I is incorrect

19. With reference to the INFAAR, consider the following statements:

- It is a network of laboratories established under the Indian Council of Agricultural Research (ICAR).
- It is dedicated to AMR surveillance in fisheries and livestock sectors.
- It gets technical support from FAO and USAID.

How many of the above statements are not correct?

- Only one
- Only two
- All three
- None

20. With reference to the Primary Agricultural Credit Societies (PACS), consider the following statements:

- It is a grassroots-level arm of the long-term credit structure.
- It deals directly with rural (agricultural) borrowers.
- It serves as the link between the ultimate borrowers on the one hand and NABARD.

How many of the above statements are correct?

- Only one
- Only two
- All three
- None

21. With reference to FASTags, consider the following statements:

- It is a device that employs Radio Frequency Identification (RFID) technology to make toll payments directly while the vehicle is in motion.
- RFID Tag is affixed on the windscreen of the vehicle and enables a customer to make toll payments directly from the account which is linked to FASTag.
- It offers the convenience of cashless payment.

How many of the above statements are correct?

- Only one
- Only two
- All three
- None

22. With reference to the Securities and Exchange Board of India (SEBI), consider the following statement:

- It was constituted in 1988.
- It was made a statutory body in 1992.
- It promotes transparency in the Indian investment market.

How many of the above statements are correct?

- Only one
- Only two
- All three
- None

23. With reference to the Directorate General of Trade Remedies (DGTR), consider the following statement:

- It is an integrated single-window agency.
- DGTR provides a level playing field to the domestic industry against the adverse impact of unfair trade practices.
- DGTR functions as an attached office of the Department of Commerce, Ministry of Commerce and Industry.

How many of the above statements are correct?

- Only one
- Only two
- All three
- None

24. Consider the following statements:

Statement-I

Ayushman Bharat Pradhan Mantri Jan Arogya Yojana is subsumed in the on-going centrally sponsored schemes-RSBY and SCHIS.

Statement-II

It will cover over 1 crore poor and vulnerable families. Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
 (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
 (c) Statement-I is correct but Statement-II is incorrect
 (d) Statement-II is correct but Statement-I is incorrect

25. With reference to the Foundational Literacy & Numeracy Assessment Test (FLNAT), consider the following statement:

- The Ministry of Education is associated with FLNAT.
- It test is developed to evaluate registered non-literate learners foundational literacy and numeracy skills.
- Previously, 4 FLNATs were conducted in 2023 between March and September.

How many of the above statements are correct?

- (a) Only one (b) Only two
 (c) All three (d) None

26. With reference to the Nav Bharat Saksharta Karyakram, consider the following statement:

- It is a Centrally Sponsored Scheme.
- The scheme aligns with the recommendations of the National Education Policy (NEP) 2020.
- The scheme is to be implemented through volunteer teachers.

How many of the above statements are correct?

- (a) Only one (b) Only two
 (c) All three (d) None

27. Consider the following statements:

Statement-I

National Centre for Coastal Research (NCCR) is an attached office of the Ministry of Earth Sciences (MoES).

Statement-II

It is envisaged to develop and improve the country's capabilities in addressing the challenging problems prevailing in the coastal zone, which have societal, economic, and environmental implications.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
 (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
 (c) Statement-I is correct but Statement-II is incorrect
 (d) Statement-II is correct but Statement-I is incorrect

28. With reference to the Singhbhum Craton, consider the following statements:

- Singhbhum Craton lies between Satpura Mobile Belt in the east and the Eastern Ghat Mobile Belt in the south.
- It is separated from Bastar Craton by Mahanadi Graben.
- It is located in the northern parts of Odisha and Jharkhand.

How many of the above statements are correct?

- (a) Only one (b) Only two
 (c) All three (d) None

29. With reference to the Svalbard Global Seed Vault (Global Seed Vault), consider the following statement:

- The Svalbard Global Seed Vault is situated in permafrost caverns on an island located within the European mainland and the North Pole.
- The facility was established 16 years ago and is designed to store over 2 billion seeds.
- It is established and fully funded by the Government of Norway.

How many of the above statements are Not correct?

- (a) Only one (b) Only two
 (c) All three (d) None

30. With reference to Kocharab Ashram, consider the following statement:

- It was the first Ashram founded by Mahatma Gandhi in 1915.
- It is located on the banks of the Sabarmati River.
- It is managed as a memorial and tourist space by the Gujarat Vidyapeeth.

How many of the above statements are correct?

- (a) Only one (b) Only two
 (c) All three (d) None

ANSWER KEY

1. B	7. B	13. B	19. D	25. B
2. A	8. C	14. C	20. B	26. C
3. D	9. A	15. A	21. C	27. B
4. B	10. C	16. B	22. C	28. C
5. B	11. C	17. B	23. C	29. D
6. A	12. B	18. D	24. C	30. C



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